American Academy of Ophthalmology Staff

Dale E. Fajardo, EdD, MBA, Vice President, Education
Beth Wilson, Director, Continuing Professional Development
Ann McGuire, Acquisitions and Development Manager
Stephanie Tanaka, Publications Manager
Teri Bell, Production Manager
Susan Malloy, Acquisitions Editor and Program Manager
Jasmine Chen, Manager of E-Learning
Beth Collins, Medical Editor
Eric Gerdes, Interactive Designer
Naomi Ruiz, Publications Specialist
Debra Marchi, Permissions Assistant

Index by Michael Ferreira, San Marcos, California

Cover image: From BCSC Section 9, Uveitis and Ocular Inflammation. Large mutton-fat keratic precipitates in a patient with sarcoidosis. (Courtesy of Debra Goldstein, MD.)

American Academy of Ophthalmology
655 Beach Street
Box 7424
San Francisco, CA 94120-7424

The 2019–2020 BCSC* Master Index is available at aao.org/bcscmi.

Copyright © 2019 American Academy of Ophthalmology. All rights reserved. No part of this publication may be reproduced without written permission.
Basic and Clinical Science Course
2019–2020

Louis B. Cantor, MD, Indianapolis, Indiana, Senior Secretary for Clinical Education
Christopher J. Rapuano, MD, Philadelphia, Pennsylvania, Secretary for Lifelong Learning and Assessment
Colin A. McCannel, MD, Los Angeles, California, BCSC Course Chair

Section 1  Update on General Medicine
          Chair: Herbert J. Ingraham, MD, Danville, Pennsylvania
Section 2  Fundamentals and Principles of Ophthalmology
          Chair: Vikram S. Brar, MD, Richmond, Virginia
Section 3  Clinical Optics
          Chair: Scott E. Brodie, MD, PhD, New York, New York
Section 4  Ophthalmic Pathology and Intraocular Tumors
          Chair: Robert H. Rosa, Jr, MD, Temple, Texas
Section 5  Neuro-Ophthalmology
          Chair: M. Tariq Bhatti, MD, Durham, North Carolina
Section 6  Pediatric Ophthalmology and Strabismus
          Chair: Robert W. Hered, MD, Maitland, Florida
Section 7  Oculofacial Plastic and Orbital Surgery
          Chair: Bobby S. Korn, MD, PhD, La Jolla, California
Section 8  External Disease and Cornea
          Chair: Robert W. Weisenthal, MD, De Witt, New York
Section 9  Uveitis and Ocular Inflammation
          Chair: H. Nida Sen, MD, MHSc, Bethesda, Maryland
Section 10 Glaucoma
          Chair: Christopher A. Girkin, MD, Birmingham, Alabama
Section 11 Lens and Cataract
          Chair: Sharon L. Jick, MD, St Louis, Missouri
Section 12 Retina and Vitreous
          Chair: Colin A. McCannel, MD, Los Angeles, California
Section 13 Refractive Surgery
          Chair: M. Bowes Hamill, MD, Houston, Texas
Master Index

(f = figure; t = table. The BCSC Section number is indicated by the number preceding the period.)

A

A2E, 12.31
A constant, in IOL power determination/power prediction formulas, 11.85
A-pattern strabismus
clinical features of, 6.109
clinically significant, 6.109
definition of, 6.107
etiology of, 6.107–109, 6.108
horizontal rectus muscle transposition for, 6.112
identification of, 6.109
intortion as cause of, 6.107, 6.110
medial rectus muscle displacement for, 6.110, 6.111f
palpebral fissure slanting associated with, 6.196
superior oblique muscle overaction associated with, 6.107
superior oblique tenotomy for, 6.112
surgical treatment of, 6.112, 6.112f
A-R syndrome. See Axenfeld-Rieger syndrome
A-scan ultrasonography/echography, 2.463
in IOL power determination/selection, 11.82–83, 11.83
in primary congenital glaucoma, 10.160
in choroidal hemangioma, 4.281, 4.282
in choroidal melanoma/ciliary body melanoma, 4.265, 4.266
in metastatic eye disease, 4.307
a-wave
of ERG, 5.96, 12.46, 12.251. See also Electroretinography/electroretinogram
in rod–cone dystrophies, 12.261
AA. See Arachidonic acid
AAION. See Arteritic ischemic optic neuropathy, anterior
AAO. See American Academy of Ophthalmology
AAO Task Force on Genetic Testing, 2.240–241
AAP. See American Academy of Pediatrics
AAPOX. See Adult-onset asthma with periocular xanthogranuloma
AAV. See Adeno-associated virus
Ab externo approach
for IOL dislocation repair, 11.145, 11.147f
for trabeculectomy, in pediatric glaucoma, 10.160, 10.161–162, 10.162f, 10.163
Ab interno approach, for IOL dislocation repair, 11.145
Ab interno trabeculectomy, 6.287, 10.219
cataract surgery and, 11.186
Abatacept, 1.180, 2.406
for uveitis, 9.112
Abbe number
definition of, 3.195
of polycarbonate lenses, 3.196
ABC System (International Classification System for Intraocular Retinoblastoma), 4.297, 4.297t
ABC transporters/transporter protein. See ATP-binding cassette (ABC) transporters/transporter protein
ABCA4 gene, 6.339
description of, 2.308, 2.326, 2.328
retinopathy caused by, 12.31
in Stargardt disease, 4.168–169, 12.271
ABCC5 gene, in primary angle closure, 10.121
ABCC6 gene, 12.87
ABCD mnemonic for melanoma, 1.221
ABCR gene, 2.328
Abducens nerve. See Cranial nerve VI
Abduction
definition of, 6.33
extraocular muscles in, 5.46f
inferior oblique muscle, 5.46f
lateral rectus muscle, 5.46f
oblique muscles, 5.46f
superior oblique muscle, 5.46f
impaired, in younger patient, 5.201
lateral rectus muscle, 6.35f
nystagmus and (dissociated/disconjugate), 5.247
Aberrant nerve regeneration. See also specific nerve cranial nerve III (oculomotor), 5.197–198, 5.198f
anisocoria and, 5.265–266
light–near dissociation and, 5.266t, 5.267
cranial nerve VII (facial), 5.277
superior oblique myokymia and, 5.250
synkinesis and, 5.197, 5.271, 5.271t, 5.277
Aberrations. See also Wavefront aberrations; specific type
astigmatism
irregular, 13.17–19, 13.18f, 13.19f. See also Irregular astigmatism
regular, 13.17, 13.18f
chromatic, 3.40, 3.72, 3.166, 3.199
coma, 3.275f, 3.275–276, 13.9, 13.12, 13.12f, 13.103f
definition of, 3.39, 3.69
first-order, 13.11
fourth-order, 13.12, 13.12f
higher-order, 13.11–13, 13.12f, 13.13f
keratorefractive surgery and, 3.276–277
after LASIK, 13.11, 13.12, 13.102–103, 13.103f
pupil size and, 3.106
after surface ablation, 13.11, 13.12, 13.13, 13.102
topography-guided laser ablation and, 13.32, 13.77
Zernike polynomials and, 3.139
after LASIK, 13.11, 13.12, 13.102–103, 13.103f
lower-order, 13.11, 13.11f
measurement/graphical representations of, 13.9–10, 13.10f
after photoablation, 13.11–13, 13.102–103, 13.103f
piston, 13.11
Acanthamoeba, ACA. See AC/A ratio.

Abrasions, corneal, 4.13–14, 8.398–399

AbobotulinumtoxinA, 5.281, 7.269. See also Botulinum toxin.

Abnormal head position (AHP), in torticollis, 6.82

Ablepharon- macrostomia syndrome, 6.193

Ablepharon, 6.193


Acne

Absence seizures, 1.207

Absidia, 8.247, 8.251

Absolute risk reduction (ARR), 1.22

Absolute scotomas, 12.327

Absorptive lenses, 3.192–194, 3.193f. See also Sunglasses

Accessory ophthalmic artery, 2.23

Accessory molecules, helper T cell expression of, 9.31

Accommodative convergence/accommodation (AC/A) ratio

Accommodative convergence/vergence

AC/A. See Accommodative convergence/accommodation (AC/A) ratio

AC/A ratio. See Accommodative convergence/accommodation (AC/A) ratio

ACA. See Anterior cerebral artery

AICAID. See Anterior chamber-associated immune deviation

Acanthamoeba, 2.437

cysts, 8.252, 8.252f
description of, 3.229, 8.252, 8.252f
keratitis/ocular infection caused by, 4.78–79, 4.79f, 8.208f, 8.252, 8.276–279, 8.277–278f
confocal microscopy in diagnosis of, 8.24, 8.277, 8.278f
contact lens wear and, 4.78–79, 8.267, 8.277
herpes simplex keratitis differentiated from, 8.278
isolation techniques for diagnosis of, 4.79, 8.211
pathogenesis and, 8.207, 8.276
stains and culture media for identification of, 4.79, 8.209f, 8.277
treatment of, 8.277–279
stains and culture media for identification of, 4.79, 8.209f, 8.277

Acantholyis, definition of, 4.202

Acanthosis

in actinic keratosis, 4.211f
definition of, 4.202
in seborrheic keratosis, 4.209

ACC. See Adenoid cystic carcinoma; American College of Cardiology

Accelerated corneal crosslinking, 13.134. See also Corneal (collagen) crosslinking

Accessory lacrimal glands

of Krause, 4.202
of Wolfring, 4.202

Accessory molecules, helper T cell expression of, 9.31

Accommodating intraocular lenses, 3.261, 11.122, 11.122f, 13.8t, 13.154, 13.163–164, 13.164f

Accommodative convergence/accommodation (AC/A) ratio

of Wolfring, 4.202

of Krause, 4.202

of Wolfing, 4.202

Accessory molecules, helper T cell expression of, 9.31

Accessory ophthalmic artery, 2.23

Accessory molecules, helper T cell expression of, 9.31

Accommodating intraocular lenses, 3.261, 11.122, 11.122f, 13.8t, 13.154, 13.163–164, 13.164f

Accommodative convergence/accommodation (AC/A) ratio

of Wolfring, 4.202

of Krause, 4.202

of Wolfing, 4.202

Accessory molecules, helper T cell expression of, 9.31

Accessory ophthalmic artery, 2.23

Accessory molecules, helper T cell expression of, 9.31

Accommodating intraocular lenses, 3.261, 11.122, 11.122f, 13.8t, 13.154, 13.163–164, 13.164f


Aging effects on, 11.23, 13.159. See also Presbyopia

amplitude of, 6.188, 11.23
age-related changes in, 3.176, 3.176t
aging affecting, 11.23
definition of, 3.147
description of, 3.140
measurement of, 3.178–179
near point of accommodation for, 3.179
Prince rule for measuring, 3.179, 3.179f
ospheres method for measuring, 3.179
changes with, 11.22–23, 11.23f
nonorganic disorders and, 5.310
in children, 2.79
contact lenses and, 3.178, 3.208–211, 3.209f, 3.210f
definition of, 3.34, 3.123, 3.140
direct-acting cholinergic agonists’ effect on, 2.375
dynamic retinoscopy measurements of, 6.9
after fogging, 3.152, 3.160
Goldberg theory of reciprocal zonular action and, 13.162

Helmholtz hypothesis (capsular theory) of, 11.22, 13.159–160, 13.160f
hyaloanaccommodation, 6.9
in manifest refraction, 3.34–36
near point of
definition of, 3.140
measurement of, 3.179
pupil size effects on, 3.130
paralysis of, 3.174
presbyopia. See Presbyopia
range of, 3.140, 3.180
refractive error progression and, 3.144
relaxing of, 3.177. See also Cycloplegia/cycloplegics
Schachar theory of, 13.160–162, 13.161f
spasm of (ciliary muscle spasm), 3.176, 5.310
spectacle lens correction effects on, 3.178
stabilizing of, 3.177
theories of, 13.159–162, 13.160f, 13.161f

Ablepharon- macrostomia syndrome, 6.193
Acquired nonaccommodative esotropia
basic, 6.93
consecutive esotropia, 6.95
cycloidal esotropia, 6.93
description of, 6.92
divergence insufficiency, 6.94
near reflex spasm, 6.94
senescent esotropia, 6.93–94
types of, 6.86f
Acquired ocular motor apraxia, 5.223
Acquired optic disc pit, 10.49–50
Acquired pendular nystagmus, 5.246–247
Acquired ptosis. See Ptosis
Acquired strabismus, 6.16
Acquired vasoproliferative lesions, 12.168
Acquired strabismus, 6.16
See also
Acquired ptosis.
Acquired nonaccommodative esotropia
in lens, 11.21
epithelium as site of, 11.21
pump-leak theory and, 11.21, 11.22f
Activities of Daily Vision Scale (ADVS), 11.71
Acuity. See Visual acuity
Acuity meter, potential. See Potential acuity estimation/
potential acuity meter (PAM) testing
Acular. See Keratolac
Acular LS. See Keratolac
Acular PF. See Keratolac
Acute anterior uveitis. See Anterior uveitis, acute
Acute brainstem syndrome, 5.117t
Acute coronary syndromes (ACS). See also Coronary
heart disease
anticoagulants for, 1.93–94
definition of, 1.83
myocardial infarction. See Myocardial infarction
treatment of, 1.93–95
troponins associated with, 1.87
Acute dacryocystitis, 7.313–314
Acute diencephalic syndrome, 5.117t
Acute disseminated encephalomyelitis, optic nerve
involvement and, 4.244, 4.244f
Acute disseminated intravascular coagulation, 1.146
Acute exudative polymorphous vitelliform maculopathy, 12.287
Acute hemorrhagic conjunctivitis (AHC), 8.240, 8.240f
Acute idiopathic blind-spot enlargement (AIBSE), 5.100–101, 5.101f
fundus autofluorescence in identification of, 5.90
Acute idiopathic maculopathy (AIM), 12.228–229
Acute lymphoblastic leukemia, 6.413
Acute macular neuroretinopathy (AMN), 12.228
Acute macular neuroretinopathy (AMN), 12.229, 12.277
fundus autofluorescence in identification of, 5.90
multiple evanescent white dot syndrome and, 9.189
OCT in identification of, 5.92, 5.93f
Acute multifocal posterior placoid pigment
epitheliopathy (AMPPPE). See Acute posterior
multifocal placoid pigment epitheliopathy
Acute myocardial infarction. See also Myocardial
infarction
description of, 1.83
non–ST-segment elevation, 1.83
Acute paralytic strabismus, 6.175
Acute paralytic strabismus, 6.175
Acute posterior multifocal placoid pigment
epitheliopathy (APMPPE), 12.220f, 12.221f, 12.221–222
cerebral vasculitis and, 9.170
characteristics of, 9.162–164t
definition of, 9.169
diagnosis of, 9.170–172, 9.171–172f
fluorescein angiography findings in, 9.163t, 9.170, 9.171f
fundus autofluorescence findings in, 9.163t, 9.171, 9.172f
indocyanine green angiography findings in, 9.163t, 9.170, 9.171f
posterior uveitis in, 9.169–174, 9.170–173f
prognosis for, 9.172–173
Acute posterior multifocal placoid pigment
epitheliopathy (APMPPE), 12.220f, 12.221f, 12.221–222
cerebral vasculitis and, 9.170
characteristics of, 9.162–164t
definition of, 9.169
diagnosis of, 9.170–172, 9.171–172f
fluorescein angiography findings in, 9.163t, 9.170, 9.171f
indocyanine green angiography findings in, 9.163t, 9.170–171, 9.171f
manifestations of, 9.170, 9.170f
medical management of, 9.93
optical coherence tomography findings in, 9.164t, 9.171, 9.172f
posterior uveitis in, 9.169–174, 9.170–173f
prognosis for, 9.172–173
ADAMTS13, thrombotic thrombocytopenic purpura, 9.173f
serpiginous choroiditis versus, 9.171
systemic conditions associated with, 9.169–170
vision loss risk factors in, 9.172–173
Acute respiratory distress, 6.230
Acute retinal pigment epitheliitis (ARPE), 9.162–164f, 9.189f, 9.189–190
Acute spastic entropion, 7.237
Acute symptomatic flap tears. See Flap tears
Acute sphyilitic posterior placoid chorioretinitis (ASPPC), 12.241
Acute sphyilitic retinitis, 9.222, 9.224f
Acute thyroiditis, 1.45
Acute thyroiditis, 1.45
Acute zonal occult outer retinopathy (AZOOR), 5.101
Acute zonal occult outer retinopathy (AZOOR), 5.101
Acyclovir, 8.215f
Acuvail. See Ketorolac
Acyl ureidopenicillins, 1.272
ADAMTS4 gene, 6.268
Adaptation
dark. See also Dark adaptation
in electro-oculography, 12.50
in full-field (Ganzfeld) electroretinography, 12.42
light. See also Light adaptation
in electro-oculography, 12.50
in full-field (Ganzfeld) electroretinography, 12.42
Adaptive immune response/adaptive immunity. See also Immune response; Immune response arc
Adjuvant therapy
conjunctiva and, 9.53
definition of, 9.1
description of, 1.246
ADCC.
Accurate AKEP for Behçet disease
inflammatory bowel disease, 9.214
verse
inflammatory bowel disease, 9.214
innate immune response versus, 9.27
Antibody-dependent cellular cytotoxicity, 9.47–48
Antibody-mediated, 9.39f, 9.39–42, 9.40f
lymphocyte-mediated, 9.42–46, 9.43f, 9.44f
natural killer cells in, 9.46
types of, 9.38f
innate immune response versus, 9.27
Adaptive optics scanning laser ophthalmoscope, of
macula, 12.13f
Adaptive T regulatory cells, 9.34
ADC. See Apparent diffusion coefficient
ADC mapping. See Apparent diffusion coefficient (ADC) technique/mapping
ADCC. See Antibody-dependent cellular cytotoxicity
Add power
diffusion power, 3.30f
higher, for low vision, 3.320
Additions
near-point, 3.37
progressive. See Progressive addition lenses
Additive interference, 3.100
Adduction
definition of, 6.33
extraocular muscles in, 5.46f
inferior rectus muscle, 5.46f
medial rectus muscle, 5.46f
superior rectus muscle, 5.46f
nystagmus and (dissociated/disconjugate), 5.247
overdepression in
causes of, 6.17, 6.116f, 6.116–118
description of, 6.17
pattern strabismus and, 6.107, 6.108f, 6.109
superior oblique muscle overaction as cause of, 6.118, 6.118f, 6.137
overelevation in
causes of, 6.17, 6.116f, 6.116–118
description of, 6.17
inferior oblique muscle overaction as cause of, 6.117f, 6.117–118
pattern strabismus and, 6.107, 6.108f, 6.109
underdepression in, 6.17
undererelevation in, 6.17
Adefovir, 1.279
Adelphi. See Vidarabine
Adeno-associated virus (AAV)
description of, 9.58
vectors for, 2.194, 2.196
Adenocarcinoma, 4.10, 4.10
esophageal, 1.219
paranasal sinuses, 7.102
retinal pigment epithelium, 4.180, 4.279
sebaceous, 4.210t, 4.215–218, 4.216f, 4.217f, 8.327, 8.337–338
Adenoid cystic carcinoma (ACC/cylindroma)
description of, 7.100, 7.193, 7.193f
of lacrimal gland, 4.230–231, 4.231f
Adenoma, 4.10, 4.10
Fuchs (pseudoadenameous hyperplasia), 4.179, 4.279
gonadotroph, 1.48
null-cell, 1.48
pituitary, 1.47–49
chiasmal syndromes caused by, 5.147, 5.148f
neuroimaging in evaluation of, 5.72r, 5.92f, 5.93–94f
in pregnancy, 5.147, 5.333
pleomorphic (benign mixed tumor)
description of, 7.98–100, 7.99f, 7.192
of lacrimal gland, 4.229–230, 4.230f
plurithoronal, 1.48
retinal pigment epithelium, 4.180, 4.279
sebaceous (sebaceum), 4.210t, 4.215, 4.216f, 7.191
in tuberous sclerosis, 5.331
thyroid, 1.46
of uvea retina, 4.279
Adenomatous polyposis, familial (FAP/Gardner syndrome)
description of, 6.349, 6.350f
retinal manifestations of, 4.144–145, 4.269,
12.285–286
Adenosine triphosphate (ATP), 2.287, 2.290f, 2.311
Adenoviral conjunctivitis, 2.38
Adenoviruses (Adenoviridae)/adenoviral infection, 8.208t, 8.233–236, 29.72
conjunctivitis, 4.52, 6.241–242, 8.208t, 8.233, 8.234f,
8.234–236, 8.235f
acute hemorrhagic conjunctivitis, 8.240
cicatricial conjunctivitis differentiated from, 8.301f
description of, 6.349, 6.351f, 8.234f,
8.234–236, 8.235f
folicular conjunctivitis, 8.233, 8.234
herpes simplex infection differentiated from, 8.213–214
keratitis caused by, 6.269
pharyngocconjunctival fever caused by, 6.242, 8.233–234
Adenylate cyclase, 2.385
Adherence issues (therapy)
in glaucoma management, 10.184
in elderly patients
glaucoma surgery and, 10.221
medication use and, 10.186
in ocular infection, 8.206
Adherence syndrome, 6.172
Adhesins, 8.206–207, 8.244
Adie tonic pupil, 5.256f, 5.263, 5.263–265, 5.264f, 5.265f
light–near dissociation and, 5.263, 5.264f, 5.266f
pharmacologic testing for, 5.256f, 5.264–265, 5.265f
pilocarpine for diagnosis of, 2.377
Adipose tissue, in orbit, 6.18
Adipose tumors, of orbit, 4.238
Adips, 7.274
Adjustable sutures, in extraocular muscle surgery, 6.165
Adjuvant chemotherapy, 1.239
Adnexa. See Ocular adnexa
ADOA. See Autosomal dominant optic atrophy
Adolescents. See also Children
bacterial conjunctivitis in, 6.240f, 6.240–241
glaucoma in, 10.147–167. See also Glaucoma, pediatric hypertension in, 1.68
myopia in, 3.142
perioperative management for ocular surgery in, 1.283
Adrenaline. See Epinephrine
Adrenergic agents. See also Alpha (α)-adrenergic agents;
Beta (β)-blockers; specific agent
angle closure caused by, 10.122
β-, 2.387–390, 2.389f
for glaucoma, 10.176–179
agonists, 10.172t, 10.177–179, 10.178f
antagonists/β-blockers, 10.164–165, 10.171–172t,
10.176–177
ocular surface toxicity of, 8.90t
inhibitors. See Alpha (α)-blockers; Beta (β)-blockers
overview of, 2.382, 2.384
Adrenergic agonists
α1- direct-acting, 2.384
α2, 2.385–386
β1, 1.128, 2.385f, 2.387–389
indirect-acting, 2.387
Adrenergic receptors (adrenoceptors). See also specific type
α1, 2.382
α2, 2.382, 2.385
β1, 2.382, 2.383f
β2, 2.382, 2.383f
β3, 2.382
categories of, 2.382
drugs affecting. See Adrenergic agents
sites of, 2.382, 2.384
Adrenoceptors. See Adrenergic receptors
(adrenoceptors)
Adrenochrome deposition
description of, 8.118f, 8.131f, 8.131–132
epinephrine causing, 8.131, 10.31
ADRP. See Autosomal dominant retinitis pigmentosa
Adult cystinosis (nonnephropathic cystinosis), 8.181, 8.181f
Adult inclusion conjunctivitis, 6.241
Adult-onset asthma with periocular xanthogranuloma (AAPOX), 7.97
Adult-onset diabetes. See Diabetes mellitus (DM), type 2
Adult-onset foveomacular vitelliform dystrophy
(AMFVD), 4.170, 4.171f, 12.272, 12.276
Adult-onset myopia, 3.143
Adult-onset vitelliform lesions, 12.272, 12.273f
Adult-onset vitelliform maculopathy
fluorescein angiography of, 12.68
spectral-domain optical coherence tomography of,
12.67–68, 12.68f
Adult-onset xanthogranuloma (AOX), 7.97
Adult T-cell leukemia/lymphoma, 9.265, 9.266f
Adult Treatment Panel (ATP), 1.71, 1.74
Advanced cardiac life support (ACLS), 1.299
Advanced Glaucoma Intervention Study (AGIS), 10.113–115
Advanced glycation cross-link breakers, 1.65
Advanced glycation end products (AGEs), 1.65, 2.345
Advanced glycation cross-link breakers, 1.65
Advanced glaucoma intervention study (AGIS), 10.91
Advanced cellular growth factors.
Advanced cardiac life support (ACLS), 1.299
Adult Treatment Panel (ATP), 1.71, 1.74
Adult T- cell leukemia/lymphoma, 9.265, 9.266f
Against movement, in retinoscopy, 3.152, 3.153f, 3.155
Against-the-rule astigmatism, 3.123, 3.139, 3.250, 8.31, 8.32f, 8.33f
Age/aging
accommodation affected by, 3.176f
accommodative response/presbyopia and, 1.183–184
Age-related cataracts
central retinal vein occlusion and, 12.133
central serous chorioretinopathy and, 12.189
choroidal thickness affected by, 12.19, 12.212
ciliary body hyalinization and, 4.189, 4.189f
of conjunctiva, 8.112
of cornea
donor corneas and, 8.414, 8.416
endothelial cell density and, 8.10, 8.23
senile furrow degeneration and, 8.122
depression associated with, 1.188–190
eye changes secondary to, 1.183–184
giant cell arteritis and, 5.288
glaucoma and
angle-closure, 10.9, 10.81
antiglaucoma medication/carbonic anhydrase inhibitor use and, 10.186
open-angle, 10.7, 10.81–82
surgery and, 10.221
intraocular pressure affected by, 10.22, 10.81–82
lens changes associated with, 11.11, 11.43–48. See also
Age-related cataracts; Presbyopia
lens proteins affected by, 11.17
macular changes associated with. See Age-related macular degeneration/maculopathy
near-point additions based on, 3.37
ocular hypertension and, 10.81
open-angle, 10.7, 10.81–82
outflow facility affected by, 10.19
physiology, 1.183–184
posterior vitreous detachment associated with, 4.129, 12.307–308
presbyopia and. See Presbyopia
pseudoexfoliation/exfoliation syndrome and, 10.91
psychology of, 1.188–190
ptosis and, 5.273
refractive surgery and, 13.38
epithelial defects in LASIK and, 13.112
overcorrection in photoablation and, 13.101
radial keratotomy and, 13.50
re-treatments/enhancement and, 13.98
of sclera, 4.111, 4.111f, 8.128, 8.129f
syneresis and, 4.128, 4.129f
trabecular meshwork and, 10.18
transient visual loss and, 5.161
wavefront aberrations and, 13.11
Age-related cataracts, 11.5, 11.43–48. See also specific type
cortical, 11.45–46, 11.46f, 11.47f, 11.48f, 11.49f, 11.50f
in diabetes mellitus, 11.60
epidemiology of, 11.5
genetic contributions to, 11.41–42
indications for surgery and, 11.72
nuclear, 4.123, 4.124f, 11.43–45, 11.45f
nutritional deficiency and, 11.7, 11.63–64
posterior subcapsular, 11.46–48, 11.51f
Age-related distance esotropia, 16.94
Age-Related Eye Disease Study (AREDS), 2.340, 2.346, 11.7, 11.63, 12.64, 12.69–71, 12.70f
Age-Related Eye Disease Study 2 (AREDS2), 1.79
Age-related macular degeneration/maculopathy (AMD/ARMD), 3.315, 4.160–166, 4.161–165
adult-onset foveomacular vitelliform dystrophy versus, 12.272, 12.273f
aging as cause of, 12.61
antiangiogenic/anti-VEGF agents for, 4.164
blindness caused by, 12.61
Bruch membrane calcification in, 12.19
cataract surgery effects on, 12.71
central blindness progression of, 12.86
central serous chorioretinopathy versus, 12.67, 12.76, 12.79
choroidal neovascularization in, 12.64. See also Choroidal neovascularization
clinical studies of. See specific study
depression associated with, 12.61
drusen associated with, 4.160–163, 4.161–165f, 4.162f
exudative, 12.79
obstructive sleep apnea and, 12.62
genetic factors/testing in, 4.160, 12.63
genome-wide association studies for, 2.193
indocyanine green applications in, 2.444
low vision therapies and rehabilitation, 12.86
management of, 12.68–71, 12.79–86, 12.81f, 12.82f, 12.84f
Manhattan plot for, 2.193f
melanoma differentiated from, 4.269, 4.270f
neovascular ("wet"/exudative), 2.449, 4.154f, 4.164–166, 4.165f. See also Neovascular ("wet"/exudative) age-related macular degeneration
afiblercept for, 12.82–83
AmSler grid testing of, 12.71
antiangiogenic therapies for, 12.79–80
bevacizumab for, 12.83–85, 12.84f
choroidal neovascularization associated with, 12.71–79. See also Choroidal neovascularization
combination treatment for, 12.85
differential diagnosis of, 12.76, 12.79
intravitreal injections, 12.85
laser photocoagulation for, 12.79
low vision therapies for, 12.86
macular translocation surgery for, 12.85
management of, 12.79–86, 12.81f, 12.82f, 12.84f
pegaptanib for, 12.80
photodynamic therapy for, 12.79
polypoidal choroidal vasculopathy, 12.75
prevalence of, 12.61
ranibizumab for, 12.80–82, 12.82f
signs and symptoms of, 12.71
submacular hemorrhage in, 12.85, 12.385
surgical treatment for, 12.85–86
Age/aging. See Aging
Age-related macular degeneration. See Macular degeneration
Age-Related Eye Disease Study (AREDS), 2.340, 2.346, 11.7, 11.63, 12.64, 12.69–71, 12.70f
Age-Related Eye Disease Study 2 (AREDS2), 1.79
Age-related macular degeneration/maculopathy (AMD/ARMD), 3.315, 4.160–166, 4.161–165f
adult-onset foveomacular vitelliform dystrophy versus, 12.272, 12.273f
aging as cause of, 12.61
antiangiogenic/anti-VEGF agents for, 4.164
blindness caused by, 12.61
Bruch membrane calcification in, 12.19
cataract surgery effects on, 12.71
central blindness progression of, 12.86
central serous chorioretinopathy versus, 12.67, 12.76, 12.79
choroidal neovascularization in, 12.64. See also Choroidal neovascularization
clinical studies of. See specific study
depression associated with, 12.61
druse associated with, 4.160–163, 4.161–165f, 4.162f
exudative, 12.79
obstructive sleep apnea and, 12.62
Age-Related Eye Disease Study (AREDS), 2.340, 2.346, 11.7, 11.63, 12.64, 12.69–71, 12.70f
druse associated with, 4.160–163, 4.161–165f, 4.162f
Age-Related Eye Disease Study 2 (AREDS2), 1.79
genetic factors/testing in, 4.160, 12.63
genome-wide association studies for, 2.193
indocyanine green applications in, 2.444
differential diagnosis of, 12.67–68
disproven treatment approaches for, 12.71
Drusen associated with. See Drusen
education regarding, 12.68f
focal atrophy in, 12.66
follow-up for, 12.68
geographic atrophy in, 12.64, 12.66, 12.67f, 12.68
hydrochloroquine toxicity versus, 12.68
hyperacuity testing for, 12.69
lifestyle changes for, 12.71
management of, 12.68–71, 12.79–86, 12.81f, 12.82f, 12.84f
Manhattan plot for, 2.193f
melanoma differentiated from, 4.269, 4.270f
neovascular ("wet"/exudative), 2.449, 4.154f, 4.164–166, 4.165f. See also Neovascular ("wet"/exudative) age-related macular degeneration
afiblercept for, 12.82–83
AmSler grid testing of, 12.71
antiangiogenic therapies for, 12.79–80
bevacizumab for, 12.83–85, 12.84f
choroidal neovascularization associated with, 12.71–79. See also Choroidal neovascularization
combination treatment for, 12.85
differential diagnosis of, 12.76, 12.79
intravitreal injections, 12.85
laser photocoagulation for, 12.79
low vision therapies for, 12.86
macular translocation surgery for, 12.85
management of, 12.79–86, 12.81f, 12.82f, 12.84f
pegaptanib for, 12.80
photodynamic therapy for, 12.79
polypoidal choroidal vasculopathy, 12.75
prevalence of, 12.61
ranibizumab for, 12.80–82, 12.82f
signs and symptoms of, 12.71
submacular hemorrhage in, 12.85, 12.385
surgical treatment for, 12.85–86
shape-discrimination hyperacuity for, 12.69
statins and, 1.78–79
susceptibility genes for, 12.63
vascular endothelial growth factor inhibitors for, 2.449
vision loss caused by, 1.184
Agnosia
object, 5.179
parietal lobe lesions and, 5.156
Agnostic (drug), 6.33
definition of, 2.367
AGIs. See Advanced glycation end products
Aggressive posterior retinopathy of prematurity (AP-ROP), 6.326, 6.327f, 6.330f, 6.333, 12.177, 12.178f
Aging. See Age/aging
Aging face
pathogenesis of, 7.267
physical examination of, 7.267–268
rejuvenation techniques for. See Facial rejuvenation
AGIS (Advanced Glaucoma Intervention Study), 10.113–115
AgKs. See Antigenic keratan sulfate
Agnosia
object, 5.179
parietal lobe lesions and, 5.156
Agonist (drug), 6.33
definition of, 2.367
direct-acting
acetylcholine, 2.375–377
actions of, 2.375
adverse effects of, 2.378
indications for, 2.378
pilocarpine, 2.377–378
indirect-acting, 2.379
mechanism of action, 2.374–375
Agenesis
corpus callosum, 6.361
definition of, 6.183t
AGEs. See Advanced glycation end products
AGEs. See Advanced glycation end products
AGIS (Advanced Glaucoma Intervention Study), 10.113–115
AgKs. See Antigenic keratan sulfate
Agnosia
object, 5.179
parietal lobe lesions and, 5.156
Agonist (drug), 6.33
definition of, 2.367
direct-acting
acetylcholine, 2.375–377
actions of, 2.375
adverse effects of, 2.378
indications for, 2.378
pilocarpine, 2.377–378
indirect-acting, 2.379
mechanism of action, 2.374–375
Airway devices, 1.298
Airway inflammation, eosinophilic, 1.124
Airy disc, 3.106
AJCC (American Joint Committee on Cancer), on staging of ocular tumors, 4.253–254
AK. See Arcuate keratotomy; Astigmatic keratotomy
Ak-Cide. See Prednisolone; Prednisolone sodium phosphate/sulfacetamide sodium in combination preparations
Ak-Con. See Naphazoline hydrochloride
Ak-Dex. See Dexamethasone
Ak-Dilate. See Phenytoin
Ak-Mycin. See Erythromycin
Ak-Pentolate. See Cycloplontolate hydrochloride
Ak-Poly-Bac. See Polymyxin B sulfate/bacitracin zinc
Ak-Pred. See Prednisolone
Ak-Spor. See Hydrocortisone/neomycin sulfate/polymerin B sulfate/bacitracin zinc
Ak-Sulf. See Sulfacetamide
Ak-T-Caine. See Tetraacaine
Ak-Tob. See Tobramycin
Ak-Tracin. See Bacitracin zinc
Ak-Trol. See Dexamethasone/neomycin sulfate/polymeriz in B sulfate
Akarpine. See Pilocarpine
AKC. See Atopic keratoconjunctivitis
Akinetopsia, 5.179
Al. See Axial length
Albinism, 4.142, 4.142
Albendazole
for diffuse unilateral subacute neuroretinitis, 9.288
for visceral toxocariasis, 9.284
Albinism, 4.142, 4.142f, 12.288
definition of, 6.406
description of, 2.205
diagnosis of, 6.406–408
enzymes that cause, 2.204
iris transillumination associated with, 4.142, 4.142f, 6.265, 6.406, 6.407f
pattern-appearance visual evoked potentials in, 12.53
treatment of, 6.408
types of, 6.408f
Albinoidism, 12.288
Albright syndrome/hereditary osteodystrophy, 7.89, 8.191f
Albumin
in aqueous humor, 10.16
serum, 2.298
Alcaftadine, 2.412f
Alcaine. See Proparacaine
Alcian blue stain, 4.31f
Alcohol (ethanol)
use/abuse of
cataract formation and, 11.63–64
intraocular pressure and, 10.22
optic neuropathy caused by, 5.137, 5.138
vitamin A deficiency and, 8.196
Alcohol withdrawal syndromes, 1.68
Aldehyde dehydrogenase, 2.260
Aldose reductase, 2.289–290
in cataract formation, 11.19
in lens glucose/carbohydrate metabolism, 11.18f, 11.19
Aldose reductase inhibitors
cataract prevention/management using, 11.72
description of, 1.40
Alemzrumahab, 1.180
for multiple sclerosis, 5.321t
Alexander's law, 5.240, 5.242, 6.147
Alexia
with aphasia, 5.179
without aphasia, 5.179, 5.180f
Allentan, 1.290
Alfuzosin, intraoperative floppy iris syndrome and,
Alfentanil, 1.290
Allergic aspergillosis
description of, 7.52
sinusitis, 5.353
Allergic conjunctivitis, 2.411–412, 2.412t, 6.246f, 6.246–248, 8.288–289, 9.2
cicatricial conjunctivitis differentiated from, 8.301t
perennial, 8.288–289
Allergic fungal sinusitis, orbital involvement and, 4.228
Allergic immune reactions, 9.2
Allergic keratoconjunctivitis
topic, 8.292–294, 8.293f
vernal, 8.289–292, 8.290f, 8.291f
Allergic reactions/allergies. See also Hypersensitivity
reactions; specific reaction or allergy
to adrenergic agonists, 10.178f, 10.178–179
to carbonic anhydrase inhibitors, 10.180
conjunctivitis, 8.288–289. See also Conjunctivitis, allergic
cicatrical conjunctivitis differentiated from, 8.301t
Allergen
atopic dermatitis, 8.292–294, 8.293f
cicatricial conjunctivitis differentiated from, 8.301t
Allergens. See also Allergic reactions/allergies
avoidance of
in atopic dermatitis, 8.287
in atopic keratoconjunctivitis, 8.293
in contact dermatitis, 8.287
in hay fever conjunctivitis, 8.288
Allergens, see also Allergic reactions/allergies
avoidance of
in atopic dermatitis, 8.287
in atopic keratoconjunctivitis, 8.293
in contact dermatitis, 8.287
in hay fever conjunctivitis, 8.288
in atopic dermatitis, 8.287
in atopic keratoconjunctivitis, 8.293
in contact dermatitis, 8.287
in hay fever conjunctivitis, 8.288
Allergens, see also Allergic reactions/allergies
avoidance of
in atopic dermatitis, 8.287
in atopic keratoconjunctivitis, 8.293
in contact dermatitis, 8.287
in hay fever conjunctivitis, 8.288
in atopic dermatitis, 8.287
in atopic keratoconjunctivitis, 8.293
in contact dermatitis, 8.287
in hay fever conjunctivitis, 8.288
in atopic dermatitis, 8.287
in atopic keratoconjunctivitis, 8.293
in contact dermatitis, 8.287
in hay fever conjunctivitis, 8.288
in atopic dermatitis, 8.287
in atopic keratoconjunctivitis, 8.293
in contact dermatitis, 8.287
in hay fever conjunctivitis, 8.288
in atopic dermatitis, 8.287
in atopic keratoconjunctivitis, 8.293
in contact dermatitis, 8.287
in hay fever conjunctivitis, 8.288
Alpha (α)-adrenergic receptors (adrenoceptors)
  α1-adrenergic receptors, 2.382
  description of, 2.382
  ligand binding to, 2.385
Alpha (α)-antitrypsin
deficiency of, 1.124
description of, 2.276
Alpha (α)-blockers
  α1-blockers
  "first-dose effect," 1.63
  hypertension treated with, 1.62–63
  intraoperative floppy iris syndrome and, 11.74, 11.136–137, 11.137
  t
Alpha chemokines, 9.23
Alpha (α)-chymotrypsin, for ICCE, 11.195, 11.200
Alpha (α)-crystallins, 11.15, 11.15
  f, 11.15–16
Alpha (α)-galactosidase A, in Fabry disease, 8.176, 8.177, 8.178
Alpha (α)-hemolytic bacteria, infectious pseudocystalline/crystalline keratopathy caused by, 4.79, 8.268, 8.268
  t
Alpha (α)-iduronidase, 2.214
Alpha (α)-l-fucosidase, defective/deficiency of, in fucosidosis, 8.179
Alpha (α)- interferon
  for Mooren ulcer, 8.316
  for ocular surface tumors, 8.327, 8.330, 8.330
  f, 8.331, 8.331
  conjunctival papilloma, 8.238–239, 8.239, 8.333
  optic neuropathy caused by, 5.137
Alpha (α)-zone peripapillary atrophy, 10.52
Alphagan/Alphagan P.
  See Brimonidine tartrate
Alphavirus, 12.247
Alport disease/syndrome, 4.118, 6.391
  lenticonus in, 4.118, 11.30
  pleiotropism in, 2.220
Alprazolam, 1.308
Alrex.
  See Loteprednol etabonate
Altace.
  See Ramipril
Altacaine.
  See Tetracaine
Altafrin.
  See Phenylephrine
Alteplase.
  See Tissue plasminogen activator
Altered self, 9.30
Alternaria, 8.251
Alternate cover test
description of, 6.65–66, 6.66f
  exodeviation evaluations, 6.100
  prism, 6.65–66, 6.66f
Alternate occlusion, for binocular balance, 3.167–168
Alternating fixation, 6.16
Alternating heterotropia, 6.64
Alternating nystagmus, periodic (PAN), 5.243t, 5.245–246, 6.149
Alternating skew deviation, 5.216
Alternating suppression, 6.49
Alternating vision bifocal lenses, 3.224f, 3.224–225
Alternative hypothesis, 1.5
Alternative pathway activation, of complement, 9.17, 9.18f
Alternative payment models (APMs), 1.32
Alternative splicing, 2.179
Altitudinal defect, 5.103, 5.105t, 5.106f
  in glaucoma, 10.69, 10.70f
ALTK. See Anterior lamellar keratoplasty (ALK), therapeutic
Alu sequence, 2.217
Aluminum, in intraocular foreign body, 12.362
Alveolar macrophages, 9.3
Alveolar nerves, posterior, 5.49
Alveolar rhabdomyosarcoma, 4.236, 4.237f, 7.88
Alzheimer disease (AD), 1.209–210
Amacrine cells, 2.316, 5.24
  description of, 12.15
  illustration of, 12.15f
Almárci triangles, 12.198
Amanitine, 1.205, 1.279
  See also Monocular transient visual loss
  Horner syndrome and, 5.261
  stroke and, 5.167, 5.168–169
  See also Leber congenital amaurosis
  infantile nystagmus syndrome and, 5.236
Amblyopia, 7.180, 7.243
  in accommodative esotropia, 6.91
  afferent pupillary defects in, 6.56
  anisometropic, 3.175
  clinical features of, 6.54–55
  critical period for, 6.45
  occlusion therapy for, 6.58
  refractive surgery and, 13.185–187
  strabismus amblyopia versus, 6.54–55
  bilateral, 3.175
  cataracts as cause of congenital, 6.55
  removal of, 6.57
  causes of, 6.45–46
  classification of, 6.54–56
  contrast sensitivity curve affected by, 3.136
  corneal opacities as cause of, 6.262
  corneal transplantation and, 8.450
  crowding phenomenon associated with, 6.56
  definition of, 6.5, 6.53
  deprivation. See Amblyopia, visual deprivation
detection of, 6.56
diagnosis of, 6.56–57
epidemiology of, 6.53
evaluation of, 6.56–57.
  See also Ocular motility, assessment of
  extraocular muscle surgery in, 6.160
  fixation preference testing, 6.56–57
  grating acuity associated with, 6.54, 6.56–57
  infantile esotropia and, 6.87–89
  isometropic, 6.55
  meridional, 6.46
  monofixation syndrome and, 6.52
  near vision vs. distance vision in, 3.25
occlusion therapy for, 6.58, 6.96, 6.102
optical defocus caused by, 6.45
pathophysiology of, 6.53–54
in pediatric glaucoma, 10.166
post–cataract surgery management of, 6.304
prevalence of, 6.53
recurrence of, 6.61
refractive, 3.175, 6.54–55
refractive surgery and, 13.185–187
reverse, 6.55–56, 6.59–60
screening for, 6.56
severity assessments, 6.56–57
strabismic
anisometropic amblyopia versus, 6.54–55
clinical features of, 6.54
critical period for, 6.45
development of, 6.46–47
eccentric fixation in, 6.54
grating acuity associated with, 6.54, 6.56
occlusion therapy for, 6.58
pathophysiology of, 6.54
visual acuity in, 6.54
with third nerve palsy, 6.138
trauma as cause of, 6.375
treatment of
atropine sulfate, 6.59
binocular, 6.59
cataract removal, 6.57
challenges associated with, 6.59–61
complications of, 6.59–61
cycloplegics, 6.59
lack of adherence to, 6.60
occlusion therapy, 6.58, 6.96
optical, 6.58–59
pharmacologic, 6.58–59
plus lenses, 6.59
recurrence of, 6.61
refractive correction, 6.57–58
strabismus secondary to, 6.59–60
termination of, 6.61
unresponsiveness to, 6.60–61
uncorrected anisometropia as cause of, 3.139
unresponsiveness of, to treatment, 6.60–61
vision development and, 6.53
vision loss associated with, 6.53, 6.56
visual acuity and, 3.23, 6.56
visual deficits caused by, 6.53–54
visual deprivation
causes of, 6.55
congenital cataracts as cause of, 6.55
congenital neovascular nevi as cause of, 6.200
corneal blood staining as cause of, 6.379
critical period for, 6.53
reverse amblyopia, 6.55–56
Amblyoscope ex anopsia. See Deprivation amblyopia
Amblyoscope ex anopsia
Amblyoscope major, 6.70, 6.70f
Amblyoscope testing
description of, 6.51
sensory adaptation assessments using, 6.79–80
Ambulatory blood pressure measurement (ABPM), 1.52
Ambulatory surgical center, ocular surgery in, 1.281
AMD. See Age-related macular degeneration/
maculopathy
Amebic keratitis, 4.78–79, 4.79f, 8.208, 8.252, 8.276–279, 8.277f, 8.278f. See also Acanthamoeba, keratitis/
ocular infection caused by
Amelanotic choroidal masses, 4.263, 4.264f, 4.306, 4.306f
differential diagnosis of, 4.272f
Amelanotic conjunctival nevus, 4.63, 8.340, 8.340f
Amelanotic melanoma, 4.68, 4.263, 4.264f, 4.272f, 8.343, 8.344f
Amelogenesis imperfecta, 12.286
American Academy of Ophthalmology (AAO)
Initiative in Vision Rehabilitation, 6.189
Initiative in Vision Rehabilitation page on the One
Network, 1.185, 4.254, 6.189, 11.71, 12.68, 12.86, 12.260
IRIS (Intelligent Research in Sight) Registry of, 1.26
K-Card developed by, 13.194
Preferred Practice Pattern guidelines, 1.26, 1.196, 3.311, 3.329
retinopathy of prematurity screening guidelines, 6.329
vision rehabilitation guidelines from, 6.189
wrong-site surgery checklist, 1.289
American Academy of Pediatrics (AAP)
retinopathy of prematurity screening guidelines, 6.329
uveitis screening in juvenile idiopathic arthritis, 6.314
American Association for Pediatric Ophthalmology and
Strabismus retinopathy of prematurity screening
guidelines, 6.329
American Cancer Society (ACS)
colorectal cancer screening recommendations of, 1.219
mammography recommendations of, 1.217
American College of Cardiology (ACC)
blood pressure classification guidelines, 1.52
hypertension and
definition of, 1.214
treatment guidelines, 1.57
statin guidelines of, 1.76–77
American Heart Association (AHA)
advanced cardiac life support guidelines, 1.299
blood pressure classification guidelines, 1.52
hypertension and
definition of, 1.214
treatment guidelines, 1.57
statin guidelines of, 1.76–77
American Joint Committee on Cancer (AJCC), on
staging of ocular tumors, 4.253–254
American National Standards Institute (ANSI),
intraocular lens standards, 3.263–264
American Society of Anesthesiologists Physical Status
(ASA-PS), 1.282
American Society of Cataract and Refractive Surgery
(ASCRS), online post-refractive calculator, 13.52, 13.195–197, 13.196f
American Society of Ocularists, 7.141
American Uveitis Society, 9.250, 9.250t
Ametropia. See also Refractive errors
  axial, 3.137
  correction of
    in children, 3.174–175
    spectacle
      cylindrical correcting lenses for, 3.173
      far point, 3.170, 3.170f
      spherical correcting lenses, 3.170, 3.170f
      vertex distance, 3.170–173, 3.171–172f
    definition of, 3.136, 3.170
    refractive, 3.137, 3.257
    undercorrection in photoablation and, 3.102
  Amifampridine, for nystagmus, 5.245
  Amikacin, 2.418, 2.425, 12.300
  Amiodarone
  4-Aminopyridine, for nystagmus, 5.245
  See also Aminoglycosides, 1.275, 2.425–426, 12.300
  Aminocaproic acid/β-aminoacaproic acid, for hyphema, 8.395, 10.105
  Aminoglycosides, 1.275, 2.425–426, 12.300. See also specific agent
    for Acanthamoeba keratitis, 8.278
    for fungal infections, 1.258, 1.277
    for fungal endogenous endophthalmitis, 12.239
    for fungal infections, 1.258, 1.277
    for fungal keratitis, 8.275
  Ampicillin
dental prophylaxis uses of, 1.248t
  description of, 2.418t, 2.419
  Amphotericin B, 2.429, 2.430t
    for Candida fungal postoperative endophthalmitis, 9.298–299
    for fungal endogenous endophthalmitis, 12.239
    for fungal infections, 1.258, 1.277
    for fungal keratitis, 8.275
  Ampicillin
dental prophylaxis uses of, 1.248t
  description of, 2.418t, 2.419
  Amplitude
    of accommodation, 11.23
    age-related changes in, 3.176, 3.176t
    description of, 3.147
    description of, 3.140
    measurement of, 3.178–179
    near point of accommodation for, 3.179
    Prince rule for measuring, 3.179, 3.179f
    spheres method for measuring, 3.179
    convergence, 5.226
    divergence, 5.226
    of visual evoked potential, 5.95
  AMPPPE (acute multifocal posterior placoid pigment epitheliopathy). See Acute posterior multifocal placoid pigment epitheliopathy
  Ampullectomy, 7.311
  Amsler grid testing, 3.315, 5.84
  Amsler sign, 10.101
  Amsler grid testing, 3.315, 5.84
  Amsler sign, 10.101
  for pterygium surgery, 8.351, 8.355
  for neurotrophic keratopathy/persistent corneal epithelial defects and, 8.351
  indications for, 8.351f
  for neurotrophic keratopathy/persistent corneal epithelial defects, 8.82, 8.224
  in pterygium surgery, 8.351, 8.355
  recurrence rate and, 8.353t
  for Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis), 8.285, 8.297–298
  for superior limbic keratoconjunctivitis, 8.84
  after tumor removal surgery, 8.329
  Amorphous corneal dystrophy, posterior (PACD), 8.135f, 8.136t, 8.154–155
  Amoxicillin, 2.419
dental prophylaxis uses of, 1.248t
  for Lyme disease, 9.231f
  for Toxocara canis ocular larva migrans, 10.137
  for toxocariasis, 10.137
  for pregnancy, 10.137
  for intraocular inflammation, 10.137
  for viral keratitis, 10.137
  for viral ocular surface infection, 10.137
  for fungal keratitis, 10.137
  for fungal endogenous endophthalmitis, 10.137
  for fungal infections, 10.137
  for fungal keratitis, 10.137
  for fungal endogenous endophthalmitis, 10.137
  for fungal infections, 10.137
  for fungal keratitis, 10.137
  for fungal endogenous endophthalmitis, 10.137
  for fungal infections, 10.137
  for fungal keratitis, 10.137
  for fungal endogenous endophthalmitis, 10.137
  for fungal infections, 10.137
primary systemic, 8.186f, 8.187
secondary localized, 8.186f
secondary systemic, 8.186t
vitreous involvement in, 4.134f, 4.134–135
ANA. See Antinuclear antibody (ANA) testing
ANA testing. See Antinuclear antibody (ANA) testing
Anaerobes
as normal flora, 8.206f
stains and culture media for identification of, 8.209f
Anaerobic glycolysis, in glucose/carbohydrate metabolism in lens, 11.17–19, 11.18f
Anagrelide, for essential thrombocythemia, 1.143
Anakinra, 1.180
Analgesics. See also specific agent ocular adverse effects of, 1.308f
rebound headache and, 5.293
Anaphase, 2.174, 2.174f
Anaphylactic hypersensitivity (immediate/type I) reactions. See also Allergic reactions/allergies;
Anaphylaxis
atopic keratoconjunctivitis and, 8.292
contact dermatitis and, 8.285, 8.286f, 8.287
hay fever conjunctivitis and, 8.288
topical medications/substances and, 8.285, 8.286f, 8.287
Anaphylactoid reactions, 1.302, 2.417
Anaphylatoxins, 9.18
Anaphylaxis, 1.302–303. See also Anaphylactic hypersensitivity (immediate/type I) reactions
topical medications/substances and, 8.285, 8.286f, 8.287
Anaplastic carcinoma, 1.46
Anatomical reattachment surgery, for retinal detachment. See Retinal detachment, surgery for
ANCA. See Antineutrophil cytoplasmic autoantibody. See also Granulomatosis, with polyangiitis
ANCA-associated vasculitis. See Antineutrophil cytoplasmic autoantibody, vasculitis associated with
ANCA serum assay. See Antineutrophil cytoplasmic autoantibody serum assay
ANCHOR study, 12.80–81
Ancobon. See Flucytosine
Ancylostoma caninum (dog hookworm), 9.287, 12.246
Anderson-Kestenbaum procedure, for nystagmus, 5.236, 5.237f
Anderson procedure, for nystagmus, 6.155
Andexanet alfa, 1.149
Androgen antagonists, tear production affected by, 8.62f
Anemia
antibody-mediated destruction as cause of, 1.135
aplastic
  carbonic anhydrase inhibitors causing, 10.180
  description of, 1.137
blood loss as cause of, 1.132–133
bone marrow disorders as cause of, 1.137
chronic hemolytic, 1.135
chronic renal failure as cause of, 1.137
classification of, 1.132
in congestive heart failure, 1.99
Coombs-positive hemolytic, 1.135
diabetic retinopathy and, 12.98
folate deficiency as cause of, 1.133–134
hemoglobin synthesis defects as cause of, 1.134–136
hemolytic, 1.135–137
inflammatory, 1.137
iron deficiency, 1.132–133
macrocytic, 1.132–133
megaloblastic, 1.133
microcytic, 1.132
normocytic, 1.132
nutritional deficiency as cause of, 1.132–134
pathophysiology of, 1.132
pernicious, 1.133
red blood cell destruction as cause of, 1.136–137
sickle cell, 1.135–136
sideroblastic, 1.137
thalassemias, 1.134–135
vitamin B12 deficiency as cause of, 1.133
Anemia of chronic disease, 1.159
Anestacaine. See Lidocaine
Anesthesia (anesthetics)
for cataract surgery, 11.91f, 11.91–92, 11.92f, 11.93f
retrobulbar hemorrhage and, 11.158, 11.171
examination under. See Examination, ophthalmic, under anesthesia
for extraocular muscle surgery, 6.174–175
general, 1.289–290, 6.174, 12.50
for cataract surgery, 11.92
in arthritis, 11.171
in claustrophobia, 11.169
in patient unable to communicate, 11.170
for penetrating and perforating trauma repair, 8.403
for intraocular pressure measurement in infants and children, 10.158–159
for intravitreal injections, 12.403
local (topical/regional)
abuse of, 8.89f, 8.89–90
adverse reactions to, 8.90f
for cataract surgery, 11.92
composition of, 2.438
intraocular surgery use of, 2.441–442
mechanism of action, 2.439
overview of, 2.437–440
for penetrating and perforating trauma repair, 8.403–404
peribulbar anesthesia, 2.442
for phakic IOL insertion, 13.141
for photoablation, 13.82
regional anesthetics, 2.438t
retrobulbar anesthesia, 2.442
topical, 2.439f, 2.439–440, 2.441–442
toxic manifestations of, 2.439
types of, 2.440–441
for penetrating and perforating trauma repair, 8.403–404
peribulbar, 6.174
for cataract surgery, 11.91
for phakic IOL insertion, 13.141
for photoablation, 13.82
for photocoagulation, 12.375
retrobulbar, 6.174
for cataract surgery, 11.91, 11.91f
hemorrhage and, 11.158, 11.171
tear production affected by, 8.62f
Anesthesia/hypoesthesia, corneal congenital, 8.108
herpes simplex keratitis and, 8.217–218, 8.226–227
herpes zoster and, 8.418, 8.424
after LASIK, 13.172
neurotrophic keratopathy/persistent corneal defects and, 8.80, 8.824
Aneuploidy. See also specific disorder of autosomes, 2.222–224
Aneurysm(s)
basilar artery, 5.338, 5.339f
berry (saccular), 1.121, 5.338, 5.339f
chiasmal syndromes caused by, 5.147, 5.150, 5.194–195, 5.265
in younger patients, 5.197
giant, 5.338, 5.339f
internal carotid, 5.338, 5.339f
intraocular pressure, 5.194, 5.194f, 5.339f
in arteriovenous malformations, 5.292f, 5.344, 5.344f
in reversible cerebral vasoconstriction syndrome, 5.347, 5.347f
in vertebralbasilar insufficiency, 5.337f, 5.338
in coronary heart disease diagnosis, 1.89
conventional/catheter/contrast, 5.68, 5.68f
in aneurysm detection/evaluation, 5.195, 5.340, 5.341f
in arteriovenous malformations, 5.292f, 5.344, 5.344f
in reversible cerebral vasoconstriction syndrome, 5.347, 5.347f
in vertebralbasilar insufficiency, 5.337f, 5.338
in coronary heart disease diagnosis, 1.89
digital subtraction (DSA), 5.68
in arterial dissection, 5.342
fluorescein. See Fluorescein angiography
indocyanine green. See Indocyanine green angiography
magnetic resonance (MRA), 2.455f, 2.458, 5.58, 5.68–69, 5.69f, 5.72f
advantages/disadvantages of/contraindications for, 5.61f
in aneurysm detection/evaluation, 5.194, 5.340, 5.341f
in arteriovenous malformations, 5.292f, 5.344, 5.344f
angiography
artifacts in, 12.29, 12.30f
in corneal transplant rejection, 8.317
definition of, 12.79
endothelial cells in, 12.79
inhibitors of, 1.240t, 1.241, 12.80. See also Antiangiogenic agents
in diabetic retinopathy, 12.163, 12.164f
Angiogenesis activators of, 12.80
in corneal transplant rejection, 8.317
definition of, 12.79
endothelial cells in, 12.79
inhibitors of, 1.240t, 1.241, 12.80. See also Antiangiogenic agents
vitreous effects on, 2.301
Angiographic cystoid macular edema, after cataract surgery, 11.163–164, 11.164f
Angiography/arteriography cerebral, for carotid stenosis diagnosis, 1.116
computed tomography (CTA), 2.454, 2.455t, 2.458, 5.58, 5.69–70, 5.72f
advantages/disadvantages of/contraindications for, 5.61f
in aneurysm detection/evaluation, 5.69–70, 5.194, 5.194f, 5.340
in arterial dissection, 5.342
arteriovenous malformations on, 7.77f
in carotid artery evaluation, 5.167
for carotid stenosis, 1.116
description of, 7.32
in vertebralbasilar insufficiency, 5.338
for congestive heart failure, 1.97
conventional/catheter/contrast, 5.68, 5.68f
in aneurysm detection/evaluation, 5.195, 5.340, 5.341f
in arteriovenous malformations, 5.292f, 5.344, 5.344f
in reversible cerebral vasoconstriction syndrome, 5.347, 5.347f
in vertebralbasilar insufficiency, 5.337f, 5.338
in coronary heart disease diagnosis, 1.89
digital subtraction (DSA), 5.68
in arterial dissection, 5.342
dye injection in, 12.24
fluorescein. See Fluorescein angiography
indocyanine green. See Indocyanine green angiography
depth resolution using, 12.29
in carotid artery evaluation, 5.167
for carotid stenosis, 1.116
description of, 7.32, 7.79
in reversible cerebral vasoconstriction syndrome, 5.347
in vertebralbasilar insufficiency, 5.338
in coronary heart disease diagnosis, 1.89
Angiokeratomas
facial description of, 6.397
in tuberous sclerosis, 5.331f, 5.334t
inhibitors of, 1.240t, 1.241, 12.80. See also Antiangiogenic agents
macular telangiectasia type 2 on, 12.163, 12.164f
master_index

16 • Master Index

motion artifacts in, 12.29
projection artifacts in, 12.29, 12.30f
pseudoxanthoma elasticum on, 12.199f
retinal capillary layers on, 12.16
retinal disease evaluations using, 12.28–29
retinal vasculature on, 12.29, 12.30f
severity of, 12.93, 12.94f
retinal. See Fluorescein angiography; Indocyanine green angiography
scanning laser ophthalmoscopy versus, 12.24
Angioid streaks
choroidal neovascularization caused by, 12.87–89, 12.89f
definition of, 12.87
description of, 12.19
fluorescein angiography of, 12.87, 12.89f
pseudoxanthoma elasticum and, 1.141, 12.87, 12.89f
safety glasses for patients with, 12.88
in sickle cell disease, 12.154
visual disturbances caused by, 12.88
Angiokeratoma corporis diffusum (Fabry disease), 6.222, 6.394f, 6.222f, 5.334, 5.336, 5.337, 5.339, 5.340, 5.341
Angioid streaks
in inflammatory, 10.139
f
Angioid streaks
in malignant glaucoma (aqueous misdirection) and, 10.139
f
fluctuations in, 10.126–127
chronic, 10.4f, 10.126–127
mechanisms of, 10.118–120, 10.119t
ocular inflammation and, 10.138f, 10.138–139, 10.139f
pathogenesis and pathophysiology of, 10.118–120, 10.119t
plateau iris and, 10.4f, 10.9, 10.32, 10.120, 10.127
primary (PAC), 10.4f, 10.117t, 10.117–118, 10.120–122
acute, 10.123–125, 10.124f
management of, 10.184
chronic, 10.4f, 10.126–127
pupillary block causing, 10.118–119
secondary, 10.118
with pupillary block, 10.4f, 10.128–132
without pupillary block, 10.4f, 10.132–146
surgery for, 10.187. See also Glaucoma surgery tumors causing, 10.99, 10.138
Angle-closure glaucoma, 2.387, 10.3, 10.4f, 10.6f, 10.117t, 10.117–146. See also Angle closure; Glaucoma acute
description of, 10.123–125, 10.124f
management of, 10.184
age and, 10.9
aniridia and, 10.120, 10.155
aphakic, 10.130–132
in children, 10.156
after cataract surgery, 11.136
ocular block/malignant glaucoma (aqueous misdirection) and, 11.139
central retinal vein occlusion and, 10.143–144
neovascularization and, 10.134–135
in children and adolescents. See Angle-closure glaucoma, pediatric
chronic, 10.4f, 10.126–127
classification of, 10.4f, 10.6f
combined-mechanism glaucoma and, 10.7
cornea plana and, 8.9f, 8.100–101
creeping, 10.126
drug-induced, 10.122–123, 10.145f, 10.145–146
ectopia lentis and, 10.129–130, 10.130f, 10.130t, 10.131f
epithelial and fibrous ingrowth and, 10.141–142, 10.142f, 10.143f
family history and, 10.121
flat anterior chamber and, 10.121, 10.144–145
malignant/ocular block glaucoma (aqueous misdirection) and, 10.32, 10.140, 10.140f
gender and, 10.9, 10.121
genetic/hereditary factors in, 10.9
gonioscopic identification of, 10.36
inflammatory, 10.138f, 10.138–139, 10.139f
intermittent (subacute), 10.125–126
iridocorneal endothelial syndrome and, 4.101, 10.136f, 10.136–138, 10.137f
iris bombé and, 10.32, 10.129, 10.131f, 10.138, 10.139f
iris-induced, 10.120
lens-induced, 10.96, 10.119, 10.128–132
malignant (aqueous misdirection/ciliary block glaucoma), 10.32, 10.139–141, 10.140f
cataract surgery and, 10.139, 10.139
in children and adolescents, 10.149f
microcornea and, 8.95–99
microphthalmos and, 4.108, 4.109, 10.144
ocular biometrics and, 10.121
open-angle glaucoma differentiated from, 10.3, 10.5f
outflow obstruction mechanisms in, 10.5, 10.6f, 10.118–120, 10.119f
pain caused by, 5.295
pathogenesis and pathophysiology of, 10.118–120, 10.119f
pediatric (childhood/congenital/infantile/juvenile), 10.149f
persistent fetal vasculature and, 10.144
phacomorphic, 10.119, 10.128–132
primary (PACG), 10.4, 10.117–118, 10.119f
prevalence of, 10.9, 10.117
with pupillary block, 10.119
iritido-/iridectomy for, 10.124–125, 10.192f
risk factors for, 10.9, 10.120–122
subacute/intermittent, 10.125–126
without pupillary block (plateau iris), 10.4f, 10.9, 10.120, 10.127
posterior polymorphous corneal dystrophy and, 8.159
prevalence of, 10.117
primary (PACG), 10.4f, 10.117f, 10.117–118, 10.120–122
acute, 10.123–125, 10.124f
management of, 10.184
epidemiology of, 10.9–10
prevalence of, 10.9, 10.117
with pupillary block, 10.119
iritido-/iridectomy for, 10.124–125, 10.192f
risk factors for, 10.9, 10.120–122
subacute/intermittent, 10.125–126
without pupillary block (plateau iris), 10.4f, 10.9, 10.120, 10.127f, 10.127–128
pseudophakic, 10.130–132
with pupillary block, 10.4f, 10.6f, 10.118–119
iritido-/iridectomy for, 10.124, 10.125, 10.191–193, 10.192f
without pupillary block, 10.4f, 10.6f, 10.119f, 10.119–120
race and, 10.9, 10.117, 10.120
refraction/refractive errors and, 10.9, 10.122
retinal detachment and, 10.141
retinal surgery and, 10.143
retinal vascular disease and, 10.143–144
in retinopathy of prematurity, 12.181. See also Glaucoma
risk factors for, 10.9, 10.120–122
secondary, 9.318. See also specific cause
in children and adolescents, 10.149f
with pupillary block, 10.4f, 10.128–132
microphakia and, 11.33
phacomorphic glaucoma and, 11.67
without pupillary block, 10.4f, 10.132–146
subacute/intermittent, 10.125–126
surgical management of, 10.187. See also Glaucoma surgery
chamber deepening/goniosynechialysis, 10.220
incisional procedures. See Incisional surgery laser gonioplasty/peripheral iridoplasty, 10.193–194
laser iridotomy, 10.124, 10.125, 10.126, 10.191–193, 10.192f
peripheral (surgical) iridectomy, 10.125, 10.220
topiramate causing, 10.145f, 10.145–146
transient visual loss and, 5.163f, 5.164
trauma and, 10.142
fibrous ingrowth and, 10.142, 10.143f
tumors causing, 10.99, 10.138
uveitic, 10.134, 10.139, 10.139f
Angle-closure suspect, primary, 10.4f, 10.117, 10.117f, 10.122–123
Angle kappa (κ)
definition of, 6.67
description of, 3.123, 3.129, 3.129f, 3.267, 3.272
negative, 6.67, 6.68f
pictorial representation of, 6.68f
positive, 6.67, 6.68f
Angle of deviation, 3.45, 3.46f
Angle of incidence
Brewster angle and, 3.99
definition of, 3.39
description of, 3.44f, 3.80
Angle of reflection, 3.80
Angle of refraction, 3.44f
Angle recession, 10.36, 10.107f
traumatic, 4.18, 4.19f, 4.103–104
glaucoma and, 4.18, 4.103–104, 10.39–40, 10.40–41f, 10.106–108, 10.107f
Angle-supported intraocular lenses, 13.137–138, 13.139f, 13.144
complications of, 13.146–147
Angle surgery, in Sturge-Weber syndrome, 6.402
Angular artery, 2.23f
Angular magnification, 3.84. See also Magnification
Angular vein, 2.26
Anhedonia, 1.195
Anhidrosis
congenital insensitivity to pain with (CIPA), 8.108
congenital corneal anesthesia and, 8.108
in Horner syndrome, 5.257–258
Anidulafungin, 2.431, 2.431
Aniseikonia
definition of, 3.123, 3.139, 3.169, 3.255
meridional (meridional magnification), 3.147, 3.173.
See also Distortion
spherical, 3.255
symptoms of, 3.199
Anisocoria, 5.253, 5.255–266, 6.275
cocaine in testing for, 5.256
equal in dim and bright light, 5.256
evaluation of, 5.253–254, 5.256
iris disorders and, 5.271
greater in bright light, 5.262–266, 5.263f, 5.264f,
5.265f
greater in dim light, 5.256
equal in dim and bright light, 5.256
evaluation of, 5.253–254, 5.256
iris disorders and, 5.271
history in, 5.253
Horner syndrome and, 5.256
equal in dim and bright light, 5.256
evaluation of, 5.253–254, 5.256
iris disorders and, 5.271
history in, 5.253
Horner syndrome and, 5.256
iridocyclitis in, 1.157
laboratory tests for, 9.125t
nonsteroidal anti-inflammatory drugs for, 9.132
treatment of, 9.132
ANNA-1 (anti-Hu) antibody, paraneoplastic-induced
saccadic intrusions and, 5.249
ANNA-2 (anti-Ri) antibody, paraneoplastic-induced
saccadic intrusions and, 5.249
Annular gap, 12.7
Annular keratopathy, traumatic, 8.388
Annular zone, multifocal intraocular lens with, 3.259,
3.259f
Annulus of Zinn, 2.11, 2.17–18, 2.18, 2.20f, 2.113–114,
2.125f, 2.128, 5.8f, 5.26, 5.45, 7.11, 7.13f, 7.13–14, 7.164
horizontal rectus muscles from, 6.20
inferior rectus muscle from, 6.20
superior oblique muscle from, 6.20
superior rectus muscle from, 6.20
vertical rectus muscles from, 6.20
Anomalies, congenital. See Congenital anomalies;
specific type
Anomaloscope, 12.54
Anomalous binocular vision, 6.50
Anomalous retinal correspondence (ARC)
afterimage test for, 6.79f
definition of, 6.90
diplopia and visual confusion eliminated with, 6.49f
eccentric fixation versus, 6.31
harmonious, 6.76
Maddox rod testing in, 6.68
major amblyoscope for, 6.70
red-glass test findings in, 6.76f
after strabismus surgery, 6.50
testing for, 6.50–51
unharmonious, 6.76
Anomalous trichromatism, 12.249
Anophthalmia/anophthalmos, 6.209, 6.210f, 6.263.
See also Anophthalmic socket surgery
congenital, 7.136
consecutive, 7.35
definition of, 7.35
primary, 7.35
secondary, 7.35
treatment of, 7.36–38
Anisometropia
abnormal visual experience caused by, 6.44
amblyopia caused by, 3.139
refractive surgery and, 13.185–187
anisophoria caused by correction of. See Anisophoria,
induced
anterior polar cataracts associated with, 6.295
asymmetric lens-induced myopia causing, 11.70
in children, 3.175
corrective lenses and, 3.206–208
definition of, 3.139
hyperopic, 3.140, 3.185f
management of, 3.197, 3.198t
after penetrating keratoplasty, 8.432
refractive surgery for, 13.179
second-eye cataract surgery for, 11.73
spectacle correction of
anisophoria induced by. See Anisophoria, induced
description of, 3.139
Anisometric amblyopia, 3.175
clinical features of, 6.54–55
critical period for, 6.45
epibulbar dermoids as cause of, 6.256
occlusion therapy for, 6.58
refractive surgery and, 13.185–187
strabismus amblyopia versus, 6.54–55
Anisophoria
definition of, 3.139
induced
compensating for, 3.186–190, 3.187f
contact lenses for, 3.190
dissimilar segments for, 3.189, 3.189f
press-on prisms for, 3.188
refractive surgery for, 3.190
reverse slab-off for, 3.188–189
single-vision reading glasses with lowered optical
centers for, 3.189–190
slab-off for, 3.188, 3.188f
symptomatic, 3.187
Ankyloblepharon, 6.193–194, 6.194f, 7.175–176,
7.176–177f
cataract surgery in patient with, 11.173
in mucous membrane pemphigoid, 8.300, 8.302t
Ankyloblepharon filiforme adnatum, 6.193–194, 6.194f,
7.175
Ankyloblepharon–ectodermal dysplasia–clefting
syndrome. See Hay-Wells syndrome
Ankylosing spondylitis (AS)
acute anterior uveitis in, 9.130f, 9.131–132
cataract surgery in patient with, 11.171, 11.171f
description of, 1.154–155
human leukocyte antigen haplotype association with,
9.64
iridocyclitis in, 1.157
laboratory tests for, 9.125t
nonsteroidal anti-inflammatory drugs for, 9.132
treatment of, 9.132
Annular gap, 12.7
Annular keratopathy, traumatic, 8.388
Annular ring, 6.182
Annular zones, multifocal intraocular lens with, 3.259,
3.259f
Annulus of Zinn, 2.11, 2.17–18f, 2.18, 2.20f, 2.113–114,
2.125f, 2.128, 5.8f, 5.26, 5.45, 7.11, 7.13f, 7.13–14, 7.164
horizontal rectus muscles from, 6.20
inferior rectus muscle from, 6.20
superior oblique muscle from, 6.20
superior rectus muscle from, 6.20
vertical rectus muscles from, 6.20
Anomalies, congenital. See Congenital anomalies;
specific type
Anomaloscope, 12.54
Anomalous binocular vision, 6.50
Anomalous retinal correspondence (ARC)
afterimage test for, 6.79f
definition of, 6.90
diplopia and visual confusion eliminated with, 6.49f
eccentric fixation versus, 6.31
harmonious, 6.76
Maddox rod testing in, 6.68
major amblyoscope for, 6.70
red-glass test findings in, 6.76f
after strabismus surgery, 6.50
testing for, 6.50–51
unharmonious, 6.76
Anomalous trichromatism, 12.249
Anophthalmia/anophthalmos, 6.209, 6.210f, 6.263.
See also Anophthalmic socket surgery
congenital, 7.136
consecutive, 7.35
definition of, 7.35
primary, 7.35
secondary, 7.35
treatment of, 7.36–38
Anophthalmic ectropion, 7.144, 7.144f
Anophthalmic ptosis, 7.145, 7.145f
Anophthalmic socket. See specific aspect
Anophthalmic socket surgery
  complications of
    anophthalmic ectropion, 7.144, 7.144f
    anophthalmic ptosis, 7.145, 7.145f
    conjunctival cyst, 7.141, 7.141f
contracted fornices, 7.143
  contracted sockets, 7.143–144, 7.144f
  cosmetic optics, 7.145–146
  deep superior sulcus, 7.141, 7.141f
  giant papillary conjunctivitis, 7.142, 7.142f
lash margin entropion, 7.145, 7.145f
enucleation. See Enucleation
evisceration. See Evisceration
goals of, 7.135
indications for, 7.135
orbital implants
description of, 7.117, 7.139f, 7.139–141
  exposure and extrusion of, 7.142, 7.142–143
prostheses, 7.140–141, 7.147f
Ansa subclavia, 5.54
ANSI. See American National Standards Institute
Antagonist(s)
  cholinergic, 2.380–381
  definition of, 2.367
  muscarinic, 2.380–381
  nicotinic, 2.382, 2.383f
Antagonist (muscle)
contralateral, inhibitory palsy of, 6.120–121, 6.121f
definition of, 6.33
Anterior basement membrane dystrophy. See Basement membrane dystrophy
Anterior border, of iris, 4.181, 4.182f
Anterior capsule
description of, 6.302
opacification of, cataract surgery and, 11.152, 11.153f
Anterior capsule fibrosis and phimosis, 11.153–154, 11.154f
Anterior basement membrane dystrophy. See Basement membrane dystrophy
Anterior border, of iris, 4.181, 4.182f
Anterior chamber, 4.97–106. See also Anterior chamber angle; Anterior segment
  anatomy of, 2.48f, 2.59–62f, 2.59–63
  aqueous humor of, 2.59
  biomicroscopy in evaluation of, 10.31–32
  before refractive surgery, 13.43–44
  blunt trauma to, 10.39–40, 10.40, 10.41f, 10.103–108, 10.104f, 10.106f, 10.107f
  congenital anomalies of, 4.98–99, 4.99f, 4.100f.
    See also Anterior segment, dysgenesis of
degenations of, 4.100–105, 4.101f, 4.102f, 4.103f, 4.104f, 4.105f
development of, 2.161, 2.161f
dimensions of, 2.49f
disorders of, 4.97–106. See also specific type
double, after deep anterior lamellar keratoplasty, 8.435
dysgenesis of, 2.161
  flat or shallow
  angle-closure glaucoma and, 10.9, 10.31–32, 10.121, 10.144–145
  malignant/ciliary block glaucoma (aqueous misdirection) and, 10.32, 10.140, 10.140f
cataract surgery and, 11.134–136
angle-closure glaucoma and, 10.144–145
intraoperative complications and, 11.134–135
posterior fluid misdirection syndrome and, 11.134–135
postoperative complications and, 11.135–136
preoperative considerations/OIL power
determination and, 11.79, 11.84, 11.86–87
iridotomy contraindicated in, 10.191
after penetrating keratoplasty, 8.424
 refractive surgery and, 13.43
after tube shunt surgery, 10.217, 10.218f
gonioscopy/evaluation of, 10.32–40, 10.33f, 10.34f, 10.35f, 10.37f, 10.38f, 10.39f, 10.40f, 10.41f
assessment/documentation systems for, 10.36–40, 10.37f, 10.38f, 10.39f, 10.40f, 10.41f
before cataract surgery, 11.79
in glaucoma, 10.32–40, 10.33f, 10.34f, 10.35f, 10.37f, 10.38f, 10.39f, 10.40f, 10.41f
growth and development of, 6.181
immunization in, 9.56
immunologic microenvironment of, 9.52f, 9.55–56
immunoregulatory systems of, 9.55–57
in leukemia, 4.315
melanoma of, 4.105f, 4.106, 4.106f, 4.194, 4.195f
glaucoma and, 4.105f, 4.106, 4.194
phacoemulsification in, 11.112
pigment dispersion affecting, 4.104–105, 4.105f
shallowing of, 9.318
structures of, 2.59–62f, 2.59–63
topography of, 4.97f, 4.97–98, 4.98f
ultrasound biomicroscopy of, 2.60f, 2.471–472f, 12.40
in uveitis. See Anterior uveitis
vitreous prolapse in, 11.143–144
volume of, 2.48
Anterior chamber angle, 4.97f, 4.97–98, 4.98f. See also Anterior chamber
  anatomy of, 2.48f, 2.56f, 2.59–62f, 2.59–63, 2.62f
  blood vessels in, 10.38f, 10.38–39
crowding of, retinopathy of prematurity as risk factor for, 6.334
development of
  description of, 2.161
glaucoma and, 4.98, 4.99f, 10.6f
in glaucoma. See Angle closure; Angle-closure glaucoma
gonioscopy of, 4.97–98, 4.98f, 10.32–40, 10.33f, 10.34f, 10.35f, 10.37f, 10.38f, 10.39f, 10.40f, 10.41f
in leukemia, 4.315
neovascularization of, 10.32, 10.38f, 10.38–39, 10.132f, 10.132–135, 10.133f, 10.134f, 10.135f.
    See also Neovascular glaucoma
in diabetes mellitus, 12.107	normal, 10.34f
in infants and children, 10.159
occludable/narrow, 10.34f, 10.122
OCT in evaluation of, 8.22, 8.22f
pigmentation in, in pseudoexfoliation/exfoliation syndrome, 10.39, 10.92, 10.92f
structures of, 2.59–62f, 2.59–63
traumatic recession of, 4.18, 4.19f, 4.103–104
glaucoma and, 4.18, 4.103–104, 10.39–40, 10.40–41f, 10.106–108, 10.107f
ultrasound biomicroscopy in evaluation of, 8.21
Anterior chamber-associated immune deviation (ACAID), 2.299, 9.56–57, 9.59
corneal graft tolerance and, 8.316
immune privilege and, 8.316
Anterior chamber depth (ACD), 2.48, 2.59, 3.248–249, 4.97
angle closure and, 10.9, 10.31–32, 10.121
in IOL power determination/selection, 11.84, 11.86–87. See also Estimated lens position
phakic IOL implantation and, 13.43, 13.141
Anterior chamber intraocular lenses (ACIOLs). See Intraocular lenses (IOLs), anterior chamber
Anterior chamber paracentesis
in bacterial endogenous endophthalmitis, 9.295
for central retinal artery occlusion, 12.146
description of, 6.414
technique for, 9.92
in uveitis, 9.90–92
Anterior chamber phakic intraocular lenses, 13.8f
See also Phakic intraocular lenses
Anterior choroidal artery (ACHA), 5.16f, 5.18, 5.18f
Anterior ciliary arteries, 2.22, 2.24f, 2.43, 5.14f, 5.14–15, 6.23
Anterior ciliary sclerotomy (ACS), for presbyopia, 13.162
Anterior ciliary process, 2.10f, 2.106f, 5.6f, 5.7f, 5.9f, 5.16f, 5.43f, 7.8f
Anterior colobomas, 2.153
Anterior communicating artery (ACoA), 2.106f, 5.16f, 5.18, 5.27f
aneurysm of, 5.339, 5.339f
cranial nerve relationship and, 5.42f, 5.43f
Anterior cortical gel, 12.7
Anterior cranial fossa, 2.459f, 5.6f, 5.8, 5.10f, 7.8f
Anterior ciliary arteries, 2.22f, 2.25f, 5.12, 5.13f, 5.14f, 5.16f, 7.9
Anterior ethmoidal foramen, 2.6f, 2.11, 5.11, 7.7–8f
Anterior facial vein, 2.26f
Anterior hyaloid, 12.8f
Anterior hyaloid face, 2.472f
Anterior inferior cerebellar artery (AICA), 5.19f, 5.20
cranial nerve relationship and, 5.42f
Anterior lacrimal crest, 2.6f
Anterior lamella
cicatrix of, 7.217f
deficiency of, 7.254
upper eyelid defects, 7.220
Anterior lamellar keratoplasty (ALK), 8.412, 8.412f, 8.433, 8.433f. See also Keratoplasty, lamellar
advantages of, 8.421–422t, 8.433, 8.433f
complications of, 8.435
intraoperative, 8.420f
postoperative, 8.421f
deep (DALK), 6.263, 6.270, 8.411–412, 8.412f, 8.433–435. See also Deep anterior lamellar keratoplasty
disadvantages of, 8.422f, 8.433
donor cornea contraindications and, 8.415f
femtosecond/femtosecond laser-assisted (FALK/FLAK), 8.412t, 8.431, 8.434
indications for, 8.412–413t, 8.420t, 8.433
layer-based approach to use of, 8.417f
preoperative evaluation/preparation and, 8.418
therapeutic (ALTK), 8.412f
Anterior meniscus capsule, 2.80
Anterior lens opacities, 6.295
Anterior lenticonus/lentiglobus, 4.118, 11.30
Anterior optic neuropathy
CMV infection causing, 5.349
ischemic (AION), 5.107f, 5.119–124, 5.120f, 5.121f, 5.123t
arteritic (AAION), 5.107f, 5.120, 5.120t, 5.120–122, 5.121f, 5.313
nonarteritic (NAION), 5.107t, 5.120, 5.120t, 5.121f, 5.122–124, 5.123t
nocturnal arterial hypotension and, 1.67
OCT in evaluation of, 5.91f
visual evoked potentials in, 12.52
periphereal, 5.124–125
with optic nerve/nerve head/disc edema, 5.104
Anterior orbitotomy, 7.87. See also Orbitotomy
Anterior persistent fetal vasculature, 12.341–342
Anterior pigmented epithelium, 2.70–71, 2.71f
Anterior polar cataracts (APCs), 6.55, 6.295, 6.295f, 11.35–36
Anterior pole, 11.9, 11.10f, 11.11f, 11.12f
Anterior pupillary membrane, 11.29, 11.29f
Anterior scleritis
diffuse, 9.116, 9.118
nodular, 9.116–118, 9.119f
subtype of, 9.116t
Anterior segment, 2.459f. See also Anterior chamber; Cornea; Iris; specific structure
blood supply to
description of, 6.172
extraocular muscle blood supply and, 6.30
blunt trauma to, 12.353
disorders of
cataract and, 11.68
cataract surgery as cause of, 11.132–144, 11.127t.
See also specific type
characteristics of, 6.320t
CMV-associated, 8.231–232, 8.232f
cornea. See Cornea, disorders of
description of, 6.253
developmental anomalies, 8.95–109, 8.96–98t.
See also Anterior segment, dysgenesis of
globe anomalies, 6.263
inflammation. See Anterior uveitis
iris anomalies, 6.264–267, 267f
pupil abnormalities, 6.267–268, 6.268f
systemic disorders and, 8.173–203
toxic, 8.375–409
keratoconjunctivitis/keratopathy from
medications, 8.80–81, 8.81f, 8.90t, 8.90–92, 8.91f
traumatic, 8.375–409, 10.39–40, 10.40f, 10.41f, 10.103–108, 10.104f, 10.106f, 10.107f, 11.190.

See also Anterior segment, trauma to
dysgenesis of, 4.98–99, 4.99f, 4.100f, 8.95, 8.101–107.

See also specific disorder
Peters anomaly and, 11.31–32. See also Peters anomaly
examination of. See also Slit-lamp biomicroscopy/
examination
in children, 6.10, 6.187
in nystagmus evaluations, 6.154
OCT in, 8.21–22, 8.22f
in pediatric glaucoma, 10.158
before refractive surgery, 13.41–44, 13.42f, 13.43f
ultrasound biomicroscopy in, 4.265, 8.20–21, 8.21f. See also Ultrasonography/ultrasound
(echography), anterior segment; Ultrasound
biomicroscopy

light wavelength transparency of, 3.118
leukemic infiltration of, 4.315
ischemia of (ASI), 6.172–173, 6.173f
inflammation of, in uveitis, 6.320
imaging of, 3.292–306, 3.293–3.303f
trauma to, 8.375–409, 10.39–40, 10.40f
systemic disorders affecting, 8.173–203
syphilis findings in, 9.221–222
sympathetic ophthalmia findings in, 9.200
syphils findings in, 9.221–222
 systemic disorders affecting, 8.173–203
toxic injuries of, 8.375–409

trauma to, 8.375–409, 10.39–40, 10.40f, 10.41f, 10.103–108, 10.104f, 10.106f, 10.107f, 11.190
animal and plant substances causing, 8.386–387
chemical injuries, 8.375–384, 8.376f. See also
Chemical injury
concussive (blunt), 8.387–396, 8.388f, 8.389f, 8.390f, 8.391f, 8.392f, 8.393f, 8.394f, 8.395f.

See also Blunt (concussive) trauma
penetrating and perforating, 8.396–409. See also
Penetrating and perforating ocular trauma;
Trauma
surgical, 10.108–109
temperature and radiation causing, 8.384–386, 8.385f

ultrasound biomicroscopy of, 4.265, 8.20–21, 8.21f, 9.89

ultraviolet irradiation injury to, 3.118–119
in uveitis. See Anterior uveitis
Anterior segment developmental anomalies (ASDA).
See Anterior segment, dysgenesis of
Anterior segment dysgenesis syndrome. See also
Anterior segment, dysgenesis of
Peters anomaly and, 11.31–32
Anterior segment optical coherence tomography
(OCT), 8.21–22, 8.22f. See also Optical coherence
tomography
in glaucoma, 10.77
indications for, 9.85
in keratoconus, 8.165–166
in uveitis evaluations, 9.85
Anterior stromal puncture, for recurrent corneal
erosions, 8.79, 8.87

Anterior subcapsular fibrous plaques, 4.120, 4.120f
Anterior synchieae, 9.318
in glaucoma
angle closure and, 10.117, 10.121
inflammation and, 10.138, 10.139f
anterior segment/iris neovascularization and,
10.39, 10.39f, 10.133, 10.133f, 10.134f
chamber deepening/goniodynechialysis in
management of, 10.220
flat anterior chamber and, 10.144
goniocopy in identification of, 10.34f, 10.39,
10.39f
iridocorneal endothelial syndrome and, 4.100–101,
4.101f, 10.136, 10.136f
plateau iris and, 10.128
traumatic hyphema and, 8.394, 8.395f
Anterior uvea. See Uvea
Anterior uveitis. See also Iridocyclitis; Iritis; Uveitis;
specific cause
acute
in ankylosing spondylitis, 9.130f, 9.131–132
antimetabolites for, 9.130
characteristics of, 9.64, 9.65f, 9.79f, 9.130–131
chorioretinal scars with, 9.135f
corticosteroids for, 9.130

cycloplegics for, 9.131
drug-induced, 9.139–140f, 9.139–141
fibrinous exudate in, 9.130, 9.130f
in glaucomatocyclitic crisis, 9.135–136
herpes simplex virus as cause of, 9.247–250
HLA-B27 diseases associated with. See Anterior
uveitis, HLA-B27–associated
hypopyon in, 9.130, 9.131f, 9.214f
in infectious endophthalmitis, 9.137
in inflammatory bowel disease, 9.133
intraocular lens-associated, 9.137–139, 9.138f
lens-associated uveitis, 9.136f, 9.136–137
in psoriatic arthritis, 9.133, 9.134f
in reactive arthritis syndrome, 9.132–133
seronegative spondyloarthropathies associated
with, 9.131–134, 9.133–134f
in tubulointerstitial nephritis and uveitis
syndrome, 9.134–135, 9.135f
tumor necrosis factor-α inhibitors for, 9.131

aqueous flare in, 9.77, 9.79f
in Behçet disease, 9.214
Busacca nodules in, 9.78, 9.80f

...
characteristics of, 9.70
chronic
diagnostic criteria for, 9.141
in juvenile idiopathic arthritis, 9.141–145
in pseudophakic bullous keratopathy, 9.138f
cytomegalovirus-related, 8.231–232, 8.232f,
9.248–249, 9.257
description of, 6.312
differential diagnosis of, 6.312f, 9.129
edemicology of, 9.129
evaluation of, 9.71–72f
fibrin in, 9.19

Afro glaucoma and, 10.100–102, 10.102f
glaucoma and, 10.100–102, 10.102f
granulomatous, 9.277
HLA-B27–associated
ankylosing spondylitis, 9.130f, 9.131–132
clinical presentation of, 9.130, 9.130f
description of, 9.64, 9.65f
inflammatory bowel syndrome, 9.133
pattern of, 9.130
psoriatic arthritis, 9.133, 9.134f
reactive arthritis syndrome, 9.132–133, 9.133f
idiopathic, 6.316
incidence of, 9.129
inflammatory cells in, 9.77, 9.79f
interstitial keratitis and, 9.220
intraocular pressure in, 9.80–81, 9.317
iris nodules in, 9.77–78, 9.80, 9.80f
juvenile idiopathic arthritis as cause of, 6.312–315, 6.313–314, 6.314f, 6.322
juvenile spondyloarthropathies as cause of, 6.315, 6.315f
Kawasaki disease as cause of, 6.316
keratitis precipitates in, 9.77–78, 9.79f
laboratory tests for, 6.321f
after laser trabecuoplasty, 10.190
muscarnic antagonists for, 2.380–381
posterior synechia in, 9.77, 9.80f
postoperative. See Postoperative endophthalmitis
prevalence of, 9.68
in sarcoidosis, 9.195–196
scleritis and, 8.323
screening for, 6.314–315
signs of, 9.77–81, 9.79–80f
sudden-onset, 9.71f, 9.76
symptoms of, 9.76, 9.77f
traumatic, 6.316, 8.389–390
in tubulointerstitial nephritis and uveitis syndrome, 6.316
undifferentiated, 9.146–147
Anterior vitreous, patellar fossa of, 12.7
Anti-acetylcholine receptor (AChR) antibodies, in myasthenia gravis, 5.323
testing for, 5.325–326
Anti–basement membrane antibody, in mucous membrane pemphigoid, 8.301–302
Anti–CCP antibodies. See Anti–cyclic citrullinated peptide (CCP) antibodies
Anti–cyclic citrullinated peptide (CCP) antibodies
Anti–cyclic citrullinated peptide (CCP) antibodies, 1.152–153
Anti–dsDNA antibodies, in systemic lupus erythematosus, 1.161
Anti-elevation syndrome, 6.168–169
Anti-Hu (ANNA-1) antibody, paraneoplastic-induced saccadic intrusions and, 5.249
Anti-idiotypic antibodies, 9.41
Anti-inflammatory agents. See also Corticosteroid(s);
Nonsteroidal anti-inflammatory drugs; specific agent for cystoid macular edema, after cataract surgery, 11.164
for dry eye/keratconjunctivitis sicca, 8.61f
glucocorticoids. See Glucocorticoids
for ocular allergies, 6.324
for superior limbic keratoconjunctivitis, 8.84 types of, 2.400f
Anti-La (SS-B) autoantibodies, in Sjögren syndrome, 8.56, 8.58f
Anti-MCV antibody testing. See Anti–mutated citrullinated vimentin (anti-MCV) antibody testing
Anti–muscle-specific kinase (MuSK) antibodies, testing for, in myasthenia gravis, 5.325–326
Anti–mutated citrullinated vimentin (anti-MCV) antibody testing, 1.153
Anti–neuronal nuclear antibodies, paraneoplastic-induced saccadic intrusions and, 5.249
Anti-Parkinson agents, tear production affected by, 8.62f
Anti-Ri (ANNA-2) antibody, paraneoplastic-induced saccadic intrusions and, 5.249
Anti–RNA polymerase III, 1.165
Anti–Ro (SS- A) autoantibodies, in Sjögren syndrome, 8.56, 8.58f
Anti–Smith antibodies, in systemic lupus erythematosus, 1.161
Anti–SS- A (anti- Ro) autoantibodies, in Sjögren syndrome, 8.56, 8.58f
Anti–SS- B (anti- La) autoantibodies, in Sjögren syndrome, 8.56, 8.58f
Anti–vascular endothelial growth factor, 2.360f, 9.274
Anti–vascular endothelial growth factor agents. See Anti–VEGF agents
Anti–VEGF agents, 1.317
adverse effects of, 1.123
for age-related macular degeneration/choroidal neovascularization, 4.164
bevacizumab, 12.83–85, 12.84f
central retinal artery occlusion treated with, 12.146
choroidal neovascularization treated with, 12.87–88, 12.212, 12.355
clinical trials of, 12.81
Coats disease treated with, 12.161
complications of, 12.104
for corneal transplantation rejection, 8.317
diabetic retinopathy treated with
description of, 12.101–102
nonproliferative, 12.101–102
proliferative, 12.103–104, 12.386
follow-up after, 12.134
intraocular pressure affected by, 10.110
intravitreal administration of, 12.404
low vision and, 12.86
for macular edema, 4.152–153, 4.153f

after cataract surgery, 11.165
in diabetes mellitus, 11.189, 12.101, 12.110–113, 12.112
myopic choroidal neovascularization treated with, 12.212
neovascular age-related macular degeneration treated with, 12.80–81
for neovascular glaucoma, 10.135, 10.135f
nonproliferative diabetic retinopathy treated with, 12.101–102
pathologic myopia treated with, 12.89
polypoidal choroidal vasculopathy treated with, 12.76
proliferative diabetic retinopathy treated with, 12.103–104
for radiation-related adverse effects, 4.276
for radiation retinopathy, 1.4, 1.27, 1.239, 12.171
retinal arterial macroaneurysms treated with, 12.148
for retinal hemangioblastoma, 4.285
retinal vein occlusion treated with, 12.126
retinopathy of prematurity treated with, 6.333, 12.186–187
subretinal neovascularization treated with, 12.164
Antiallergic drugs, 2.411–413
Antiangiogenic agents. See also Anti-VEGF agents; specific agent
complications of, 12.85
for corneal transplantation rejection, 8.317
neovascular age-related macular degeneration treated with, 12.79–80
Antianxiety drugs
description of, 1.201
ocular adverse effects of, 1.308
Antiarhythmic drugs
cardiac rhythm disorders treated with, 1.102, 1.102t
implantable cardioverter-defibrillator and, combined therapy using, 1.104
tear production affected by, 8.62t
Vaughan Williams classification of, 1.102, 1.102t
ventricular fibrillation treated with, 1.104
Antibacterial agents. See also Antibiotics; specific agent
aminoglycosides, 1.275
β-lactam, 1.271–273
carbapenems, 1.273
cephalosporins, 1.272, 1.272t
classification of, 1.270
description of, 1.270
fluoroquinolones, 1.274
future directions for, 1.276
glycopeptides, 1.273–274
macrolides, 1.274–275
mechanism of action, 1.270
miscellaneous types of, 1.276
monobactams, 1.272–273
penicillins, 1.271–272
tetracyclines, 1.275–276
Antibiotic Resistance Monitoring in Ocular Microorganisms (ARMOR) study, 1.247
Antibiotics. See also Antibacterial agents; specific type and agent
for acute purulent conjunctivitis, 8.258
aminoglycosides, 1.275
for bacterial keratitis, 8.269–271, 8.270t
β-lactam, 1.271–273
blepharitis treated with, 6.245
carbapenems, 1.273
cephalosporins, 1.272, 1.272t
decavlon treated with, 7.182
congenital nasolacrimal duct obstruction treated with, 6.231–232, 6.234
for corneal abrasion, 6.376, 8.398, 8.399
dacryocystitis treated with, 7.314–315
description of, 1.270
for endophthalmitis, after cataract surgery, 11.162–163
fluoroquinolones, 1.274
future directions for, 1.276
glycopeptides, 1.273–274
for gonococcal conjunctivitis, 8.259
after LASIK, 13.93, 13.94
macrolides, 1.274–275
for meibomian gland dysfunction, 8.68
monobactams, 1.272–273
necrotizing fasciitis treated with, 7.49f
ocular adverse effects of, 1.308f
for penetrating and perforating ocular trauma, 8.402
postoperative, 8.409
preoperative, 8.403
penicillins, 1.271–272
perioperative, photoablation and, 13.81
before photoablation, 13.81–82
preseptal cellulitis treated with, 7.44–45
prophylactic cataract surgery and, 11.93–95, 11.94f
corneal melting and, 11.132
for endophthalmitis, 11.93–95, 11.94f, 11.161–162
photoablation and, 13.81
for recurrent corneal erosions, 8.87
resistance to. See specific agent and specific organism
for staphylococcal blepharitis/blepharoconjunctivitis, 8.76
after surface ablation, 13.92, 13.108
tetracyclines, 1.275–276
for toxoplasmic retinochoroiditis, 12.243
Antibodies. See also Immunoglobulin(s)
anti-dsDNA, 1.161
anti-idiotypic, 9.41
anti-Smith, 1.161
anticentromere, 1.165
anti- cyclic citrullinated peptide (CCP), 1.152–153
aqueous humor production of, 9.91
in chronic inflammation, 9.42
classes of, 9.39
domains of, 9.39
Fab region of, 9.39
Fc portion of, 9.39
hypervariable region of, 9.39
idiotypes of, 9.41
local production of, 9.41–42
monoclonal, 1.144, 1.238, 6.322. See also
Monoclonal antibodies
description of, 9.41
recombinant, 9.41
plasma cell production of, 9.37
structural features of, 9.39, 9.39f, 9.40t
thyroglobulin, 1.42
Antibody-dependent cellular cytotoxicity (ADCC), 9.47–48
Antibody Fc receptors, 9.12
Anticentromere antibody, 1.165
Anticholinergic agents
angle closure caused by, 10.122
for lung disease, 1.128
mydriasis caused by, 5.263
Anticholinesterase agents. See Cholinesterase/
acetylcholinesterase inhibitors
Anticipation, 2.218–219
Anticoagulant therapy, 12.346.
Anticipation, 2.218–219
See Anticholinesterase agents.
Antigenic keratan sulfate (AgKS), macular corneal
dystrophy and, 8.150–151
Antigenic epitopes, 9.27, 9.41
Antigenic epitope fragments, 9.30
Antigen-presenting cells (APCs)
atopic dermatitis, 8.287
Antihistamines, 1.302, 1.308f. See also specific agent
for atopic dermatitis, 8.287
description of, 2.411–412
for hay fever conjunctivitis, 8.288, 8.289
mast-cell stabilizers and, 2.413
for ocular allergies, 6.247f
refractive surgery in patient taking, 13.37
torn production affected by, 8.62
for vernal keratoconjunctivitis, 8.291
Antihypertensive therapy
agents used in. See specific agent
α₁ blockers, 1.62–63
in children, 1.68
combined α-adrenergic and β-adrenergic antagonists, 1.63
Conduit Artery Function Endpoint (CAFE) study findings on, 1.64
direct renin inhibitors, 1.63
parenteral, 1.64
in pregnancy, 1.68
Antimetabolites, 1.240
for acute anterior uveitis, 9.130
for scleritis, 8.324, 8.325
for uveitis, 6.322, 9.106–108
Antimicrobial prophylaxis
for cataract surgery, 11.93–95, 11.94
for keratitis, 11.132
for endophthalmitis, 11.93–95, 11.94f, 11.161–162
for photoablation, 13.81–82
Antimicrobial therapy. See also Antibiotics; specific agent
aminoglycosides, 2.425–426
antifungal drugs, 2.429–431
cephalosporins, 2.417, 2.419–420
chloramphenicol, 2.425
fluoroquinolones, 2.420, 2.422–423
macrolide antibiotics, 2.427
penicillins, 2.417–419
sulfonamides, 2.423–424
tetracyclines, 2.424–425
tear production affected by, 8.62
Antimetabolites, 1.240f, 2.404f, 2.413–414
for acute anterior uveitis, 9.130
for uveitis, 6.322, 9.106–108
Antimicrobial prophylaxis for cataract surgery, 11.93–95, 11.94f
corneal melting and, 11.132
tear production affected by, 8.62
Antimetabolites, 1.240f, 2.404f, 2.413–414
for acute anterior uveitis, 9.130
for uveitis, 6.322, 9.106–108
Antimicrobial prophylaxis for cataract surgery, 11.93–95, 11.94f
tear production affected by, 8.62
Antimetabolites, 1.240f, 2.404f, 2.413–414
for acute anterior uveitis, 9.130
for uveitis, 6.322, 9.106–108
Antinuclear antibody (ANA) testing
description of, 1.153
in granulomatosis with polyangiitis (Wegener granulomatosis). See also Granulomatosis, with polyangiitis
eyelid manifestations of, 4.207f
optic neuritis and, 5.115
serum assay, 7.34, 7.63
vasculitis associated with, 1.169f, 1.171–173
Antinuclear antibody (ANA) testing
description of, 1.153
in granulomatosis with polyangiitis, 9.159
in juvenile idiopathic arthritis, 1.157
in systemic lupus erythematosus, 1.160, 1.160f, 9.156
in systemic sclerosis, 1.165
Anticancer drugs, 1.240f. See also Chemotherapy
Antineutrophil cytoplasmic autoantibody (ANCA) in granulomatosis with polyangiitis (Wegener granulomatosis). See also Granulomatosis, with polyangiitis
Antioxidants
carotenoids, 2.343
catalase, 2.342
cataract prevention and, 11.7, 11.20, 11.72
description of, 2.447
thiostrepton. See Streptomyces thiostrepton
thioltransferase. See Glutathione
thioredoxin peroxidase, 2.341
Antiphospholipid syndrome (APS), 1.148–149, 1.163–164
Antineutrophil cytoplasmic autoantibody (ANCA) in granulomatosis with polyangiitis. See also Granulomatosis, with polyangiitis
eyelid manifestations of, 4.207
Antiproliferative agents. See Antimetabolites
Antipsychotic drugs
described of, 1.199, 1.200
extrapyramidal side effects of, 1.200
first-generation, 1.199–201, 1.200f
intraoperative floppy iris syndrome and, 11.136, 11.137
oculogyric crisis caused by, 5.231
second-generation, 1.199, 1.200f
tardive dyskinesia caused by, 1.200
Antiviral therapy (ART), 2.437
for cytomegalovirus retinitis, 9.256
description of, 2.436–437
for HIV, 1.268
Antiretroviral therapy (ART), 2.437
for cytomegalovirus retinitis, 9.256
description of, 2.436–437
for HIV, 1.268
Antitumor antibiotics, 1.240
Antithrombin (AT)
deficiency of, 1.147
description of, 1.139
Antithrombotic agents
coronary heart disease treated with, 1.89, 1.90–91
stroke prevention using, 1.114–115
Antitumor antibiotics, 1.240f, 1.241
Antiviral agents, tear production affected by, 8.62
Antithrombin (AT)
deficiency of, 1.147
description of, 1.139
Antithrombotic agents
coronary heart disease treated with, 1.89, 1.90–91
stroke prevention using, 1.114–115
Antitumor antibiotics, 1.240f, 1.241
Antiviral agents, tear production affected by, 8.62
Antiviral agents, 1.277–279
acute retinal necrosis treated with, 12.236
for Bell palsy, 5.279
description of, 2.431, 2.433–434
for herpetic eye disease, 8.205, 8.215, 8.215f, 8.219, 8.222, 8.223f, 8.224
epithelial keratitis, 8.219, 8.223f
epitheliopathy caused by, 8.224
graft survival after keratoplasty and, 8.225
herpes zoster ophthalmicus, 8.229–230
before refractive surgery, 13.174
stromal keratitis, 8.222, 8.223f, 8.224
Aplastic anemia, 1.137, 2.393
Apixaban, 1.149
Apical zone of cornea, 3.205, 3.215, 3.228, 8.25
Anxiolytics. See Antianxiety drugs
Aortic arch, 5.13f, 5.19
emboli from atheroma of, transient visual loss and, 5.166
Aortic arch (Takayasu) arteritis/aortitis syndrome, 5.13
Aphakic spectacles
Aphakic glaucoma, 6.285, 10.130–132
Aphakic (pseudophakic) bullous keratopathy, after aphakia
Aphakia
Apert syndrome (acrocephalosyndactyly), 6.206–207, 7.39, 7.39
Apertures
Antoni A pattern/Antoni B pattern, 7.86
Aperture
Apert syndrome, 5.158, 5.180–181, 5.337
Apert’s syndrome
Applanation ultrasonography, 3.245, 3.245
Applanation tonometry/tonometer, 3.282, 3.293–294, 6.207f, 6.209f, 7.39, 7.39f, 8.191f
Applanation head/plate, of microkeratome, 13.85–86
Apical clearance, of rigid gas-permeable contact lenses, 3.218–219, 3.219f
Apical bearing, of rigid gas-permeable contact lenses, 3.218
Apical zone of cornea, 3.205, 3.215, 3.228, 8.25
Apixaban, 1.149
Aplastic anemia, 1.137, 2.393
carbonic anhydrase inhibitors causing, 10.180
APC. See Activated protein C
APC gene, 12.286
APCs. See Anterior polar cataracts; Antigen-presenting cells
Apert syndrome (acrocephalosyndactyly), 6.206–207, 7.39, 7.39
Aperture
diffraction created by, 3.105, 3.105f
pinhole
double, 3.285, 3.286f
monocular diplopia and, 3.130
Aphakia
congenital, 4.117, 6.305, 11.30
description of, 3.93, 3.119
epikeratoplasty (epikeratophakia) for, 13.62
Glaucoma and.
epikeratoplasty (epikeratophakia) for, 13.62
description of, 3.93, 3.119
congenital, 4.117, 6.305, 11.30
after ICCE, 11.201
infantile, 3.225
IOLs for, 11.118–122. See also Intraocular lenses monocular, 3.191
post–cataract surgery management of, 6.304
as refractive hyperopia, 3.137
retinal detachment risks, 12.319
unilateral, 3.140, 3.207
Aphakic (pseudophakic) bullous keratopathy, after cataract surgery, 4.83–84, 4.84f, 11.129, 11.129f
IOL design and, 11.149
Aphakic glaucoma, 6.285, 10.130–132
in children, 10.156–157
tube shunt implantation for, 10.215
Aphakic spectacles
description of, 3.191f, 3.191–192
image magnification caused by, 3.255
Apical alignment fit, of rigid gas-permeable contact lenses, 3.218–219, 3.219f
Apical bearing, of rigid gas-permeable contact lenses, 3.218
Apical clearance, of rigid gas-permeable contact lenses, 3.218
Apical zone of cornea, 3.205, 3.215, 3.228, 8.25
Aplasia
Aplastic anemia, 1.137, 2.393
carbonic anhydrase inhibitors causing, 10.180
APMPPE. See Acute posterior multifocal placoid pigment epitheliopathy
APMs. See Alternative payment models
Apnea. See Obstructive sleep apnea
Apocrine glands, of eyelid, 4.201, 4.202, 8.4. See also Glands of Moll
Aphakic glaucoma
Aphakia
Aptosis
atrophy caused by, 2.182
cytotoxic T cell inducement of, 9.46
definition of, 2.171, 2.182
in embryogenesis, 2.182
Fas ligand (CD95 ligand/FasL) in
atrophy caused by, 2.182
in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis), 8.296
retinal ganglion cell, 6.44
Apparent diffusion coefficient (ADC) technique/
Apparent diffusion coefficient (ADC), 2.461
Apparent diffusion coefficient (ADC) technique/
mapping, 1.112, 5.64f, 5.65f, 5.67f, 5.75
Application head/plate, of microkeratome, 13.85f
13.85–86
Application tonometry/tonometer, 3.282, 3.293–294, 6.207f, 6.209f, 7.39, 7.39f, 8.191f
in normal-tension glaucoma, 10.86
portable electronic, 10.25
for axial length measurement, in IOL power determination/selection, 11.83
Appositional suprachoroidal hemorrhage, 12.394–395
Approximations. See specific type
anisocoria/Horner syndrome diagnosis and, 5.256f, 5.259f, 5.259f
in children, 10.165
Apraxia
of eyelid opening, 5.273f, 5.274
ocular motor, 5.221, 5.222–223
acquired, 5.223
congenital, 5.223
parietal lobe lesions and, 5.156, 5.223
APS. See Antiphospholipid syndrome
aPTT. See Activated partial thromboplastin time
Aquaporin-4 immunoglobulin G (AQP4- IgG) antibody, in neuromyelitis optica spectrum disorder, 5.115, 5.117f, 5.118, 5.320, 5.322
AquaLase liquefaction device, 11.125
Aquaporin(s) (major intrinsic protein/MIP/water channels), 2.283, 2.285, 11.16, 11.20–21
Aquaporin-4 immunoglobulin G (AQP4-IgG) antibody. See AQP4-IgG (aquaporin-4 immunoglobulin G) antibody
Aquaporin channels, 2.294f
Aqueous drainage
devices/shunts for. See Tube shunts for uveitis glaucoma, 9.320
Aqueous flare, in anterior uveitis, 9.77, 9.79f
Aqueous fluid polymerase chain reaction testing, in uveitis evaluations, 9.90–91
Aqueous humor
antibody production in, 9.91
ascorbate levels in, 2.274
biological factors in, 9.55
blood–aqueous barrier, 2.270, 2.279
calcium in, 2.274
carbohydrates in, 2.274–275
carbon dioxide in, 2.278–279
for CMV testing, 8.232
composition of, 2.273–279
dynamics of, 2.270–273, 10.17–19
enzymes in, 2.276
formation of. See Aqueous humor, production/composition of
glucose concentration in, 2.274–275
glutathione in, 2.275
growth-modulatory factors in, 2.277
glutathione in, 2.275
immunosuppressive microenvironment of, corneal
graft tolerance and, 8.316
inorganic ions in, 2.274
inositol in, 2.275
insulin-like growth factor binding proteins in, 2.277
intracocular pressure and, 10.5, 10.5f, 10.13, 10.14f
in iris stroma, 2.68
lactate in, 2.274
magnetic resonance imaging of, 2.459f
neuroendocrine proteins in, 2.276
neurotrophic proteins in, 2.276
nonpigmented epithelium secretion of, 2.271
organic anions in, 2.274
outflow of, 10.5f, 10.17–19, 10.18f
facility of, 10.19
classification of glaucomas and, 10.3–5, 10.4f, 10.6f
intracocular pressure and, 10.5, 10.5f, 10.13, 10.14f
tonography in measurement of, 10.19
laser trabeculoplasty affecting, 10.188
prostaglandin analogues affecting, 10.165–166, 10.170
trabecular, 10.5f, 10.13, 10.17–18, 10.18f
uveoscleral, 10.5f, 10.13, 10.19
oxygen in, 2.278
pH of, 2.279
phosphate in, 2.274
polymerase chain reaction testing of, in uveitis evaluations, 9.90–91
production/composition of, 2.270–273, 2.272f, 10.5f, 10.13–17, 10.14–15f
measurement of formation and, 10.17
suppression of formation and, 10.16–17
α2-agonists in, 10.17, 10.165
β-blockers in, 10.16–17, 10.164, 10.176
carbonic anhydrase inhibitors in, 10.16, 10.165, 10.179
production of, 2.59, 2.269, 2.272f
proteinase inhibitors in, 2.276
proteinases in, 2.276
proteins in, 2.275–276
refractive index of, 3.127, 8.26
secretion of, 2.270–273, 2.272f
separation of, from blood. See Blood–aqueous barrier
urea in, 2.275
vascular endothelial growth factors in, 2.277–278
Aqueous layer (component), of tear film
deficiency of. See Aqueous tear deficiency secretion tests, 8.38–39, 8.55–56
Aqueous misdirection, 2.378. See also Malignant glaucoma
Aqueous shunt implantation. See Tube shunts
Aqueous suppressants, for uveitic glaucoma, 9.319
Aqueous tear deficiency (ATD), 8.45, 8.53, 8.54f, 8.55f, 8.55–58. See also Dry eye
blepharitis and, 8.76
clinical presentation of, 8.55f, 8.55–58
non-Sjögren syndrome, 8.55f
refractive surgery and, 13.173
Sjögren syndrome, 8.39, 8.55f, 8.56–58, 8.58f
superior limbus keratoconjunctivitis and, 8.84
tests of, 8.38–39, 8.55–56
treatment of
medical, 8.61f, 8.61–64, 8.62t
surgical, 8.64–65, 8.65f
Aqueous vein, 2.67f
Arachidonic acid (AA)
derivatives of, 2.407
description of, 2.399
eicosanoids from, 9.19
prostaglandin synthesis from, 2.408f
Arachnids, ocular injury caused by, 8.386–387
Arachnodactyly, 6.307, 6.308f
Arachnoid villi, 5.22
Arachnoid sheath, 2.114, 2.115
Arachnoid mater, optic nerve, 4.241, 4.242
Arachnoid villi, 5.22
Arachnodactyly, 6.307, 6.308f
Arachnoid villi, 5.22
Arb. See Autosomal recessive bestrophinopathy
ARBs. See Angiotensin II receptor blockers
ARC. See Anomalous retinal correspondence
Arc of contact, 6.32
Arc scanning, 8.35f
ARC-T (Astigmatism Reduction Clinical Trial), 13.57
Arcade retinal arteries, inferior/superior, 5.14
Arcade retinal veins, 5.21
Arcuate fibers, 5.103, 5.104f
visual field defects and, 5.103, 5.106f
glaucoma and, 10.42, 10.68, 10.69f
Arcuate incisions, for keratorefractive surgery, 13.27f, 13.53, 13.54–55
coupling and, 13.27, 13.27f, 13.54, 13.54f, 13.55
Arcuate keratotomy (AK), 13.8t, 13.53, 13.54–58
complications of, 13.58
instrumentation for, 13.55
ocular surgery after, 13.58
outcomes of, 13.57
refractive lens exchange and, 13.149
surgical technique for, 13.55–57
Arcuate (Bjerrum) scotoma, 5.103, 5.105f, 5.106f
Arctoglia, 10.68, 10.68f
Arcus (corneal), 1.78, 8.120–121, 8.121f, 8.179
in cornea plana, 8.100
in dyslipoproteinemia/hyperlipoproteinemia, 8.120, 8.121, 8.179
juvenile, 8.121
in lecithin–cholesterol acyltransferase (LCAT) deficiency, 8.180, 8.180f
lipoides, in Schnyder corneal dystrophy, 8.151, 8.152f
senile furrow degeneration and, 8.122
senilis, 8.120–121, 8.121f
Arcus marginalis, 7.11
Arden index/ratio, 12.50
Area centralis, 12.9, 12.9f. See also Macula/macula lutea
Area of Martegiani, 12.7, 12.7f, 12.307
Area postrema syndrome, 5.117
AREDS2. See Age-Related Eye Disease Study 2
AREDS. See Age-Related Eye Disease Study
ArF laser. See Argon–fluoride (ArF) excimer laser
Argon–fluoride (ArF) excimer laser, 13.29, 13.73–77, 13.74–75. See also Excimer laser; Laser(s)
for photocoagulation, 13.29, 13.73–77, 13.74–75f. See also Photoablation
Argon laser therapy. See also Laser therapy;
Photoagulation for diabetic retinopathy/macular edema, 4.160, 4.161f
for gonioscopy/iridoplasty, 10.194
in plateau iris, 10.127f, 10.128, 10.193–194
for iridotomy, 10.192, 10.193
for trabeculoplasty (ALT), 10.88, 10.113–115, 10.188–189, 10.190f
for trichiasis, 7.240
Argus II Retinal Prosthesis System, 12.264
Argyll Robertson-like pupil, 5.267
Argyll Robertson pupil, 5.267, 9.223
Argyria/argyrasis/argyrosis description of, 8.118f, 8.132, 12.306
silver causing, 4.120
Arlr line, 8.261, 8.261f
ARM. See Age-related macular degeneration/maculopathy
ARMOR study. See Antibiotic Resistance Monitoring in Ocular Microorganisms (ARMOR) study
ARM2 gene, 12.63
in age-related macular degeneration, 4.160
ARN. See Acute retinal necrosis
Arnold-Chiari malformation, nystagmus caused by, 5.244, 5.245f, 5.246
ARPE. See Acute retinal pigment epitheliitis
ARR. See Absolute risk reduction
Arrestin, 2.313t, 12.253
in experimental autoimmune uveoretinitis, 9.61
Arrhythmias. See also specific type
bradyarrhythmias, 1.99, 1.101
in congestive heart failure, 1.99
tachyarrhythmias. See Tachyarrhythmias
ARS. See Axenfeld-Rieger syndrome
ART. See Antiretroviral therapy
Arterial circles, 5.117
Arterial macroaneurysms, retinal, 12.147–148, 12.148f
Arterial occlusive disease carotid artery. See Carotid occlusive disease
retinal artery. See also Retinal artery occlusion branch, 4.156
central, 4.156, 4.157f
Arterial retrobulbar hemorrhage. See also Retrobulbar hemorrhage
cataract surgery and, 11.158
Arteries, 5.11–20, 5.13–18
Arteriography. See Angiography/arteriography
Arteriohepatic dysplasia (Alagille syndrome), 6.255, 8.97t, 8.102, 12.282f, 12.285
posterior embryotoxon and, 8.97t, 8.102
Arteriosclerotic retinopathy, 12.122
Arteriovenous fistulas, 7.78; 7.78f
glaucoma associated with, 10.30
Arteriovenous malformations (AVMs), 5.343–345, 5.344f, 5.344f, 7.77f, 7.77–78
congenital retinal, 4.286f, 4.286–287
description of, 1.110
headache caused by, 5.291, 5.292f, 5.343
intracranial hemorrhage from, 1.120
intracranial hemorrhage caused by, 5.343
neuro-ophthalmic signs of, 5.343–345, 5.344f
neuroimaging in evaluation of, 5.292f
occipital, 5.343
binocular transient visual loss and, 5.172
orbital, 6.222
subarachnoid hemorrhage caused by, 1.121–122
surgical excision of, 1.122
in Wyburn-Mason syndrome, 5.333f, 5.334f
Arteritic ischemic optic neuropathy anterior (AAION), 5.107f, 5.120, 5.120f, 5.120–122, 5.121f, 5.313
posterior (PION), 5.107f, 5.119, 5.124
Arteritis giant cell (GCA/temporal), 5.89, 5.89f, 5.313–315, 7.62–63, 9.125f
AAION and, 5.120, 5.313
central retinal artery occlusion caused by, 12.145
description of, 1.168, 12.195
dioplia in, 5.192, 5.313
facial pain associated with, 5.288, 5.297
headache in, 5.288, 5.313
indocyanine green angiography of, 12.196f
neuro-ophthalmic signs of, 5.313–315
occult, 5.120, 5.170
optic nerve affected in, 4.244f, 4.244–245, 5.120
polymyalgia rheumatica associated with, 1.168
transient monocular visual loss and, 1.119
transient visual loss and, 5.120, 5.161, 5.162, 5.169–170, 5.313–314
vasculitis, 7.62–63
Takayasu (aortic arch arteritis/aortitis syndrome/pulseless disease)
cataract caused by, 11.68
description of, 1.170, 9.125f
Artery of Percheron, 5.20, 5.229–230
Arthritis
cataract surgery in patient with, 11.171
tenteropathic, 1.156, 6.315f
 enthesis-related, 1.154, 6.315f, 9.142
 juvenile idiopathic, 1.157–158, 1.158f, 6.312–315,
 6.313–314f, 6.314f, 6.322
 psoriatic, 1.156–157
 acute anterior uveitis in, 9.133
 clinical presentation of, 9.133, 9.134f
 laboratory tests for, 9.125f
 reactive/Reiter syndrome, 1.155–156f, 1.157, 6.315f,
 8.305–306
 acute anterior uveitis in, 9.132–133
 conjunctivitis/episcleritis associated with, 8.305–306
 diagnostic criteria for, 9.132–133, 9.133f
 human leukocyte antigen association with, 9.65f,
 9.132
 laboratory tests for, 9.125f
 rheumatoid (RA)
cataract surgery in patient with, corneal melting/
 keratolysis and, 11.132
 description of, 9.125f
 extra-articular manifestations of, 1.152–153
 hand deformities associated with, 1.152, 1.152f
 juvenile. See Juvenile idiopathic arthritis
 laboratory testing for, 1.153
 ocular manifestations of, 1.153
 peripheral ulcerative keratitis and, 8.311, 8.312, 8.312f
 prevalence of, 1.152
 refractive surgery contraindicated in, 13.191
 scleritis/scleralmala perforans and, 8.321–322,
 8.322f
 treatment of, 1.153–154
Arthritis mutilans, 1.156
Arthro-ophthalmopathy (Stickler syndrome), 12.282.
See also Stickler syndrome
Arthropods, 8.253, 8.254f
Artifacts
 on automated perimetry, 10.66f, 10.66–67, 10.67f
 in optical coherence tomography angiography, 12.29,
 12.30f
 projection, 12.29, 12.30f
 Artificial insemination, 2.238
Artificial tears, 2.415. See also Lubricants
 for corneal exposure in facial palsy, 5.280
 for dry eye, 8.61f, 8.62–63
 refractive surgery and, 13.173
 for exposure keratopathy, 8.80
 for hay fever conjunctivitis, 8.288
 for Stevens-Johnson syndrome (Stevens-Johnson
 syndrome/toxic epidermal necrolysis overlap and
toxic epidermal necrolysis), 8.297, 8.298
 for Thyeoson superficial punctate keratitis, 8.307
 ARV (AIDS-related virus). See HIV (human
 immunodeficiency virus); HIV infection/AIDS
 AS. See Ankylosing spondylitis
 ASA (advanced surface ablation). See Photorefractive
 keratectomy
 ASA-PS. See American Society of Anesthesiologists
 Physical Status
 Ascending optic atrophy, 4.245–246
 Ascorbic acid (vitamin C)
in aqueous humor, 2.274
 for chemical injuries, 8.383
 corneal wound healing and, 13.33
 description of, 2.340, 2.342–343
 in phototherapeutic keratectomy, 8.367
 in vitreous, 2.302, 2.303f, 12.9
 ASCRS (American Society of Cataract and Refractive
 Surgery), on IOL power calculation, 11.85
 online post-refractive calculator, 13.52, 13.195–197,
 13.196f
 ASDA (anterior segment developmental anomalies).
 See Anterior segment, dysgenesis of
 Aseptic meningitis, in HIV infection/AIDS, 5.348
 Aseptic thrombosis
cavernous sinus, 5.345
 lateral (transverse) sinus, 5.69f, 5.345
 Ash-leaf spot (hypopigmented macule), in tuberous
 sclerosis, 5.331f, 5.334f, 10.30
 ASI. See Anterior segment, ischemia of
 Aspergillum (fungus ball), 5.353
 Aspergillus (aspergillosis), 5.353–354, 5.354f, 7.52,
 8.208t, 8.249t, 8.251, 9.301
 allergic, 5.353
 endophthalmitis caused by, 12.239
 endogenous, 9.300–301
 invasive, 5.353, 5.354
 keratitis caused by, 4.78, 8.208t, 8.275
 neuro-ophthalmic signs of, 5.353–354, 5.354f
 ocular infection caused by, 8.208f
 orbital infection caused by, 4.227–228, 4.228f, 5.353,
 5.354f
 retinal infection caused by, 4.147
 sinus infection and, 5.353
 Asperghicity, corneal, 13.14
 Aspiration. See also Irrigation/aspiration
 in ECCE, 11.197
 in manual small-incision cataract surgery, 11.198,
 11.199f
 in phacoemulsification, 11.102, 11.115
 pumps for, 11.103f, 11.103–104, 11.104f
 Aspiration biopsy. See Fine-needle aspiration
 biopsy
 Aspirin, 2.409t, 2.409–410. See also Dual antiplatelet
 therapy
diabetic retinopathy and, 12.100
 myocardial infarction prophylaxis using, 1.89
 ocular adverse effects of, 1.308f
 platelet aggregation inhibition using, 1.143
 stroke prevention uses of, 1.114
 ASPPC. See Acute syphilitic posterior placoid
 chorioretinitis
 Assessment of Capacity for Everyday Decision-Making
 (ACED), 1.211
 Association (genetic)
alale. See Linkage disequilibrium
 description of, 6.183
 Asteroid bodies, 4.133, 4.133f
 in sarcoidosis, 4.187
 Asteroid hyalosis, 4.133, 4.133f, 12.346f, 12.346–347
 Asthenopia, 6.101
 Asthenopic complaints
definition of, 3.24
development of, 3.196

Asthma
bronchospasm in, 1.123–124
description of, 1.123–124
eosinophilic, 1.124
precipitating factors for, 1.124
treatment of, 1.128–130, 1.129f, 1.308f

Astigmatism, 13.17–19
See Astigmatic refractive errors.

Astigmatism, surgical
corneal topography in detection/management of, 8.32, 8.431–432, 8.432f
corneal keratoscopy in, 8.27
contact lenses for, 3.211–212

Astigmatic keratotomy (AK)/incision, 13.8f

Astigmatic dial technique, 3.148, 3.160–162, 3.161f, 3.166f

Astigmatic refractive errors. See Astigmatism

Astigmatism, 13.17–19
against-the-rule, 3.123, 3.139, 3.250, 8.31, 8.32f, 8.33f
autorefractor detection of, 3.273
in cataract patient, 11.174
conical topography before surgery and, 11.84, 11.174
modification during surgery and, 11.123–124
toric IOLs for, 11.124, 11.151–153
after cataract surgery, 11.131–132
keratorefractive/refractive surgery and, 11.176, 11.177f, 11.53, 13.54–58
manual small-incision surgery and, 11.198
compound hyperopic, 3.138, 3.138f
compound myopic, 3.138, 3.138f
corneal contact lenses for, 3.211–212
corneal contact lens masking of, 3.225
description of, 3.19
spherical rigid contact lenses for, 3.211
toric intraocular lenses for, 3.257
in corneal ectasia, 8.32f
corneal topography in detection/management of, 8.15, 8.31–32, 8.32f, 13.17–19, 13.18–19f,
13.22–23, 13.44–45, 13.45f
after penetrating keratoplasty, 8.431–432, 8.432f
after radial keratotomy, 8.32, 8.431–432, 8.432f
after refractive lens exchange, 13.149
after refractive surgery, 13.199
cylindrical spectacle lenses for, See Cylindrical lenses
distortion and. See Distortion
minus cylinder lens for, 3.19, 3.20f
quantities required for, 3.20
pheric soft contact lenses for, 3.222–223, 3.223f
definition of, 3.3, 3.16, 3.39, 3.72, 3.123, 3.137
description of, 3.15–19
focal lines in, 3.137
induced, cataract surgery and, 11.131–132
irregular, 13.17–19, 13.18f, 13.19f. See also Wavefront aberrations
after arcuate keratotomy, 13.58
after cataract surgery, keratorefractive/refractive surgery and, 13.53
causes of, 3.277–278, 3.278f
after penetrating keratoplasty, 8.431–432, 8.432f

Asthma
bronchospasm in, 1.123–124
description of, 1.123–124
eosinophilic, 1.124
precipitating factors for, 1.124
treatment of, 1.128–130, 1.129f, 1.308f
photoablation for, 13.75f
preoperative patient preparation and, 13.82
refractive lens exchange for, 13.148–149
small-incision lenticule extraction for, 13.204
thermokeratoplasty for, 13.127
toric IOLs for, 11.124, 13.148–149, 13.151–153
after penetrating keratoplasty, 8.432, 13.179
transverse keratotomy for, 13.53, 13.54, 13.54f
wavefront-optimized/wavefront-guided laser
ablation for, 13.31, 13.76–77
results of, 13.31–32, 13.97

photometry accuracy and, 10.24
after toric IOL implantation, 13.153

after penetrating keratoplasty, 8.432, 13.179
types of, 3.277
wavefront analysis and, 13.11, 13.11f. See also
Wavefront analysis
“with-the-rule,” 8.31f
definition of, 3.19, 3.125
description of, 3.139
minus cylinder lens correction of, 3.20f

schematic diagram of, 3.19f

Astigmatism Reduction Clinical Trial (ARC-T), 13.57
Astrocytes, 2.111, 2.113
optic nerve, 4.241, 4.242f
retinal, 5.24
in healing/repair, 4.17

Astrocytoma (astrocytic hamartoma), 4.249, 4.249f, 5.108f, 6.353, 6.397, 6.399f
juvenile pilocytic, 4.249
optic. See Optic nerve glioma
pilocytic. See Optic nerve glioma
retinal, 4.295, 4.296f
optic nerve/nerve head/disc drusen differentiated from, 5.108f, 5.143
retinoblastoma differentiated from, 4.295, 4.296f
in tuberous sclerosis, 4.295, 5.143, 5.331f, 5.334t

Asymptomatic carotid stenosis, 1.116–117
Asymptomatic coronary heart disease, 1.86
Asymptomatic retinal breaks, 12.318
AT. See Antithrombin; Ataxia-telangiectasia

Ataxia
diplopia and, 5.191
optic, 5.223

Ataxia-telangiectasia (AT/Louis-Bar syndrome), 2.181, 5.330, 5.332f, 5.334t, 6.393t, 6.403f, 6.403t, 6.403–404, 8.115f, 8.346

ATD. See Aqueous tear deficiency
Athens protocol, 13.134
Atheroma
description of, 1.110
transient visual loss and, 5.165–166, 5.167f
Atherosclerosis
carotid
diagnosis of, 1.116
locations of, 1.115
coronary artery (coronary heart disease). See
Ischemic heart disease
definition of, 1.72
fatty streak associated with, 1.81
ocular manifestations of, 1.78
plaque, 1.81
risk factors for, 1.89
screening for, 1.215
transient visual loss and, 5.165–166, 5.167f

Atkinson nerve block, for cataract surgery, 11.92, 11.93f
ATM gene, 2.181

ATOH7 gene, 12.341
Atrioventricular (AV) junction, 1.101
Atrial fibrillation (AF), 1.102–103, 1.103f
cardioembolic stroke caused by, 1.111
perioperative management for ocular surgery in patients with, 1.284
stroke caused by, 1.111
Atrial flutter, 1.102
Atrial thrombi, 1.102
Atrophy
bulbi
with shrinkage, 4.22
without shrinkage, 4.22

Atrophic retinal holes
definition of, 12.315
lattice degeneration and, 4.150, 12.310, 12.311f, 12.316f
retinal detachment secondary to, 12.310

Atrophy
chorioretinal
genes and loci associated with, 12.256t
in pathologic myopia, 12.214f
choroid, age-related, 12.200, 12.212
geographic
in Best vitelliform dystrophy, 12.271
description of, 12.64, 12.66, 12.67f, 12.68
in drusenoid retinal pigment epithelium detachment, 12.272
gyrate, 12.268–269, 12.269f
iris. See Iris, atrophy of
macula, 12.265, 12.265f
optic. See Optic atrophy
retinal, ischemic, 4.151, 4.151f, 4.156, 4.159
retinal pigment epithelium, 12.106f, 12.294f
geographic/nongeographic, 4.164, 4.164f

Atrophy creep, 12.89
Atropine
accommodation affected by, 11.23
amblyopia treated with, 6.59
in children, 6.11, 6.11f
description of, 1.306, 2.354, 2.380t
for edrophonium/neostigmine adverse effects, 5.324, 5.325
eyedrops, for refractive error prevention, 3.144
mydriasis caused by, 5.263
Atropine-Care. See Atropine
Atypia, cellular
congenital melanocytic intraepithelial neoplasia
and, 4.66–68, 4.67f, 8.342–343
primary acquired melanosis and, 4.65, 4.66, 4.67f, 8.342–343
Atypical granular corneal dystrophy. See Reis-Bücklers corneal dystrophy
Atypical lymphoid hyperplasia (ALH), of orbit, 4.231, 4.232
Atypical mole. See Nevi/nevus, dysplastic
Atypical mycobacteria, 8.248, 8.272–273, 8.273f
keratitis caused by, after photoablation, 13.106, 13.119
peripheral ulcerative keratitis as, 8.51, 8.311–313, 8.312
mucous membrane pemphigoid as, 8.299, 8.301–302
Mooren ulcer as, 8.314
conjunctivitis caused by, cicatricial conjunctivitis
Cogan syndrome as, 8.309, 8.310
scleritis in, 8.319, 8.323
Autoimmune disease. See also specific type
Cogan syndrome as, 8.309, 8.310
conjunctivitis caused by, cicatricial conjunctivitis
differentiated from, 8.301f
Mooren ulcer as, 8.314
uveitis evaluations, 9.89
serpiginous choroiditis findings, 9.163t
retinitis pigmentosa findings, 12.261
serpiginous choroidopathy findings, 12.223f
Autogenous tensor fascia lata, 7.252
Atypial granular corneal dystrophy. See Reis-Bücklers corneal dystrophy
Atypical lymphoid hyperplasia (ALH), of orbit, 4.231, 4.232
Atypical mole. See Nevi/nevus, dysplastic
Atypical mycobacteria, 8.248, 8.272–273, 8.273f
keratitis caused by, after photoablation, 13.106, 13.119
peripheral ulcerative keratitis as, 8.51, 8.311–313, 8.312
mucous membrane pemphigoid as, 8.299, 8.301–302
Mooren ulcer as, 8.314
conjunctivitis caused by, cicatricial conjunctivitis
Cogan syndrome as, 8.309, 8.310
scleritis in, 8.319, 8.323
Autoimmune disease. See also specific type
Cogan syndrome as, 8.309, 8.310
conjunctivitis caused by, cicatricial conjunctivitis
differentiated from, 8.301f
Mooren ulcer as, 8.314
uveitis evaluations, 9.89
serpiginous choroiditis findings, 9.163t
retinitis pigmentosa findings, 12.261
serpiginous choroidopathy findings, 12.223f
Autogenous tensor fascia lata, 7.252
Autoimmune diseases. See also specific type
Cogan syndrome as, 8.309, 8.310
conjunctivitis caused by, cicatricial conjunctivitis
differentiated from, 8.301f
Mooren ulcer as, 8.314
uveitis evaluations, 9.89
serpiginous choroiditis findings, 9.163t
retinitis pigmentosa findings, 12.261
serpiginous choroidopathy findings, 12.223f
Autogenous tensor fascia lata, 7.252
Automatisms, 1.207
Autonomic cephalgias, trigeminal (TACs), 5.293–294
Horner syndrome and, 5.260, 5.261
Autonomic pathways, 5.52–56
parasympathetic, 5.52, 5.54–56, 5.55f
sympathetic, 5.52–54, 5.53f
in tear secretion, 8.5, 8.5f
Autophagy
description of, 2.283
in retinal pigment epithelium, 2.332
Autorefractors. See also Retinoscope/retinoscopy
astigmatism detection using, 3.273
definition of, 3.147, 3.281
description of, 3.285–286
difficulties associated with, 3.286
function of, 3.285
initial estimate of refractive error obtained using, 3.28
ray-deflection, 3.289
Autoregulation, vascular, disturbances of, in glaucoma, 10.85
Autosomal dominant inheritance, 2.206–208, 2.207f
tAutosomal dominant optic atrophy (ADOA), 5.135, 5.136f
Autosomal dominant polyposis of the intestinal tract, 7.197
Autosomal dominant retinitis pigmentosa (ADRP), 2.312
Autosomal dominant vitreoretinochoroidopathy (ADVIRC), 6.341
Autosomal recessive bestrophinopathy (ARB)
description of, 12.271
electro-oculography of, 12.51f
carrier heterozygotes, 2.205
characteristics of, 2.207f
consanguinity, 2.206
description of, 2.203
enzyme defects as cause of, 2.203, 2.205
pseudodominance, 2.206
retinitis pigmentosa, 2.312
Autosomes
aneuploidy of, 2.222–224.
See also specific disorder
definition of, 2.213–214
Auxiliary lenses, for slit-lamp biomicroscope, 3.295–296, 3.296f
AV junction. See Atrioventricular (AV) junction
Avellino (granular type 2) corneal dystrophy, 4.90, 4.91f, 4.91f, 8.135f, 8.136f, 8.145f, 8.148–149, 8.149f
amyloid deposits in, 8.148, 8.186f
refractive surgery and, 13.43
AVMs. See Arteriovenous malformations
Avonex. See Beta (β)-interferon
Avulavirus, 8.240f
Awareness of vision, disorders of, 5.178f, 5.180–181
Axenfeld anomaly/syndrome, 4.100f, 8.102, 10.153.
See also Axenfeld-Rieger syndrome
Axenfeld loop/Axenfeld nerve loop, 2.58, 2.58f, 4.108, 4.108f
Axenfeld-Rieger syndrome (A-R syndrome/ARS), 2.236, 4.98–99, 4.100f, 8.97f, 8.102, 8.103f, 10.31, 10.150, 10.153–154
description of, 6.255, 6.255f, 6.264–265, 6.264–265f, 6.268f
glaucoma associated with, 4.99, 6.285, 10.31, 10.153–154
posterior embryotoxon in, 4.99, 4.99f, 4.100f, 8.97f, 8.102, 10.31, 10.153
Axes
optic/optical, 11.9, 11.10f
visual, Nd:YAG laser capsulotomy location and, 11.155
Axial ametropia, 3.137
Axial curvature/axial curvature map, 8.29, 8.29f, 13.16–17f. See also Cornea, topography of
"Axial distance," 13.16
Axial hyperopia, 2.470f
Axial length (AL), 11.84–85
age-related changes in, 3.141
angle closure and, 10.121
in biometric formula for intraocular lens power calculation, 3.244–248
in children, 3.254
definition of, 3.244
extremes in, cataract surgery in patient with, 11.184–185
in IOL power determination, 11.82–83, 11.83f, 11.85
hypotony and, 11.185
optical measurement of, 11.82, 11.85
refractive surgery and, 13.193
staphylomas affecting, 13.150
ultrasound measurement of, 11.82–83, 11.83f, 11.85
unexpected refractive results after surgery and, 11.150, 11.176
Axial (longitudinal) magnification, 3.39, 3.63–64.
See also Magnification
Axial plane, 7.27
Axial power, 13.16, 13.16f
Axial proptosis, 2.110
Axial refractive errors, correction of, 3.12–13
Axial resolution, of contact B-scan ultrasonography, 12.39
Axial scans
B-scan ultrasound, 2.464–465, 2.464–465f
computed tomography, 2.454, 2.456f
ultrasound biomicroscopy, 2.468, 2.471f
Axonal transport system, of optic nerve, 5.26
Drusen and, 5.140
AZA. See Azathioprine
AzaSite. See Azithromycin
Azathioprine (AZA), 2.404f
for Behçet disease, 9.217, 12.230
dermatomyositis treated with, 1.168
description of, 1.179
polymyositis treated with, 1.168
for uveitis, 6.322, 9.106–107
Azelaic acid, for rosacea, 8.71
Azelastine hydrochloride, 2.412f
Azithromycin, 2.421f, 2.427
for chalazion, 7.182
for chlamydial conjunctivitis, 8.263
dental prophylaxis uses of, 1.248f
indications for, 1.275
for meibomian gland dysfunction, 8.68–69
Azlocillin, 4.219
AZOOR. See Acute zonal occult outer retinopathy
Azopt. See Brinzolamide
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
Azlocillin, 2.419
Aztreonam, 1.272–273

See AZOOR.
orbital cellulitis caused by, 6.213, 6.214f
orbital infection caused by, 4.226
scleral infection/scleritis caused by, 4.75–76, 4.76f, 8.282–283, 8.283f
treatment of. See Antibiotics
Bacterial uveitis
bartonellosis as cause of. See Bartonella (bartonellosis)
leptospirosis as cause of, 9.232–233
Lyme disease as cause of. See Lyme disease
nocardirosis as cause of, 9.233
polymerase chain reaction for, 9.90
syphilis as cause of. See Syphilis
See also Tuberculosis
Whipple disease as cause of, 9.243–245, 9.244f
Bacteriology, 8.208–209, 8.234–249, 8.244f.
See also Bacteria
Bacteroides spp.
B fragilis, 1.275
description of, 2.419
1.275
B fragilis
balint syndrome, 5.180, 5.223
Balint syndrome, 5.180, 5.223
Balint syndrome
Balint syndrome
Baltimore Eye Survey, 10.81, 10.82, 10.83
Balloon dacryoplasty, 6.234–235, 6.235f, 7.294
Balloon cells
in choroidal/ciliary body melanoma, 4.192, 4.193f
in choroidal/ciliary body nevus, 4.191
Balloon dacryoplasty, 6.234–235, 6.235f, 7.294
Baltimore Eye Survey, 10.81, 10.82, 10.83
Band atrophy
in optic tract syndrome, 5.153
in pituitary adenoma, 5.92f
Band keratopathy/calcific band keratopathy, 4.81–83, 4.82f, 6.322, 8.111, 8.117–120, 8.119f, 8.201
"actinic," 4.83
in aqueous tear deficiency, 8.56
calcific, 9.143f, 9.313. See also Calcific band keratopathy
in chronic uveitis, 9.78
gelatinous droplike corneal dystrophy and, 8.141, 8.141f
in gout, 8.119, 8.188
parathyroid disorders and, 8.201
Band-shaped and whorled microcystic dystrophy of the corneal epithelium. See Lisch epithelial corneal dystrophy
Bandage contact lenses, 3.227–228, 8.368
for chemical injuries, 8.383
contraindications to, in exposure keratopathy, 8.80 for corneal abrasion, 8.398
for dry eye, 8.61f, 8.63, 8.368
for graft-vs-host disease, 8.304, 8.305f
after LASIK, 13.93, 13.111, 13.200
for epithelial ingrowth, 13.122
for epithelial sloughing/defects, 13.112
microkeratome complications and, 13.111
for striae, 13.113
for penetrating and perforating ocular trauma, 8.402
for peripheral ulcerative keratitis, 8.313
for recurrent corneal erosions, 8.87, 8.368
for superior limbic keratoconjunctivitis, 8.84
after surface ablation, 13.92, 13.107, 13.200
sterile infiltrates and, 13.108, 13.108f
for Thygeson superficial punctate keratitis, 8.307
BAP1, in immunohistochemistry, 4.35
BAP1 gene, in choroidal/ciliary body melanoma, 4.197, 4.262, 4.278
Barbados Eye Study, 10.83, 11.6
Barbiturates, 1.201–202
Bardet-Biedl syndrome, 2.220, 6.391, 6.391f
Baricitinib, 1.180
Bariatric surgery, in idiopathic intracranial hypertension, 5.112
Baricitinib, 1.180
Barkan membrane, 10.159
Baroreceptors, 2.384
Barr body. See Lyonization
Barrett formula, for IOL power determination/selection, 11.85
Bartonella (bartonellosis)
diagnosis of, 9.243
henselae (Rochalimaea henselae), 5.119, 6.240–241, 6.369, 8.244f, 8.248, 8.265, 8.266, 9.240–243, 12.243f
ocular involvement in, 9.241, 9.242f
ocular infection caused by, 8.248, 8.265–266
oculopathy associated with, 9.241, 9.242f
ocular involvement in, 9.241, 9.242f
ocular infection caused by, 8.248, 8.265–266
quintana, 5.119
treatment of, 9.243
Basal cell carcinoma (BCC), 7.200–205, 7.201–203f
of eyelid, 4.212f, 4.212–213, 4.213f
intraocular extension of, 4.310
Basal cell nevus syndrome (Gorlin syndrome), 7.201, 7.202f
eyelid manifestations of, 4.210f
Basal cells, of corneal epithelium, 2.51, 2.52f
corneal. See Descemet membrane/layer
drusen of (cuticular drusen), 4.162, 12.274, 12.275f
lens. See Lens capsule
basal lamina (basal cell layer)
of cornea, 2.51, 2.52f
ocular. See Descemet membrane/layer
basal lamina
Basal laminar deposits, in age-related macular degeneration, 4.160, 4.162, 4.165, 4.165f
Basal linear deposits, in age-related macular degeneration, 4.160, 4.162
Basal (basic) secretors/basal (basic) tear secretion test, 7.296, 8.38
Base curve, of contact lens, 3.205, 3.215f, 3.216
Base-down prism, 3.188
in relative cyclotropia evaluation, 5.185
Base-in prism, 3.211
in fusional convergence evaluation, 5.226
Base-out prisms, 3.46, 3.211
convergence insufficiency and, 6.103
convergence paralysis and, 6.106
dissociated vertical deviation and, 6.129
in fusional convergence evaluation, 5.226
in nonorganic disorder evaluation, 5.302–303
for nystagmus, 5.236, 5.245, 6.155
Base pairs
definition of, 2.182
mutations of, 2.183
Basic intermittent exotropia, 6.101
Basic life support (BLS), 1.299
Basic secretors/basic secretion test. See Basal (basic) secretors/basal (basic) tear secretion test
Basal artery (BA), 5.12, 5.13f, 5.19, 5.19f, 5.20, 5.27f
anatomy of, 2.106f, 2.124, 2.139
aneurysm of, 5.338, 5.339f
cranial nerve relationship and, 5.42f
dissection of, 5.342
median perforators of, 5.20
stenosis of, 5.337f
transient visual loss caused by ischemia of, 5.162, 5.336–337
Basal laminar deposits
age-related changes in, 12.61
definition of, 12.64
illustration of, 12.62f
Basal linear deposits
definition of, 12.64
illustration of, 12.62f
Basilar plexus, 5.23f
Basilar-type migraine, 5.291. See also Migraine headache
Basilar vein of Rosenthal, 5.22
Basophil, 4.7, 4.8f
characteristics of, 9.2–3
histamine in, 9.19
Batfish, 6.43
Batten, Spielmeyer-Vogt disease, 6.389t
Batten disease, 12.283t, 12.290f
Battle sign, 5.280
Battlefield injuries, 7.122
Bausch + Lomb keratometer, 3.287
Bayes theorem, 1.19
Baylisascaris procyonis (raccoon roundworm), 12.246
BBG. See Brilliant blue G
BCC. See Basal cell carcinoma
BCG (Bacille Calmette-Guérin) vaccine, tuberculosis skin testing and, 9.238
Bcl-2 proteins, in adenoid cystic carcinoma, 4.231
BCVA/BCSVA. See Best-corrected visual/Snellen visual acuity
BD. See Behçet disease
BDUMP. See Bilateral diffuse uveal melanocytic proliferation
Beaded filaments, 11.16
Bear tracks (grouped pigmentation of retina), 4.269, 4.269f, 6.349
BEAT-ROP. See Bevacizumab Eliminates the Angiogenic Threat of Retinopathy of Prematurity
Beaver Dam Eye Study, 10.82, 10.83, 11.6
BEB. See Benign essential blepharospasm
Bee stings, ocular injury caused by, 8.386–387
Behavioral/psychiatric disorders. See also specific disorder
bipolar disorder, 1.196, 1.203
cataract surgery in patient with, 11.169–170
conversion disorder, 1.197
depression. See Depression factitious disorder, 1.197
generalized anxiety disorder, 1.197
hallucinations/illusions in, 5.174t
illness anxiety disorder, 1.197
informed consent in patients with, 1.211–212
malingering, 1.197, 1.203
mania, 1.195–196
medical conditions as cause of, 1.194
mood disorders, 1.195–196
overview of, 1.194
panic disorder, 1.198
personality disorders, 1.198
pharmacologic treatment of
antianxiety drugs, 1.201t, 1.201–202
antidepressants, 1.202–203, 1.203t
antipsychotic drugs, 1.199–201, 1.200t
barbiturates, 1.201–202
benzodiazepines, 1.201–202
hypnotic drugs, 1.201t, 1.201–202
mood stabilizers, 1.203–204
post-traumatic stress disorder, 1.198
prevalence of, 1.194
schizophrenia, 1.194–195, 1.200
somatic symptom and related disorders, 1.196–197
visual symptoms and. See Nonorganic (functional/ 
nonphysiologic) ophthalmic disorders
Behcet disease (BD)
- anterior uveitis in, 9.214
- biologic agents for, 9.218
- characteristics of, 9.211
- corticosteroids for, 9.216–217
- definition of, 9.211
- differential diagnosis of, 9.216
- fluorescein angiography findings in, 9.216, 9.217f
- genital ulcers associated with, 9.213
- histologic findings in, 9.215, 9.216f
- HLA associations with, 9.215
- human leukocyte antigen association with, 9.65t
- immunomodulatory therapy for, 9.216–218
- neurologic involvement in, 9.213–214
- nonocular systemic manifestations of, 9.213–214
- ocular manifestations of, 9.214–215, 215f
- optic nerve involvement in, 9.215
- optical coherence tomography findings in, 9.216, 9.217f
- oral aphthae associated with, 9.213, 9.213f
- pathogenesis of, 9.215
- posterior segment manifestations of, 9.214–215, 9.215f
- prevalence of, 9.212
- prognosis for, 9.218
- skin lesions associated with, 9.213
- systemic vasculitis associated with, 9.213
- treatment of, 9.216–218
- Behr optic atrophy, 6.368
- Belimumab, 1.180
- Bell palsy, 5.278f, 5.279
- aberrant regeneration/facial nerve synkinesis and, 5.277, 5.279
- Bell phenomenon, 6.126f, 6.197, 7.243
- Bence Jones protein, corneal deposition of, 8.198
- Benedikt syndrome, 5.191
- Benign episodic unilateral mydriasis, 5.267
- Benign epithelial lesions, 7.189–190, 190f
- Benign essential blepharospasm (BEB), 5.281–283, 5.282f, 5.282t, 7.256–258. See also Blepharospasm
- Benign eyelid myokymia, 5.282f, 5.284
- Benign hereditary intraepithelial dyskeratosis, 8.332f
- Benign lymphoid folliculocytosis, 8.48, 8.49f
- Benign lymphoid hyperplasia, 4.70, 4.70f. See also Lymphoid hyperplasia
- Benign lymphoid pseudotumor/pseudolymphoma. See Lymphoid hyperplasia
- Benign melanocytic lesions
- blue nevi, 7.198
- dermal melanocytosis, 7.198, 7.198f
- ephelis, 7.197
- lentigo simplex, 7.197
- nevi, 7.195–197, 7.196–197f
- solar lentigo, 7.197–198, 7.198f
- sources of, 7.194–195
- Benign mixed tumor (pleomorphic adenoma)
- description of, 7.98–100, 7.99f, 7.192
- of lacrimal gland, 4.229–230, 4.230f
- Benign monoclonal gammopathy, crystalline corneal deposits in, 8.198
- Benign paroxysmal positional vertigo (BPPV), 8.198
- nystagmus and, 5.242–243
- Benign prostatic hypertrophy, 9.215
- α-blockers for, 5.242–243
- intraoperative floppy iris syndrome and, 11.74, 11.136–117, 11.137f
- Benign reactive lymphoid hyperplasia. See Lymphoid hyperplasia
- Benoxinate, 2.441
- Benzalkonium (BAK), 2.351
- Benzoitropine, 1.205
- Benzodiazepines, 1.201–202
- Benztropine, 1.201–202
- Benztropine, 1.205
- Bepotastine besilate, 2.412t
- Bevre. See Bepotastine besilate
- Berger space, 12.7, 12.8f
- Bergmeister papilla, 4.126, 4.127f
- Berlin edema (commotio retinae), 4.18–19
- Berlin nodules, 9.80
- Berry (saccular) aneurysm, 1.121, 5.338
- Besifloxacin, 2.421t
- for bacterial keratitis, 8.270, 8.270t
- Besivance. See Besifloxacin
- Best-corrected visual/Snellen visual acuity (BCVA/ 
BCSVA/corrected distance visual acuity/CDVA). See Also Visual acuity
- blindness and, 3.311
- after Boston keratoprosthesis implantation, 8.452
- after cataract surgery, 11.126
- manual small-incision surgery and, 11.198–199
- multifocal IOLs and, 11.121–122
- corneal crosslinking and, 13.131
- after endothelial keratoplasty (DMEK/DSEK), 8.438–440
- flap folds/striae and, 13.112, 13.113, 13.114t, 13.115
- as gold standard, 3.21
- hard contact lens method for IOL power calculation and, 13.195
- irregular astigmatism affecting, 13.17
- LASIK and, 13.95
- in amblyopia/anisometropic amblyopia, 13.185–187
- in diabetes mellitus, 13.190
- after penetrating keratoplasty, 13.180
- after retinal detachment surgery, 13.185
- in low vision assessment, 5.78
- photostress testing and, 5.88
- multifocal intraocular lenses, 3.260
- myopia correction and, 13.95
- patient expectations/motivations for refractive surgery and, 13.36, 13.47
- phakic IOL implantation and, 13.144
- radial keratotomy and, 13.51–52
- small-incision lenticule extraction and, 13.205
- undercorrection after photoablation and, 13.102
- Best disease (Best vitelliform dystrophy/vitelliform macular dystrophy), 6.340–342, 6.342f
- characteristics of, 12.271, 12.272f
definition of, 12.51
electro-oculography of, 12.51, 12.271
BEST1 (VMD2/vitelliform macular dystrophy) gene, 6.340–342, 10.111, 12.271
Brestophin, 2.333, 12.50
Brestophinopathies, 6.341
Beta (β)-adrenergic antagonists, 2.389f, 2.389–390
Beta (β)-adrenergic agents. See Beta (β)-blockers
Beta (β)-adrenergic agonists, 2.385f, 2.387–389
for lung disease, 1.128
Beta (β)-adrenergic receptors (adrenoceptors)
β1-, 2.382, 2.383f
β2-, 2.382, 2.383f
for lung disease, 1.128
drugs affecting. See Beta (β)-blockers
Beta (β)-blockers, 10.164–165, 10.171–172, 10.176–177
adverse effects of, 1.62, 1.309f
angina pectoris treated with, 1.91
childhood glaucomas treated with, 6.288, 6.289f
congestive heart failure treated with, 1.98–99
dry eye and, 8.61
elevated intraocular pressure masked by, 10.86
for glaucoma, 10.171–172, 10.176–177
in children, 10.164–165
in combination preparations, 10.174f, 10.182
in elderly patients, 10.186
normal-tension glaucoma and, 10.88
during pregnancy/lactation, 10.185
side effects of, 10.171–172, 10.177
suppression of aqueous formation and, 10.16–17,
10.177
for hemangiomas
description of, 6.220
infantile, 7.72
hypertension treated with, 1.62, 1.69
for hyphema, 8.395
myocardial infarction treated with, 1.93
ocular effects of, 1.309f
for penetrating and perforating ocular trauma, 8.402
for postoperative elevated intraocular pressure,
10.108
prophylactic uses of, 1.285
Beta (β)-crystallins, 11.16
Beta (β)-Galactosidase, defective/deficiency of
in gangliosidoses, 8.176
in lysosomal storage diseases, 8.179
in Morquio syndrome, 8.175f
in sphingolipidoses, 8.176
Beta (β)-glucuronidase deficiency, in Sly syndrome, 8.175f
Beta (β)-interferon, for multiple sclerosis, 5.321f
Beta (β)-lactam antibiotics, 1.271–273. See also specific agent
Beta (β)-lactamases, 2.417
Beta (β) zone peripapillary atrophy, 10.48, 10.52
Beta chemokines, 9.23f
Betadine. See Povidone-iodine
Betagamma (βγ)-crystallins, 11.15, 11.15f, 11.16
Betagan. See Levobunolol
Betaseron. See Beta (β)-interferon
Betaxolol, 2.389f, 2.390, 6.288, 6.289f, 10.88, 10.113,
10.172f, 10.176–177
in children, 10.165
Betimol. See Timolol
Betoptic S. See Betaxolol
Bevacizumab, 2.371f, 2.449
adverse effects of, 12.85
branch retinal vein occlusion treated with, 12.135
central retinal vein occlusion treated with, 12.135
choroidal neovascularization treated with, 12.73f,
12.213f
Coats disease treated with, 6.360
diabetic macular edema treated with, 12.113
endophthalmitis caused by, 12.404
for macular edema, 4.152
neovascular age-related macular degeneration treated
with, 12.83–85, 12.84f
for neovascular glaucoma, 10.135, 10.135f
off-label uses of, 12.85
in pterygium excision, 8.356
ranibizumab and, comparison between, 12.83, 12.84f
retinal vein occlusion treated with, 12.135
retinopathy of prematurity treated with, 6.333,
12.186–187
Bevacizumab Eliminates the Angiogenic Threat of
Retinopathy of Prematurity (BEAT-ROP), 6.333,
12.186–187
Bexlotoxumab, 1.249
bFGF. See Basic fibroblast growth factor
BGF. See Baerveldt glaucoma implant
Biapenem, 1.273
Bias in case series, 1.9
investigator, 1.5
missing medical records and, 1.26
recall, 1.11
selection, 1.4, 1.11
Biber-Haab-Dimmer (lattice type 1/LCD1/classic lattice) dystrophy, 4.88–90, 4.89f, 4.91t, 8.135–136t,
8.145t, 8.145–147t, 8.146–147f. See also Lattice corneal dystrophy
Bicanalicular intubation, 6.234
Bicanalicular lacrimal stent, 7.293, 7.294f
Bicarbonate from carbonic anhydrase inhibitors, 2.391–392
in tear film, 2.251
Bicentric grinding, 3.188, 3.188f
Duochrome; Worth 4-dot test, 6.75, 6.122
Bietti crystalline dystrophy, 12.258, 12.269, 12.282
Bielschowsky head-tilt test, 6.75, 6.122
Biconvex design, for IOLs, 11.120
in tear film, 2.251
Biconvex lenses
accommodative amplitude for, 3.224–225
add power of, 3.224–225
bias correction using, 3.224–225
simultaneous vision, 3.225, 3.225f
fused, 3.180
for high AC/A ratio accommodative esotropia, 6.91–92
image displacement, 3.184, 3.186f
image jump, 3.184–186, 3.187f
induced anisophoria, compensating for, 3.186–190, 3.187f
intraocular
description of, 3.258–259, 3.259f
modulation transfer function with, 3.262
lens design of, 3.190
plastic molded, 3.180
Prentice rule and, 3.184–190, 3.185–3.189f
prismatic effects of, 3.184, 3.185f
round segment, 3.180, 3.181f
types of, 3.180, 3.181f
Bifocal segments. See also Bifocal lenses
derecentration of, 3.190–191
dioptic power of, 3.190
occupation and, 3.190–191
shape of, 3.190
width of, 3.190
Bilateral vision/bilateral vision loss. See Binocular vision
Biomicroscopy
slit-lamp. See Slit-lamp biomicroscopy/examination ultrasound (UBM)
of anterior chamber, 2.60f
anterior chamber evaluations, 12.40
axial scans, 2.468, 2.471f
characteristics of, 2.468
Binocular function
field of single binocular vision assessment, 6.81–82, 6.82f
prism adaptation test, 6.82
Binocular fusion, 6.60, 6.91
Binocular indirect ophthalmoscopy/ophthalmoscopes (BIO). See also Ophthalmoscopy/ophthalmoscope
disadvantages of, 12.22
retinal disease evaluations using, 12.21–22
Binocular states, of eye, 3.139–140
Binocular transient visual loss, 5.161, 5.171–172
Binocular treatment, for amblyopia, 6.59
Binocular vision
abnormalities of. See also specific type
diplopia, 6.47–48
visual confusion, 6.47, 6.47f
anomalous, 6.50
assessment of
low vision evaluation and, 5.77
nonorganic disorder evaluation and, 5.301–302, 5.302f
in cyclic strabismus, 6.93
development of, 6.43
fusion, 6.42–43
monocular visual deprivation effects on, 6.45
no light perception, testing, 5.301–302, 5.302f
Panum’s area of single, 6.42, 6.42f, 6.48
reduced, 5.77
nonorganic disorders and, 5.306–308, 5.307f, 5.308f, 5.309f
retinal correspondence, 6.41–42
single, 6.81–82, 6.82f
transient loss and, 5.161, 5.171–172
BIO. See Binocular indirect ophthalmoscopy/ophthalmoscopes
Bioavailability, 2.349
Biofilm, microbial, 8.207
keratitis and, 8.267
staphylococci forming, 8.244
Bioinformatics, 2.194
Biointegrated materials, 7.139
Biologic agents, 2.349
for rheumatoid disease, 1.153
Biologic response modifiers (BRMs/biological therapies). See also Immunomodulatory therapy/immunotherapy/immunosuppression for cancer, 1.241–243
description of, 1.241–242, 2.405–406f
for scleritis, 8.324, 8.325f
Biomarkers
cardiac. See Cardiac enzymes
coronary heart disease, 1.86–87
Biomechanics of cornea, 8.43, 13.13–14
measurement of, 8.43
Biometry/biometrics
before cataract surgery, 11.82–83, 11.83f
hypotony and, 11.185
in IOL power determination/selection, 11.82–83, 11.83f, 11.84–85, 11.87
axial length, 11.82–83, 11.84–85, 11.87
hypotony affecting, 11.185
unexpected refractive results after surgery and, 11.150
hypotony and, 11.185
refractive surgery and, refractive lens exchange, 13.150
primary angle closure and, 10.121
Biomicroscopy
in choroidal/ciliary body melanoma, 4.265
  ciliary body evaluations, 12.40
before corneal transplantation, 8.418
description of, 4.265, 8.20–21, 8.21f
in glaucoma, 10.77, 10.124f
  pediatric glaucoma and, 10.160
ocular anatomy on, 2.471–472f
  radial scans, 2.468–469, 2.472f
Bipolar
  dendrites, 2.87, 5.24
  cells, 2.87, 2.315–318, 2.316
Biphakic eyes, axial length in, 3.245
Bipedicle flap, 8.359
  See Biotherapy.
Bioterrorism, ocular complications of smallpox
Biosimilar agents, 1.180–181
Bioptics, 13.137, 13.157
Bioptic telescope, 3.309

Biopsy
  uveal lymphoma and, 12.234
  treatment of, 9.169
  T helper cell-17 in, 9.34
  posterior uveitis in, 9.165–169, 9.166–168f
  retinal pigment epithelium findings in, 9.166
  T helper cell-17 in, 9.34
  treatment of, 9.169
  uveal lymphoma and, 12.234
Birth defects. See Congenital anomalies;

  specific type
Birth trauma
congenital facial palsy and, 5.280
corneal edema and, 8.109
Horner syndrome and, 5.260t, 5.261

Bis-retinoids, 12.31
Bisphosphonates, 1.190, 1.308f
Bistratified cells (konioacellular neurons), 10.42
Bitemporal
  definition of, 5.105
  hemianopia, 2.474
  definition of, 5.105
  chiasmal lesions causing, 5.146, 5.147f, 5.152

Bites, 7.218
Bitôt spot, 8.196–197, 8.197f
  Corynebacterium xerosis and, 8.196–197, 8.246
Biventricular pacing, for congestive heart failure, 1.100

Bjerrum (arcuate) scotoma, 5.103, 5.105

Bleeding time, 1.139
Hemostasis, disorders of

Bleeding disorders. See also Hemostasis, disorders of
cataract surgery in patient with, 11.171–172
subconjunctival hemorrhages in, 8.388

Bleeding time, 1.139

Blend zone, 13.74f, 13.81

Bleph-10. See Sulfacetamide sodium

Blephamide. See Prednisolone acetate/sulfacetamide sodium

Blepharitis, 6.244–245, 6.244–245f, 8.72–75f, 8.72–76, 8.73t, 8.208t. See also Blepharoconjunctivitis
  α-agonists causing, 10.178, 10.178f
cataract surgery in patient with, 11.172–173
dry eye and, 8.68, 8.72, 8.76
keratitis and, 8.72, 8.73t, 8.74
meibomian gland dysfunction and, 8.68, 8.72, 8.73t
refractive surgery and, 13.42, 13.43f, 13.172
  multifocal IOLs, 13.155
in rosacea, 8.70, 8.73t
seborrheic, 8.72, 8.72f, 8.73t
staphylococcal, 8.72–75f, 8.208t, 8.254
keratitis and, 8.73t, 8.74, 8.76
marginal infiltrates in, 8.74, 8.74f

Blepharophimosis, 7.259
Blepharoconjunctivitis. See also Blepharitis;
Conjunctivitis
  α-agonists causing, 10.178, 10.178f
  contact, 8.285–287, 8.286f
herpes simplex virus causing, 8.213, 8.214f, 8.216
marginal corneal infiltrates associated with, 8.74, 8.74f
staphylococcal, 8.74, 8.75, 8.76, 8.256, 8.257f

Blepharokeratitis, α-agonists causing, 10.178, 10.178f
Blepharophimosis syndrome. See Blepharophimosis–ptosis–epicanthus inversus syndrome

Blepharoplasty complications of, 7.262–263
exposure keratopathy and, 8.79
lower eyelid
description of, 7.260
infraclival incision for, 7.262
laser skin resurfacing with, 7.268
midface rejuvenation with, 7.271–272, 7.272f
orbital fat redraping with, 7.272f
technique for, 7.261–262, 7.262f
transconjunctival incision for, 7.261, 7.262f
vision loss secondary to, 7.262
superior limbic keratoconjunctivitis and, 8.83
techniques for, 7.261–262, 262f
upper eyelid
brow ptosis and, 7.264
description of, 7.259
preoperative evaluation, 7.260
retraction caused by, 7.253f, 7.254

Blepharoptosis. See Ptosis
Blepharoconjunctivitis
benign essential (BEB), 5.281–283, 5.282f, 5.282t, 7.256–258
botulinum toxin for, 5.281–283, 5.282f
nonorganic, 5.310
in primary congenital glaucoma, 10.151, 10.152, 10.158
reflex, 5.281
superior limbic keratoconjunctivitis and, 8.84
transient visual loss and, 5.164

Blessig-Iwanoff cysts, 2.101
Blind loop syndrome, 12.290

Blind spot, 5.24

cortical area corresponding to, 5.29f
enlargement of, 5.103, 5.106f
acute idiopathic (AIBSE), 5.100–101, 5.101f
fundus autofluorescence in identification of, 5.90

Blindness. See also Low vision; Vision loss/impairment
age-related macular degeneration causing, 4.160
bilateral, testing, 5.301–302, 5.302f
cataract causing, 11.5
central, age-related macular degeneration progression to, 12.86
cerebral/cortical, 5.158, 5.336–337
blindness and, 5.181
denial of (Anton syndrome), 5.158, 5.180–181, 5.337
color. See Color vision, defects in
congenital stationary night, spasmus nutans syndrome associated with, 6.151
cyclodestructive procedures for pain and, 10.195
day (hemeralopia), 12.264
in cone/cone-rod dystrophies, 5.102
diabetes mellitus/rod dystrophies, 4.159
functional. See Nonorganic (functional/ nonphysiologic) ophthalmic disorders
in glaucoma, 10.7, 10.84
incisional surgery contraindicated in, 10.195, 10.198
primary congenital glaucoma and, 10.151, 10.152
race and, 10.82
herpetic stromal keratitis causing, 8.219
“hysterical.” See Nonorganic (functional/ nonphysiologic) ophthalmic disorders
legal, 3.310–311, 3.329
methanol toxicity as cause of, 12.301
monocular
testing, 5.302–305, 5.303f, 5.304f
transient. See Monocular transient visual loss
mucous membrane pemphigoid causing, 8.303
night. See Night blindness
nonorganic disorders and, 5.301–305, 5.302f, 5.303f, 5.304f. See also Nonorganic (functional/ nonphysiologic) ophthalmic disorders
nystagmus after, 5.246
postmeasles, 8.239
prevalence of, 3.311
rehabilitation devices for, 3.325
retinopathy of prematurity as cause of, 6.335, 12.182
river (onchocerciasis), 8.252–253, 9.289f, 9.289–290
snow, 8.385
trachoma causing, 8.260
transient. See Transient visual loss
traumatic injury causing, 4.22–23, 4.23f
uveitis as cause of, 9.68
vitamin A deficiency causing, 8.196

Blindsight, 5.181

Blinking (blink reflex), 2.354, 5.52, 6.185, 7.283
abnormal, cranial nerve VII (facial) in, 5.49
excessive, 6.201–202
mucous membrane pemphigoid causing, 8.303
nonorganic disorders and, 5.301–305, 5.302f, 5.303f, 5.304f. See also Nonorganic (functional/ nonphysiologic) ophthalmic disorders

Blood. See also Hemorrhage
clotting pathways of. See Coagulation
composition of, 1.131
cornea stained by, 4.86, 8.118f, 8.375, 8.394, 8.394f, 8.395, 8.395f, 10.104, 10.104f, 10.105
hypoxia after cataract surgery and, 11.159
formed elements of, 1.131
in LASIK interface, 13.122, 13.123f
plasma of, 1.131

Blood–aqueous barrier breakdown of, 2.279
description of, 2.270
functions of, 2.275

Blood–ocular barrier.

Blood– brain barrier

Blood– aqueous barrier

Blood– blood barrier

Blood–derived macrophages, 9.3
Blood glucose, 1.40. See also Glucose
Blood–ocular barrier, 2.448. See also specific type
cytomegalovirus passage across, 9.256
description of, 9.56–57
fluorescein passage affected by, 12.33

Blood–corneal barrier

Blood–dural barrier

Blood–dural sinus barrier

Blood–eye barrier

Blood–lens barrier

Blood–ocular surface barrier

Blood–retinal barrier

Blood–ocular surface barrier

Blood– optic disc barrier

Blood–orbital fat (periocular) barrier

Blood–orbital fat (periocular) barrier
Blood oxygenation level–dependent (BOLD) imaging, 5.70, 5.75
Blood pressure (BP). See also Hypertension
ambulatory measurement of, 1.52
classification of, 1.52t, 1.52–53, 1.214
coronary heart disease risks, 1.73t
diastolic, 1.52, 1.56
measurement of
ambulatory, 1.52
in hypertension evaluation, 1.55
phenylephrine hydrochloride effects on, 2.384
sleep-related decreases in, 1.53, 1.66–67
in stroke prevention, 1.115
in subarachnoid hemorrhage, 1.121
systolic, 1.52, 1.56
Blood–retina barrier, 2.88, 2.90
Blood vessels. See Vascular system
Blowout (indirect) fractures, orbital, 6.379
complications of, 7.117
delayed treatment of, 7.117
description of, 7.20
diagnosis of, 7.114–115
diplopia after, 5.206
hydraulic mechanism theory of, 7.114
indirect, 7.113
oribtal cellulitis after, 7.48
physical examination of, 7.114–115
surgical management of, 7.117
white-eyed, 7.114
BLS. See Basic life support
Blue-blocking intraocular lenses, 11.120
Blue-cone (S-cone) monochromatism, 2.232t, 6.337–338
description of, 12.250, 12.250f
electroretinography findings in, 12.46, 12.47f
Blue cones. See S cones
Blue-dot (cerulean) cataract, 11.37, 11.38f
Blue dyschromatopsia, 6.368
Blue nevi/nevus, 4.64, 7.198
Blue sclera, 8.195
in Ehlers-Danlos syndrome, 8.191t, 8.193
in keratoglobus, 8.171
in Marfan syndrome, 8.194
in osteogenesis imperfecta, 8.194, 8.194f
Blue-yellow color deficiency, 12.54
Blue-yellow color vision defects
in optic atrophy, 5.135
tests for, 5.78–79
Blue zone, 2.55
anisocoria caused by, 5.256f, 5.262–263
anterior segment, 8.387–396
anterior uveitis and, 8.389–390
conveal changes and, 8.388, 8.389f
cybodalysis and, 8.391, 8.391f
hyphema and, 8.391–396, 8.392f, 8.393f, 8.394f, 8.395f
iridodialysis and, 8.390f, 8.390–391, 8.391f, 8.409
mydriasis and miosis and, 8.388–389, 8.389f
subconjunctival hemorrhage and, 8.387–388, 8.388f
in children, nonaccidental/abusive. See Abusive head trauma
commotio retinae and, 4.18–19
of eyelid, 7.213
glaucoma and, 4.103–104, 10.39–40, 10.41f, 10.103–108, 10.104f, 10.106f, 10.107f
hyphema caused by, 8.391–396, 8.392f, 8.393f, 8.394f, 8.395f
LASIK flap dislocation and, 13.115–116
lens injury/cataract caused by, 11.53–55, 11.54f
pupil irregularity caused by, 5.255
Blur circles. See also Point spread function
definition of, 3.69
description of, 3.5, 3.5f
formation of, 3.130f
size of, 3.129
Blurred vision/blurring. See also Vision loss/impairment
in corneal dystrophies, 8.133
in intermediate uveitis, 9.76
multifocal IOLs and, 13.156
ocular misalignment and, 5.183
in posterior uveitis, 9.76
vergence system and, 5.226
vertebrobasilar insufficiency and, 5.336
BMP. See Bone morphogenetic protein
BMS. See Bare-metal stent
BMZ. See Basement membrane zone
BNP. See Brain natriuretic peptide
Bobbing, ocular, 5.228
Body dysmorphic disorder, 1.196
Body dysmorphic disorder, 1.197
Body lice, ocular infection caused by, 8.255
BOLD (blood oxygenation level–dependent) imaging, 5.70, 5.75
Bone, bone marrow disorders, anemia caused by, 1.137
Bone marrow derived stem cells, hyalocytes from, 12.7
Bone growth disorders, nonsynostotic, 6.212
Bone loss, corticosteroid-induced, 9.103
Bone marrow transplantation, graft-vs-host disease, 9.103
Bone marrow derived stem cells, hyalocytes from, 12.7
Bone marrow disorders, anemia caused by, 1.137
Bone marrow transplantation, graft-vs-host disease after, 8.304
Bone morphogenetic protein (BMP), lens plaque formation and, 11.25
Bony orbit. See Orbit
Bony tumors of orbit, 4.239, 4.240f
Borderline neoplastic proliferations, 4.10
Borrelia burgdorferi, 4.18–19
of eyelid, 7.213
glaucoma and, 4.103–104, 10.39–40, 10.41f, 10.103–108, 10.104f, 10.106f, 10.107f
hyphema caused by, 8.391–396, 8.392f, 8.393f, 8.394f, 8.395f
LASIK flap dislocation and, 13.115–116
lens injury/cataract caused by, 11.53–55, 11.54f
pupil irregularity caused by, 5.255
Boston keratoprosthesis, 8.452, 8.452f
Botryoid rhabdomyosarcomas, 4.236, 7.88
Botryoid tumors, 6.217
Botulinum toxin, 2.359

adverse effects of, 6.176

benign essential blepharospasm treated with, 6.256

Bouin solution, as tissue fixative, 4.26

Botulism poisoning

ptosis/facial paralysis caused by, 5.273, 5.273t

tonic pupils in, 5.265

Bourneville disease/syndrome (tuberous sclerosis/TS), 5.331

Bowman layer/membrane

Bowen disease, 7.199–200

Bowman layer/membrane

Bowen disease/syndrome (tuberous sclerosis/TS), 6.398f. See also Tuberous sclerosis

Bowman membrane versus, 2.51

description of, 4.73, 4.74f, 8.7f, 8.8

healing/repair and, 4.16

in keratoconus, 8.162, 8.162f

in keratoglobus, 8.171

refractive surgery and, preparation of, 13.82–90

epithelial preservation techniques for, 13.82–84, 13.83f

epithelial preservation techniques for, 13.84

LASIK flap creation and, 13.84–90

with femtosecond laser, 13.87–90, 13.88f, 13.89f, 13.90t

with microkeratome, 13.84–87, 13.85f, 13.86f, 13.87f

in Reis-Bücklers corneal dystrophy (corneal dystrophy of Bowman layer type 1), 8.142, 8.142f, 8.143. See also Reis-Bücklers corneal dystrophy

in Thiel-Behnke corneal dystrophy (corneal dystrophy of Bowman layer type 2), 8.143, 8.144f. See also Thiel-Behnke corneal dystrophy

BP. See Blood pressure

BP180. See Bullous pemphigoid antigen II

BPD. See Butterfly-type pattern dystrophy

BPES. See Blepharophimosis–ptosis–epicanthus inversus syndrome

BPPV. See Benign paroxysmal positional vertigo

Brachial plexus injury, Horner syndrome and, 5.260t, 5.261

Brachium conjunctivum, 5.18

Brainstem syndrome, acute, 5.117

Brainstem saccade generators, 5.33, 5.34

Brainstem encephalitis, CMV infection causing, 5.349

Brain stones (calcified astrocytic hamartomas), in tuberous sclerosis, 5.331f, 5.334f

Brain tumors, retinoblastoma and, 4.302

Brainstem

anatomy of, 2.108f

lesions of

arteriovenous malformations, 5.343

facial weakness/paralysis caused by, 5.278, 5.278t

gaze palsy caused by, 5.228, 5.229f

Horner syndrome and, 5.260t

vestibular disorders and, 5.217

in ocular motility, 5.33, 5.34–40, 5.35f, 5.36f, 5.37f, 5.39f

Brainstem encephalitis, CMV infection causing, 5.349

Brainstem neural network, 5.33, 5.34

Brainstem saccade generators, 5.33

Brainstem syndrome, acute, 5.117t

Branch retinal artery occlusion (BRAO), 4.156, 9.160

emboli that cause, 12.141, 12.142f

hypertensive retinopathy and, 12.122

imaging of, 12.141f

management of, 12.142

multiple, 12.152f

in nonproliferative sickle cell retinopathy, 12.152f

retinal infarction caused by, 12.141

in Susac syndrome, 12.156

Branch retinal vein occlusion (BRVO), 1.148, 4.158–159

afibercept for, 12.135

at arteriovenous crossing, 12.126

bevacizumab for, 12.135
clinical findings of, 12.125–127, 12.126f
corticosteroids for, 12.137–138
diabetes mellitus and, 12.128
fluorescein angiography of, 12.129f
glaucoma as risk factor for, 12.125
hypertensive retinopathy and, 12.122
intraretinal hemorrhages associated with, 12.125, 12.126f
macular laser surgery for, 12.128
neovascularization in, 4.159, 12.125, 12.128, 12.129f
pars plana vitrectomy for, 12.130
pharmacologic management of, 12.135–138
prognosis for, 12.128
ranibizumab for, 12.135
risk factors for, 12.127–128
scatter photocoagulation for, 12.128–130
spontaneous resolution of, 12.128
surgical management of, 12.128–130
treatment of, 12.128–130
triamcinolone for, 12.137
vision loss caused by, 12.128
Branchial arch syndromes, 6.210–211, 6.210–211f
BRAO. See Branch retinal artery occlusion
Brawny scleritis, 4.110, 4.110f
BRCA1, 1.216–217
Bromocriptine, for Parkinson disease, 1.205
Bromfenac, 2.400
Brodmann area 17 (striate cortex), 2.115, 2.116f
Brodmann area 8, 5.33
Brodmann area, 2.115
Broad-spectrum penicillins, 2.419
Bruch membrane, 2.97, 2.99, 2.100f, 4.141f
Brown tumor of bone, 6.222
Brown and McLean syndrome, 11.130
Brown and Hopps (B&H) stain, 4.31
Brown and Brenn (B&B) stain, 4.31
Brow- and forehead-lift, 7.264–266
Breast cancer
eye involvement and, 4.197, 4.304t, 4.305f, 4.307f, 4.308, 4.308f, 4.309–310
hormone replacement therapy and, 1.215
mammographic detection of, 1.216–217
metastatic, 7.106, 7.106f
mortality rates for, 1.215
paraneoplastic-induced saccadic intrusions and, 5.249
prevalence of, 1.215
risk factors for, 1.215–216
screening for, 1.215–217
Breastfeeding
glaucoma medication use during, 10.185–186
refractive surgery contraindicated during, 13.37
Breslow thickness, 4.220
Brewster angle, 3.99
Brief psychotic disorder, 1.195
Brightness. See Radiance
Brightness sense testing, for relative afferent pupillary defect, 5.81
Brilliant blue G (BBG), 2.444
Brimonidine tartrate, 3.272, 6.289t, 6.290, 10.172t,
  10.175t, 10.178–179
characteristics of, 2.385t
in children, 10.165
in combination preparations, 10.174t
in infants, 2.387
intracocular pressure reductions using, 2.386
neuroprotective effects of, 2.386
during pregnancy/lactation, 10.185
Brimonidine tartrate/timolol maleate, 2.385t, 2.389t,
  2.397t
Brinzolamide, 2.356, 2.391t, 2.393, 10.173t, 10.179–180
in children, 10.165
in combination preparations, 10.174t
Brinzolamide/brimonidine tartrate suspension, 2.397t
British anti-Lewisite, 2.235
Britten cornea syndrome, 6.262
Brivudine, 1.279
BRM. See Biologic response modifiers
Broad-beam illumination, for slit-lamp biomicroscopy, 8.17
Broad-beam lasers, for photoablation, 13.30, 13.31
Broad-spectrum penicillins, 2.419
Brodmann area 2, 1.15
Brodmann area 8, 5.33
Brodmann area 17 (striate cortex), 2.115, 2.116f, 5.249,
  5.29f, 5.29–30, 5.30f, 5.32f, 5.34f. See also Visual (calcarine/occipital/striate) cortex
description of, 6.44
illusions and, 5.175
monocular visual deprivation in, 6.44, 6.45
Brodmann area 18 (parastriate cortex), 5.20f, 5.30f,
  5.30–31. See also Visual (calcarine/occipital/striate) cortex
Bromday. See Bromfenac
Bromfenac, 2.400f
Bromocriptine, for Parkinson disease, 1.205
Bron (bleb) pattern, in epithelial basement membrane dystrophy, 8.138
Bronchectomy, 1.124
Bronchitis, chronic, 1.124
Bronchodilators, for lung disease, 1.128
Bronchogenic carcinoma, 7.106.
Bronchial asthma, 1.124
Bronchial carcinoma, 7.106
Bronchochiasma, 1.123–124
Brow- and forehead-lift, 7.264–265f, 7.265–266
Brow ptosis
diagnosis of, 6.137
dermatochalasis and, 7.259, 7.263
direct brow elevation for, 7.265
illustration of, 7.263f
management of, 7.263–266, 7.264–265f
Brown and Brenn (B&B) stain, 4.31f
Brown and Hopps (B&H) stain, 4.31f
Brown-McLean syndrome, 11.128f, 11.130
Brown syndrome, 5.208
acquired, 6.136
clinical features of, 6.136–137, 6.137f
congenital, 6.136
as congenital cranial dysinnervation disorder, 6.131
description of, 6.117
diagnosis of, 6.137
forced duction test for, 6.137
iatrogenic, 6.168
inferior oblique muscle palsy versus, 6.124, 6.125f, 6.137
management of, 6.137–138
primary position hypotropia with, 6.137
rheumatoid arthritis and, 6.137
superior oblique muscle weakening for, 6.138, 6.166
surgical treatment of, 6.138
Brown tumor of bone, 6.222
Browpexy, 7.264–265
Bruch membrane, 2.97, 2.99, 2.100f, 4.141f
age-related macular degeneration/choroidal neovascularization and, 4.164, 4.165, 4.165f
anatomy of, 12.210–211
argyrosis effects on, 12.306
basilar laminar deposits effect on, 12.62f, 12.64
choroidal neovascularization after damage to, 12.355, 12.355f
degeneration of, 12.19, 12.71
disorders that affect, 12.89
embryologic development of, 12.210
histology of, 12.18f, 12.19
ocular expansion effects on, 12.211
outer lamella of, 12.211
photocoagulation-related rupture of, 12.378
remodeling of, 12.210
in retinal healing/repair, 4.17
rupture of, 4.22, 12.378
supertraction crescent, 12.210
tears in, 12.354
type 1 choroidal neovascularization in, 12.72f

Brückner test
in amblyopia screening, 6.56
description of, 6.9, 6.67–68
Bruits, carotid, 5.166. See also Carotid occlusive disease
Bruinescent cataract, 4.123, 11.44. See also Cataract
lens proteins in, 11.17
surgery for, 11.180
hydrodelineation in, 11.110, 11.180
Fixation/plication of, for conjunctivochalasis, 8.86, 8.361
lymphoid lesions involving, 4.69, 4.70f redundant. See Conjunctivochalasis
in superior limbic keratoconjunctivitis, 8.83, 8.84
in superior limbic keratoconjunctivitis, 8.83, 8.84
Bulbar (limbal) vernal keratoconjunctivitis, 6.248, 6.249f, 8.289–290, 8.290f
Bulla
conjunctival, in mucous membrane pemphigoid, 4.54, 4.54f, 8.299
corneal, 8.46f
in keratopathy, 4.84, 4.84f. See also Bullous keratopathy
eyelid, 8.45f
Bullous keratopathy, 4.83–84, 4.84, 4.84f, 4.85f
after cataract surgery, 4.83–84, 4.84f, 11.129, 11.129f
IOL design and, 11.149
disciform keratitis and, 8.225
DMET for, 8.449
in Fuchs endothelial corneal dystrophy, 4.92, 8.156

Bullous pemphigoid antigen II, in mucous membrane pemphigoid, 8.299
Bullous (reticular degenerative) retinoschisis, 4.148, 12.326, 12.327
Bull’s-eye maculopathy/depigmentation
chloroquine toxicity as cause of, 12.295, 12.296f
clofazimine as cause of, 12.298
in cone dystrophies, 5.102
in neuronal ceroid lipofuscinoses, 12.289
Bull’s-eye pattern
in acute idiopathic maculopathy, 12.229
in Bardet-Biedl syndrome, 12.284
in Lyme disease, 12.245
in macular atrophy, 12.265
in Stargardt disease, 12.270
Bull’s-eye rash, 12.245, 12.265f
Bundle of His, 1.101
Buphthalmos, 6.283
in megalocornea, 8.99, 8.100
in primary congenital glaucoma, 8.100, 8.108, 10.151, 10.152f, 10.158, 10.166
Bupivacaine, 1.305, 2.440
Bupropion, 12.306
Burkitt lymphoma, 6.218
Burns, 6.376
chemical. See Chemical injury
eyelid, 7.218–219, 7.218–219f
thermal
anterior segment, 8.384–385, 8.385f
cataract surgery incision, 11.131
Burst cells/neurons, 5.35, 5.219, 5.220f
horizontal gaze and, 5.35, 5.37, 5.37f, 5.38
saccadic system and, 5.219, 5.220f, 5.221
vertical gaze and, 5.35, 5.36, 5.36f
Burst-mode phacoemulsification, 11.101
Busacca nodules
in anterior uveitis, 9.78, 9.80f
in sarcoidosis, 4.187, 9.196
Butterfly rash, 1.158, 1.159f
Butterfly-type pattern dystrophy (BPD), 4.170, 12.276, 12.276f
Buttonhole flap, 13.110, 13.110f
N-butylcyanoacrylate tissue adhesive. See Cyanoacrylate glue/adhesive
Butyrylcholinesterase, 2.379
Bypass Angioplasty Revascularization Investigation, 1.92
C
C4, 2.276
c-ANCA. See Cytoplasm-antineutrophil cytoplasmic autoantibody (c-ANCA)
C cells, 1.41, 1.46
C-MIN. See Conjunctival melanocytic intraepithelial neoplasia
C-reactive protein (CRP), 1.153
in AION
giant cell arteritis/AAION, 5.120, 5.120f, 5.314
nonarteritic (NAION), 5.120f
C-scan, 12.26
C-type lectin receptors, 9.46
c-wave, of ERG, 5.96. See also Electroretinography/electroretinogram
CA-MRSA. See Community-acquired (CA) methicillin-resistant Staphylococcus aureus
CABG. See Coronary artery bypass grafting
CACC. See Central arterial choroidal dystrophy
CAD (coronary artery disease). See Coronary heart disease
Cadasil. See Cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy
Café-au-lait spots, 6.392, 6.395f
in neurofibromatosis, 5.330f, 5.334f
in tuberous sclerosis, 5.331f, 5.334f
Cafe study. See Conduit Artery Function Endpoint (CAFE) study
Caffeine halothane contracture test, 1.292
CAIs. See Carbonic anhydrase inhibitors
Cajal, interstitial nucleus of (INC), 5.35, 5.35f
CAIs. See Calcium channel blockers (CCBs)
Calcitonin gene–related peptide (CGRP), 2.62, 2.251
Calcitonin, 1.41
Calcineurin inhibitors, 1.179
Calcineurin inhibitors, 1.179
Calcineurin inhibitors, 1.179
Calcium channel blockers (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
calcium channel blockers, (CCBs)
genetic profiling of, 1.242
infiltrative optic neuropathy and, 5.131–132
ionizing radiation exposure as cause of, 1.236
mortality rates for, 1.235
orital. See Orbital tumors
screening for, 1.215–221, 1.216t
treatment of
angiogenesis inhibitors, 1.240t, 1.241
biologic therapies, 1.241–243
chemotherapy, 1.239–241, 1.240t
monoclonal antibodies, 1.242
radiation therapy, 1.237–239
vaccines, 1.242
ovus-associated, 1.236, 1.237t
Cancer-associated retinopathy (CAR), 5.102, 9.192–193
ERG in identification of, 5.96, 5.102
Cancer chemotherapy. See Chemotherapy
Candida (candidiasis), 8.208t, 8.249t, 8.250f, 8.250–251
albicans
adherence and, 8.206
description of, 8.208t, 8.250, 8.250f, 9.296
chorioretinitis caused by, 9.297, 9.298f
diagnosis of, 9.297
dernogenous fungal endophthalmitis caused by, 9.295–299, 9.296f, 9.299f
dermalmitis caused by, 12.233–240, 12.240f
ablata, 9.296
histologic features of, 9.297, 9.298f
keratitis caused by, 4.78, 8.208t, 8.251, 8.273, 8.274–275
as normal flora, 8.206f, 8.250
ocular infection caused by, 8.208t, 8.250–251
retinal infection caused by, 4.147
 Candidate gene screening, 2.188–189
Candidemia, 9.296
Candidiasis, ocular, 9.297–298
"Candlewax drippings"
description of, 9.196, 9.197f
in sarcoidosis, 4.187, 5.327
Cannabis, intraocular pressure affected by, 10.22
Canthal reconstruction. See Eyelid(s), surgery/
reconstruction of
Canthal tendons. See also Lateral canthal tendon;
Medial canthal tendon
anatomy of, 7.168–169, 7.169f
trauma to, 7.214–215
Canthaxanthine, 12.303
Ca(OH)2, See Calcium hydroxide
CAP, See Chromosome arm painting
Capacity to Consent to Treatment Instrument (CCTI), 1.211
Capillary hemangioblastoma, retinal, 4.283–285, 4.284f.
See also Retinal angiomatosis
Capillary hemangioma, 7.71f, 7.71–73, 7.180–181
of conjunctiva/ocular surface, 8.345t
infantile. See Infantile (capillary) hemangiomas
Capillary nonperfusion. See Retinal capillaries, nonperfusion of
Capillary plexus
deep, 12.16
intermediate, 12.16
Capillary retinal arteriole obstruction. See Cotton-wool spots
Capillary telangiectasis, 1.121
Capsaicin cream, for postherpetic neuralgia, 8.230
Capsid (viral), 8.211, 8.212
Capsular block syndrome (CBS), 10.132, 11.148–149
Capsular/capsule opacification, 11.152–157, 11.184
IOLs and, 11.153
multifocal IOLs, 13.156, 13.167
multifocal IOLs and, 13.156, 13.167
Capsular cataracts, 11.38
Capsular fibrosis, 11.153–154
IOL decentration/dislocation and, 11.145
Capsular hooks, 11.182–183, 11.183f
Capsular phimosis, 11.153–154
in pseudoexfoliation/exfoliation syndrome, 11.184
Capsular rupture, cataract surgery and, 11.142–143, 11.180–181
Capsular tension rings (CTRs), for zonular incompetence, 11.180, 11.181f, 11.183
Capsular theory (Helmholtz hypothesis) of accommodation, 11.22, 13.159–160, 13.160f
Capsule, lens. See Lens capsule
Capsule staining, for cataract surgery, 11.178–179, 11.179f
Capsulorrhesis, 6.302
advanced cataract and, 11.180
continuous curvilinear (CCC), 11.108–110, 11.109f
capsule staining for, 11.178–179, 11.179f
for ECCE, 11.196
for phacoemulsification, 11.108–110, 11.109f
for ECCE, 11.196, 11.197f
for phacoemulsification, 11.108–110, 11.109f
in zonular dehiscence with lens subluxation/ dislocation, 11.182
Capsulotomy
anterior
for ECCE, 11.196, 11.197f
for phacoemulsification, 11.109–110
can-opener, 11.109–110, 11.196, 11.197f
lens particle glaucoma after, 10.98
Nd:YAG laser, 11.154f, 11.154–157, 11.156f
for anterior capsule fibrosis and phimosis, 11.154, 11.154f, 11.154–157, 11.156f
for capsular block syndrome, 11.149
multifocal IOLs and, 13.156, 13.167
complications of, 11.156–157
contraindications for, 11.155
indications for, 11.154–155
Adenocarcinoma; 4.11
See also Carcinoma, 4.10
Carcinoid, metastatic; immunohistochemistry
Carboplatin, for retinoblastoma, 4.299
Carbonic anhydrase inhibitors (CAIs), 2.391–393, 2.392
Carbonic anhydrase, 2.271, 2.367
Carbachol
CAR antigen (recoverin), 5.102
Carbon dioxide (CO2) lasers, 7.268
Carbon dioxide, in aqueous humor, 2.278–279
Carbon, corneal deposits of/pigmentation caused by, 4.183
Carbohydrates
Carbohydrate sulfotransferase 6 gene, in (CHST6)
Carbohydrate (“sugar”) cataracts, 2.289–291
Carbogen, for central retinal artery occlusion, 12.146
See also Carbocaine.
Carbidopa, for Parkinson disease, 1.205, 2.419
Carbenicillin sodium, 2.418
Carbapenems, 1.273. See also specific agent
Carbamazepine, 1.203, 1.207–208
CAR.
See also Captopril, 1.309.
metastatic, 4.197, 4.198
Metastatic eye
See also Carcinoid, metastatic, 4.212–213, 4.213f
of eyelid, 4.212
of conjunctiva, intraocular extension and, 4.310
of eyelid, 4.212f, 4.212–213, 4.213f, 4.214f
intraocular extension of, 4.310
metastatic, 4.197, 4.198f. See also Metastatic eye disease
ocular surface
mucoepidermoid, 8.332t, 8.336
squamous cell, 8.336f, 8.336–337
management of, 8.330f, 8.336–337
prostate, 7.107
retinoblastoma associated with, 4.302t
squamous cell. See Squamous cell carcinoma
thyroid, retinoblastoma associated with, 4.302t
Carcinoma in situ
of conjunctiva, 4.61, 4.63f
of eyelid, keratoacanthoma, 4.209–210, 4.210f, 4.211f
of ocular surface, 8.334. See also Conjunctival or
corneal intraepithelial neoplasia
sebaceous, 4.217f, 4.218
CARD15, 6.319, 9.198
Cardiac arrest. See Cardiopulmonary arrest
Cardiac disease. See Coronary heart disease; Ischemic
heart disease
Cardiac emboli, transient visual loss and, 5.165–166, 5.168
Cardiac enzymes, 1.86–87
Cardiac failure. See Congestive heart failure
Cardiac glycosides. See Digitalis/digitoxin/digoxin
Cardiac rhythm disorders. See also Arrhythmias
antiarrhythmic drugs for, 1.102, 1.102f
bradyarrhythmias, 1.99, 1.101
conduction block, 1.101
overview of, 1.101
tachyarrhythmias
atrial fibrillation, 1.102–103, 1.103f
atrial flutter, 1.102
in congestive heart failure, 1.99
definition of, 1.102
implantable cardioverter-defibrillators for, 1.104–106
supraventricular tachycardias, 1.102–103
ventricular, 1.104
ventricular fibrillation, 1.104
Cardiac transplantation, for congestive heart failure, 1.100
Cardiff Acuity Test, 6.9, 6.187
Cardinal positions of gaze, 6.31, 6.32, 6.35, 6.64
Cardiopulmonary arrest, 1.296–299, 1.297
Cardiogenic shock, 1.300
Cardiologic shock, 1.300. See also Shock
Cardiolite scintigraphy. See Technetium-99m
Cardiopulmonary arrest, 1.296–299, 1.297
Cardiopulmonary resuscitation (CPR)
description of, 1.296–299, 1.297t
in ventricular fibrillation, 1.104
Cardiovascular disease (CVD). See also specific type
hypertension. See Hypertension
perioperative management for ocular surgery in
patients with, 1.283
risk assessment for, 1.73
risk factors
cholesterol levels, 1.72
hypertension, 1.55, 1.56f
hypertensive retinopathy and, 1.69
list of, 1.56t
screening for, 1.214–215
Cardiovascular drugs. See also Digitalis/digitoxin/
digoxin
ocular adverse effects of, 1.309t
Cardioverter-defibrillators, implantable. See Implantable cardioverter-defibrillator

Carney complex, eyelid manifestations of, 4.207

Carotenoids (xanthophylls), 2.343

in macula, 4.140

Carotid arteries, 5.27f

common, 5.12, 5.13f

disorders of. See Carotid occlusive disease

dissection of, 5.342–343

Horner syndrome and, 5.162, 5.260f, 5.261, 5.262f, 5.297

neuroimaging in evaluation of, 5.72f, 5.342

external (ECA), 5.12, 5.13f, 5.15f, 7.170

internal (ICA), 5.10f, 5.12, 5.13f, 5.14, 5.15f, 5.16f, 5.18f, 5.27f, 7.14, 7.170

anatomy of, 2.106f

aneurysm of, 5.338, 5.339f

chiasmal syndromes caused by, 5.147, 5.150

third nerve (oculomotor) palsy and, 5.194, 5.194f, 5.196f, 5.339

cranial nerve relationship and, 5.42f, 5.43f

dissection of, 5.342–343

Horner syndrome and, 5.162, 5.260f, 5.261, 5.262f, 5.297

pain caused by, 5.297, 5.342

neuroimaging in evaluation of, 5.72f, 5.167, 5.167f, 5.342

stenosis of. See Carotid stenosis

ultrasonography in evaluation of, 5.72f, 5.167

Carotid artery stenting (CAS)

carotid endarterectomy versus, 1.118

carotid stenosis treated with, 1.118

prophylactic uses of, 1.117

Carotid bruits, 5.166. See also Carotid occlusive disease

asymptomatic, 1.116–117

Carotid canal, 2.106f

Carotid cavernous sinus, 2.476f

Carotid-cavernous sinus fistula, 5.203–206, 5.204f, 5.205f, 12.198

description of, 7.25

direct, 7.78, 7.78f

glaucoma associated with, 10.30

indirect, 7.79

neuroimaging in evaluation of, 5.70, 5.72f, 5.204, 5.204f, 5.205f

sixth nerve (abducens) palsy and, 5.201, 5.205–206

Carotid Doppler imaging, 5.70

Carotid duplex ultrasonography

carotid stenosis diagnosis using, 1.116

stroke evaluations using, 1.113

Carotid endarterectomy (CE)

carotid artery stenting versus, 1.118

carotid stenosis treated with, 1.117–119

Carotid occlusive disease. See also Carotid stenosis

clinical/laboratory evaluation of, 5.167, 5.167f
diagnosis of, 1.116

ischemic stroke caused by, 1.115–119

neuroimaging in evaluation of, 5.167, 5.167f

ocular ischemic syndrome and, 5.170

retinal hemorrhages in, 12.138

retinopathy of, 12.138

stroke/stroke risk and, 1.115–119, 5.167, 5.168, 5.169

transient visual loss caused by, 5.162, 5.165–168, 5.167f

treatment of, 5.169

Carotid Revascularization Endarterectomy Versus Stenting Trial-2 (CREST-2), 1.117

Carotid stenosis. See also Carotid occlusive disease

asymptomatic, 1.116–117

carotid endarterectomy for, 1.117–119
diagnosis of, 1.116

ischemic stroke caused by, 1.115–119

management of, 1.116–118

neuroimaging in evaluation of, 5.70, 5.72f, 5.167, 5.167f

ocular ischemic syndrome and, 5.170

stroke/stroke risk and, 1.115–119, 5.167, 5.168, 5.169

symptomatic, 1.117–118

transient monocular vision loss caused by, 1.118

transient visual loss caused by, 5.162, 5.165–166, 5.167, 5.167f, 5.168

treatment of, 5.169

Carotid territory ischemia. See Carotid occlusive disease; Carotid stenosis

Carpenter syndrome (acrocephalopolysyndactyly), 6.294

avtospatic transmission of, 6.294

atopic dermatitis and, 11.66

astigmatism caused by, 11.123

See also Anterior subcapsular.

anterior polar (APC), 6.55, 6.295, 6.295

amblyopia caused by, 6.55, 6.57

age-related, 11.5, 11.43–48. See also Age-related cataracts

epidemiology of, 11.5

geneic contributions to, 11.41–42

alcohol use/abuse and, 11.63–64

amblyopia caused by, 6.55, 6.57

anterior polar (APC), 6.55, 6.295, 6.295f, 11.35–36

anterior subcapsular. See Cataract, subcapsular, anterior

astigmatism caused by, 11.123

topic dermatitis and, 11.66

autosomal dominant transmission of, 6.294

bilateral, 6.293, 6.294t

brunescent, 4.123, 11.44

lens proteins in, 11.17

surgery for, 11.180

hydrodelineation in, 11.110, 11.180
capsular, 11.38
carbohydrate ("sugar")
aldose reductase in development of, 11.19
description of, 2.289–291
cerulean, 11.37, 11.38f
chemical injuries causing, 11.59
in children, 11.34–39, 11.35t, 11.36f, 11.37f, 11.38f, 11.39f. See also Cataract, congenital; Cataract, pediatric

genetic contributions to, 11.41–42
"Christmas tree," in myotonic dystrophy, 5.330
complete (total), 11.38
See also Cataract, pediatric
aniridia and, 11.33, 11.34f
bilateral, 11.35f
genetic/hereditary factors in, 11.41–42
surgical management of. See Cataract surgery, in children
unilateral, 11.35f
contrast sensitivity affected by, 11.70
contusion, 11.54, 11.54f
coronary, 11.37
cortical, 2.235, 4.122, 4.122f, 11.45–46, 11.46–50f
characteristics and effects of, 11.45, 11.70f
genetic contributions to, 11.41
race and, 11.6
uveitis and, 11.64f, 11.64–66
corticosteroid use and, 6.321, 11.51–52, 11.64, 11.188
degenerative optical disorders and, 11.68
diabetic, 11.60f, 11.60–61
carbohydrate ("sugar"), aldose reductase in development of, 11.19
surgery for, 11.170
preoperative evaluation and, 11.80–81
drug-induced, 11.51–53, 11.52f
duplication, 4.120, 4.120f
electrical injury causing, 11.59, 11.59f
after endothelial keratoplasty (DMEK/DSEK), 8.446–447
epidemiology of, 11.5–7
etiology of, 6.294, 6.294–295t, 11.35f
evaluation of, 6.299f, 6.299–301, 11.69–88, 11.70t
fundus evaluation in patient with, 11.80–81
galactose metabolism defects as cause of, 2.289
in galactosemia, 11.61, 11.61f
general features of, 6.293–294

glassblower's, 11.57
glaucoma and, 4.103, 10.97f, 10.97–98, 10.128, 10.211–212, 11.67, 11.186f, 11.186–187
in children, 10.156
management of, 10.211–213, 11.186–187
preoperative evaluation/care and, 11.186f, 11.186–187
glaucoma surgery and, 10.187
history in, 6.299f, 6.300, 11.69–71, 11.70t
surgery evaluation and, 11.74–76
hypermature, 11.46, 11.49f
phacolytic glaucoma/uveitis and, 4.103, 10.97f, 10.97–98, 11.67
hypocalcemic, 11.61–62
illusions caused by, 5.174
incidence/prevalence of, 11.5, 11.6
infantile, 6.293, 11.34–39, 11.35t, 11.36f, 11.37f, 11.38f, 11.39f. See also Cataract, congenital
intralenticular foreign body causing, 11.57
intumescent, 11.46
surgery for, 11.179–180
IOL implantation and. See Cataract surgery
ischemia causing, 11.68
after keratoplasty, 11.176
laboratory workup for, 6.299f, 6.301
lamellar (zonular), 6.55, 6.296, 6.296f, 11.34–35, 11.36f
lens proteins and, 11.17
management of, 11.71–88. See also Cataract surgery
in glaucoma, 10.211–213, 11.186f, 11.186–187
low vision aids in, 11.71
nonsurgical, 11.71–72
pharmacologic, 11.72
in Marfan syndrome, 8.194
mature, 11.46, 11.48f
phacolytic glaucoma/uveitis and, 10.97f, 10.97–98, 11.67
megacornea and, 8.100
membranous, 11.38, 11.39f
metabolic, 11.60f, 11.60–62, 11.61f, 11.62f
morgagnian, 4.122, 4.123f, 11.46, 11.50f
phacolytic glaucoma and, 10.97f, 10.97–98
morphology of, 6.294–299, 6.295f, 6.295–298f
in myotonic dystrophy, 11.62, 11.62f
next-generation gene sequencing for, 6.301
nuclear, 4.123, 4.124f, 11.43–45, 11.45f, 12.402, 12.402f
characteristics and effects of, 11.43, 11.44, 11.70, 11.70f
in children/congenital, 11.38, 11.39f
genetic contributions to, 11.42
hyperbaric oxygen therapy and, 11.20, 11.65
infantile, 6.295, 6.296f
race and, 11.6
in rubella, 6.410
vitrectomy and, 11.55, 11.190
nutritional disease and, 11.7, 11.63–64
ocular anomalies associated with, 6.293, 6.294f
ocular examination of, 6.300
oil droplet, 11.44, 11.61, 11.61f
oxidative damage and, 11.19–20
in pars planitis, 9.151
pediatric, 11.34–39, 11.35t, 11.36–39f. See also Cataract, congenital
bilateral, 11.35f
persistent fetal vasculature and, 4.126, 11.42
surgery for. See Cataract surgery, in children
unilateral, 11.35f
penetrating and perforating injuries causing, 11.55, 11.55f, 11.56f. See also Cataract, traumatic
after penetrating keratoplasty, 8.432
perimetry interpretation and, 10.71
peripheral vacuolar, 6.298
persistent fetal vasculature and, 4.126, 6.298f, 6.298–299, 11.42
phacolytic glaucoma/uveitis and, 4.103, 10.97f, 10.97–98, 11.67
phacomorphic glaucoma and, 10.128, 11.67, 11.68f
after phakic IOL insertion
iris-fixated lenses, 13.145
posterior chamber lenses, 13.138, 13.145–146, 13.146
pinhole vision in patients with, 3.24
polar, 6.55, 11.35–36, 11.37f
surgery for, 11.180–181
hydrodissection/nucleus rotation and, 11.111, 11.181
posterior capsular, 6.387f
posterior lenticous/lentiglobus and, 6.296–297, 6.297f, 11.30
posterior polar, 11.36
surgery for, 11.180–181
hydrodissection/nucleus rotation and, 11.111, 11.181
posterior subcapsular (PSC). See Cataract, subcapsular, posterior
postvitrectomy, 11.55, 11.190
in pseudoexfoliation syndrome, 11.65
race and, 11.6
radiation-induced, 1.239, 11.57–58
after refractive surgery, 11.176–177, 11.177f
refractive surgery in patient with, 13.43–44
removal of, 6.57. See also Cataract surgery
retinoscopy evaluations, 6.299
risk factors for development of, 11.6–7
rosette, 11.54, 11.54f
rubella, 6.410, 11.38–39
scleritis and, 8.323
sectoral, 6.297–298
in siderosis bulbi, 11.58f, 11.58–59
silicone oil use and, 11.190
slit-lamp examination of, 6.300
smoking/tobacco use and, 11.6–7, 11.63–64
“snowflake,” 11.60, 11.60f
statins and, 1.79, 11.53
steroid-induced, 11.51–52, 11.64, 11.188
subcapsular
anterior (subcapsular fibrous plaques), 4.120, 4.120f
after posterior chamber phakic IOL insertion, 13.146
posterior (PSC), 2.283, 4.120f, 4.120–121, 4.121f, 6.297, 11.46–48, 11.51f
chamber phakic IOL insertion, 13.146
characteristics and effects of, 11.47, 11.70t
corticosteroids causing, 11.51–52
ischemia causing, 11.68
in myotonic dystrophy, 11.62
race and, 11.6
silicone oil use and, 11.190
uveitis and, 11.64
vitrectomy and, 11.55, 11.190
subtypes of, distribution of, 11.6
“sugar”
aldose reductase in development of, 11.19
description of, 2.289–291
“sunflower,” in chalcosis/Wilson disease, 8.189, 11.59, 11.62
surgery for. See Cataract surgery
sutural (stellate), 11.37, 11.37f
tetanic, 11.61–62
total (complete), 11.38
traumatic. See also specific type
description of, 4.18, 11.53–59, 11.54–56f, 11.59f, 11.190–193, 11.192f
surgery for, 11.192
treatment-induced. See Cataract, drug-induced
types of, 6.293
ultrasonographic findings in, 2.470f
uveitis and, 9.313–317, 11.64f, 11.64–65, 11.139–140
visual acuity and, 11.69–70, 11.70t
postoperative outcome and, 11.126
preoperative evaluation and, 11.75–76
visual deprivation amblyopia caused by, 6.55
visual function affected by, 6.300
visual impairment caused by, 1.184
vitrectomy and, 11.55, 11.190
in Wilson disease, 8.189, 11.62
workup for, 6.299f, 6.301
zonular (lamellar), 6.55, 6.296, 6.296f, 11.34–35, 11.36f
Cataract surgery, 11.89–126. See also Lensectomy;
Phacoemulsification; specific procedure
in acne rosacea, 11.172–173
age-related macular degeneration progression
affected by, 12.71
α-blocker use and, 11.74
amblyopia managed with, 6.57, 6.304
anesthesia for, 11.91
anticoagulant use and, 11.74, 11.157, 11.171–172
aphakia management after, 6.304
aphakic glaucoma after, 10.156
arcuate keratotomy with, 13.58
astigmatism and
arcuate keratotomy and, 13.53–54, 13.54–58
induced, 11.131–132
limbal relaxing incisions for, 13.86, 13.27f,
13.53–54, 13.54, 13.54f, 13.54–58, 13.55f,
13.56f, 13.56, 13.57f
modification of preexisting, 11.123–124
toric IOLs for, 11.124, 11.151–153
axial length extremes and, 11.184–185
biometry before, 11.82–83, 11.83f
hypotony affecting, 11.185
IOL power determination/seLECTION and, 11.82–85,
11.83f, 11.87
in bleeding diathesis, 11.171–172
in blepharitis, 11.172–173
Brown-McLean syndrome after, 11.128
bullous keratopathy after, 4.83–84, 4.84f, 11.129, 11.129f
IOL design and, 11.149
capsular block syndrome and, 10.132, 11.148–149
capsular opacification and contraction and, 11.152–157, 11.184
Nd:YAG laser capsulotomy for, 11.152–157, 11.154f,
11.156f. See also Nd:YAG laser, capsulotomy
capsular rupture and, 11.142–143
capsule staining and, 11.178–179, 11.179f
capsulorrhexis in, 11.108–110, 11.109f
capsule staining for, 11.178–179, 11.179f
in children, 6.301–305
glaucoma after, 10.149f
choroidal hemorrhage and. See Cataract surgery,
suprachoroidal hemorrhage/effusion and
ciliary block (malignant) glaucoma and, 10.139, 11.139 in claustrophobia, 11.169
clear corneal incision for, 11.106f, 11.106–107 with trabeculectomy, 10.213
communication with patient and, 11.169–170, 11.170 complications of, 6.304–305, 11.127–167. See also specific type
anterior segment, 11.132–144, 11.137t antimicrobial prophylaxis in prevention of, 11.93–95, 11.94f
capsulorhexis and contraction and, 11.152–157
intraoperative floppy iris syndrome and, 11.74, 11.178
iridodialysis and, 11.138
iris trauma and
  in patient with preexisting iris trauma, 11.191, 11.192f
  as surgical complication, 11.138
in keratoconjunctivitis sicca, 11.173
keratoplasty and, 11.175–176
  with IOL insertion (triple procedure), 11.175–176
key developments in, 11.195
laser photolysis, 11.125
lens anatomy alterations and, 11.179–184, 11.181f, 11.182f, 11.183f
lens-iris diaphragm retropulsion syndrome and, 11.138, 11.184
lens particle glaucoma after, 10.98
lens visualization and, 11.177–179, 11.178f, 11.179f
  trauma affecting, 11.191
lensectomy, 6.302
limbal relaxing incisions and, 11.123–124, 13.58
macular edema after, 6.304–305
macular function evaluation before, 11.82
  retinal disease and, 11.189
malignant glaucoma (aqueous misdirection/ciliary block glaucoma) and, 10.139, 11.139
manifest refraction delays after, 3.26
manual small-incision (MSICS), 11.198, 11.199f
  in eye with functioning filter, 11.187
  in glaucoma, 11.186, 11.187
measurements taken before, 11.82–84, 11.83f
medical status and, 11.72, 11.170–171
medical therapy after, 6.304
in megalocornea, 8.100
in mucous membrane pemphigoid, 11.173
in nanophthalmos, 11.185
necrotizing scleritis after, 9.121
in neurocognitive/neurodevelopmental disorders, 11.169–170
nucleus removal in
  in ECCE, 11.196–197
  in ICCE, 11.200, 11.200f
  in phacoemulsification, 11.111, 11.112–114, 11.113f. See also Phacoemulsification
ophthalmic viscosurgical devices (viscoelastic agents) in, 11.95–97. See also Ophthalmic viscosurgical devices
outcomes of, 11.126
improving, 11.87
paracentesis for, 11.105
patient preparation for, 11.87–88
in patient with communication obstacles, 11.169–170, 11.170
after penetrating keratoplasty, 8.432
  with penetrating keratoplasty and IOL insertion (triple procedure), 11.175
phacoemulsification, 11.90–91, 11.98–118. See also Phacoemulsification
photitic retinopathy after, 12.368
for plateau iris, 10.128
posterior capsule opacification and, 11.152–153, 12.260
posterior capsule rupture and, 11.142–143
posterior fluid misdirection syndrome and, 11.134–135
postoperative care and, 6.304
  after ECCE, 11.198
  after ICCE, 11.201
potential acuity estimation before, 11.81–82
preoperative evaluation/preparation for, 11.74–76, 11.87–88
primary posterior capsulotomy, 6.303
in pseudoexfoliation/exfoliation syndrome, 11.79, 11.184
pseudophakic/aphakic bullous keratopathy after, 4.83–84, 4.84f, 11.129, 11.129f
IOL design and, 11.149
psychosocial considerations in, 11.72, 11.76, 11.169–170
pupil expansion and, 11.177–178, 11.178f
  in uveitis, 11.191
pupil irregularity caused by, 5.255
pupillary capture and, 11.148, 11.148f
IOL decentration and, 11.145
after radial keratotomy, 13.52–53
rate of, 11.5–6
red reflex and, 11.178–179, 11.179f
refraction before, 11.76
refractive errors after, 11.86
after refractive surgery, 11.176–177, 11.177f
IOL power calculation and, 11.85–87, 11.176, 11.177f, 13.44, 13.194
with refractive surgery, 11.123–124. See also Cataract surgery, astigmatism and retained foreign matter and, 11.191
retained lens material and, 11.140–141
retinal complications and, 11.163–167, 11.164f
retinal detachment after, 6.304, 11.127, 12.319
  family history as risk factor and, 11.75
Nd:YAG laser capsulotomy and, 11.157, 11.166
in retinal disease, 11.189
retinal light toxicity and, 11.166
retrobulbar hemorrhage and, 11.158, 11.171
same-day bilateral, 11.73
scleral tunnel incisions for
  ECCE and, 11.196
  phacoemulsification and, 11.107f, 11.107–108
second-eye, 11.73
shallow anterior chamber and. See Cataract surgery, flat or shallow anterior chamber and slit-lamp examination before, 11.78–80
small pupil and, 11.177–178, 11.178f
specular microscopy before, 11.84
strabismus after, 6.304
suprachoroidal hemorrhage/effusion and, 11.159, 11.171
  delayed, 11.160
  explosive, 11.159–160
flat anterior chamber and, 11.134
systemic conditions and, 11.170–172, 11.171f
tamsulosin use and, 11.74, 11.136, 11.137, 11.137f
  timing of, 6.301
toxic anterior segment syndrome and, 11.129, 11.133–134
after trauma, 11.190–193, 11.192f
in triple procedure, 11.175–176
uveitis and, 6.323, 9.313–314, 11.64–65, 11.75, 11.139–140
postoperative, 11.139–140
pupil expansion and, 11.191
visual function evaluation after, 11.126
visual function evaluation before, 11.71, 11.72, 11.76–77
vitreal complications/vitreous abnormalities and, 12.349
with ICCE, 11.200
posterior detachment, 11.166
prolapse, 11.142, 11.143–144
vitreocorneal adherence, 11.130
vitreous loss during, 12.349
wound closure for complications associated with, 11.130–131
after ECCE, 11.197–198
after ICCE, 11.200–201
postoperative endophthalmitis and, 11.161
wound dehiscence/rupture and, 11.131
wound management in, 12.349
zonular abnormalities and, 11.179–184
iris coloboma/corectopia and, 11.180
nucleus rotation and, 11.111
zonular dehiscence with lens subluxation or nucleus rotation and, 11.111
zonular anatomy alterations and, 11.179–184
Cataractous lens, B-scan ultrasonography of, 12.40
Cavernous hemangioma, 4.6
Cerebrofacial. See Sturge-Weber syndrome of conjunctiva/ocular surface, 8.345, 8.345f, 8.346
description of, 7.75
optic neuropathy caused by, 5.126
orbital, 4.6, 4.233, 4.234f
Cavernous optic atrophy of Schnabel, 4.246, 4.247f
Cavernous sinus, 2.133, 2.135–136, 2.138f, 5.6f, 5.11, 5.21f, 5.22, 5.23f
carotid artery fistulas and, 5.203–206, 5.204f, 5.205f
neuroimaging in evaluation of, 5.70, 5.72t, 5.204, 5.204f, 5.205f
cranial nerve IV (trochlear) in, 5.42f, 5.43, 5.43f
cranial nerve VI (abducens) in, 5.41, 5.42f, 5.43f
Horner syndrome caused by lesions of, 5.260t
inflammation in (Tolosa-Hunt syndrome), 5.203
multiple cranial nerve paresis caused by lesions of, 5.202
ophthalmoplegia caused by lesions of, 5.202–206, 5.204f, 5.205f
pain caused by lesions of, 5.296
Cavernous sinus syndrome, 2.475f, 5.339
Cavernous sinus thrombosis (CST), 5.345, 6.214, 7.48, 7.51
orbital infection/cellulitis and, 5.345
Cavernous venous malformations (CVMs), 7.75–77, 7.76f
Cavitation, 11.99
CBS. See Capsular block syndrome
CCBs. See Calcium channel blockers
CCC. See Continuous curvilinear capsulorrhexis
CCD. See Charge-coupled device
CCDDs. See Congenital cranial dysinnervation disorders
CCL. See Corneal (collagen) crosslinking
CCN1 gene, in neurofibromatosis, 4.238
CCRS. See Congenital cranial dysinnervation disorders
CCSI. See Central cornea, thickness of
CCT. See Central cornea, thickness of
CCTA. See Coronary computed tomography angiography
CCTI. See Capacity to Consent to Treatment Instrument
CCTVs, 3.323
cd. See Candela
CD antigens. See also specific type in immunohistochemistry, 4.35
CD4, in adaptive immune response, 9.30
CD4+ helper-induced T lymphocytes, 1.266
CD4+ T cells. See also Helper T cells; T cell(s) in AIDS, 9.327
CD4+ T cells in cytomegalovirus retinitis, 12.235
development of, 9.43f
in external eye defense, 8.12f
in HIV infection/AIDS, 8.241
in immune processing, 9.30–31
in sympathetic ophthalmia, 9.45
in tubulointerstitial nephritis and uveitis syndrome, 9.135
CD8
in adaptive immune response, 9.30
cytotoxic T cell expression of, 9.36, 9.44
CD8+ T cells. See also T cell(s)
cytotoxicity mechanisms of, 9.47f
in external eye defense, 8.12f
major histocompatibility class I molecules and, 9.30
regulatory (suppressor). See Regulatory (Treg/suppressor) T cells
in sympathetic ophthalmia, 9.45
CD19, in lymphoma, 4.232
CD20
   in lymphoma, 4.232
   in nonspecific orbital inflammation, 4.225
CD25, in nonspecific orbital inflammation, 4.225
CD34, in orbital solitary fibrous tumors, 4.235
CD40 receptors, 7.57
CD52, 1.180
CD154, 7.57
CD340, in immunohistochemistry, 4.35
CD95 ligand. See Fas ligand
CD95 receptor, 9.46
CDB1 (corneal dystrophy of Bowman layer type 1).
   See Reis- Bücklers corneal dystrophy
CDB2 (corneal dystrophy of Bowman layer type 2).
   See Thiel- Behnke corneal dystrophy
CDC (Centers for Disease Control), 1.223, 1.226, 1.227, 1.232
   cataract epidemiology and, 11.5
CDCR. See Conjunctivodacryocystorhinostomy
CDKs. See Cyclin- dependent kinases
CDS (Cornea Donor Study), 8.416
CDV A. See Corrected distance visual acuity
CE (Conformité Européene) marking, 13.3
   for intrastromal corneal ring segments, 13.65
   for small- incision lenticule extraction, 13.203
CEA. See Carotid endarterectomy
Cecocentral scotoma, 5.103, 5.105
   f, 5.106
Cefaclor, 1.308
Cefadroxil, 2.419
Cefamandole, 2.419
Ceftazidime, 2.418, 2.426
Cefazolin
   for bacterial keratitis, 8.270
   for dental prophylaxis, 1.248
   description of, 2.418t, 2.419
Cefepime hydrochloride, 2.420
Cefopazone, 2.420
Cefotaxime, 2.420
   for Lyme disease, 9.231t
Cefoxitin, 2.419
Cepirome, 2.420
Ceftazidime, 2.418t, 2.426
for bacterial keratitis, 8.270t
for dental prophylaxis, 1.248t
description of, 2.418t, 2.419
Cell adhesion molecules (CAMs), 9.38
   description of, 9.10
types of, 9.11
Cell cycle
   checkpoints in, 2.175–176, 2.183
cytokinesis, 2.173–174
mitosis, 2.174–175
mitosis, 2.173
phases of, 2.173–174, 2.174f
regulation of, 2.175–176
Cell- free fetal DNA, 2.239
Cell- mediated immunity. See Cellular immunity/
   immune system
Cell wall
   bacterial, 8.243–244
   fungal, 8.249
Cellophane maculopathy, 2.300, 12.335
Cellular atypia
   conjunctival melanocytic intraepithelial neoplasia
   and, 4.66–68, 4.67f
   primary acquired melanosis and, 4.65, 4.66, 4.67f, 8.342–343
Cellular immunity/immune system (cell-mediated
   immunity), 1.245
mast cells in, 9.3
in mucous membrane pemphigoid, 8.299
Cellular retinol- binding protein 1 (CRBP1), 2.326
Cellulitis, 4.204, 4.204
   orbital, 6.213–215, 6.214
   f, 7.46
   t, 7.46–48, 7.47f
   pain in, 5.295
   preseptal, 4.204, 4.204, 6.170, 6.212–214, 7.43–46, 7.44t
   Haemophilus causing, 8.256
Cellulose sponge, in surface ablation, 13.92
"CEMAS (The Classification of eye movement
   abnormalities and strabismus), “ 5.234
Center for Quality Assessment and Improvement in
   Mental Health, 1.190
Center- involved diabetic macular edema
   description of, 12.92
   imaging of, 12.109, 12.110f
Centers for Disease Control (CDC), 1.223, 1.226, 1.227, 1.232
   cataract epidemiology and, 11.5
Central, Steady, and Maintained (CSM) method, 6.6
Central areolar choroidal dystrophy (CACD), 12.277
Central blindness, age- related macular degeneration
   progression to, 12.86
Central cobolomas, 2.153
Central cornea, 2.51, 8.25, 8.25f
   healing in, 4.14–16, 4.15f
   thickness of (CCT), 6.181, 6.281, 8.25, 8.41–42.
   See also Cornea, thickness/rigidity of
   glaucoma and, 10.25, 10.31, 10.81, 10.82, 10.90
   in infants and children, 10.159
   normal- tension glaucoma and, 10.86–87
   in infants and children
   normal, 10.159
   in primary congenital glaucoma, 10.159
   ocular hypertension and, 8.41, 10.25, 10.90, 10.112
   tonometry measurements affected by, 10.25, 10.81, 10.82, 10.86
   transparency disorders, 6.257–258t, 6.257–263, 6.258f
Central corneal power (K), 8.26. See also Cornea, refractive power of
description of, 3.243, 3.248
effects in, 3.252
in keratoconus/corneal ectasia, 8.32f
measurement of, 8.26–27, 8.27f, 13.7–9. See also
Keratometry/keratometer
after refractive surgery, 13.193
simulation measurements (SIM K), 13.19
Central nervous system (CNS)
Central macular atrophic lesions, 12.266
Central islands, after photoablation, 13.103–104, 13.104
Central fusion disruption, 6.48, 6.79, 6.104
Central fusion, 6.42
Central fat compartment, 7.261
Central dysacusia, 9.205
See also Central corneal power
Cornea, (K), 8.26.
Central retinal artery (CRA), 5.12, 5.13
See Central posterior surface.
Central posterior surface.
Central retinal artery occlusion (CRAO), 4.156, 4.157f, 7.271
anti-VEGF therapy for, 12.146
causes of, 12.144
ciliary artery occlusion with, 12.144, 12.145f
electroretinography findings in, 12.50
emboli as cause of, 12.144
giant cell arteritis as cause of, 12.145
illuminations of, 12.16f, 12.144f
iris neovascularization in, 12.146
management of, 12.146
retinal infarction caused by, 12.143
spectral-domain optical coherence tomography of, 12.144f
symptoms and signs of, 12.143
transient visual loss and, 5.161
vision loss caused by, 12.143–144
Central retinal vein (CRV), 2.26f, 2.111, 2.120, 5.17f, 5.21, 5.21f, 10.44, 10.45f, 10.46
occlusion of. See Central retinal vein occlusion
optic nerve drained by, 5.17f, 10.45f, 10.46
Central retinal vein occlusion (CRVO), 1.148, 4.156–158, 4.158f
afiblercept for, 12.135
age and, 12.133
angle-closure glaucoma and, 10.143–144
neovascularization and, 10.134–135
bevacizumab for, 12.135
chronic changes caused by, 12.127f
cilioretinal artery occlusion caused by, 12.143
clinical findings of, 12.127f, 12.130
complications of, 12.135
corticosteroids for, 12.137–138
cystoid macular edema caused by, 12.136f
differential diagnosis of, 12.134
diuretic and, 12.134
electroretinography findings in, 12.50
evaluation of, 12.134–135
follow-up for, 12.134
hypercoagulable conditions presenting with, 12.134
hypertensive retinopathy and, 12.122
hyperviscosity retinopathy versus, 12.134
intraocular pressure in, 12.133
ischemic/complete/nonperfused, 4.156, 4.157–158, 4.158f, 12.132f
macular laser surgery for, 12.135
management of, 12.134–135
neovascularization in, 12.125
nonischemic, 12.130, 12.131f
ocular ischemic syndrome versus, 12.134
open-angle glaucoma in, 10.84, 12.133
oral contraceptives and, 12.134
panretinal photocoagulation for, 12.135
papillophlebitis and, 5.125–126, 5.126f
pars plana vitrectomy for, 12.135
pharmacologic management of, 12.135–138
progression of, follow-up for, 12.134
ranibizumab for, 12.135
retinal microvascular changes in, 12.125, 12.127f
risk factors for, 12.133–134
spontaneous resolution of, 12.125
transient visual loss and, 5.170
treatment of, 12.135
vision loss caused by, 12.130
vitreous hemorrhage secondary to, 12.135
Central scotoma, 5.103, 5.105f, 5.106f, 5.368, 12.86, 12.265
nonorganic disorders and, 5.306

56 • Master Index
Central serous chorioretinopathy (CSC)
age and, 12.189
age-related macular degeneration versus, 12.67, 12.76, 12.79
autofluorescence abnormalities in, 12.192f
choroidal thickening in, 12.191
corticosteroids as cause of, 12.300
demographics of, 12.189–191, 12.190f
differential diagnosis of, 12.193–194
discovery of, 12.189
enhanced depth imaging optical coherence

tomography findings, 12.67, 12.191, 12.193f
fluorescein angiography findings in, 12.190, 12.191f
fundus autofluorescence of, 12.32
historical descriptions of, 12.189
imaging of, 12.190–192, 12.191–12.193f
indocyanine green angiography of, 12.38, 12.192, 12.194f
neovascularization associated with, 12.194
nonneovascular age-related macular degeneration versus, 12.67, 12.76
optical coherence tomography of, 12.32
photodynamic therapy for, 12.194
polypoidal choroidal vasculopathy versus, 12.193
retinal detachment caused by, 12.189, 12.191
retinal pigment epithelium pigmentation in, 12.190, 12.190f
sildenafil as cause of, 12.299
stress and, 12.191
symptoms and signs of, 12.189–190
systemic conditions associated with, 12.191
systemic corticosteroids as risk factor for, 12.191
treatment of, 12.194
visual acuity in, 12.190
white dots with, 12.191, 12.191f
Central serous retinopathy (CSR). See Central serous chorioretinopathy
Central stromal inflammation, 8.50–52
Central supporting connective tissue strand, 2.112
Central stromal inflammation, 8.50–52
Central suppressive scotoma, 4
Δ base-out prism test
Central suppression, 6.48
Central suppression scotoma, 4Δ base-out prism test for, 6.79
Central surgical space, 7.12
Central toxic keratopathy, after photoablation, 13.105f, 13.105–106
Central Vein Occlusion Study (CVOS), 4.157
Central vestibular instability nystagmus, 6.149
Central vestibular nystagmus, 5.216, 5.243f, 5.243–246, 5.245f
instability (periodic alternating/PAN), 5.243t, 5.245–246, 6.149
Central vision loss. See Vision loss/impairment
Central visual field, 3.315, 3.317
in low vision, 5.85, 5.85f
Central vitreous, 12.7
Central zone, of cornea, 8.25, 8.25f. See also Central cornea
Central serous chorioretinopathy (CSC)
age and, 12.189
age-related macular degeneration versus, 12.67, 12.76, 12.79
autofluorescence abnormalities in, 12.192f
choroidal thickening in, 12.191
corticosteroids as cause of, 12.300
demographics of, 12.189–191, 12.190f
differential diagnosis of, 12.193–194
discovery of, 12.189
enhanced depth imaging optical coherence
tomography findings, 12.67, 12.191, 12.193f
fluorescein angiography findings in, 12.190, 12.191f
fundus autofluorescence of, 12.32
historical descriptions of, 12.189
imaging of, 12.190–192, 12.191–12.193f
indocyanine green angiography of, 12.38, 12.192, 12.194f
neovascularization associated with, 12.194
nonneovascular age-related macular degeneration versus, 12.67, 12.76
optical coherence tomography of, 12.32
photodynamic therapy for, 12.194
polypoidal choroidal vasculopathy versus, 12.193
retinal detachment caused by, 12.189, 12.191
retinal pigment epithelium pigmentation in, 12.190, 12.190f
sildenafil as cause of, 12.299
stress and, 12.191
symptoms and signs of, 12.189–190
systemic conditions associated with, 12.191
systemic corticosteroids as risk factor for, 12.191
treatment of, 12.194
visual acuity in, 12.190
white dots with, 12.191, 12.191f
Central serous retinopathy (CSR). See Central serous chorioretinopathy
Central stromal inflammation, 8.50–52
Central supporting connective tissue strand, 2.112f
Central suppression, 6.48
Central suppression scotoma, 4Δ base-out prism test for, 6.79
Central surgical space, 7.12
Central toxic keratopathy, after photoablation, 13.105f, 13.105–106
Central Vein Occlusion Study (CVOS), 4.157
Central vestibular instability nystagmus, 6.149
Central vestibular nystagmus, 5.216, 5.243f, 5.243–246, 5.245f
instability (periodic alternating/PAN), 5.243t, 5.245–246, 6.149
Central vision loss. See Vision loss/impairment
Central visual field, 3.315, 3.317
in low vision, 5.85, 5.85f
Central vitreous, 12.7
Central zone, of cornea, 8.25, 8.25f. See also Central cornea
Central retinopathy (CER), 9.296
Cerebrovascular disease
anterior (AICA), 5.19f, 5.20
cranial nerve relationship and, 5.42f
posterior (PICA), 5.19, 5.19f, 5.20
superior (SCA), 2.107f, 5.18f, 5.19f, 5.20
cranial nerve relationship and, 5.42f
Cerebral arteries
in Fabry disease, 8.176
Cerebral hemangioblastoma, with retinal angiomasis (von Hippel–Lindau disease), 4.284–285, 5.330, 5.331f, 5.334f
Cerebellopontine angle tumors
Bruns nystagmus and, 5.243
seventh nerve (facial) palsy and, 5.276–277f, 5.278, 5.278f, 5.279
sixth nerve (abducens) palsy and, 5.200–201
Cerebellum, 5.33, 5.39–40, 5.41
Cerebellar hemangioblastoma, with retinal angiomasis (von Hippel–Lindau disease), 4.284–285, 5.330, 5.331f, 5.334f
Cerebellopontine angle tumors
Bruns nystagmus and, 5.243
seventh nerve (facial) palsy and, 5.276–277f, 5.278, 5.278f, 5.279
sixth nerve (abducens) palsy and, 5.200–201
Cerebellum, 5.33, 5.39–40, 5.41
Cerebellar hemangioblastoma, with retinal angiomasis (von Hippel–Lindau disease), 4.284–285, 5.330, 5.331f, 5.334f
Cerebral edema, MRI in evaluation of, 5.64f, 5.65t, 5.66, 5.67f, 5.75
Cerebral hemisphere abnormalities, 6.361
Cerebral hypoperfusion, 1.299
Cerebral ischemia. See also Ischemic stroke; Stroke
causes of, 1.110–111
MRI in evaluation of, 5.64f, 5.65t, 5.66, 5.67f, 5.75, 5.167
pathogenesis of, 1.110
transient, 1.110
Cerebral palsy, hyporeaccommodation in, 6.9
Cerebral peduncles, 2.107f, 5.18f, 5.34f, 5.41f
Cerebral ptosis, 5.273
Cerebral vascular system
cavernous sinus, 2.135–136, 2.138f
description of, 2.135
venous sinuses, 2.136, 2.138, 2.138f
Cerebral vasculitis, 9.170, 12.222
Cerebral venous thrombosis (CVT), 5.345–346
Cerebral vasoconstriction syndrome, reversible (RCVS), 5.725
Cerebral vascular system
cavernous sinus, 2.135–136, 2.138
description of, 2.135
venous sinuses, 2.136, 2.138, 2.138f
Cerebral venography, in cerebral venous thrombosis, 5.346
Cerebral venous thrombosis (CVT), 5.345–346
in idiopathic intracranial hypertension, 5.111
neuroimaging in, 5.69, 5.69f, 5.72f, 5.346
Cerebrovascular disease. See also Ischemia; Stroke
fourth nerve (trochlear) palsy caused by, 5.199
hyperlipidemia and, 1.78
hypertension and, 1.66
internuclear ophthalmoplegia caused by, 5.190
neuro-ophthalmic signs of, 5.345–348
neuroimaging in evaluation of, 5.60f, 5.67–71, 5.68f, 5.72f
sixth nerve (abducens) palsy caused by, 5.200, 5.201, 5.345–346
third nerve (oculomotor) palsy caused by, 5.195, 5.198
transient visual loss caused by, 5.36, 5.161, 5.162,
5.164–165
Cerivastatin, 1.77
Certolizumab, 1.180, 9.110
Cerulean cataract, 11.37, 11.38f
Ceruleanplasm, in Wilson disease, 8.189
Cervical cancer
human papillomavirus and, 1.217–218
mortality rates for, 1.217
prevalence of, 1.217
risk factors for, 1.217–218
screening for, 1.216f, 1.217–218
Cervical ganglia, 5.53f, 5.54
Horner syndrome caused by lesions of, 5.260t
Cervical nerve, 5.51f, 5.52, 5.276–277f
Cervicitis, 1.255
Cervicofacial division, of cranial nerve VII (facial), 5.52
Cervicoplasty, 7.276f
Cetamide. See Sulfacetamide
Cevimeline, for dry eye, 8.64
C,F,P, See Perfluoropropane
CFEOM. See Congenital fibrosis of the extraocular
muscles
CFH (complement factor H) gene, 2.183, 12.63
in age-related macular degeneration, 4.160
CGH. See Comparative genomic hybridization
CGRP. See Calcitonin gene–related peptide
CH,CO,H. See Acetic acid
CHADS2 risk calculator, 1.103
Chair rotation fixation test, vestibular-ocular response
suppression/smooth-pursuit deficits and, 5.225,
5.225f, 5.226
Chalazion (chalazia), 4.204, 4.206, 8.77
in rosacea, 8.70
Chalconosis, 4.120, 11.59, 12.362
conical deposits/pigmentation in, 8.118f
glaucoma and, 10.103
Challenge testing
in contact dermatoblepharitis, 8.287
in hay fever conjunctivitis, 8.288
Chamber angle. See Anterior chamber angle
Chamber deepening. See also Anterior chamber, flat or
shallow
for angle-closure glaucoma, 10.220
Chandler syndrome, 4.100, 8.111, 8.126, 10.136, 10.137f.
See also Iridocorneal endothelial (ICE) syndrome
Chaperone-mediated autophagy, 2.283
Charcot-Marie-Tooth disease, 12.282t
Charge-coupled device (CCD), 3.289, 13.10
Charged-particle radiation
mortality rates for, 1.217
risk factors for, 1.217–218
screening for, 1.216f, 1.217–218
Cervical ganglia, 5.53f, 5.54
Horner syndrome caused by lesions of, 5.260t
Cervical nerve, 5.51f, 5.52, 5.276–277f
Cervicitis, 1.255
Cervicofacial division, of cranial nerve VII (facial), 5.52
Cervicoplasty, 7.276f
Cetamide. See Sulfacetamide
Cevimeline, for dry eye, 8.64
C,F,P, See Perfluoropropane
CFEOM. See Congenital fibrosis of the extraocular
muscles
CFH (complement factor H) gene, 2.183, 12.63
in age-related macular degeneration, 4.160
CGH. See Comparative genomic hybridization
CGRP. See Calcitonin gene–related peptide
CH,CO,H. See Acetic acid
CHADS2 risk calculator, 1.103
Chair rotation fixation test, vestibular-ocular response
suppression/smooth-pursuit deficits and, 5.225,
5.225f, 5.226
Chalazion (chalazia), 4.204, 4.206, 8.77
in rosacea, 8.70
Chalconosis, 4.120, 11.59, 12.362
conical deposits/pigmentation in, 8.118f
glaucoma and, 10.103
Challenge testing
in contact dermatoblepharitis, 8.287
in hay fever conjunctivitis, 8.288
Chamber angle. See Anterior chamber angle
Chamber deepening. See also Anterior chamber, flat or
shallow
for angle-closure glaucoma, 10.220
Chandler syndrome, 4.100, 8.111, 8.126, 10.136, 10.137f.
See also Iridocorneal endothelial (ICE) syndrome
Chaperone-mediated autophagy, 2.283
Charcot-Marie-Tooth disease, 12.282t
Charge-coupled device (CCD), 3.289, 13.10f
CHARGE syndrome, 6.364
Charged-particle radiation
for choroidal hemangioma, 4.283
for choroidal melanoma/ciliary body melanoma,
4.276
Charles Bonnet syndrome, 1.206, 3.309, 3.312,
5.177–178, 12.86
Chatter, 11.99, 11.100
Chavasse theory, of infantile esotropia, 6.87
CHD. See Coronary heart disease
Checkpoint inhibitors, 7.206, 7.210–211
Checkpoints, in cell cycle, 2.175–176
Checkpoint inhibitors, 7.206, 7.210–211
Checkpoints, in cell cycle, 2.175–176
CHED. See Congenital hereditary endothelial dystrophy
CHED1. See Posterior polymorphous corneal dystrophy
CHED2. See Congenital hereditary endothelial dystrophy
Chédiak-Higashi syndrome (CHS), 6.407, 12.288
Chelation therapy, for band keratopathy, 8.119
Chemical conjunctivitis, 6.239
Chemical energy, 3.106
Chemical injury (burns), 6.376, 8.375–384, 8.376f
acid burns, 8.376f, 8.380f, 8.380–381, 8.381f
alkali burns, 8.375–380, 8.376f, 8.379f, 8.380f
amniotic membrane transplantation for, 8.384
during cataract surgery, corneal edema and, 11.128t
cataracts caused by, 11.59
classification/grading schemes for, 8.376f, 8.377–379, 8.377–378f, 8.379f
clinical findings in, 8.376f, 8.376–379, 8.377–378t, 8.379f
glaucoma and, 10.103–104
limbal transplantation for, 8.380, 8.384
management of, 8.381–384, 8.382f
prognostic features of, 8.376f
Chem detervation. See Botulinum toxin
Chemokines
alpha, 9.23t
beta, 9.23t
description of, 9.21
in external eye defense, 8.12f
Chemoreduction. See Chemotherapy (cancer)
Chemotherapy (cancer). See also specific agent
adjuvant, 1.239
for choroidal/ciliary body melanoma, 4.277
curative, 1.239
description of, 1.239–241, 1.240t
for lymphoma, 4.312
MEK inhibitors, 12.299
for metastatic eye disease, 4.310
neoadjuvant, 1.239
for optic nerve glioma, 5.130
optic nerve glioma treated with, 7.82–83
palliative, 1.239, 1.241
primary vitreoretinal lymphoma treated with, 12.234
for retinoblastoma, 4.253, 4.299–300, 4.300f, 6.356–357
rhabdomyosarcomas treated with, 7.88–89
topical
ocular surface toxicity of, 8.90t
for ocular surface tumors, 8.330f, 8.330–332, 8.331f
Cherry-red spot
in central retinal artery occlusion, 4.156, 12.143
in commotio retinae, 12.353
in mucopolisoses, 8.178
ophthalmic artery occlusion and, 12.146
in Tay-Sachs disease, 12.291, 12.292f
Cherry-red spot myoclonus syndrome, 6.388t, 6.390
Chest compressions, 1.296–297
Chet radiographs
 congestive heart failure findings, 1.97
lung disease evaluations, 1.126
CHF. See Congestive heart failure
Chi-square test, 1.7
Chiasis (optic), 5.23f, 5.27f, 5.27–28, 5.28f
anatomy of, 2.108f, 2.115–116
cycloplegic refraction, 6.10–12
difficult child, 6.5
distance fixation targets, 6.3, 6.4f
dynamic retinoscopy, 6.9
fundus, 6.12
general consideration and strategies for, 6.3–5
intraocular pressure measurement, 6.10
1 toy, 1 look rule, 6.3, 6.4f
in outpatient setting, 6.3, 6.4
practitioner positioning during, 6.4
pupil testing, 6.10
red reflex, 6.9
"safe" environment for, 6.4
slit-lamp examination, 6.4–5
tonometry, 6.10
visual acuity assessment. See Children, visual acuity assessment in
visual field testing, 6.10
vocabulary during, 6.4
eyedrop administration in, 6.11–12
glaucoma in, 10.4
in adults, 8.257, 8.260, 8.260f, 8.261f, 8.262f
in neonates, 8.257, 8.260, 8.263
in adults, 8.257f, 8.260, 8.263
in neonates, 8.257f, 8.265
gonococcal coinfection and, 8.259
ocular infection/inflammation caused by, 8.208, 8.257f, 8.260
per sistence/chronic infection and, 8.207
specimen collection/isolation techniques for
diagnosis of, 8.209f, 8.211
Chlamydia, 8.248–249
conjunctivitis caused by, 4.52, 4.54f, 8.208t, 8.257f, 8.260, 8.260f, 8.261f, 8.262f
in adults, 8.257f, 8.260, 8.263
in neonates, 8.257f, 8.265
Chlamydia trachomatis, 8.208, 8.257
conjunctivitis caused by, 6.238–239, 6.239f, 6.241
Chlamydophila psittaci, 8.260
psittaci. See Chlamydyphila psittaci
trachoma caused by, 8.260–263, 8.261f, 8.262f
Chlorambucil, 1.179, 2.404f
for uveitis, 9.110
Chloramphenicol, 1.276, 2.421f, 2.425
Chlorhexidine, for Acanthamoeba keratitis, 8.278, 8.279
Chloride (Cl), in lens, 11.21
Chloroqua
Chloroqua
bull's-eye maculopathy caused by, 12.295, 12.296f
toxicosis of, cornea verticillata and, 8.130
Chlorpromazine, 12.297
  corneal pigmentation/verticillata caused by, 8.130, 8.132
  intraoperative floppy iris syndrome and, 11.136, 11.137
  lens changes caused by, 11.52
Chlorotetracycline, 2.424
Chlorothalidone, 1.59, 1.65
CHM gene, 12.268
C₂H₄O₂. See Acetic acid
“Chocolate cysts,” 7.74, 8.348
Choking, 1.299
Cholera vaccination, 1.232
Cholesterol, 2.284
  drugs for modification of. See Lipid-lowering therapy
  elevated levels of. See Hyperlipidemia
  in lecithin-cholesterol acyltransferase deficiency, 8.180
  lipoprotein transport of, 1.72
  National Cholesterol Education Program guidelines for, 1.71
  Cholesterol absorption inhibitor, for hypercholesterolemia, 1.75
  Cholesterol crystals, vitreous hemorrhage and, 4.133
  Cholesterol emboli (Hollenhorst plaques), 12.141, 12.142, 12.144
  transient visual loss and, 5.165, 5.166
  Cholesterolosis, 12.348
Choliner gic agents. See also Muscarinic drugs; Nicotinic drugs; specific agent agonists
direct-acting
  acetylcholine, 2.375–377
  actions of, 2.375
  for acute angle closure, 10.124
  adverse effects of, 2.378
  for glaucoma, 10.173f, 10.181–182
  in children, 10.166
  indications for, 2.378
  pilocarpine, 2.377–378
  for dry eye, 8.61f, 8.64
  indirect-acting, 2.379
  mechanism of action, 2.374–375
  types of, 2.376f
  antagonists, 2.380–381
  nicotinic
  antagonists, 2.382
  indirect-acting agonists, 2.381
Cholinergic receptors
description of, 2.374, 2.374f, 2.375t
  drugs affecting. See Cholinergic agents
Cholinesterase/acetylcholinesterase inhibitors (anticholinesterase agents)
  for Alzheimer disease, 1.210
  angle closure caused by, 10.122
  cataracts caused by, 11.52
  characteristics of, 2.378t
  for glaucoma, 10.173t, 10.181–182
  irreversible, 2.379
  for myasthenia gravis, 5.324–326
  pralidoxime reversal of, 2.379
  Chondroid syringoma, 7.192
  Chondroitin sulfate, 2.297
  in mucopolysaccharidoses, 8.175t
  as viscous, 11.95
  Chondrosarcoma, 7.91
  Chopping techniques, in phacoemulsification, 11.114
  Chorda tympani, 5.51f, 5.276–277
  seventh nerve lesions and, 5.276–277f
  Chordin-like 1 (CHRD L1) gene, in megalocornea, 6.254, 8.96f, 8.99
Choriocapillaris, 4.141f, 4.182–183
  age-related changes in, 12.61
  anatomy of, 2.76, 2.77–78f, 12.17, 12.19, 12.20f
  atrophy of, in choroideremia, 12.258
  blood flow abnormalities in, 12.198
  development of, 2.160–161
  ghost vessels in, 12.198
  hypertensive choroidopathy findings, 12.123
  immune responses of, 9.57–59
  immunologic microenvironment of, 9.57
  immunoregulatory systems of, 9.59
  optical coherence tomography angiography of, 12.30f
  in pseudoxanthoma elasticum, 12.199f
  retinal pigment epithelium and, 2.322f
  in type 1 choroidal neovascularization, 12.71
Chorioretinal atrophy
genes and loci associated with, 12.256t
  in pathologic myopia, 12.214f
  Chorioretinal biopsy, 9.91
  Chorioretinal coloboma, 6.364
  Chorioretinal disruption
  traumatic, 12.357f, 12.357–358
  traumatic (sclopetaria), 4.22
  Chorioretinal edema, 12.379
  Chorioretinal folds, 12.200–201, 12.201f
  Chorioretinal inflammation. See Chorioretinitis;
  Chorioretinitis; specific disorder
  Chorioretinal lacunae, 6.338, 6.339f
  Chorioretinal lesions, 9.271, 9.272f
  Chorioretinal scars/scarring, 9.135f
  in congenital toxoplasmosis, 12.243
  in ocular histoplasmosis syndrome, 12.87
  ocular toxoplasmosis/toxoplasmic chorioretinitis and, 4.147, 4.148f
  Chorioretinal spots, 9.264f
  Chorioretinitis
  acute syphilitic
    description of, 9.222, 9.222f
    posterior placoid, 12.241
  Candida, 9.297, 9.298f
    in Ebola virus survivor, 9.272f
  focal, 12.238, 12.238f
  fungal, 4.147, 4.147f. See also specific type
  in neuroretinitis, 12.242
  posterior placoid, 9.222, 9.223f
  sclopetaria, 4.22
  syphilitic, 6.412, 12.241–242, 12.242f
  Toxoplasma, 6.409, 6.410f
  toxoplasmic, 4.147–148, 4.148f
  with uveitis. See Posterior uveitis
  vitiliginous. See Birdshot uveitis
  with vitritis, 9.72–73f
West Nile virus, 12.246, 12.247f
Zika virus, 12.247
Chorioretinopathy. See also Retinopathy; specific type
birdshot, 12.49
central serous
age and, 12.189
age-related macular degeneration versus, 12.67, 12.76, 12.79
autofluorescence abnormalities in, 12.192f
choroidal thickening in, 12.191
corticosteroids as cause of, 12.300
demographics of, 12.189–191, 12.190f
differential diagnosis of, 12.193–194
discovery of, 12.189
enhanced depth imaging optical coherence tomography findings, 12.67, 12.191, 12.193f
fluorescein angiography findings in, 12.190, 12.191f
fundus autofluorescence of, 12.32
historical descriptions of, 12.189
imaging of, 12.190–192, 12.191–12.193f
indocyanine green angiography of, 12.38, 12.192, 12.194f
neovascularization associated with, 12.194
nonneovascular age-related macular degeneration versus, 12.67, 12.76
optical coherence tomography of, 12.32
photodynamic therapy for, 12.194
polyoidal choroidal vasculopathy versus, 12.193
retinal detachment caused by, 12.189, 12.191
retinal pigment epithelium pigmentation in, 12.190, 12.190f
sildenafil as cause of, 12.299
stress and, 12.191
symptoms and signs of, 12.189–190
systemic conditions associated with, 12.191
systemic corticosteroids as risk factor for, 12.191
treatment of, 12.194
visual acuity in, 12.190
white dots with, 12.191, 12.191f
inflammatory (white dot syndromes). See specific disorder
peripheral exudative hemorrhagic (PECHR), 4.270f, 4.271
Choristomas, 4.6, 4.47, 4.49f, 5.332, 7.40. See also Dermoids
complex, 4.48, 4.49f
conjunctival, 4.47, 4.49f
description of, 6.223, 6.256
orbital. See specific type
osseous, 4.48, 4.49f
phakomatous (Zimmerman tumor), 4.202–203, 4.203f
Choristomatous tumors, 6.225–226
Choroid, 4.181, 4.181f, 4.182–183, 4.183f, 5.17f. See also Uvea (uveal tract)
age-related atrophy of, 12.200, 12.212
amelanotic masses of, 4.263, 4.264f, 4.306, 4.306f
differential diagnosis of, 4.272f
anatomy of, 4.181f, 4.182–183, 4.183f, 5.17f, 12.19–20, 12.20f, 12.193f
arterial supply to, 12.194, 12.195f
autoimmune conditions of
Behçet disease, 12.230, 12.230r
inflammatory vasculitis, 12.230–231
intermediate uveitis, 12.231–232
intraocular lymphoma, 12.233–234, 12.234f
lupus vasculitis, 12.230–231, 12.231f
overview of, 12.229
sympathetic ophthalmia, 12.233
bilateral diffuse uveal melanocytic proliferation effects on, 12.204
blood circulation in, 12.19–20, 12.20f, 12.194, 12.195f
blood flow in, 2.76
abnormalities of, 12.198
capillary arrangement in, 12.19
capillary arrangement in, 12.19
choriocapillaris, 2.76, 2.77–78f
in choroidal neovascularization, 12.36, 12.37f
coloboma of, 4.184, 4.184f
detachment of, 4.270, 12.379, 12.379f
melanoma differentiated from, 4.270–271
development of, 2.160–161
diseases of. See also Chorioretinitis;
Chorioretinopathy; Chorioiditis; Choroidopathy;
specific type
bilateral diffuse uveal melanocytic proliferation, 12.204–205, 12.205f
central serous chorioretinopathy. See Central serous chorioretinopathy
hemangiomas, 4.202f, 12.202–203
inflammatory, posttraumatic granulomatous, 4.22, 4.22f
nonarteritic, 12.195–196, 12.197f
perfusion abnormalities, 12.194, 12.195–12.197f, 12.199–12.200f
uveal effusion syndrome, 12.203, 12.204f
edema of, 2.378
enhanced depth imaging optical coherence tomography of, 12.25, 12.193f
filling defects in, 12.198
focal posttraumatic granulomatous inflammation of, 4.22, 4.22f
folds in, 12.200–201, 12.201f
functions of, 2.76, 12.212
gyrate atrophy of, 2.204f
Haller layer, 12.19
healing/repair and, 4.16
as heat sink, 12.20
hemangiomas of, 4.197, 4.198f, 4.281–283, 4.282f, 4.283f
in Sturge-Weber syndrome, 4.197, 4.281, 5.332f, 5.334f
immune responses of, 9.57–59
immunologic microenvironment of, 9.52f, 9.57–58
immunoregulatory systems of, 9.59
inflammation of
infectious causes, 12.235–247
noninfectious causes, 12.219–234
white dot syndromes as cause of. See White dot syndromes
inner structure of, 12.193f
innervation of, 2.76
ischemia of, illusions and, 5.175
layers of, 2.76
in leukemia, 4.315
lymphoma of (uveal lymphoid proliferation/
hyperplasia/infiltration), 4.199, 4.199f, 4.313–314
magnetic resonance imaging of, 2.459r
mast cells in, 9.58
melanocytoma of, 4.192, 4.258
melanoma of, 4.271f, 4.106, 4.106f, 4.193f, 4.192–197,
4.193f, 4.194f, 4.195f, 4.196f, 4.253, 4.262–279.
See also Choroidal melanoma/ciliary body
melanoma
classification of, 4.194, 4.271–272, 4.272t
clinical characteristics of, 4.262–263, 4.264f
diagnosis of, 4.263f, 4.264f, 4.264–267, 4.266f, 4.267f
differential, 4.267–271, 4.269f, 4.270f
enucleation for, 4.196, 4.274–275
glaucoma caused by, 4.105f, 4.106, 4.194, 10.99,
10.99f
metastatic, 4.196, 4.272–274, 4.273t, 4.306
prognosis/prognostic factors for, 4.194–197, 4.273t,
4.277–279
transpupillary thermotherapy for, 4.276
treatment of, 4.253, 4.274–277, 4.275f
nevus of, 4.191, 4.192f, 4.256–258, 4.257f,
4.267–268
melanoma differentiated from, 4.267–268
osteoma of, 4.198–199, 4.270f, 4.271
melanoma differentiated from, 4.270f, 4.271
in pathologic myopia, 12.212–216, 12.214–12.215f
perfusion of, 2.76
posttraumatic granulomatous inflammation of, focal,
4.22, 4.22f
retinal metabolic needs supplied by, 12.20
retinoblastoma invading, 4.177, 4.177f
rupture of, 4.22, 4.22f, 12.88, 12.354–12.356f,
12.354–355
Sattler layer, 12.19
stroma of, 4.277, 4.182
in Sturge-Weber syndrome, 4.197, 4.281
subfoveal thickness of, 12.19
thickness of
description of, 12.19
measurement of, 12.212
subfoveal, 12.212, 12.214f
thinning of, 12.214

topography of, 4.181f, 4.182–183, 4.183f
trauma-related rupture of, 12.354–12.356f, 12.354–355

tuberculosis involvement of, 9.236–237f
tumors of, 4.191–197. See also Choroidal melanoma/
ciliary body melanoma; specific type
glaucoma caused by, 10.99, 10.99f
metastatic, 4.197, 4.198f, 4.303, 4.304t, 4.306f,
4.307f, 4.308f, 4.308t
melanoma differentiated from, 4.270f, 4.271, 4.306
ultrasound biomicroscopy of, 2.472f
in uveitis. See Posterior uveitis
vasculature of, retina supplied by, 4.139–140
ischemia and, 4.140, 4.151, 4.151f
venous pressure increases in, 12.198
vessels of, 2.76–77
vortex veins in, 12.19
Choroidal arteries
anterior, 5.16f, 5.18, 5.18f
posterior/posterior lateral, 5.18f, 5.19f
Choroidal detachment, 12.379, 12.379f
Choroidal dystrophies
Bietti crystalline dystrophy, 12.258, 12.269, 12.282t
central areolar, 12.277
choroidemia, 12.267–268, 12.268f
classification of, 12.255
gyrate atrophy, 12.260–269, 12.269f
Choroidal effusions
angle-closure glaucoma and, 10.141, 10.142f, 10.144,
10.145, 10.145f
bupropion as cause of, 12.306
in carotid-cavernous fistula, 5.205, 5.205f
contact B-scan ultrasonography of, 12.39f
after filtering surgery, 10.210–211
Choroidal granuloma, 12.241f
Choroidal hemangioma, 6.401
Choroidal hemorrhage/suprachoroidal hemorrhage,
4.18, 4.19f
angle-closure glaucoma and, 10.141, 10.142f, 10.144,
10.145, 10.145f
cataract surgery and, 11.159, 11.171
delayed, 11.160
expulsive, 11.159–160
flat or shallow anterior chamber and, 11.134
expulsive, 4.18, 4.19f
cataract surgery and, 11.159–160
after filtering surgery, 10.210–211
Choroidal lesions, 6.349–350
Choroidal melanoma/ciliary body melanoma (posterior
uveal melanoma), 4.106, 4.106f, 4.192, 4.192–197,
4.193f, 4.194f, 4.195f, 4.196f, 4.253, 4.262–279,
7.136, 9.308
age-related macular degeneration differentiated from,
4.269, 4.270f
chemotherapy for, 4.277
classification of, 4.194, 4.271–272, 4.272t
clinical characteristics of, 4.262–263, 4.263f, 4.264f
genetic hypertrophy of retinal pigment epithelium
differentiated from, 4.144, 4.268–269, 4.269f
diagnosis of, 4.263f, 4.264f, 4.264–267, 4.266f,
4.267f
differential, 4.267–271, 4.269f, 4.270f
enucleation for, 4.196, 4.274–275
epithelioid cell, 4.192, 4.193f, 4.194, 4.195
exenteration for, 4.277
fine-needle aspiration biopsy in identification/
evaluation of, 4.42, 4.43f, 4.253
glaucoma caused by, 4.106f, 4.106, 4.194, 10.99,
10.99f, 10.138
immunotherapy for, 4.277
melanocytoma differentiated from, 4.268
metastatic, 4.196, 4.272–274, 4.273t, 4.306
mixed-cell type, 4.194, 4.195
nevus differentiated from, 4.267–268
observation in management of, 4.274
ocular surface/conjunctival involvement and, 4.68,
4.69f, 8.343
prognosis/prognostic factors for, 4.194–197, 4.273t,
4.277–279
risk factors for, 4.262, 4.268
spindle cell, 4.192f, 4.192–193, 4.194, 4.195
staging of, 4.271–272, 4.273t
surgical excision of, 4.277

transpupillary thermotherapy for, 4.276
treatment of, 4.253, 4.274–277, 4.275f
Choroidal neovascular membranes (CNVMs), 6.342, 6.343f
Choroidal neovascularization (CNV), 2.99, 2.449, 3.115.
See also Neovascularization
in acute posterior multifocal placoid pigment
epitheliopathy, 12.222
in age-related macular degeneration, 4.161f, 4.164–166, 4.165f, 12.64
anatomical classification of, 12.71–75
angioid streaks as cause of, 12.87–89, 12.89f
anti-VEGF therapy for, 12.87–88, 12.212, 12.355
bevacizumab for, 12.73f, 12.213f
after Bruch membrane damage, 12.355, 12.355f
classic, 12.72, 12.73f
conditions associated with, 12.90f
fluorescein angiography of, 12.36, 12.37
idiopathic, 12.89–90
indocyanine green angiography of, 12.73–75
laser photocoagulation for, 12.376
late leakage from an undetermined source, 12.72
miscellaneous causes of, 12.89–90
in multifocal choroiditis and panuveitis syndrome, 9.180f, 9.181
multifocal choroiditis in, 12.226, 12.226f
occult, 12.72–73
ocular histoplasmosis syndrome-associated, 9.274, 12.86–87, 12.88f
optical coherence tomographic angiography of, 12.75–76, 12.76f–78f, 12.192
optical coherence tomography of, 12.192, 12.194
in pathologic myopia, 12.89, 12.211f, 12.211–212
photocoagulation for, 12.376
photodynamic therapy for, 12.212, 12.213f, 12.380
polyoidal choroidal vasculopathy and, 4.166
prevalence of, 9.325
in punctate inner choroiditis, 9.182
retinal pigment epithelium tears in, 12.31
scar tissue versus, 12.73
serpiginous choroiditis and, 9.175
signs and symptoms of, 12.71
spectral-domain optical coherence tomography of, 12.73–75, 12.75f
subfoveal, 12.355, 12.380
subretinal hemorrhages versus, 12.211
susceptibility genes for, 12.63
treatment of, 9.325
type 1, 4.165, 4.165f, 12.71–72, 12.72f, 12.76f
type 2, 4.165, 4.165f, 12.72, 12.75, 12.77f
type 3, 12.72–73, 12.75, 12.78f
in uveitis, 9.324–325
vascular endothelial growth factor concentrations in, 12.80
vitelliform exudative macular detachment versus, 12.272
vitreous hemorrhage secondary to, 12.231f
Choroidal nevi
description of, 6.349
scanning laser ophthalmoscopy of, 12.24
Choroidal osteoma, 6.349
Choroidal scars, 9.274
Choroidal tubercles, 9.236, 9.237f
Choroidal vasculitis, 1.171
Choroidal vasculopathy, polyoidal (PCV/posterior
uveal bleeding syndrome), 4.166f, 4.166–168, 4.167f.
See also Polyoidal choroidal vasculopathy
Choroidal vein, 5.21
Chorioideremia, 2.232f, 12.267–268, 12.268f
choriocapillaris atrophy in, 12.258
electroretinography findings in, 12.50
Choroiditis. See also Choroidopathy; Posterior uveitis
birdshot uveitis in, 12.225, 12.225f
Cryptococcus neoformans, 9.333
geographic. See Serpiginous choroiditis
macular, 9.274f
multifocal (MFC), 6.319, 12.220f, 12.225–226, 12.226f
with panuveitis (MCP/MFCPU), 12.226f. See also
Multifocal choroiditis and panuveitis syndrome
Pneumocystis jirovecii, 9.332, 9.332f
punctate inner (PIC), 12.225. See also Multifocal
choroiditis; Punctate inner choroiditis/choroidopathy
serpiginous. See Serpiginous choroiditis
serpiginous-like, 9.177, 9.236, 9.237f
Choroidopathy. See also Choridotis
central serous. See Chorioretinopathy, central serous geographic. See Serpiginous choroidopathy
helicoid peripapillary. See Serpiginous choroidopathy hypertensiion, 12.123–124f
punctate inner (PIC), 12.225. See also Multifocal
choroiditis; Punctate inner choroiditis/choroidopathy
CHRDL1 gene, 6.254
in megalocornea, 8.96f, 8.99
“Christmas tree” cataracts, in myotonic dystrophy, 5.330
Chromatic aberration, 3.40, 3.72, 3.166, 3.199
Chromogens, in immunohistochemistry, 4.33, 4.35f
Chromogranin, in immunohistochemistry, 4.34
Chromophores, 3.115, 3.119
ultraviolet-absorbing, IOls with, 11.120
Chromosomal anomaly. See specific disorder
Chromosomal crossing over, 2.175
Chromosomal defects, 2.221
Chromosomal nondisjunction, 2.216f
Chromosome analysis
aneuploidy of autosomes, 2.222–224
chromosome arm painting, 2.221–222, 2.222f
description of, 2.221
fluorescence in situ hybridization for, 2.221–222
indications for, 2.221
mosaicism, 2.224–225
types of, 2.221–222
Chromosome arm painting (CAP), 2.221–222, 2.222f
Chromosomes
abnormalities of, 6.385, 6.386f. See also specific type
in aniridia, 2.225–226
ocular manifestations of diseases due to. See specific
disease
description of, 2.213
gene assignments, 2.187
homologous, 2.215–216
nonhomologous, 2.216
numbering of, 2.176
Chronic peripheral rhegmatogenous retinal detachment, 12.286
Cicatricial pemphigoid. See Mucous membrane (ocular cicatricial) pemphigoid
Cicatricial retinal detachment, 12.286
Cicatrization, 7.219 conjunctival, 8.47f. See also Conjunctivitis, cicatrizating: Mucous membrane (ocular cicatricial) pemphigoid
Cidofovir, 2.432; 2.436 for herpes simplex virus, 1.260
Cigarette burns, 6.376
Cigarette smoking. See Smoking
CIGTS (Collaborative Initial Glaucoma Treatment Study), 10.81, 10.111, 10.187
Cilastatin, 1.273
Cilia (eyelashes), 2.28, 4.201, 7.170, 8.3, 8.4f accessory. See Distichiasis
entropion/pptosis of. See Trichiasis
lice infestation of, 8.255
misdirection of. See Trichiasis
in staphylococcal blepharitis, 8.72f, 8.73t, 8.74, 8.254
Ciliary block glaucoma (malignant glaucoma/aqueous misdirection), 2.378, 10.32, 10.139–141, 10.140f cataract surgery and, 10.139, 11.139 in children and adolescents, 10.149f after penetrating keratoplasty, 8.424
Ciliary body, 4.97f, 4.98f, 4.181, 4.181f, 4.182, 4.183f, 12.40. See also Uvea (uveal tract)
anatomy of, 2.48f, 4.97f, 4.98f, 4.181f, 4.182, 4.183f, 12.40. See also Uvea (uveal tract) anterior, 2.22, 2.24f, 5.14f, 5.14–15 description of, 6.23 long, 5.13f, 5.14f, 5.15, 5.15f occlusion of, 12.144, 12.145f optic nerve supplied by, 10.44–46, 10.45f posterior, 2.23–24f, 5.13–17, 5.17f short, 5.13f, 5.14f, 5.15–17, 5.17f
Ciliary block, after cataract surgery, flat or shallow anterior chamber and, 11.135
Ciliary block glaucoma (malignant glaucoma/aqueous misdirection), 2.378, 10.32, 10.139–141, 10.140f cataract surgery and, 10.139, 11.139 in children and adolescents, 10.149f after penetrating keratoplasty, 8.424
Ciliary block glaucoma (malignant glaucoma/aqueous misdirection), 2.378, 10.32, 10.139–141, 10.140f cataract surgery and, 10.139, 11.139 in children and adolescents, 10.149f after penetrating keratoplasty, 8.424
Ciliary arteries. See also Cilioretinal artery anatomy of, 2.22 anterior, 2.22, 2.24f, 5.14f, 5.14–15 description of, 6.23 long, 5.13f, 5.14f, 5.15, 5.15f occlusion of, 12.144, 12.145f optic nerve supplied by, 10.44–46, 10.45f posterior, 2.23–24f, 5.13–17, 5.17f short, 5.13f, 5.14f, 5.15–17, 5.17f
Ciliary block, after cataract surgery, flat or shallow anterior chamber and, 11.135
Ciliary block glaucoma (malignant glaucoma/aqueous misdirection), 2.378, 10.32, 10.139–141, 10.140f cataract surgery and, 10.139, 11.139 in children and adolescents, 10.149f after penetrating keratoplasty, 8.424
glaucoma caused by, 4.105f, 4.106, 4.194, 10.99, 10.99f, 10.138
metastatic, 4.196, 4.272–274, 4.273f
prognosis/prognostic factors for, 4.194–197, 4.273t, 4.277–279
treatment of, 4.253, 4.274–277, 4.275f
neoplastic disorders of, 4.191–197. See also Choroidal melanoma/ciliary body melanoma; specific type

glaucoma and, 10.99, 10.99f
metastatic, 4.303, 4.304
neuroendocrine peptides in, 2.276
neuvs of, 4.191, 4.256
oxidation-reduction enzymes in, 2.270
oxidative stress and, 2.269
pars plana of, 2.72
pars plicata of, 2.72, 2.73f, 2.100f, 2.472f
physiology of, 2.269–270
pigmented epithelium of, 2.73
protein synthesis in, 2.275
stoma of, 2.73
supraciliary space, 2.76
tear in (angle recession), 4.18, 4.19f, 4.103–104
glaucoma and, 4.18, 4.103–104, 10.39–40, 10.40f, 10.41f, 10.106–108, 10.107f
topography of, 4.18f, 4.182, 4.183f
ultrasound biomicroscopy of, 2.471–472, 8.21
in uveitis. See Intermediate uveitis

Ciliary body band, 10.33, 10.34f
Ciliary epithelium
aqueous humor formation/dynamics and, 10.5f, 10.13–16, 10.14–15f
description of, 2.270, 2.273
neuroendocrine properties of, 2.274, 2.276
nonpigmented, benign adenomas of, 4.279
pigmented
acquired hyperplasia of, 4.279, 4.280f
benign adenomas of, 4.279
secretory properties of, 2.273
Ciliary flush, in herpetic epithelial keratitis, 8.217
Ciliary ganglion, 5.45, 5.48f, 5.55, 5.55f, 8.5f
Adie tonic pupil and, 5.263, 5.264, 5.264f, 5.265
anatomy of, 2.16f, 2.107f, 2.128f
branches of, 2.15–16
motor root of, 2.15, 2.16f
parasympathetic fibers in, 2.15
roots of, 2.15, 2.16f
sensory root of, 2.15, 2.16f
sympathetic fibers in, 2.15
sympathetic root of, 2.15, 2.16f
Ciliary margin, 7.170
Ciliary muscle, 6.20
contraction of, 2.79
development of, 2.160
direct-acting cholinergic agonists’ effect on, 2.375
fibers of, 2.75–76, 2.375
layers of, 2.75–76
miotic/muscarinic agents affecting, 10.181
muscarinic antagonists’ effect on, 2.380–381
stimulation of, for accommodative esotropia, 2.379
Ciliary muscle spasm (spasm of accommodation), 3.176, 5.310
Ciliary nerves
branches of, 2.58
long, 2.254f, 5.53f
lacrimal functional unit innervated by, 8.5f
posterior, 5.55
short, 2.16, 5.55f
Adie tonic pupil and, 5.263, 5.264, 5.264f, 5.265
Ciliary neurotrophic factor, 2.232
Ciliary processes, 2.332
Ciliary processes, 10.13, 10.15f
in aqueous humor formation, 10.5f, 10.13–16, 10.14–15f
description of, 2.72
development of, 2.159f
plateau iris and, 10.120
Ciliary spasm, 6.94
Ciliary sulcus, 2.60
Ciliochoroidal effusion, 6.284
Ciliopathies, 6.336, 6.391–392, 6.391–392f
Ciloioretinal artery, 5.17
anatomy of, 12.16, 12.16f
occlusion of, 12.143
Ciliospinal center of Budge-Waller, 5.53f
ciloxan. See Ciprofloxacin
cimetidine, for conjunctival papillomas, 8.238, 8.239, 8.333
CIN. See Conjunctival or corneal intraepithelial neoplasia; Corneal intraepithelial neoplasia
cingulate gyrus, 5.52
CIPA. See Congenital insensitivity to pain with anhidrosis
ciprofloxacin, 1.274, 1.308f
for bacterial keratitis, 8.269, 8.270f
corneal deposits caused by, 8.131, 8.131f
description of, 2.421f, 2.422
for gonococcal conjunctivitis, 8.259
ciraparantag, 1.149
circadian variation, in intraocular pressure, 10.3, 10.8, 10.22, 10.80–81, 10.81f, 10.86, 10.87
circinate balanitis, 9.133
circle of least confusion, 3.76, 3.76f
circle of Willis, 2.138–139, 2.139f, 5.18
subarachnoid hemorrhage from, 1.121
circle of Zinn-Haller (circle of Haller and Zinn/circle of Zinn), 2.120, 2.122f, 5.17, 10.44, 10.46, 12.217
Circular aperture, diffraction created by, 3.105, 3.105f
Circular ciliary muscle, 2.25f
Circular venous plexus, 5.23f
Circularly polarized light, 3.98
Circulation
choroid, 12.19–20
retinal, 12.16f, 12.16–17
Circumcorneal conjunctival hyperemia, 9.232
Circumscribed (localized) choroidal hemangioma, 4.197, 4.198f, 4.281, 4.282f
Circumscribed iris nevus, 4.255, 4.256f
Cis-. See Clinically isolated syndrome
11-cis-retinaldehyde, 2.307, 2.326, 2.333t, 12.17
11-cis-retinol dehydrogenase, 12.252
cisterns, in vitreous, 12.7
Citric acid/sodium citrate, for chemical injuries, 8.383
citrobacter, 8.247
CJD. See Creutzfeldt-Jakob disease
CK. See Conductive keratoplasty
Cl. See Chloride
Cl. See Contact lenses
Clarithromycin, 2.427
for bacterial keratitis, 8.270

dental prophylaxis uses of, 1.248
indications for, 1.275

Clarity, optical, of ophthalmic viscosurgical device, 11.97

Class I–dependent antigen-presenting cells, 9.31

Class II–dependent antigen-presenting cells, 9.30, 9.32

Classic granular corneal dystrophy (granular corneal dystrophy type 1/GCD1), 4.88–90, 4.89

Classic pathway activation, of complement, 9.17, 9.18

"The Classification of eye movement abnormalities and strabismus (CEMAS), " 5.234

Claude syndrome, 5.191

Claudication, jaw/tongue, in giant cell arteritis, 5.313

Claustrophobia, cataract surgery in patient with, 11.169

Clavulanic acid, 1.273.
See also specific antibiotic combination

"Claw" haptics, for iris-fixated phakic IOL, 13.141

Clear corneal incision
for cataract surgery, 11.106f, 11.106–107
in glaucoma, 11.186
after radial keratotomy, 11.177, 13.53
with trabeculectomy, 10.213
for posterior chamber phakic IOL implantation, 13.142–143

Cleft syndromes. See Craniofacial malformations

Clavolinic acid, 1.273. See also specific antibiotic combination

Clinical Activity Score (CAS), 7.58, 7.59

table of

Clinical Laboratories Improvement Amendments, 2.241

Clinical questions
examples of, 1.3
researching answers to
information sources used in, 1.3
overview of, 1.3–4

Clinical refraction. See Refraction, clinical

Clinical studies

absolute risk reduction, 1.22
case-control series, 1.10–12, 1.11

case reports, 1.9
case series, 1.9–10
clinical practice measurements and improvements
using
continuous quality improvement, 1.28–31
data used in, 1.23–24
lean techniques for, 1.31–32
measurement system, 1.24–25
monitoring system implementation, 1.25–27
quality improvements, 1.25
results analysis, 1.27–28
cohort studies, 1.11f, 1.12–13
conflict of interest, 1.7–8
critical reading of
control groups in, 1.4
data from
continuous, 1.7
extrapolation of, 1.5
normal distribution of, 1.7

design of. See specific type of study
diagnostic and screening test interpretation

clinical acceptance, 1.21
combination use of tests, 1.20–21
complicating factors in, 1.16–21
criteria of testing, 1.21
generalizability, 1.21
overview of, 1.15–16
pretest probability of disease, 1.18–21, 1.20
receiver operating characteristic curves, 1.16–18, 1.18

experimental, 1.8
follow-up, 1.6

hierarchy of, 1.9

"intention to treat" analysis, 1.6
investigator bias in, 1.5

meta-analyses, 1.3, 1.8

nonexperimental, 1.8
number needed to treat, 1.22
observational, 1.8

odds ratios, 1.22–23

outcomes of
baseline probability of, 1.22
as clearly defined, 1.6
clinical relevance of, 1.5
reliability of, 1.6

population used in
evaluation of, 1.4–5
random assignment of, 1.4

recruitment strategy for, 1.4–5

vulnerable, 1.4

Clinical history method, for IOL power calculation
after refractive surgery, 13.194. See also Historical methods
relative risk, 1.22
reproducibility of, 1.5
risk difference, 1.22
sample size of, 1.5
selection bias in, 1.4
validity of
criteria for, 1.6
follow-up and, 1.6
Clinical trials
case series versus, 1.9
cohort studies versus, 1.13, 1.13f
evaluation of, 1.14
meta-analyses of, 1.14
random assignment in, 1.13
in retinoblastoma treatment, 4.301
Clinically isolated syndrome (CIS), 5.114. See also Optic neuritis
multiple sclerosis treatment and, 5.320
Clinically significant diabetic macular edema (CSME), 12.92, 12.110, 12.114. See also Diabetic macular edema
Clinically significant retinopathy of prematurity (CSROP), 12.184t. See also Retinopathy of prematurity
Clinoid process, anterior, 5.6
Clivus (umbo), 5.5
Coagulation factors, 1.138
Coagulation disorders
Hemostasis
Coagulation cascade
description of, 1.89, 1.90f
extrinsic pathway of, 1.138f
intrinsic pathway of, 1.138f
schematic diagram of, 1.138f
Coagulation disorders
acquired, 1.145–146
cataract surgery in patient with, 11.171–172
disseminated intravascular coagulation, 1.142, 1.145–146
hemophilia A, 1.144
hereditary, 1.144–145
liver disease, 1.145
thrombotic disorders, 1.146
transient visual loss and, 5.171
vitamin K deficiency, 1.145
von Willebrand disease, 1.144–145
Coagulation factors, 1.138
Coarctation of the aorta, 1.54
Coatability, of ophthalmic viscosurgical device, 11.97
Coats disease, 2.470f, 4.143, 4.143f, 4.295, 4.295f,
12.159–161, 12.160f, 12.326
clinical findings of, 6.358, 6.359f
diagnosis of, 6.359–360
differential diagnosis of, 6.360
fluorescein angiography findings, 6.359, 6.359f
gender predilection of, 6.358
tenoblastoma versus, 4.295, 4.295f, 6.352–353,
6.360
treatment of, 6.360
Coats reaction, 12.260
Coats white ring, 8.115, 8.116f
“Coaxial” illumination, 3.294
Cobblestone (paving-stone) degeneration, 4.150
Coating, of ophthalmic viscosurgical device, 11.97
Cochrane Library, 1.3
Cochlear nerve, 5.38
Cochrane Library, 1.3
Cockayne syndrome (CS), 8.191f
Cocclodiagr. See also Dual antiplatelet therapy
for stroke prevention, 1.114
Closet rental (hyaloid) canal, 2.157, 4.125
Closed-circuit televisions, 3.310, 3.323
Closed-loop intraocular lenses, pseudophakic bullous keratopathy and, 11.149
Closed-loop speculum, for globe exposure, in cataract surgery, 11.105f
Clostridium botulinum, 2.443
toxin derived from. See Botulinum toxin
difficile, 1.249
reactive arthritis associated with, 1.155
vancomycin for, 1.273
Clotting. See Coagulation
Cloverleaf visual field (artifact), in perimetry, 10.66, 10.66f
Clozapine, 1.200
Clump cells, in iris, 4.181
Cluster A, B, and C personality disorders, 1.198
Cluster headache, 5.289f, 5.294
Horner syndrome and, 5.260t, 5.261, 5.294
CM. See Cystoid macular edema
CMN. See Congenital motor nystagmus
CMV. See Cytomegalovirus
CN. See Congenital nystagmus
CNLDO. See Congenital nasolacrimal duct obstruction
CNS. See Central nervous system
CNs. See Cranial nerve(s)
CNTGS (Collaborative Normal-Tension Glaucoma Study), 10.87–88
CNV. See Choroidal neovascularization
CNVMs. See Choroidal neovascular membranes
Co-contractive retraction with jaw-eyelid synkinesis syndrome (CCRS/Marcus Gunn jaw-winking syndrome/p toesis), 5.272, 5.272f
CO2 lasers. See Carbon dioxide (CO2) lasers
Coagulation. See also Hemostasis
disorders of. See Coagulation disorders; Hemostasis, disorders of; Hypercoagulable states
laboratory evaluation of, 1.139–140
Coagulation cascade
description of, 1.89, 1.90f
extrinsic pathway of, 1.138f
intrinsic pathway of, 1.138f
schematic diagram of, 1.138f
Coagulation disorders
acquired, 1.145–146
cataract surgery in patient with, 11.171–172
disseminated intravascular coagulation, 1.142, 1.145–146
hemophilia A, 1.144
hereditary, 1.144–145
liver disease, 1.145
thrombotic disorders, 1.146
transient visual loss and, 5.171
vitamin K deficiency, 1.145
von Willebrand disease, 1.144–145
Coagulation factors, 1.138
Coarctation of the aorta, 1.54
Coatability, of ophthalmic viscosurgical device, 11.97
Coats disease, 2.470f, 4.143, 4.143f, 4.295, 4.295f,
Coefficient of variation, specular microscopy in evaluation of, 8.23
COG (Children's Oncology Group), 4.301
Cogan lid-twitch sign, 5.271, 5.324
Cogan microcystic epithelial dystrophy. See Basement membrane dystrophy
Cogan plaque, 8.128, 8.129f
Cogan-Reese (iris nevus) syndrome/Cogan-Reese variant, 4.100, 4.101f, 4.259, 8.111, 8.127, 10.136. See also Iridocorneal endothelial (ICE) syndrome
Cogan syndrome, 1.174, 6.269, 8.285, 8.309–310, 9.125
Cogwheel (saccadic) pursuit, 5.219, 5.224, 5.225, 5.226
Coherence
definition of, 3.91, 3.99
description of, 3.99–102
pictorial representation of, 3.100f
spatial, 3.101
temporal, 3.100f, 3.101
Coherence length
description of, 3.101–102
of laser light, 3.111
spectral bandwidth and, 3.102, 3.103f
Coherence time, 3.101–102
Coherence tomography, optical. See Optical coherence tomography
Cohesive ophthalmic viscosurgical devices/viscoelastics, 2.445, 11.96. See also Ophthalmic viscosurgical devices
Cohort studies
description of, 1.12–13
schematic diagram of, 1.11f
COL1A1/COL1A2 genes, in osteogenesis imperfecta, 8.194
COL2A1 gene, 6.345, 12.343
COL25A1 gene, 6.133
Colchicine, for Behçet disease, 1.173
Cold (temperature), anterior segment injuries caused by, 8.385
Cold remedies, tear production affected by, 8.62f
Colistimethate sodium, 2.418f
Collaborative Initial Glaucoma Treatment Study (CIGTS), 10.81, 10.111, 10.187
Collaborative Ocular Melanoma Study (COMS), 4.253, 4.271, 4.278–279
Collagen
corneal, 8.8, 8.9, 8.9f, 13.13
surgical procedures affecting character of, 13.127–135. See also Collagen shrinkage in Ehlers-Danlos syndrome, 8.193
in lens capsule, 11.11
in megalocornea, 8.99
in osteogenesis imperfecta, 8.194
scleral, 4.107–108
stromal, 8.9, 8.9f
corneal haze after surface ablation and, 13.33, 13.109
Collagen corneal shields, 2.365
Collagen (corneal) crosslinking (CCL/CXL), 13.8t, 13.130–135, 13.131f, 13.133f, 13.133f
for Acanthamoeba keratitis, 8.279
accelerated, 13.134
for bacterial keratitis, 8.272
combined techniques for, 13.134–135
complications of, 13.135
for ectasia/postoperative ectasia, 13.124, 13.130, 13.131, 13.206
for fungal keratitis, 8.275
with intracorneal ring segment implantation, 13.134, 13.207
for keratoconus, 8.166
for neurotrophic keratopathy/persistent corneal epithelial defects, 8.82
patient selection/indications/contraindications for, 13.131–132
with photorefractive or phototherapeutic keratectomy, 13.134, 13.206–207
with refractive procedures, 13.206–208
Collagen (corneal) crosslinking plus, 13.206
Collagen fibers
in Bowman layer, 2.262
in corneal stroma, 2.263, 2.264–265f
in Descemet membrane, 2.266
tscleral, 2.58–59
in vitreous, 12.7, 12.344
age-related breakdown of, 2.300
description of, 2.101, 2.294–297, 2.295–296f
proteins associated with, 2.298
Collagen plugs, for dry eye, 8.64. See also Lacrimal plugs
Collagen shrinkage, 13.8t, 13.28, 13.28f, 13.127–129, 13.128f, 13.129f. See also specific procedure
conductive keratoplasty for, 13.8t, 13.28, 13.28f, 13.128f, 13.128f–129, 13.129f, 13.165
corneal effects of, 13.28, 13.28f
thermokeratoplasty for, 13.8t, 13.28, 13.28f, 13.127–128
Collagen vascular diseases. See also Connective tissue disorders; specific type
immune-related eye disorders and, 8.285
polyarteritis nodosa, 9.156–158
refractive surgery in patient with, 13.37, 13.171, 13.191
systemic lupus erythematosus. See Systemic lupus erythematosus
Collagenase, 8.207
in inflammation, 9.25
in ocular infections, 8.207
Collagenase inhibitors, for peripheral ulcerative keratitis, 8.313
Collagenolysis, in conjunctivochalasis, 8.85
Collageenase, in blepharitis, 8.72f, 8.73
Collateral vessels, retinochoroidal/retinociliary venous (optociliary shunt vessels), 5.22
in optic nerve sheath meningioma, 5.127f, 5.128
in papilledema, 5.109
Collector channels, 2.64, 2.67f, 10.5f, 10.13
Colliculus
facial, 5.49
superior (SC), 5.18f, 5.33–34
saccadic control and, 5.219
Collier sign
in convergence-retraction nystagmus, 5.250
in dorsal midbrain (Parinaud) syndrome, 5.229,
5.250, 5.267, 5.274
Colloid bodies, optic disc/nerve. See Optic disc (optic nerve head/ONH), drusen of
Colloidal iron stain, 4.31f
Coloboma, 2.153
chorioretinal, 6.364
congenital, 7.179–180, 7.180f
as craniofacial malformation, 6.209
eyelid, 6.193, 6.193f
in Treacher Collins syndrome (mandibulofacial dysostosis), 4.207f
globe, 6.263
inferonasal disc, 6.365f
iris, 4.184, 6.266, 6.266f
cataract surgery in patient with, 11.180
lens, 6.305f, 6.305–306, 11.30–31, 11.31f
optic nerve/nerve head/disc, 4.242, 4.243f, 5.145, 6.364–365f
pupil irregularity and, 5.255
uveal, 4.184, 4.184f
Colobomatous cyst, 6.224
Colon cancer. See Colorectal cancer
Colonoscopy
colorectal cancer screening uses of, 1.218–219
computed tomography, 1.219
Colony-stimulating factors, 1.242
in mucocutaneous membrane pemphigoid, 8.299
Color blindness. See Color vision, defects in
Color photography, in uveitis evaluations, 9.89
Color plate testing, pseudoisochromatic, in low vision evaluation, 5.78
Color vision
abnormalities of
achromatopsia, 12.250, 12.250f
acquired, 12.249, 12.250t
congenital, 12.249–251, 12.250t
description of, 12.249
drugs that cause, 12.304–305
blue-yellow deficiency, 12.54
defects in. See also specific type
cataract and, 11.44, 11.70
in cone dystrophies, 5.102
cortical lesions and, 5.30
in optic atrophy, 5.135, 5.146
in optic neuritis, 5.78, 5.114
in optic neuropathy versus maculopathy, 5.78–79,
5.99
retina as source of, 5.175
simultanagnosia and, 5.180
description of, 12.54
digoxin effects on, 1.106
in NAION, 5.122
red-green deficiency, 12.54
Color vision defects, 2.312. See also Color vision, defects in
Color vision tests
Farnsworth-Munsell 100-hue test, 12.55
Farnsworth Panel D-15 test, 12.55f, 12.55–56
Hardy-Rand-Rittler plates, 12.54
Ishihara plates, 12.54, 12.55f
in low vision evaluation, 5.78–79
panel tests, 12.55
pseudoisochromatic plates, 12.54, 12.55f
Colorectal cancer
colonoscopy screening for, 1.218–219
flexible sigmoidoscopy screening for, 1.218–219
mortality rates for, 1.218
polyps, 1.218
risk factors for, 1.218
screening for, 1.216, 1.218–219
Coma (wavefront aberration), 3.40, 3.72, 3.72f, 3.275, 3.275–276, 13.9, 13.12, 13.12f
after LASIK, 13.103f
Combigan. See Brimonidine tartrate, in combination preparations; Brimonidine tartrate/timolol maleate
Combined α-adrenergic and β-adrenergic antagonists, 1.63
Combined hamartoma of retina and retinal pigment epithelium, 4.179, 4.180f, 4.280, 4.280f, 6.350
Combined interrupted and continuous sutures for penetrating keratoplasty, 8.419f
suture removal/adjustment and, 8.419f, 8.431–432, 8.432f
Combined lymphatic venous malformations, 7.74
Combined-mechanism glaucoma, 10.7
Combined nevus, 4.218
Comitance, spread of, 5.186
Comitant (concomitant) deviations, 5.183, 5.184, 5.186.
See also specific type
definition of, 5.16
in infantile esotropia, 6.88
Comma sign, 12.154
Commisure, posterior (PC), 5.35, 5.35f, 5.55f
glue and, 5.36, 5.36f
Common carotid artery, 5.12, 5.13
anterior (ACoA), 5.194, 5.194f, 5.194, 5.194f, 5.339f
cranial nerve relationship and, 5.339, 5.43f
posterior (PCoA), 5.16f, 5.18, 5.18f, 5.19f, 5.20
anatomy of, 2.106–107f, 2.124, 2.139f
aneurysm of, 5.339f
third nerve (oculomotor) palsy and, 2.125, 5.20, 5.194, 5.194f, 5.339
cranial nerve relationship and, 5.42f
Communication
between clinician and pathologist, 4.25–26
between clinician and patient, cataract surgery and, 11.169–170
between clinician and radiologist, 5.57, 5.73
Community-acquired methicillin-resistant Staphylococcus aureus (CA-MRSA), 7.45
Comparative genomic hybridization (CGH), 4.38f

Complement
activation pathways for, 9.17, 9.18f
in external eye defense, 8.11
functions of, 9.17
in inflammation, 9.17–19
in uveitis-glaucoma-hyphema syndrome, 9.10
Complement factor H (CFH) gene, 2.183, 12.63n
in age-related macular degeneration, 4.160
Complement receptors, 9.12
Complementary DNA, 2.189
Complete achromatopsia, 6.337–338
Complete cataract, 11.38
Complete MoisturePlus contact lens solution,
Acanthamoeba keratitis and, 8.276
Complex choristomas, 4.48, 4.49f
Complex myopic astigmatism, 3.138, 3.138f
Complex hyperopic astigmatism
See Compliance, 2.373
Complexion-associated melanosis (CAM/racial melanosis/primary conjunctival/hypermelanosomas)
4.63t, 4.65, 4.66, 4.66f, 8.338t, 8.339t, 8.341f
Compounded pharmaceuticals, 2.372–373
Compounding, 2.372
Compression (dynamic) gonioscopy, 10.35, 10.35f, 10.36
in acute primary angle closure, 10.123
Compressive optic neuropathy, 5.107t, 5.126, 5.126f,
5.126–131, 5.127f, 5.128t, 5.129f, 7.60–61
intraorbital/intracanalicular, 5.107t, 5.126, 5.126f,
5.126–131, 5.127f, 5.128t, 5.129f
optic glioma causing, 5.126, 5.128t, 5.129f,
5.129–131
optic nerve sheath meningioma causing, 5.126,
5.127f, 5.127–129, 5.128f
in pituitary apoplexy, 5.149, 5.150f
in thyroid eye disease, 5.131, 5.132f
Compromised host, See also Immunocompromised host refractive surgery in,
13.37, 13.171
Computed tomography (CT), 5.58, 5.58f, 5.60, 5.61t,
5.72f
advantages/disadvantages of/contraindications for,
5.60, 5.61f
in aneurysm detection/evaluation, 5.340
axial scans, 2.454, 2.456f
cavernous venous malformations on, 7.76f
in children, 7.31
in choroidal melanoma/ciliary body melanoma, 4.267
contrast agents with, 2.457
corneal, 13.19–22, 13.20–21f, 13.194
after refractive/keratorefractive surgery, 13.23
IOI power determination/selection and, 13.194
coronar scans, 2.456f
in coronary heart disease diagnosis, 1.88
dacryocystocele on, 7.290f
dermoid cysts on, 7.41
description of, 2.453–454
disadvantages of, 2.456–457
epilepsy diagnosis using, 1.207
fibrous dysplasia on, 7.89, 7.90f
immunoglobulin G4–related disease on, 7.66f
indicators for, 2.454, 2.473t, 2.476f, 7.300
intraocular foreign body evaluations, 12.352
iodinated contrast agents with, 2.457
Langerhans cell histiocytosis on, 7.96f
lung disease evaluations using, 1.126
lymphoproliferative disorders on, 7.93f
magnetic resonance imaging versus, 2.455t, 2.457,
7.29t, 7.29–31
multimodal, 1.112
necrotizing fasciitis on, 7.49f
nonspecific orbital inflammation on, 7.68f
optic nerve glioma, 7.80–81
in optic nerve/nerve head/disc drusen, 5.141f,
5.142
orbital compartment syndrome on, 7.118f, 7.120f
orbital disorders evaluated using, 7.26f, 7.26–27
in orbital evaluation, 5.58, 5.58f, 5.60, 5.61f, 5.72t,
5.73f
orbital floor fractures on, 7.116
orbital foreign bodies on, 7.117–118, 7.118f
peri orbital sinuses, 2.14f
posterior fossa on, 2.456
radiation exposure from, 2.456
in retinoblastoma, 4.293
sarcoidosis on, 7.65f
silent sinus syndrome on, 7.103f
single-photon emission (SPECT), 2.454, 5.70
solitary fibrous tumor, 7.89
sphenoid wing meningioma on, 7.84
thrombus on, 7.300
indications for, 2.454, 2.473t
in aneurysm detection, 5.69–70, 5.72t
advantages/disadvantages of/contraindications for,
5.61f
in aneurysm detection/evaluation, 5.69–70, 5.194,
5.194f, 5.340
in arterial dissection, 5.342
arteriovenous malformations on, 7.77f
in carotid artery evaluation, 5.167
advantages/disadvantages of/contraindications for,
5.61t
Computerized tomography angiography (CTA), 2.454,
2.455t, 2.458, 5.58–69–70, 5.72t
Computed tomography colonoscopy, for colorectal cancer screening, 1.219
Computed tomography angiography (CTA), 2.454,
2.455t, 2.458, 5.58–69–70, 5.72t
advantages/disadvantages of/contraindications for,
5.61f
in aneurysm detection/evaluation, 5.69–70, 5.194,
5.194f, 5.340
in arterial dissection, 5.342
arteriovenous malformations on, 7.77f
in carotid artery evaluation, 5.167
for carotid stenosis, 1.112
description of, 7.32
in cerebrovascular insufficiency, 5.338
Computed tomography colonoscopy, for colorectal cancer screening, 1.219
Computerized videokeratoscopy, See Cornea, topography of
Computorized videokeratoscopy. See Videokeratoscopy
COMS (Collaborative Ocular Melanoma Study), 4.253,
4.271, 4.278–279
Concomitant deviations. See Comitant (concomitant) deviations.

Concurrent contact lenses, 3.225

Conductive keratoplasty (CK), 13.8, 13.8

Conduction block, 1.101, 3.299

Condensing lens, 3.298

Concussive (blunt) trauma, anterior segment, 8.387–396.

See also Blunt (concussive) trauma

Condensing lens, 3.299

Conduction block, 1.101

Conductive keratoplasty (CK), 13.8, 13.8, 13.128f, 13.128–129, 13.129f, 13.165

corneal transplantation after, 13.198

for presbyopia, 13.128, 13.128f, 13.165

Conduit Artery Function Endpoint (CAFE) study, 1.64

Cone dystrophies/degenerations, 5.102

bull’s-eye pattern associated with, 12.265, 12.265f

description of, 12.264–265

electroretinography findings in, 12.46, 12.47f, 12.65

ERG in, 5.102

genes and loci associated with, 12.256f

in optic neuropathy versus maculopathy, 5.99

with supernormal rod ERG, 12.49

Cone inner segments, 4.140f. See also Cones;

Photoreceptor(s), inner segments of

Cone outer segments, 4.140f. See also Cones;

Photoreceptor(s), outer segments of

Cone response, single-flash (photopic/light-adapted).

See also Cones;

Cone outer segments, 4.140f

Cone inner segments, 4.140f

S, 2.312, 12.54

schematic diagram of, 12.14f

synaptic body of, 2.87

trivariant color vision, 2.312

types of, 12.54

Conflict of interest, 1.7–8

Confusional drusen, 12.65

Confocal microscopy, 8.24, 8.24f

in Acanthamoeba keratitis diagnosis, 8.24, 8.277, 8.278f

in fungal keratitis diagnosis, 8.275

before phakic IOL insertion, 13.141

Confocal scanning laser microscope, 3.302

Confocal scanning laser ophthalmoscopy/

ophthalmoscope (CSLO/SLO), 3.302, 3.302f

in optic nerve/nerve head/disc evaluation, 10.56

for retinal disease evaluations, 12.24

Conformité Européenne (CE) marking, 13.3

for intrastral corneal ring segments, 13.65

for small-incision lenticule extraction, 13.203

Confounders, 1.12–13

Confrontation testing, 5.83–84, 6.4, 6.10

before cataract surgery, 11.82

in hemispatial neglect, 5.181

before cataract surgery, 11.82

in refractive surgery, 13.41

Confusion tests, in nonorganic disorder evaluation

in hemispatial neglect, 5.181

before cataract surgery, 11.82

in nonorganic disorder evaluation, 5.307–308

before refractive surgery, 13.41

Confusion, in older adults, 1.187

Confusion tests, in nonorganic disorder evaluation

monocular no light perception and, 5.303f, 5.303–305, 5.304f

monocular reduced vision and, 5.305

Congenital, 2.210. See also Genetics

Congenital anomalies, 4.6, 4.7f, 4.12t. See also specific type

anophthalmia. See Anophthalmia/anophthalmos

of anterior segment/chamber, 4.98–99, 4.99f, 4.100f, 8.95–109, 8.96–98t

of conjunctiva, 4.47–50, 4.49f

cornea, 4.73–74, 4.74f, 4.75f, 8.95–109, 8.96–98t

secondary abnormalities and, 8.107–109

craniofacial clefts, 7.38–39

distichiasis, 7.170, 7.179, 7.179f

temporary visual loss and, 5.164

temporary visual loss and, 5.164

temporary visual loss and, 5.164

temporary visual loss and, 5.164

temporary visual loss and, 5.164

temporary visual loss and, 5.164

temporary visual loss and, 5.164

temporary visual loss and, 5.164

temporary visual loss and, 5.164

temporary visual loss and, 5.164

temporary visual loss and, 5.164

of retina and retinal pigment epithelium, 4.142f, 4.142–145, 4.143f, 4.144f, 4.145f
of sclera, 4.108–109, 8.95–109, 8.96–98t
syndromic craniosynostosis, 7.39, 7.39f
of trabecular meshwork, 4.98–99, 4.99f, 4.100f
tumors, 7.40–42
of uveal tract, 4.184, 4.184f
Congenital anterior staphyloma, 8.98, 8.106–107t, 8.106
Aphakia
See also Congenital anterior staphyloma, 8.98, 8.106–107t, 8.106
Congenital fibrosis of the extraocular muscles
Congenital Epstein-Barr virus infection, 9.257
See also Congenital esotropia, 6.86t. See also Infantile esotropia
amblyopia associated with, 6.87–89
botulinum toxin injections for, 6.89
Chavasse theory of, 6.87
Ciancia syndrome, 6.88, 6.95
clinical features of, 6.87–88
cross-fixation associated with, 6.87–88, 6.88f
cycloptic refraction for, 6.88
definition of, 6.87
evaluation of, 6.87–88
management of, 6.88–89
medial rectus muscle recession for, 6.89
mental illness and, 6.87
ocular alignment in, 6.88–89
pathogenesis of, 6.87
prematurity as risk factor for, 6.87
smooth-pursuit asymmetry associated with, 6.88
surgical treatment of, 6.89
Worth “sensory” concept of, 6.87
Congenital Esotropia Observational Study, 6.89
Congenital eyelid syndrome. See Blepharophimosis–
ptosis–epicanthus inversus syndrome
Congenital fibrosis of the extraocular muscles
(CFEOM), 6.134–135
Congenital fourth nerve (trochlear) palsy, 5.199, 5.199f
Congenital glaucoma (primary congenital glaucoma/PG), 4.98, 4.99f, 8.95, 8.108–109, 10.4t, 10.147, 10.148f, 10.151, 10.151–153, 10.152f, 10.152t. See also Glaucma, pediatric; Primary congenital glaucoma
corneal opacities associated with, 6.257t, 6.260f, 6.261f, 8.108–109
differential diagnosis of, 6.281t, 10.151–152, 10.152t
genetics of, 6.277–278, 10.11t, 10.150
megalocornea and, 8.95, 8.96t, 8.99–100, 8.108
treatment of, 10.153
medical, 10.153
surgical, 10.153, 10.160–164, 10.161f, 10.162f, 10.187
Congenital hereditary endothelial dystrophy (CHED/CHED2), 4.92–93, 4.94f, 6.257t, 6.258f, 6.258–259, 8.135t, 8.136f, 8.160, 8.161f
Congenital hereditary stromal dystrophy (CHSD), 6.257t, 6.259
Congenital herpetic retinal pigment epithelium (CHRPE)
description of, 4.144–145, 4.145f, 4.268–269, 4.269f, 6.349, 6.349f
in familial adenomatous polyposis, 2.201, 2.202f
melanoma differentiated from, 4.144, 4.268–269, 4.269f
Congenital insensitivity to pain with anhidrosis (CIPA),
congenital corneal anesthesia and, 8.108
Congenital iris ectropion syndrome, 6.267
Congenital lacrimal fistula, 6.228, 6.229f
Congenital miosis, 6.267–268
Congenital mydriasis, 6.268
Congenital myopia, 3.174
Congenital nasolacrimal duct obstruction (CNLDO)
antisepsis for, 6.231–232, 6.234
balloon dacryoplasty for, 6.234–235, 6.235f, 7.294
bilateral, 6.232f
canalicular obstruction, 7.298, 7.300f
causes of, 7.283, 7.287–288
clinical features of, 6.230, 6.232f
complex, 6.230, 6.233–234
dacryocystitis associated with, 7.289
description of, 6.227, 6.230
diagnosis of, 7.300
evaluation, 7.287–288
examination of, 6.230
infantile glaucoma versus, 6.230
intubation for, 6.234–235
lacrimal intubation stents for, 7.292–294, 7.294f
massage for, 6.231–232
nasolacrimal probing for, 6.232–235, 6.233f, 7.289,
7.291f, 7.291–292, 7.298, 7.300
nonsurgical management of, 6.231–232
prevalence of, 6.230
reurrence of, 6.234
simple, 6.230, 6.231f
spontaneous resolution of, 6.231
stents for, 6.234–235
surgical management of, 6.232–233
tearing caused by, 6.230
turbinate infracture for, 7.294
valve of Hasner in, 7.288–289
Congenital nevocellular nevi, 6.200–201, 6.201f
Congenital nystagmus (CN), 5.234f, 5.235–237, 5.237f
latent/manifest latent. See Latent nystagmus; Fusion
maldevelopment nystagmus syndrome
periodic alternating (PAN), 5.245
pregeniculate visual impairment and, 5.235–236
Congenital ocular motor apraxia, 5.223
Congenital ptosis. See Ptosis, congenital
Congenital retinal arteriovenous malformations,
4.286f, 4.286–287. See also Racemose angioma/
hemangioma (Wyburn-Mason syndrome/Bonnet-
Dechaume-Blanc syndrome)
Congenital retinal disease. See specific disorder and
under Hereditary
Congenital rubella syndrome (CRS), 8.240, 8.240t,
9.258–259, 9.259f
aphakia and, 4.117
cataracts and, 11.38–39

glaucoma and, 10.15

Congenital sensory nystagmus, 6.149, 6.150t, 6.154
Congenital sixth nerve (abducens) palsy, 5.201
Congenital stationary night blindness (CSNB)

Duchenne muscular dystrophy and, 12.285
electroretinography findings in, 6.338, 12.47f,
12.251, 12.252f
genes and loci associated with, 12.256f
with myopia, 2.232f
retinitis pigmentosa versus, 12.251
spasmus nutans syndrome associated with, 6.151
subtypes of, 12.251
X-linked, 12.252

Congenital strabismus

See also  under Conjunctival

Conjunctiva, 4.47–72, 8.4

Conjunctivitis, cicatrization of, 8.47
See also Caruncle of, 8.48

Conjunctivochalasis

management of
implantable cardioverter-defibrillator, 1.100
invasive, 1.100
medical, 1.98–100
nonsurgical, 1.98–100
surgical, 1.100

in myocardial infarction, 1.85
palliative care in, 1.100
pathophysiology of, 1.95
perioperative management for ocular surgery in
patients with, 1.283–284
precipitating factors for, 1.99
with preserved ejection fraction
description of, 1.95, 1.96f
management of, 1.99
with reduced ejection fraction
description of, 1.95, 1.96f
management of, 1.98–99
right-sided, 1.95, 1.96f
signs and symptoms of, 1.95, 1.97

stages of, 1.95, 1.96f
tachyarrhythmias in, 1.99
in women, 1.95
Congo red stain, 4.31t
Congrous, definition of, 5.105t
Congrous visual field defects, 5.29, 5.105t
retrochiasmal lesions producing, 5.153
occipital lobe lesions, 5.156, 5.157f
Conidia, 8.249
Conidiophores, 8.249
Conjugacy, saccadic eye movement, 5.221
Conjugate eye movements (versions), 5.34–35, 5.35f.
See also Conjugate specific type in diplopia, 5.184
smooth-pursuit system and, 5.224
Conjugate horizontal gaze, 6.182
Conjugate nystagmus, 1.208
Conjugate planes, in indirect ophthalmoscope, 3.299f
Conjugate points, 3.40, 3.64

Conjunctiva, 4.47–72, 8.4f. See also under Conjunctival
age-related changes in, 1.183, 8.112
anatomy of, 2.36, 2.37f, 2.43–44, 4.47, 4.48f, 7.168,
8.4f, 8.6–7
biopsy of, 8.360–361
in granulomatous conjunctivitis, 4.52
in lymphoid lesions, 4.69, 4.70
in mucous membrane (cicatrical) pemphigoid,
4.54, 4.54f, 8.301f, 8.301–302
in neoplastic disorders, 8.329
in peripheral ulcerative keratitis, 8.311
in pseudopemphigoid (drug-induced pemphigoid),
8.301
in superior limbic keratoconjunctivitis, 8.84
blood under, 8.387–388, 8.388f
bulbar, 2.28f, 2.43, 4.47, 4.48f, 8.6
fixation/plication of, for conjunctivochalasis, 8.86,
8.361
lymphoid lesions involving, 4.69, 4.70f
redundant. See Conjunctivochalasis
resection of, for conjunctivochalasis, 8.86, 8.362
in superior limbic keratoconjunctivitis, 8.83, 8.84

capillary hemangioma of, 4.50
carcinoma of. See also Conjunctiva, tumors of
intraocular extension and, 4.310
squamous cell, 8.336, 8.336f. See also Ocular
surface squamous neoplasia
in situ, 4.61, 4.63f
invasive, 4.61, 4.62f, 4.63f
caruncular, 4.48f. See also Caruncle

cicatization of, 8.47t. See also Conjunctivitis,
cicatrizing; Mucous membrane (ocular cicatrical)
pemphigoid
circumcorneal hyperemia of, 9.232
concretions of, 8.113–114
congenital anomalies of, 4.47–50, 4.49f
cysts of, 4.59, 4.59f, 7.141, 7.141f, 8.114, 8.114f.
See also Epithelial inclusion cysts
nevi and, 4.64, 8.340
degenerations of, 4.56f, 4.56–59, 4.57f, 4.58f, 4.59f,
8.111f, 8.111–114, 8.115f
deposits in
amyloid, 4.58f, 4.58–59, 8.185, 8.186f, 8.187f
in hematologic disorders, 8.198
discharge from, 8.46t
disorders of, 4.47–72, 8.45–46t, 8.47, 8.47t. See also Conjunctivitis; Keratoconjunctivitis; specific type
common clinical findings in, 8.45–46t, 8.47, 8.47t
epithelial inclusion cysts, 6.250
in glaucoma, 10.31
immune-mediated, 8.288–306
ionizing radiation causing, 8.386
neoplastic, 4.59–72, 8.327–350. See also Conjectiva, tumors of nevi, 6.250, 6.250f
ocular melanocytosis, 6.250–251, 6.251f
papillomas, 6.250
Stevens-Johnson syndrome, 6.251–252, 6.252f
therapeutic/surgical interventions for, 8.352–366
toxic epidermal necrolysis, 6.251–252
dysplasia of (conjunctival intraepithelial neoplasia/CIN), 4.61, 4.63f, 8.37, 8.38f, 8.332f, 8.334, 8.335f. See also Conjunctival or corneal intraepithelial neoplasia; Ocular surface squamous neoplasia
in epidemic keratoconjunctivitis, 8.234, 8.234
in ligneous conjunctivitis, 8.294
in preinvasive lesions of, 8.339–343, 8.340f
malignant, 8.338
preinvasive, 8.338
primary acquired melanosis and, 4.66–68, 4.67f, 4.68, 4.68f, 8.327, 8.342, 8.343
membrane of, 8.46f, 8.47f
in epidemic keratoconjunctivitis, 8.234, 8.234f, 8.235
in gonococcal conjunctivitis, 8.258
in ligneous conjunctivitis, 8.294
in mucosa-associated lymphoid tissue of, 9.53
neum of, 4.61–64, 4.63f, 4.64f, 4.65f, 8.338t, 8.339t, 8.340f, 8.340–341
malignant transformation/melanoma and, 4.64, 4.68, 8.340, 8.341, 8.343
normal flora of, 8.205, 8.206f
palpebral, 2.36, 2.37f, 2.43, 4.47, 4.48f, 4.201, 4.201f, 4.202, 8.6
papillae of, 8.46f, 8.47f, 8.47t, 8.47–48, 8.48f. See also Papillae, conjunctival
papillomas of, 4.39–60, 4.60f, 8.238–239, 8.239f, 8.332t, 8.332–334, 8.333f
pH of, chemical injury management and, 8.382
pigmented lesions of, 8.338t, 8.338–345, 8.339f, 8.340f
benefit, 8.338t, 8.338–341, 8.339f, 8.339t, 8.340f, 8.340f
malignant, 8.338t, 8.339f, 8.343–345, 8.344f
primary melanosis of, 4.63t, 4.65, 4.66–68, 4.67f
primary melanomas of, 4.63f, 4.65, 4.66–68, 4.67f
pseudomembrane of, 4.46f, 4.47f
in epidemic keratoconjunctivitis, 8.234
in ligneous conjunctivitis, 8.294
redundant. See Conjunctivochalasis
resection of, for conjunctivochalasis, 8.86, 8.362
sarcoidosis involvement of, 9.195, 9.195f
scrapings/swabbings from, 8.210–211
specimen collection from, 8.209t, 8.209–210
stem cells of, 8.92, 8.362
stoma of (substantia propria), 4.47, 4.48f, 8.7
age-related changes in, 8.112
in external eye defense, 8.13
immune and inflammatory cells in, 8.13
in superior limbic keratoconjunctivitis, 8.83–84, 8.84f; tarsal, 8.6
telangiectasia of, in ataxia-telangiectasia, 5.332f, 5.334f
topical agent absorption in, 2.355
topography of, 4.47, 4.48f
transplantation of, 8.351, 8.351f, 8.353t, 8.353–355, 8.354f, 8.356
for chemical injuries, 8.384
indications for, 8.351t, 8.353, 8.356
for limbal stem cell deficiency, 8.94
in pterygium surgery, 8.351, 8.353t, 8.353–355, 8.354f, 8.356
recurrence rate and, 8.353f
after tumor removal surgery, 8.329

tumors of, 4.59–72, 8.327–350. See also Ocular surface, tumors of
approach to patient with, 8.328
epithelial, 8.332t, 8.332–337
glandular, 4.71–72, 4.72f, 8.337–338
human papillomavirus causing, 4.59–60, 4.60f, 8.238–239, 8.239f, 8.322t, 8.322–334, 8.333f
inflammatory, 8.346f, 8.346–347
Kaposi sarcoma, 8.239, 8.345f, 8.347f, 8.347–348
lymphoid/lymphatic/lymphocytic, 4.69–71, 4.70f, 4.71f, 8.348–350, 8.349f, 8.350f
malignant, 8.338f, 8.339f
management of, 8.328–332, 8.330f, 8.331f
surgical, 8.329–330, 8.330f
melanocytic/pigmented lesions, 4.61–69, 4.63f, 4.64f, 4.65f, 4.66f, 4.67f, 4.68f, 4.69f
metastatic, 8.350
neurogenic and smooth muscle, 8.345
pigmented, 8.338t, 8.338–345, 8.339t, 8.340f, 8.341f, 8.342f
preinvasive, 8.332t. See also Conjunctival or corneal intraepithelial neoplasia
pigmented, 8.338t, 8.339f, 8.342f, 8.342–343
squamous lesions, 4.59–61, 4.60f, 4.62f, 4.63f
topical chemotherapy for, 8.330t, 8.330–332, 8.331f
vascular and mesenchymal, 8.345t, 8.345–348, 8.346f, 8.347f
ulceration of, 8.47f

Conjunctiva-associated lymphoid tissue (CALT/conjunctival MALT), 2.43, 4.47, 4.69, 8.7
lymphoma arising in, 8.349–350, 8.350f
conjunctival artery, 2.24f
Conjunctival autograft/autologous transplantation, 8.351t, 8.353t, 8.353–355, 8.354f, 8.356
for chemical injuries, 8.384
indications for, 8.351t, 8.353
for limbal stem cell deficiency, 8.94
in pterygium surgery, 8.353t, 8.353–355, 8.354f
recurrence rate and, 8.353f
after tumor removal surgery, 8.329

Conjunctival filtering blebs, endophthalmitis associated with, 12.390–391, 12.391f
Conjunctival fixation sutures
for conjunctivochalasis, 8.86, 8.361
for superior limbus keratoconjunctivitis, 8.84

Conjunctival flaps, 8.354f, 8.356–360, 8.357f, 8.358f, 8.359f
for bare sclera after pterygium excision, 8.353, 8.354f
cataract surgery and for ECCE, 11.196
for ICCE, 11.199
leak causing inadvertent filtering bleb and, 11.130–131
for postoperative corneal edema, 11.129–130
for herpetic eye disease, 8.225
for neurotrophic keratopathy/persistent corneal epithelial defects, 8.82, 8.357
for peripheral ulcerative keratitis, 8.313
removal of, 8.360
for trabeculectomy, 10.200, 10.201f, 10.202f
closure of, 10.204, 10.206f
in elderly patients, 10.221
management of, 10.207–208
for trabeculectomy, in children, 10.161–162

Conjunctival hyperemia/congestion, 6.237, 6.238t, 8.45f, 8.114, 8.115f
in glaucoma, 10.31
insect/arachnid injuries causing, 8.386
prostaglandin analogues causing, 10.175
Conjunctival inclusion cysts, 4.59, 4.59f, 8.114, 8.114f
concretions and, 8.113–114
nevi and, 4.64, 8.340
Conjunctival-limbal autograft. See Autografts/autologous transplantation

Conjunctival melanocytic intraepithelial neoplasia (C−MIN), 4.63f, 4.65, 4.66, 4.67f
Conjunctival or corneal intraepithelial neoplasia (CIN), 2.414, 4.61, 4.63f, 8.37, 8.38f, 8.332t, 8.334–335, 8.335f. See also Ocular surface squamous neoplasia melanocytic, 4.63t, 4.65, 4.66, 4.67f
Conjunctival scarring, 6.146
Conjunctival telangiectasia, 6.303f, 6.403
Conjunctival vascular tortuosity, 8.114, 8.115f
Conjunctivalization of cornea, 8.362

Conjunctivitis, 4.50, 8.208t. See also Keratoconjunctivitis acute, 8.257f
hemorrhagic (AHC), 8.240, 8.240f
purulent, 8.256, 8.257f
adenoviral, 5.42, 6.214–212, 6.246f, 6.246–248, 8.288–289
perennial, 8.288–289
seasonal, 8.288–289
in children, 8.243, 8.255–256
classification of, 8.257f
in neonates, 8.257f, 8.263–265
blepharitis and, 6.244–245, 6.244–245f, 8.72, 8.73t, 8.74–76. See also Blepharoconjunctivitis
chemical, 6.239
preseptal cellulitis caused by, 8.256
*Chlamydia trachomatis* as cause of, 6.238–239, 6.239f
*chlamydial*, 1.244, 4.52, 4.54f, 8.208t, 8.257f, 8.260t, 8.260–263, 8.261f, 8.262f
in adults, 8.257t, 8.260, 8.263
in neonates, 8.257t, 8.265
chronic papillary, 7.185
cicatizing, 4.53, 4.54f, 8.47t, 8.299, 8.300–301, 8.301f, 8.303. See also Mucous membrane (ocular cicatrical) pemphigoid
differential diagnosis of, 8.300–301, 8.301f
*Corynebacterium* causing, 8.245
coxsackievirus, 8.240, 8.240t
tenterovirus, 8.240, 8.240t
Epstein-Barr virus causing, 6.243, 8.230–231
follicular, 4.50, 4.50f, 4.51, 4.51f, 6.241, 6.243, 7.190, 7.190f, 8.47t, 8.48–49, 8.49f
in acute hemorrhagic conjunctivitis, 8.240
adenoviral, 8.233, 8.234
Epstein-Barr virus causing, 8.230–231
in influenza, 8.240t
in measles, 8.239, 8.240t
in mumps, 8.240, 8.240t
rhinovirus causing, 8.240t
RNA viruses causing, 8.239
toxic, 8.90f, 8.91, 8.91f
varicella-zoster virus causing, 8.225, 8.226

**giant papillary (GPC)**, 3.231

herpes simplex virus as cause of, 6.237
*Neisseria gonorrhoeae* as cause of, 6.238f, 6.238–239
*Neisseria meningitidis* as cause of, 6.238
prevalence of, 6.237
prophylaxis for, 6.239
papillary, 4.50, 4.50f, 4.51f, 8.47t, 8.48f, 8.48f
in Parinaud ocuuloglandular syndrome, 4.51, 8.265–266
perennial allergic, 6.246–248
pneumococcal, 8.256, 8.257t
in reactive arthritis/Reiter syndrome, 1.157,
8.305–306, 9.133
RNA viruses causing, 8.239
in rosacea, 8.70
rubella as cause of, 9.260
in sarcoidosis, 4.52, 4.52f
seasonal allergic, 6.246f, 8.246–248, 8.288–289
seroconversion, in HIV infection/AIDS, 8.240t,
8.241
signs and symptoms of, 6.237
solitary granulomatous, 9.334
staphylococcal/staphylococcal blepharitis and, 8.73f,
8.74, 8.75, 8.76, 8.254, 8.256, 8.257t
in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and
toxic epidermal necrolysis), 8.296f, 8.296–297
streptococcal, 8.208t, 8.256, 8.257t
subacute, 8.257t
toxic, 3.232
medications causing, 8.80–81, 8.81f, 8.90t,
8.90–91
varicella-zoster virus as cause of, 6.242–243, 8.225–230,
8.226t. See also Herpes zoster ophthalmicus
catarrhal, 4.52, 8.225–230, 8.226t. See also Herpes zoster ophthalmicus
in HIV infection/AIDS, 8.240t, 8.241, 8.260t, 9.334
hyperacute, 8.257t
gonococcal, 8.208t, 8.245, 8.257t, 8.258–260,
8.259f, 8.260t
in infants, 8.257t, 8.263–265. See also Ophthalmia neonatorum
infectious, 4.52–53, 4.54f, 6.237–243. See also specific type and causative agent
ligneous, 6.249, 8.294f, 8.294–295
Loa loa causing, 8.282, 8.282f
measles virus causing, 8.239, 8.240t
medication toxicity causing, 8.80–81, 8.81t, 8.90t,
8.90–91
meningococcal, 8.257t
microsporidal, 8.280f, 8.280–281
molluscum contagiosum as cause of, 6.243, 6.244
mumps virus causing, 8.240, 8.240t
in neonates
chlamydial, 1.244
description of, 8.257t, 8.263–265. See also Ophthalmia neonatorum
inclusion, 6.238
noninfectious, 4.52–55, 4.54f
ophthalmia neonatorum, 8.257t, 8.263–265
*Chlamydia trachomatis* as cause of, 6.238–239,
6.239f, 8.257t, 8.265
definition of, 6.237
epidemiology of, 6.237
Consent, informed. See also Informed consent
for cataract surgery, 11.87–88
for refractive surgery, 13.36t, 13.47t
in patient with ocular or systemic disease,
13.171–172
phakic IOL insertion and, 13.140–141
refractive lens exchange and, 13.147–148
CONSORT (Consolidated Standards of Reporting Trials) Statement, 1.14
Constant exotropia, 6.103–105, 6.104f
Constant suppression, 6.49
Constructive interference, 3.100, 3.119
Contact applanation, for axial length measurement, in
IOL power determination/selection, 11.83
Contact B-scan ultrasonography, 12.39, 12.39f
Contact dermatoblepharitis/conjunctivitis, 8.285–287, 8.286f
Contact inhibition, in corneal wound repair, 4.13
Contact lens method, for IOL power calculation after
refractive surgery, 13.195
Contact lenses (CLs), 1.269. See also Rigid gas-
permeable (RGP) contact lenses; Soft (flexible)
contact lenses; specific type
Acanthamoeba keratitis associated with, 4.78–79, 8.276, 8.277f
accommodation and, 3.178, 3.206–208
astigmatism correction using, 3.211–212, 3.222–223, 3.223f, 13.17
after refractive surgery, 13.199
bacterial keratitis associated with, 8.266–267
orthokeratology and, 13.71
bandage, 3.227–228b, 8.368
for chemical injuries, 8.383
contraindications to, in exposure keratopathy, 8.80
for corneal abrasion, 8.398
for dry eye, 8.61f, 8.63, 8.368
for graft-vs-host disease, 8.304, 8.305f
after LASIK, 13.93, 13.111, 13.200
for epithelial ingrowth, 13.122
for epithelial sloughing/defects, 13.112
microkeratome complications and, 13.111
for striae, 13.113
for penetrating and perforating ocular trauma, 8.402
for peripheral ulcerative keratitis, 8.313
for recurrent corneal erosion, 8.87, 8.368
for superior limbus keratoconjunctivitis, 8.84
after surface ablation, 13.92, 13.107, 13.200
sterile infiltrates and, 13.108, 13.108f
for Thygeson superficial punctate keratitis, 8.307
base curve of, 3.205, 3.215f, 3.216
bifocal
alternating vision, 3.207f, 3.224f, 3.224–225
presbyopia correction using, 3.224–225
simultaneous vision, 3.207f, 3.225, 3.225f
care of, 3.229–230
complications/problems associated with
allergic reactions, 3.233–234
corneal abrasions, 3.233
conical warpage, 3.232–233
dry eye, 3.234–235
giant papillary conjunctivitis, 3.231f, 3.234
hypoxic/metabolic, 3.230–232, 3.231f
infections, 3.230, 3.231f, 3.231f
inflammation, 3.231f, 3.233–234
keratoconjunctivitis, 3.233
mechanical, 3.231f, 3.232–233
9-o’clock staining, 3.233, 3.233f
ptosis, 3.233
punctate keratitis, 3.232–233
risk factors for, 3.214
sterile corneal infiltrates, 3.231f, 3.234
3-o’clock staining, 3.233, 3.233f
toxic, 3.231f, 3.232
toxic conjunctivitis, 3.232
concentric, 3.225
contraindications for, 3.214
convergence affected by, 3.178
corneal abnormalities corrected using, 3.225–226
corneal abrasion caused by, 8.399
custom, 3.228–229
daily-wear, 3.214–215
description of, 3.235–366
diamond of, 3.205, 3.215f, 3.216
discontinuing use of before refractive surgery,
13.22–23, 13.38
disinfection of, 3.229
Dk, 3.213, 3.215
Dk/t, 3.213
dry eye and, 8.54, 8.55f
extended-wear
dep deep stromal neovascularization associated with, 3.232
description of, 3.215
FAP-SAM rules for, 3.220, 3.220f
Federal Fairness to Contact Lens Consumers Act, 3.235
federal laws regarding, 3.235
filtering bleb and, 10.211
fitting of. See also Fitting (contact lens)
goals for, 3.215
LARS rule for, 3.223, 3.224f
soft contact lens, 3.216–217, 3.217f, 3.217–3.218f
terminal associated with, 3.215f, 3.215–216
toric soft lens, 3.222–223, 3.224f
flexible. See Soft (flexible) contact lenses
fundus on, 12.22
fungal keratitis associated with, 4.78, 8.273–274
gas-permeable scleral, 3.226–227
gamma of, 3.215f, 3.215–216
history of use of, refractive surgery evaluation and, 13.38
hybrid
description of, 3.226
indications for, 3.207f
ideal characteristics of, 3.212–213
image magnification by, 3.255
image size and, 3.206–208
induced anisophoria corrected using, 3.190
keratitis/keratoconjunctivitis associated with use of, 3.233, 4.78–79, 8.84, 8.266–267, 8.273–274, 8.276–277
orthokeratology and, 13.71
for keratoconus, 3.225–226, 8.166, 8.167
for keratoglobus, 8.171
after LASIK, 13.199, 13.200
lens dislocation treated with, 6.310
materials used in, 3.212–214
monovision and, 13.164
as trial for surgery, 13.39, 13.165, 13.198
for myopia reduction (orthokeratology), 3.228, 13.70–71
for keratoglobus, 8.171
after LASIK, 13.199, 13.200
lens dislocation treated with, 6.310
materials used in, 3.212–214
monovision and, 13.164
as trial for surgery, 13.39, 13.165, 13.198
for myopia reduction (orthokeratology), 3.228, 13.70–71
ocular surface problems/complications with, 8.84, 8.266–267, 8.273–274, 8.276, 8.277
optical zone of, 3.215
optics of, 3.206–212
for orthokeratology, 3.228, 13.70–71
over- the-counter, 3.235
overrefraction of, 3.227
overwear syndromes, 3.230
oxygen permeability of, 3.213, 3.215
parts of, 3.215
patient education about, 3.230
patient history-taking for, 3.214
for pellucid marginal degeneration, 8.169
after penetrating keratoplasty, 8.432, 13.178
peripheral curve of, 3.205, 3.215
in photocoagulation delivery, 12.375
physical examination before, 3.214
piggyback, 3.226
poly methylmethacrylate, 3.213
power of, 3.220–3.221
Prentice rule and, 3.206
for presbyopia, 3.223–225
prevalence of, 3.206
after radial keratotomy, 13.52, 13.199, 13.199f
for refractive/keratorefractive surgery, 13.198–200, 13.199f
rigid gas-permeable (RGP). See also Rigid gas-permeable (RGP) contact lenses
rigid gas-permeable (RGP) contact lenses advantages of, 3.214f, 3.215
apical alignment fit of, 3.218–219, 3.219f
apical bearing of, 3.218
apical clearance of, 3.218
base curve of, 3.218, 3.219f
central fit of, 3.219
characteristics of, 3.213–214
corneal abnormalities corrected using, 3.226
corneal reshaping uses of, 3.228
disadvantages of, 3.215
fitting of, 3.218–3.221f, 3.218–222, 3.220f
fluorescein patterns for fitting evaluations, 3.219f, 3.219–220
indications for, 3.207f, 3.227
interpalpebral fit of, 3.219
dergative use of before refractive surgery, 13.38
after radial keratotomy, 13.200
tube shunt implantation and, 10.215
vault of. See Contact lenses, sagittal depth or vault of wettability of, 3.213, 3.213f
wetting angle of, 3.213
Contact specular microscopy, 3.295, 8.23
Contiguous gene-deletion syndrome, 2.225
Continuous curvilinear capsulorrhexis (CCC), 11.108–110, 11.109f. See also Capsulorrhexis
capsule staining for, 11.178–179, 11.179f
for ECCE, 11.196
for phacoemulsification, 11.108–110, 11.109f
Continuous data, 1.6
Continuous positive airway pressure (CPAP) description of, 1.126–127
obstructive sleep apnea treated with, 1.127
Continuous quality improvement data presentation to facilitate, 1.28, 1.29–30f
features of, 1.28, 1.30–31
fishbone diagram for, 1.30–31
flowchart for, 1.30, 1.31f
Continuous sutures, for penetrating keratoplasty, 8.419f
postoperative problems and, 8.419f, 8.426, 8.426f, 8.431–432, 8.432f
Continuous-wave lasers, 3.112
Contour interaction bars, 6.7f, 6.8
Contour stereopsis, 6.81
Contraceptives (oral), central retinal vein occlusion risks, 12.134
Contracted fornices, 7.143
Contracted sockets, 7.143–144, 7.144f
Contraction, wound, 4.13
eyelid/orbit scarring and, 4.17
orthokeratology, 3.228
pannus associated with, 3.232
parameters of, 3.220f
ptosis secondary to, 3.233
ciliar, 3.226–227
soft lenses versus, 3.218
tear layer created by, 3.221
tear lens, 3.218, 3.218f
rigid (hard). See Rigid gas-permeable (RGP) contact lenses
sagittal depth or vault of, 3.205, 3.215f, 3.216
ces of, 8.84, 8.266–267, 8.273–274, 8.276, 8.277
ical zone of, 3.215f, 3.216
ics of, 3.206–212
for orthokeratology, 3.228, 13.70–71
-over-the-counter, 3.235
verrefraction of, 3.227
coverwear syndromes, 3.230
xygen permeability of, 3.213, 3.215
parts of, 3.215f
atient education about, 3.230
atient history-taking for, 3.214
or pallidic marginal degeneration, 8.169
fter penetrating keratoplasty, 8.432, 13.178
peripheral curve of, 3.205, 3.215f, 3.216
n photocoagulation delivery, 12.375
hysical examination before, 3.214
iggyback, 3.226
olymethylmethacrylate, 3.213
ower of, 3.220–3.221f, 3.220–222
rentice rule and, 3.206
for presbyopia, 3.223–225
prevalence of, 3.206
fter radial keratotomy, 13.52, 13.199, 13.199f, 13.199–200
reading glasses over, 3.223
rear vertex power of, 3.216, 3.216f
fter refractive/keratorefractive surgery, 13.198–200, 13.199f
rigid gas-permeable (RGP). See also Rigid gas-permeable (RGP) contact lenses
apical alignment fit of, 3.218–219, 3.219f
apical bearing of, 3.218
apical clearance of, 3.218
base curve of, 3.218, 3.219f
central fit of, 3.219
characteristics of, 3.213–214
corneal abnormalities corrected using, 3.226
corneal reshaping uses of, 3.228
disadvantages of, 3.215
fitting of, 3.218–3.221f, 3.218–222, 3.220f
fluorescein patterns for fitting evaluations, 3.219f, 3.219–220
indications for, 3.207f, 3.227
interpalpebral fit of, 3.219
keratoconus correction using, 3.226
keratoconus correction using, 3.226
keratitis/keratoconjunctivitis associated with use of, 3.233, 4.78–79, 8.84, 8.266–267
keratitis/keratoconjunctivitis associated with use of, 3.233, 4.78–79, 8.84, 8.266–267, 8.273–274
keratitis/keratoconjunctivitis associated with use of, 3.233, 4.78–79, 8.84, 8.266–267, 8.273–274, 8.276–277
Contralateral antagonist, inhibitional palsy of, 6.120–121, 6.121
Contralateral corneal autograft, 8.451–452
Contrast. See also Contrast sensitivity measurement of, 3.134
Contrast/catheter/conventional angiography, 5.68, 5.68f, 5.337f
in aneurysm detection/evaluation, 5.195, 5.340, 5.341f
in arteriovenous malformations, 5.292f, 5.344, 5.344f
in reversible cerebral vasoconstriction syndrome, 5.347, 5.347f
in vertebrobasilar insufficiency, 5.337f, 5.338
Contrast dacryocystography, 7.300
Contrast media adverse effects of, 2.458
for angiography, 5.68, 5.68f
for CT studies, 5.60g
Gadolinium-based, for magnetic resonance imaging, 2.458
Iodinated, for computed tomography, 2.457
for MRI studies, 5.60
Contrast sensitivity, 12.56–57, 12.57f
cataracts and, 11.70, 11.77
definition of, 3.123
description of, 3.134–136, 3.136f
Higher-order aberrations affecting, 13.12, 13.76
Illumination requirements for, 3.318
Low vision/vision rehabilitation and, 3.314–315, 5.88
with multifocal IOLs, 13.156
with phakic IOLs, 13.144
Poor levels of, 3.314
Posterior subcapsular lens opacity effects on, 3.67
Sunglasses’ effect on, 3.192
Testing, 5.88, 11.77
in low vision evaluation, 5.88
Testing of, 3.315, 3.316f
with wavefront-guided/optimized and topography-guided ablations, 13.77
Contrast threshold, 3.124, 3.135
Contrecoup, 12.315
Control charts, 1.28, 1.30f
Control group, 1.4–6, 1.11
Contusion cataract, 11.54, 11.54f
Contusion injury. See also Blunt (concussive) trauma; Trauma
Lens damage caused by, 11.53–55, 11.54f
Convergence amplitude, 5.226
in convergence insufficiency, 5.227
Convergence insufficiency (CI), 5.227, 6.103
Convergence paralysis, 6.105–106
Convergence-retraction nystagmus (CRN/induced convergence-retraction), 5.243f, 5.250, 6.152–153
Convergent nystagmus, 1.208
Convergent rays. See Convergence
Converging lens, for hyperopia correction, 3.170, 3.170f
Conversion disorder, 1.197
Convex lenses description of, 3.8–9
image formation, 3.9f
ray tracing for, 3.62f
spherical lens combined with, 3.17
Convex mirrors, ray tracing for, 3.82f
Coombs and Gell hypersensitivity classification. See Hypersensitivity reactions
Coombs-positive hemolytic anemia, 1.135
Copaxone. See Glatiramer
COPD. See Chronic obstructive pulmonary disease
Copeland retinoscope, 3.150, 3.156
Copeland streak projection system, 3.150
Copper, 12.362
In aqueous humor, 2.274
Corneal deposition of, 11.59
Kayser-Fleischer ring and, 8.118t, 8.173, 8.189, 8.189f, 11.62
deficiency of, optic neuropathy caused by, 5.138
Foreign body of, 11.59
“Flower” cataract and in chalcosis/Wilson disease and, 8.189
Description of, 11.59
In Wilson disease/chalcosis, 1.136, 8.189, 11.59, 11.62
Copper-zinc superoxide dismutase (CuZnSOD), 2.342
Cor pulmonale, 1.126
Core therapy, for glaucoma, indications for surgery and, 10.197
Correctopia, 5.255, 6.268
cataract surgery in patient with, 11.180
in iridocorneal endothelial syndrome, 10.136, 10.137f
Iridodialysis repair and, 8.375
Cornea, 4.73–96, 4.74f. See also under Corneal abrasions of, 3.233, 4.13–14, 7.214, 8.398–399
contact lenses causing, 8.399
Description of, 6.376
in mucous membrane pemphigoid, 8.300
Posttraumatic recurrent corneal erosion and, 8.86, 8.87, 8.398
Age-related changes in, 8.115
Air–tissue film interface, 2.49
Aldehyde dehydrogenase in, 2.260
Amyloid deposits in. See Cornea, deposits in
Anatomy of, 2.48, 2.48f, 3.268–271, 3.269–3.271f, 4.73, 4.74f, 8.7f, 8.7–10, 8.9f
Anesthesia/hyposthesia of congenital, 8.108
Herpes simplex epithelial keratitis and, 8.217–218, 8.226f
Herpes zoster and, 8.226f, 8.228
Keratoplasty and, 8.418, 8.424
after LASIK, 13.172
neurotrophic keratopathy/persistent corneal defects and, 8.80, 8.224
anterior surface of, 3.270
apex of, 8.25, 8.26f
apical zone of, 3.205, 3.215, 3.228, 8.25
aspheric, 3.269, 3.279, 13.14
avascularity of, 2.259
axial map of, 3.269f
basal lamina of, 2.51, 2.52f
biochemistry of, 2.259–260
biomechanics of, 8.43, 13.13–14
measurement of, 8.43
biopsy of, 8.210, 8.211f, 8.366–367
See also Bowman layer/membrane
blood staining of, 4.86, 4.86f, 8.394, 8.395f, 8.395t, 10.104, 10.104f, 10.105
hyphema after cataract surgery and, 11.159
Bowman layer/membrane of, 4.73, 4.74f, 8.7f, 8.8.
See also Bowman layer/membrane
healing/repair of, 4.16
preparation for refractive surgery and, 13.82–90
calcification of. See Band keratopathy/calcific band keratopathy
central, 2.51, 8.25, 8.25f. See also Central cornea
healing in, 4.14–16, 4.15f
chemical injury of, 8.375–384, 8.376f. See also
Chemical injury
collagen fibrils of, 2.53
congenital/developmental anomalies of, 4.73–74, 4.74f, 4.75f, 8.95–109, 8.96–98t. See also specific type
in hereditary syndromes and dystrophies, 8.107
opacities, 8.16f, 8.107. See also Cornea, opacification of
secondary abnormalities causing, 8.107–109
of size and shape, 8.95–101, 8.96f, 8.99f
structural, 8.101–107, 8.102f, 8.103f, 8.105f, 8.106f
conjunctivalization of, 8.362
curvature of, 8.25–26. See also Cornea, topography of axial, 8.28, 8.29f, 13.16, 13.16f, 13.17f
in cornea plana, 8.96f, 8.10n
evaluation of, 8.25–36. See also Cornea, topography of; Keratometry/keratometer, Keratoscopy
 corneal zones and, 8.25, 8.25f, 8.26f
keratometry for, 8.26–27, 8.27f
keratoscopy for, 8.27–28, 8.28f
Placido disk-based topography for, 8.27–28, 8.35f
shape/curvature/power and, 8.25–26
tomography for, 8.33–36, 8.34f, 8.35f, 8.35f
power and, 8.28–36, 8.29f, 8.30f, 8.31f, 8.32f, 8.32f, 8.33f, 8.33f, 8.35f
after keratorefractive surgery, 3.269
mean, 8.28
measurement of, 13.14–19, 13.15–19f, 13.44–45, 13.45f
power and, 8.25–26, 13.7–9
radius of, 8.8, 8.27
in cornea plana, 8.100
instantaneous (meridional/tangential power), 13.16–17, 13.17f
keratometry in measurement of, 8.27
in schematic eye, 3.127f
refractive surgery affecting, 13.9, 13.26–28, 13.27f, 13.28f
IOL power calculation and, 13.193–197, 13.196f
in schematic eye, 3.127f
defense mechanisms of, 8.111–14, 8.12–13f, 8.13f
degenerations/dystrophies of, 4.81–94. See also
Corneal degenerations; Corneal dystrophies; specific type
degenerations, 8.81–86, 8.115–128
dystrophies, 8.46–89, 8.133–160, 8.134f, 8.135t, 8.136t
delle of, 6.172, 6.172f
deposits in, 8.16f
amyloid. See also Amyloidosis/amyloid deposits
in gelatinous droplike corneal dystrophy, 8.141, 8.141f, 8.185–187, 8.186t
in granular corneal dystrophy type 1 (GCD2/Avellino), 8.148, 8.186t
in lattice corneal dystrophy, 4.89f, 4.89–90, 8.145, 8.146, 8.147f, 8.185–187
in polymorphic amyloid degeneration, 8.122, 8.123f, 8.186t
copper/Wilson disease causing, 8.118t, 8.173, 8.189, 8.189f, 11.59, 11.62
crystalline, 8.182t
in cystinosis, 8.181f, 8.181–182
in hemato logic disorders, 8.197–199, 8.198f, 8.199f
in cystinosis, 8.181f, 8.181–182
drug-induced, 8.129f, 8.129–132, 8.130f, 8.131f
dystrophies and, 8.133
pigment, 4.86, 8.118f
drug-induced, 8.129f, 8.129–132, 8.130f, 8.131f
Descemet membrane/layer of, 4.73, 4.74f, 8.7f, 8.9.
See also Descemet membrane/layer
development of, 2.161–162f
diameter of, 6.179, 6.281, 8.7
in infants and children, 10.158
glaucome and, 10.151, 10.156, 10.158
orders of, 4.73–96, 8.46t, 8.49–53, 8.50f. See also Keratitis; Keratoconjunctivitis; Keratopathy; specific type
acquired, 6.269
blunt trauma causing, 8.388, 8.389f
cataract surgery complication, 11.128f, 11.128–132, 11.129f
central corneal transparency, 6.257–258t, 6.257–263, 6.258f
common clinical findings in, 8.46f, 8.49–53, 8.50f, 8.50f, 8.51f, 8.52f
genetic hereditary endothelial dystrophy, 6.257f
genetic hereditary stromal dystrophy, 6.257f, 6.259
conjunctival flap for, 8.354f, 8.356–360, 8.357f, 8.358f, 8.359f
contact lens-related, 8.84, 8.266–267, 8.273–274
cornea plana, 6.255, 6.255f
in cystinosis, 6.270, 6.387f
decreased vision and, 5.99
degenerations/dystrophies, 4.81–94. See also
Corneal degenerations; Corneal dystrophies; specific type
degenerations, 4.81–86, 8.115–128
dystrophies, 4.86–94, 8.133–160, 8.134f, 8.135f, 8.136f
dermatologic diseases and, 8.201–203
dermolipoma, 6.256–257
diffuse corneal transparency, 6.257–258f, 263, 6.258f
ectatic, 4.95f, 9.45–96, 8.161–171. See also Ectatic disorders/ectasia
derocrine diseases and, 8.199–201, 8.200f, 8.201f
epibulbar dermoid, 6.256, 6.256f, 6.257t
in Fabry disease, 6.270, 6.388f
in familial dysautonomia, 6.270
posterior embryotoxon, 6.255, 6.255
posterior corneal defect, 6.257
peripheral corneal transparency, 6.255–256
nutritional disorders and, 8.196–197, 8.197f
neoplastic, 4.96, 8.327–350.
Cornea, in mucopolysaccharidoses, 6.257
microcornea, 6.254, 6.254f
epithelium of, 2.51, 2.52
enlargement of, 8.95, 8.96
endothelium of, 4.73, 4.74
definition of, 2.266
anatomy of, 2.54–55, 8.7f
f
1.61–171. See also Ectatic disorders/ectasia
dysfunction of, 8.52
keratoplasty for, 8.411, 8.436–450. See also Keratoplasty, endothelial
healing/repair of, 4.16
keratorefractive surgery and, 13.32–33
multifocal IOL implantation and, 13.155
phakic IOL implantation and, 13.141
angle-supported lenses, 13.146
iris-fixed lenses, 13.145
posterior chamber lenses, 13.146
pigmentation of/deposits in, 8.118, 8.132
enlargement of, 8.95, 8.96f, 8.99f, 8.99–100. See also Megalocornea
in pediatric/primary congenital glaucoma, 8.95, 8.96f, 8.99–100, 8.108, 10.31, 10.147, 10.158
epithelial cells of, 2.261–262, 2.262f
epithelium of, 2.51, 2.52f, 2.260–262, 2.261–262f, 2.265, 4.73, 4.74f, 7.296, 8.7f, 8.8
anatomy of, 8.7f, 8.8
cysts of, 8.130

treatment of, 6.262–263
in tyrosinemia type II, 6.270
ulcers, 6.248, 6.249f, 6.262–263
ultraviolet radiation causing, 8.385–386
vitamin A deficiency and, 8.196–197, 8.197f
in Waardenburg syndrome, 6.270
in Wilson disease, 6.270
donor. See Donor cornea
dysplasia of (corneal intraepithelial neoplasia/CIN), 2.414, 4.6f, 4.63f, 4.96, 8.37, 8.38f, 8.332t, 8.334–8.335, 8.335f. See also Conjunctival or corneal intraepithelial neoplasia
dystrophies of. See Corneal dystrophies
ectasia of. See Ectatic disorders/ectasia
ectic, 4.95f, 9.45–96, 8.161–171. See also Ectatic disorders/ectasia
edema of, 8.156, 8.157, 8.157f
e illusions and, 5.174
immune-mediated, 8.306–318
transplant rejection and, 8.316–318, 8.428–431
infections, 6.257t
ionizing radiation causing, 8.386
keratitis, 6.269
keratoconus, 6.254
keratoglobus, 6.254
keratoplasty for, 6.262–263
medications causing, 8.80–81, 8.81t, 8.90t, 8.90–91
crystalline deposits, 8.182t
megaeocornea, 6.253f, 6.253–254
metabolic disorders and, 8.174–190. See also specific disorder
amino acid/nucleic acid/protein/mineral metabolism and, 8.181f, 8.181–190, 8.182t, 8.183f, 8.184f, 8.185f, 8.186f, 8.187f, 8.188f, 8.189f
lipoprotein metabolism and, 8.180f
lyosomal storage diseases and, 8.174–179, 8.175f, 8.176f, 8.177f
microcornea, 6.254, 6.254f
in mucopolysaccharidoses, 6.257t, 6.270, 6.385, 6.387f, 6.388f
neoplastic, 4.96, 8.327–350. See also Cornea, tumors of: specific tumor
nutritional disorders and, 8.196–197, 8.197f
peripheral corneal transparency, 6.253–256f, 6.255–257
posterior corneal defect, 6.257t
posterior embryotoxon, 6.255, 6.255f
in rosacea, 8.70, 8.70f
in Schnyder corneal dystrophy, 6.270, 6.387f
sclerocornea, 6.257t
size- or shape-related, 6.253–254f
skeletal/connective tissue disorders and, 8.190–196, 8.191–192t, 8.193f, 8.194f, 8.195f, 8.195t
systemic conditions that cause, 6.269–271
systemic disorders and, 8.173–203
therapeutic/surgical interventions/transplantation for, 8.366–373, 8.417t, 8.417–419. See also Cornea, transplantation of; Keratoplasty; specific procedure
layer-based approach to, 8.417, 8.417t
preoperative evaluation/preparation and, 8.418–419
thermal burns causing, 8.384–385, 8.385f
debridement of
for epithelial defects
after LASIK, 13.112
after surface ablation, 13.108
for surface ablation, 13.82–84, 13.83f
defects/persistent defects of, 6.376, 8.46t, 8.80–82, 8.81t, 8.82f
acid burns causing, 8.380, 8.380f
after cataract surgery, 11.132, 11.173
glaucoma medication toxicity and, 10.31
after LASIK, 13.93, 13.112
in diabetes mellitus, 13.190
management of, 8.368
after penetrating/deep anterior lamellar keratoplasty, 8.80, 8.424
after surface ablation, 13.107–108
topical anesthetic use/abuse and, 8.80–81, 8.81t, 8.89, 8.89f
in toxic keratoconjunctivitis, 8.80–81, 8.81t
drug-induced deposits in, 8.129t, 8.130f, 8.130–132, 8.131f
dysplasia of (corneal intraepithelial dysplasia/ CIN), 2.414, 4.96, 8.37, 8.38f, 8.332f, 8.334–8.335, 8.335f. See also Conjunctival or corneal intraepithelial neoplasia
external eye defense and, 8.12f, 8.13f, 8.13–14, 8.207
healing/repair of, 4.13–14, 4.15f
keratorefractive surgery and, 13.32–33
delayed, 13.93–94, 13.108
preparation of, for refractive surgery, 13.82–84, 8.83f
preservation techniques for
epi-LASIK, 13.84
in LASEK, 13.84
tumors of, 8.332t, 8.332–337
erosions of
epithelial keratoconjunctivitis, 8.234
punctate epithelial, 8.46f, 8.50, 8.50f, 8.50t
in exposure keratopathy, 8.80
in herpetic eye disease/neurotrophic keratopathy, 8.224
in vernal keratoconjunctivitis, 8.290
recurrent, 8.79, 8.86–88
dystrophic, 8.86, 8.87, 8.133, 8.135f
in epithelial basement membrane dystrophy, 8.86, 8.87, 8.133, 8.138
in lattice corneal dystrophy type 1, 8.147
in Reis-Bücklers corneal dystrophy, 8.143
eye pain and, 5.295, 8.86, 8.87
management of, 8.368
posttraumatic, 8.86, 8.87
examination of, 8.15–43. See also Examination, ophthalmic
before cataract surgery, 11.78–79, 11.84
in glaucoma, 10.31, 10.33t, 10.34f
in infants and children, 10.158
before refractive surgery, 13.42–43
exposure of, in facial palsy, 5.280–281
in external eye defense, 8.11–14, 8.12–13f, 8.13f
farinata, 8.121–122, 8.122f
fetal, secondary abnormalities affecting, 8.107–109
flat (cornea plana), 6.255, 6.255f, 8.96t, 8.100–101
flap creation and, 13.44–45, 13.79
microcorneae and, 8.95, 8.96t, 8.100
in Peters anomaly, 4.74, 4.75f
posterior amorphous corneal dystrophy and, 8.154–155
sclerocorneae and, 8.96t, 8.98t, 8.100, 8.105
foreign body in, 6.376, 8.399–400, 8.400f, 8.401f, 8.403
insect stingers/hairs, 8.386–387
plant/vegetation, 8.387, 8.399
radioactive, 8.386
removal of, 8.403
glaucoma/glaucoma therapy affecting, 10.31
glucose metabolism by, 2.259
glycosaminoglycans in, 2.263
ground substance of, 2.53
growth and development of, 6.181
guttae/guttata, 8.23f, 8.128
age-related, 8.115
Brown-McLean syndrome and, 11.130
cataract surgery and, 11.79
in Fuchs endothelial corneal dystrophy, 4.92, 4.93f, 8.23f, 8.156, 8.157f
in luetic keratitis, 4.80
peripheral (Hassall-Henle bodies/warts), 2.53, 8.115, 8.128
refractive surgery and, 13.43
healing/repair of, 4.13–16, 4.15f
keratorefractive surgery and, 13.32–33
delayed, 13.93–94, 13.108
herpes simplex latency in, 8.215
hydration of, 8.89, 8.41–42. See also Cornea, edema of
hypothalamic microenvironment of, 9.52t, 9.54f, 9.54–55
immunoregulatory systems of, 9.54–55
infection/inflammation of, 4.75–81, 4.76f, 4.77f, 4.78f, 4.79f, 4.80f, 4.81f, 8.266–283. See also Keratitis; Keratoconjunctivitis
contact lens wear and, 8.84, 8.266–267, 8.273–274
signs of, 8.49–53, 8.50f, 8.50t, 8.51f, 8.52f
innervation of, 8.8. See also Corneal nerves
intraepithelial neoplasia of (CIN), 4.96, 8.37, 8.38f, 8.332f, 8.335f. See also Conjunctival or corneal intraepithelial neoplasia
keloids of, 8.125
congenital, 8.107–108, 8.125
keratitis-related scarring of, 6.245f
keratocytes of, 2.53
Khodadoust line of endothelial rejection, 9.54, 9.54f
lacerations of. See also Lacerations
lactic acid accumulation in, 2.260
layers of, 2.50f, 2.50–55, 2.52–54f, 4.73, 4.74f
marginal (catarrhal) infiltrates of, 8.310–311
staphylococcal blepharitis/blepharoconjunctivitis and, 8.74, 8.74f
matrix metalloproteinases in, 2.264
melting (keratolysis) of, 9.25
cataract surgery and, 11.132
in patient with dry eye, 11.132
management of, 8.369f, 8.369–370
neurotrophic keratopathy/persistent corneal epithelial defects and, 8.81, 8.82
peripheral ulcerative keratitis and, 8.311, 8.312
refractive surgery and, 13.94
topical medication toxicity and, 4.80–81
meridional zone of, 8.25, 8.25f
See also optical zone of.
opacification of, 8.16
oblate shape of, 3.268, 13.14, 13.26
in corneal thickness measurement and, 13.45–46, 13.125
forme fruste keratoconus and, 13.176, 13.177f
paracentral zone of, 8.25, 8.25f
penetrating injury to, 6.376
perforation of. See also Corneoscleral lacerations;
Penetrating and perforating ocular trauma;
Trauma
foreign-body removal and, 8.403
in keratoconus, 8.163
LASIK and, 13.111
management of, 8.369f, 8.369–370, 8.370f, 8.402–403
nonsurgical, 8.402–403
surgical repair in, 8.403. See also Corneoscleral lacerations
radial keratotomy and, 13.52
Seidel test in identification of, 8.36, 8.38f
peripheral zone of, 2.51, 8.25, 8.25f
photoapplication in, 3.115
physiology of, 2.259–260
pigmentation/pigment deposits in, 4.86, 8.118f
drug-induced, 8.129f, 8.129–132, 8.130f, 8.131f
plana (flat cornea), 6.255, 6.255f, 8.96f, 8.100–101
flap creation and, 13.44–45, 13.79
microcornea and, 8.95, 8.96f, 8.100
in Peters anomaly, 4.74, 4.75f
posterior amorphous corneal dystrophy and, 8.154–155
sclerocornea and, 8.96f, 8.98f, 8.100, 8.105
plana-derived proteins in, 9.54
posterior surface of, 2.54f, 3.270
power of, nominal value for, 3.12
precorneal tear tear film of, 2.49–50, 2.259
preparation of, for refractive surgery, 13.82–90
aspheric, 13.14
in primary congenital glaucoma, 6.280f
plateau shape of, 3.268, 13.9, 13.14, 13.26
proteinase inhibitors of, 2.264
proteoglycans in, 2.53
Q value of, 13.14
radius of curvature of, 2.50
refractive index of, 2.50, 3.127f, 8.8, 8.26
refractive power of, 8.25–26, 13.7–9
age-related changes in, 3.141
central. See also Central corneal power
description of, 3.243, 3.248
errors in, 3.252
measurement of, 3.270, 8.26–27, 8.27f, 13.7–9.
See also Keratometry/keratometer
after penetrating keratoplasty, 3.253
in schematic eye, 3.127f
reshaping of
orthokeratology and, 13.70–71
using rigid gas-permeable contact lenses, 3.228
sarcoidosis involvement of, 9.196
in schematic eye, 3.127f
sensation in, 8.8
measurement of (esthesiometry), 8.42–43
reduction/absence of
congenital, 8.108
in herpes simplex epithelial keratitis, 8.217–218, 8.226f
in herpes zoster, 8.226f, 8.228
keratoplasty and, 8.418, 8.424
after LASIK, 13.172
in neurotrophic keratopathy/persistent corneal epithelial defects, 8.80, 8.224
shape of, 3.268–271, 3.269–3.271f, 8.25–26, 13.9
aspheric, 13.14
curvature and power and, 8.25–26, 13.7–9
disorders of, 8.96f, 8.100
orthokeratology and, 13.70–71
refractive surgery and, 13.9
tomography in evaluation of, 13.19–22, 13.20–21f
shield ulcer of, 6.248, 6.249f
size of, 8.7
disorders of, 8.95–101, 8.96f, 8.99f
specimen collection from, 8.209f, 8.210, 8.210f
staphyloma of, congenital anterior, 8.98f, 8.106f,
8.106–107
steep, flap creation and, 13.79
stem cells of, 8.8, 8.10–11, 8.92. See also Limbal stem cells
culture of, 8.365
sterile infiltrates, 3.231f, 3.234
stroma of, 4.73, 4.74f, 8.7f, 8.8–9, 8.9f
anatomy of, 2.53, 8.7f, 8.8–9, 8.9f
biomechanics and, 13.13–14
collagen fibers in, 2.263, 2.264–265f
composition of, 2.53, 2.58
degenerations of, 8.120–126
dystrophies of. See Stromal corneal dystrophies
healing/repair of, 4.14, 4.15f
inflammation of, 8.50t, 8.50–52, 8.51f
in systemic infections, 8.279
keratocytes, 2.263
neovascularization of, 8.52
pigmentation of/deposits in, 8.118f
drug-induced, 8.129f, 8.132
refractive index of, 8.26
subepithelial infiltrates of, 8.46f
in epidemic keratoconjunctivitis, 8.234f, 8.234–235,
8.235f
surgery on. See Keratorefractive surgery
systemic disorders affecting, 8.173–203
thermal injury to, 6.376
thickness/rigidity of, 4.73, 4.74f, 8.7, 8.25, 8.41,
8.42
corneal crosslinking and, 13.130, 13.132
glaucoma and, 10.25, 10.31, 10.81, 10.82, 10.90
in infants and children, 10.159
normal-tension glaucoma and, 10.86–87
in infants and children
normal, 10.159
in primary congenital glaucoma, 10.159
intraocular pressure/pressure measurement and,
8.41, 10.25, 10.81, 10.82, 10.86–87, 10.90,
13.105, 13.181, 13.200
in infants and children, 10.159
measurement of, 8.41–42. See also Pachymetry/
pachymeter
before cataract surgery, 11.78–79
in keratoconus screening, 13.24, 13.26
minimum requirements for LASIK and,
13.45–46, 13.79–80
corneal perforation and, 13.111
ectasia and, 13.79
pachymetry in, 13.45–46, 13.125
before refractive surgery, 13.45–46
topography in, 13.26, 13.79–80
ocular hypertension and, 10.25, 10.90, 10.112
tonometry measurements affected by, 10.25, 10.81,
10.82, 10.86, 13.105, 13.181
thinning of
in ectatic disorders, 8.133, 8.161, 8.170f
in keratoconus, 8.161, 8.162, 8.163, 8.165, 8.165f,
8.166, 8.170f
in keratoglobus, 8.170f, 8.171
in macular dystrophy, 8.150, 8.150f
management of, 8.368–369
over intrastromal corneal ring segments/Intacs,
13.67, 13.68f
in pellucid marginal degeneration, 8.168, 8.168f,
8.169, 8.169f, 8.170f
in posterior amorphous corneal dystrophy, 8.154,
8.154f
tight junctions of, 2.51
in epidemic keratoconjunctivitis, 8.234f, 8.234–235,
8.235f
in keratoconus, 8.161, 8.162, 8.163, 8.165f, 8.166f–166
after refractive/keratorefractive surgery, 13.23
IOL power determination/seLECTION and, 13.194
topography of, 3.281, 3.288–289, 4.73, 8.15, 8.28–36,
8.29–33f, 8.35f, 13.14–19, 13.15–19f, 13.24–26,
13.25f, 13.44–45, 13.45f
astigmatism detection/management and, 8.31, 8.32,
8.32f, 13.17–19, 13.18f, 13.19f, 13.22–23, 13.44,
13.45, 13.45f
after penetrating keratoplasty, 8.32, 8.431–432,
8.432f, 13.179–180
cataract surgery and, 11.84, 11.86, 11.174
central islands after surface ablation and,
13.103–104, 13.104f
computerized, 13.14–19, 13.15f, 13.16f, 13.17f,
13.18f, 13.19f, 13.44–45, 13.45f
in centered ablation, 13.104, 13.104f
IOL power determination/seLECTION and, 11.86
after refractive surgery, 11.86, 13.193, 13.194
in keratoconus, 8.29f, 8.30f, 8.31, 8.32f, 8.32t,
8.165f, 8.165–166, 13.23, 13.24, 13.25f, 13.44,
13.175, 13.175f, 13.176f, 13.177f
keratorefractive surgery and. See Cornea,
topography of laser ablation guidance and, 13.32
before LASIK, 13.79
limitations of, 13.19
maps generated by, 8.28–33, 8.29f, 8.30f, 8.31f,
8.32f, 8.33f, 13.14–19, 13.15f, 13.17f, 13.19f,
13.44–45, 13.45f. See also Corneal power maps
postoperative, 13.23, 13.24f
in pellucid marginal degeneration, 8.31, 8.33f,
8.169, 8.170f, 13.24, 13.44, 13.45f, 13.79, 13.176,
13.176f
photoablation and, 13.32
Placido-based, 13.7–9, 13.14–16, 13.15f, 13.17,
13.20–21f, 13.25f
IOL power calculation after refractive surgery
and, 13.193
Placido disk-based, 8.27–28, 8.28, 8.35f
in corneal biomechanics evaluation, 8.43
after radial keratotomy, 13.50–51
refractive/keratorefractive surgery and, 13.14–19,
13.15f, 13.16f, 13.17f, 13.18f, 13.19f, 13.24–26,
13.25f, 13.44–45, 13.45f, 13.79
dry eye and, 13.173
indications for, 13.22–23, 13.23f, 13.24f
postoperative evaluation and, 13.23f, 13.23–24, 13.24f
refractive lens exchange and, 13.149
toric IOLs and, 13.151–152
transitional zone of, 8.25
transketolase in, 2.260
transparency of, 8.9
transplantation of, 8.316, 8.411–452, 8.412f, 8.412–413f. See also Donor cornea; Keratoplasty; Keratoplasty, penetrating; specific procedure
allografts/allogeneic transplantation, 8.316, 8.411–451, 8.412f, 8.412–413f
arcuate keratotomy and, 13.56–57
autografts/autologous transplantation, 8.411, 8.451–452
cataract/cataract surgery and, 11.56, 11.175, 11.176 for chemical injuries, 8.384
for corneal edema after cataract surgery, 11.129, 11.174, 11.175, 11.176 for corneal edema after cataract surgery, 11.129 definition of/terminology and, 8.411–412
disease transmission and, 8.414, 8.415f, 8.416f
Creutzfeldt-Jakob disease, 8.254, 8.416f
rabies virus, 8.240, 8.240f, 8.416f
donor selection and, 8.414, 8.415f, 8.416f
eye banking and, 8.413–417, 8.415f, 8.416f, 8.416t
immune privilege and, 8.316
indications for, 8.412–413f
intraocular lens implantation after, 3.253–254
patient selection and, 8.418
pediatric, 8.450–451
preoperative evaluation/preparation and, 8.418–419
rabies virus, 8.240, 8.240f, 8.416f
after refractive surgery, 13.197–198
rejection and, 4.84, 4.85f, 8.316–318, 8.428–431. See also Rejection
in triple procedure, 11.175–176
tumors of, 4.96, 6.271, 8.327–350. See also Ocular surface, tumors of; specific type
approach to patient with, 8.328
epithelial, 8.322f, 8.332–337
management of, 8.328–332, 8.330f, 8.331f
surgical, 8.329–330, 8.330f
topical chemotherapy for, 8.330f, 8.330–332, 8.331f
ultrasound biomicroscopy of, 2.471f
vertex of, 8.25, 8.26f
verticillata (hurricane/vortex keratopathy), 8.90, 8.129f, 8.130, 8.130f, 8.176, 8.177f
in chloroquine/hydroxychloroquine toxicity, 8.130
in Fabry disease, 6.270, 8.176, 8.177f
warpage of
contact lens wear causing, refractive surgery and, 13.22, 13.38, 13.44, 13.79
topography in identification of, 13.44, 13.79
zones of, 8.25, 8.25f, 8.26f
Cornea Donor Study (CDS), 8.416
Cornea plana, 6.255, 6.255f. See also Cornea, flat
Corneal alignment tool, 3.171f
Corneal allografts. See also Corneal grafts
Corneal apex, 3.228
Corneal arcus, 1.78, 8.120–121, 8.121f, 8.179
in cornea plana, 8.100
in dyslipoproteinemia/hyperlipoproteinemia, 8.120, 8.121, 8.179
juvenile, 8.121
in lecithin-cholesterol acyltransferase (LCAT) deficiency, 8.180, 8.180f
lipoids, in Schnyder corneal dystrophy, 8.151, 8.152f
senile furrow degeneration and, 8.122
senilis, 8.120–121, 8.121f
Corneal astigmatism. See also Astigmatism
contact lens masking of, 3.225
description of, 3.19
spherical rigid contact lenses for, 3.211
toric intraocular lenses for, 3.257
Corneal autografts. See Corneal grafts
Corneal contact lenses. See Contact lenses
Corneal (collagen) crosslinking (CCL/CXL), 13.8t, 13.130–135, 13.131f, 13.133f, 13.133t
for Acanthamoeba keratitis, 8.279
accelerated, 13.134
for bacterial keratitis, 8.272
combined techniques for, 13.134–135
complications of, 13.135
for ectasia/postoperative ectasia, 13.124, 13.130, 13.131, 13.206
for fungal keratitis, 8.275
with intracorneal ring segment implantation, 13.134, 13.207
for keratoconus, 8.166
for neurotrophic keratopathy/persistent corneal epithelial defects, 8.82
patient selection/indications/contraindications for, 13.131–132
with photorefractive or phototherapeutic keratectomy, 13.134, 13.206–207
with refractive procedures, 13.206–208
surgical technique for, 13.131
keratectomy, 13.134, 13.206–207
with intracorneal ring segment implantation, 13.134, 13.207
for fungal keratitis, 8.275
with intracorneal ring segment implantation, 13.134, 13.206
for keratoconus, 8.166
for neurotrophic keratopathy/persistent corneal epithelial defects, 8.82
patient selection/indications/contraindications for, 13.131–132
with photorefractive or phototherapeutic keratectomy, 13.134, 13.206–207
with refractive procedures, 13.206–208
surgical technique for, 13.131f, 13.132–135, 13.133f, 13.133t
transepithelial, 13.132–134, 13.133f
Corneal (collagen) crosslinking plus, 13.206
Corneal decompensation, after cataract surgery, 6.304
Corneal degenerations, 4.81–86, 4.82f, 4.83f, 4.84f, 4.85f, 4.86f, 8.115–128. See also Keratopathy; specific type
age-related changes and, 8.115
dystrophies differentiated from, 8.111, 8.111f
endothelial, 8.126–128
age-related, 8.115
epithelial and subepithelial, 8.115–120
peripheral hypertrophic subepithelial, 8.124–125, 8.125f
stromal, 8.120–126
Corneal depression, 3.245f
Corneal dystrophies, 4.81–94, 8.133–160, 8.134f, 8.135t, 8.136t. See also Corneal degenerations; specific type
cataract/cataract surgery in patient with, 11.84, 11.174f, 11.174–175
classification of, 8.133–134, 8.134t, 8.135t
degenerations differentiated from, 8.111, 8.111t
endothelial, 4.92–94, 4.93f, 4.94f, 8.135t. See also Endothelial dystrophies
cataract surgery in patient with, 11.84, 11.175
Corneal dystrophy of Bowman layer type 2 (CDB2).

See also Cornea, transplantation.

Corneal flap folds, after LASIK, 13.112–115, 13.114.

Corneal endothelial rings, traumatic, 8.388.

See also Corneal dystrophy of Bowman layer type 1 (CDB1).


Corneal incision, clear, for cataract surgery, 11.106, 11.107.

Corneal hysteresis, 8.8.

Corneal hydrops, in keratoconus, 4.95.

Corneal haze, 2.263, 6.270. See also Haze formation.


Corneal intrastromal femtosecond laser treatment, for presbyopia, 13.168.

Corneal irritation, 7.296.

Corneal lacerations, 12.359.

Corneal light reflex, corneal vertex and, 8.25, 8.26.

Corneal light reflex tests.

Hirschberg test, 6.67, 6.68f.

Krimsky test, 6.67, 6.68f, 6.104f.

Ocular alignment assessments using, 6.67–68, 6.68f.

Corneal light wedge (parallelepiped) technique, in gonioscopy, 10.36.

Corneal neovascularization, 3.231f, 3.232.

Corneal nerves, 8.8.

Confoval microscopy in evaluation of, 8.24, 8.24f.

Enlarged/prominent, 8.173, 8.200f.

In multiple endocrine neoplasia, 8.200, 8.200f.

In multiple endocrine neoplasia type 2B, 1.50.

Corneal nodules, Salzmann, 4.81, 4.82f, 8.124f.


Corneal onlays, 13.59–71. See also Corneal inlays.

Corneal opacities.

Congenital hereditary endothelial dystrophy as cause of, 6.257f, 6.258–259.

Congenital hereditary stromal dystrophy as cause of, 6.259.

Differential diagnosis of, 6.257t.

Infantile glaucoma as cause of, 6.257t, 6.260, 6.261f.

Peters anomaly, 6.259, 6.260f.

Posterior corneal depression, 6.259.

Primary, 6.258t.

Sclerocornea, 6.260, 6.261f.

Secondary, 6.258t.

STUMPED mnemonic for, 6.257t, 6.257–258.

Total, 6.260, 6.261f.

Corneal optics, 13.7–9.

Corneal pachymetry. See Pachymetry/pachymeter.

Corneal power maps, 8.28–33, 8.29f, 8.33, 8.33f.

Corneal refractive surgery, 13.7, 13.8.

Corneal refractive therapy, 13.70–71.

Corneal resistance factor (CRF), 8.43.

Corneal ring segments, intrastromal (ICRS), 13.8t.


Complications of, 13.67–70, 13.68f, 13.69f.

Contraindications for, 13.63.
corneal crosslinking with, 13.134, 13.207
corneal transplantation after, 13.198
instrumentation for, 13.63
after LASIK, 13.70
limitations of, 13.47f
number of segments used and, 13.66–67, 13.67f
outcomes of, 13.64–65
removal of, 13.63, 13.65
LASIK after, 13.70
surgical technique for, 13.64, 13.64f
Corneal storage media, 8.414–417, 8.416f
Corneal surgery, refractive. See Keratorefractive surgery
Corneal tattoo, 8.118f, 8.371f, 8.371–372
Corneal topography. See Cornea, topography of
Corneal transplant. See Cornea, transplantation of; Donor cornea; Keratoplasty
Corneal ulcers, 6.248, 6.249f, 6.262–263, 8.46f, 8.82f.
See also Keratitis
bacterial, 4.75–76, 4.76f
in gonococcal conjunctivitis, 8.258, 8.259f
in herpes simplex infection, 4.76–78, 4.77f. See also Herpes simplex virus (HSV), keratitis caused by
in H. oculial scar/keratitis, 8.290, 8.291f
in vitamin A deficiency, 8.197
in Hippel internal, 4.74, 4.75f
Corneal verticillata (hurricane/vortex keratopathy), 8.90, 8.129f, 8.130, 8.130f, 12.295
in chloroquine/hydroxychloroquine toxicity, 8.130
in Fabry disease, 8.270, 8.176, 8.177f
Corneal warpage, 3.232–233
Corneoscleral junction, 2.55
Corneoscleral lacerations, 8.388. See also Anterior segment, trauma to; Penetrating and perforating ocular trauma; Trauma
description of, 6.377
repair of, 8.404f, 8.404–409, 8.405f, 8.407f, 8.408f
Corneoscleral limbus, 8.10, 8.11f
Corneoscleral meshwork, 10.17, 10.18f
Corneoscleral trabecular meshwork, 2.63–64
Corona, lymphoid follicle, 4.50f, 4.51f, 4.69, 4.70f
Coronal plane, 7.27
Coronal suture, 5.5
Coronary angiography/arteriography. See Angiography/arteriography
Coronary angioplasty. See Percutaneous coronary intervention
Coronary artery aneurysm, 6.316
Coronary artery bypass grafting (CABG)
angina pectoris treated with, 1.91–92
percutaneous coronary intervention versus, 1.92
Coronary artery disease (CAD). See Coronary heart disease; Ischemic heart disease
Coronary artery stenosis, 1.89
Coronary cataract, 11.37
Coronary computed tomography angiography (CCTA), in coronary heart disease diagnosis, 1.88
Coronary heart disease (CHD), 1.40, 1.284. See also Ischemic heart disease
acute coronary syndromes, 1.83–85
angina pectoris, 1.82–83
aspirin therapy in, 1.89
asymptomatic, 1.86
atherosclerotic
angina pectoris caused by, 1.83
deaths caused by, 1.81, 1.215
clinical syndromes of, 1.82–86
deaths caused by, 1.71
diagnosis of
cardiac enzymes, 1.86–87
computed tomography, 1.88
coronary arteriography, 1.89
coronary computed tomography angiography, 1.88
echocardiography, 1.87
electrocardiography, 1.86
electron beam computed tomography, 1.88
exercise stress testing, 1.88
intravascular ultrasound, 1.89
invasive procedures for, 1.89
magnetic resonance imaging, 1.88
multiple gated acquisition scans, 1.89
myoglobin levels, 1.87
noninvasive procedures for, 1.86–89
positron emission tomography, 1.88
radionuclide scintigraphy and scans, 1.88
serum biomarkers, 1.86–87
single-photon emission computed tomography, 1.88
troponin levels, 1.87
ventriculography, 1.89
management of
antithrombotic agents, 1.89, 1.90–91f
direct oral antithrombotic agents, 1.90f
goals for, 1.89
percutaneous coronary intervention, 1.100
surgery, 1.100
pathophysiology of, 1.81–82
risk factors for, 1.72, 1.73f, 1.82
screening for, 1.215
sudden cardiac death, 1.85–86
in women, 1.82
Coronary syndrome, acute. See Acute coronary syndromes; Myocardial infarction
Coronary thrombus, 1.83
Corpus callosum agenesis, 6.361
Corrected distance visual acuity (CDVA/best-corrected visual/Snellen visual acuity/BCVA/BCSVA), 3.260.
See also Visual acuity
after cataract surgery, 11.126
manual small-incision surgery and, 11.198–199
multifocal IOLs and, 11.121–122
corneal crosslinking and, 13.131
flap folds/striae and, 13.112, 13.113, 13.114f, 13.115
hard contact lens method for IOL power calculation and, 13.195
hyperopia correction and, 13.94
intrastromal corneal ring segment placement and, 13.67
irregular astigmatism affecting, 13.17
LASIK and, 13.95
in amblyopia/anisometropic amblyopia, 13.185–186, 13.187
Cortical pathways. See Supranuclear (cortical) pathways

corticosteroid(s) (steroids). See also specific drug Acanthamoeba keratitis treatment and, 8.279
acute posterior multifocal placoid pigment
epitheliopathy treated with, 12.222
acute retinal necrosis treated with, 12.236
for adenovirus infection, 8.236
adrenal function after, 1.175
adverse effects of, 1.175–176, 1.308f, 9.94, 9.103, 9.143, 9.150
for allergic eye disease, 8.289
for atopic dermatitis, 8.287
for autoimmune retinopathy, 9.193
for bacterial keratitis, 8.271–272
for Behçet disease, 1.173, 9.216–217
for Bell palsy, 5.279
branch retinal vein occlusion treated with, 12.137–138
for cataracts, 9.314
cataracts caused by, 6.321, 11.51–52, 11.64, 11.188
central retinal vein occlusion treated with, 12.137–138
central serous chorioretinopathy caused by, 12.300
cession of, 1.175
for chalazion, 7.183, 8.77
for chemical injuries, 8.383
for Cogan syndrome, 1.174, 8.310
for contact dermatoblepharitis, 8.287
for corneal graft rejection, 8.429–430, 8.447, 8.448
for cystoid macular edema, 4.152, 12.159, 12.393
after cataract surgery, 11.165
cytomegalovirus retinitis and, 12.236
for descemetocele, 8.369
diabetic macular edema treated with, 12.113–114
diffuse unilateral subacute neuroretinitis-related inflammation, 9.288
dry eye, 8.61t
for Epstein-Barr keratitis, 8.231
fungal keratitis associated with use of, 4.78, 8.273
giant cell arteritis/AAION, 5.120
for herpes zoster, 8.222, 8.229–230
for human T-lymphotropic virus type 1, 9.267
for hyphema, 8.394–395, 10.105
idiopathic intracranial hypertension, 5.112
idiopathic thrombocytopenia purpura treated with, 1.141
immunoglobulin G4–related disease treated with, 7.67
infantile (capillary) hemangioma treated with, 7.72, 7.181
infectious pseudocrystalline keratopathy associated with use of, 4.79
inhaled, intraocular pressure affected by, 1.130
for insect/arthridni injurics, 8.387
intraocular pressure affected by, 10.100, 10.108, 10.109–110
inflammatory glaucoma treatment and, 10.110
optic nerve damage and, 10.110
after refractive surgery, 13.41, 13.182, 13.201
after glaucoma surgery, 10.208
herpes simplex keratitis and, 8.217, 8.219, 8.223t
for herpes simplex virus, 9.249
for herpes zoster, 8.222, 8.229–230
for human T-lymphocytic virus type 1, 9.267
for hyphema, 8.394–395, 10.105
idiopathic intracranial hypertension, 5.112
idiopathic thrombocytopenia purpura treated with, 1.141
immunoglobulin G4–related disease treated with, 7.67
infantile (capillary) hemangioma treated with, 7.72, 7.181
infectious pseudocrystalline keratopathy associated with use of, 4.79
inhaled, intraocular pressure affected by, 1.130
for insect/arthridni injurics, 8.387
intraocular pressure affected by, 10.100, 10.108, 10.109–110
inflammatory glaucoma treatment and, 10.110
optic nerve damage and, 10.110
after refractive surgery, 13.41, 13.92, 13.104–105, 13.182, 13.201
in uveitis, 10.110
intravitreal administration, 2.360t. See also
Intravitreal injections, corticosteroids
intravitreal implants, 6.321
for iridocyclitis, 9.127
for limbic stem cell deficiency, 8.94
lung disease treated with, 1.128
for Lyme disease-related anterior segment inflammation, 9.230
for meibomian gland dysfunction, 8.68
for Mooren ulcer, 8.315
for multifocal choroiditis and panuveitis syndrome, 9.181
for multiple sclerosis, 5.319–320
for neuromyelitis optica, 5.323
nonspecific orbital inflammation treated with, 7.69–70
ocular adverse effects of, 1.308
for ocular allergies/inflammation, 6.247, 8.289
for ocular hypertension caused by, 9.317, 9.319.
See also Corticosteroid(s) (steroids), intraocular pressure affected by
for ocular toxoplasmosis, 9.281
for optic neuritis, 5.116, 6.369
orbital cellulitis treated with, 7.48
osteoporosis caused by, 1.175
for pars planitis, 9.149–150
after penetrating and perforating trauma repair, 8.409
for peripheral ulcerative keratitis, 8.313
after photoablation, 13.92
complications associated with, 13.104–105
for recurrent corneal erosions, 8.87
recessive surgery, elevated intraocular pressure/glaucoma and, 13.41, 13.94
fungal keratitis and, 13.106
herpes simplex keratitis and, 13.174
LASIK, 13.93, 13.94
for transient light sensitivity, 13.123
pressure-induced stromal keratopathy and, 13.119
regression in overcorrection and, 13.101, 13.108–109
regression in undercorrection and, 13.102
surface ablation, 13.92, 13.94, 13.108–109
posterior sub-Tenon injection of, 9.95–96
progressive outer retinal necrosis syndrome treated with, 12.237
after pterygium excision, 8.356
ptosis caused by eyedrops containing, 6.419, 6.247
for recurrent corneal erosions, 8.87
refractive surgery in patient taking, 13.37
for rossacea, 8.71
for sarcoidosis, 9.199
for scleritis, 8.324, 8.325f, 9.126
for staphylococcal blepharitis/blepharoconjunctivitis, 8.76
for Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrosis), 8.297, 8.298
for stromal keratitis, 8.222, 8.223
sub-Tenon injections of, 6.320
supratarsal injection of, for vernal keratoconjunctivitis, 8.291
for sympathetic ophthalmia, 9.203
for syphilitic uveitis-related inflammation, 9.227
for thermal injuries, 8.385
for Thysgen superficial punctate keratitis, 6.269, 8.307
for thyroid eye disease, 5.131
topical
for iridocyclitis, 9.127
for uveitis, 9.94–95, 9.130
toxoplasmic retinochoroiditis treated with, 12.244
toxoplasmosis treated with, 6.409–410
for traumatic vision loss, 5.140
types of, 2.400
for uveitis, 6.320–321
adverse effects of, 9.94, 9.103, 9.143, 9.150
in children, 9.143
dose and duration of, 9.94, 9.102
intermediate, 9.149–150
intraocular pressure elevation and, 10.100
intravitreal, 9.97–98
local, 9.95
nonsteroidal anti-inflammatory drugs and, 9.103
osteoporosis prevention strategies, 9.103
periorcular, 9.95–96
phacoantigenic, 9.137
systemic, 9.102–103, 9.150
tapering of, 9.94
topical, 9.94–95
traumatic anterior, 8.389–390
for vernal keratoconjunctivitis, 6.249, 8.291
for visceral toxocarisis, 9.284
wound healing affected by, 13.33
Corticosteroid-sparing, in uveitis. See Immunomodulatory therapy/immunotherapy/immunosuppression
Cortisol deficiency, corticosteroid-induced, 9.94
Cortisone, 1.175
Cortisporin. See Hydrocortisone
Cortisporin suspension. See Hydrocortisone/neomycin sulfate/polymyxin B sulfate
Corynebacterium, 8.244
Neisseria meningitidis, 8.245–246
diphtheriae, 8.207, 8.245
invasive capability of, 8.207
as normal flora, 8.206f, 8.246
ocular infection caused by, 8.245–246
cicatricial conjunctivitis differentiated from, 8.301
xerosis, 8.196–197, 8.246
Cosmetic blepharoplasty, 7.253
Cosmetic facial surgery. See Facial surgery; specific procedure
Cosopt Ocumeter Plus. See Dorzolamide hydrochloride/timolol maleate
Cotransport, 2.271
in AAION/NAION, 5.120
in branch retinal vein occlusion, 4.159
in central retinal vein occlusion, 4.156, 4.157
cytomegalovirus retinitis and, 12.235
in diabetic retinopathy, 4.159, 12.140–141
in hypertensive retinopathy, 12.122, 12.122f
in leukemia, 4.315
in Purtcher's retinopathy, 12.171
in systemic lupus erythematosus, 12.230
Couching. 11.89, 11.89f
Cough, 1.124
- cataract surgery in patient with, 11.170
- Counseling. See Patient education
- genetic. See Genetic testing/counseling
- Coup, 12.315
Coupling/coupling ratio, 13.27, 13.27f, 13.54, 13.54f, 13.55
- arcuate incisions/keratotomy and, 13.27, 13.27f, 13.54, 13.54f
- astigmatic keratotomy and, 11.123, 13.27, 13.27f, 13.54, 13.54f
- limbal relaxing incisions and, 13.54, 13.54f, 13.55
Cover tests
- alternate, 6.65–66, 6.66f
- before cataract surgery, 11.77–78
- cover-uncover test, 6.64, 6.65f
- ocular alignment assessments using, 6.64–67, 6.65–66f
Cowden disease, eyelid manifestations of, 4.210f
Cox. See Cyclooxygenase (COX) pathway
Cox-1. See Cyclooxygenase
Cox-2. See Cyclooxygenase
Coxackieviruses, acute hemorrhagic conjunctivitis caused by, 8.240, 8.240f
CPAP. See Continuous positive airway pressure
CPC. See Cyclophotocoagulation/cycloablation
CPEO. See Chronic progressive external ophthalmoplegia
CPR. See Cardiopulmonary resuscitation
CRA. See Central retinal artery
- “Craw’s” claw pattern
- keratoconus and, 13.24, 13.176, 13.176f
- in pellucid marginal degeneration, 8.31, 8.33f, 8.169, 8.170f
Crab louse (Phthirus pubis), 8.253, 8.254f
- ocular infection caused by, 8.208f, 8.253, 8.255
Crack cocaine, 1.199. See also Cocaine
Cranial dysinnervation disorders, congenital. See specific disorder
Cranial fossae
- anterior, 5.6f, 5.8, 5.10f
- middle, 5.6f, 5.10f, 5.11
- neuroimaging in evaluation of, 5.72f
- posterior, 5.6f
- neuroimaging in evaluation of, 5.72f
Cranial nerves (CNs), 5.40f, 5.40–45, 5.41f, 5.42–43f, 5.44f. See also specific nerve
- anatomic relationships of, 2.106f
- anatomy of, 2.15, 5.40f, 5.40–45, 5.41f, 5.42–43f, 5.44f
- cerebrovascular system effects on, 2.135
- extraocular muscles supplied by, 5.40f, 5.40–45, 5.41f, 5.42–43f, 5.44f
- intracranial nerve course of, 2.137f
- ocular motor, 5.40–44f, 5.40–45
- palsy of, 2.135, 2.475f
- in cryptococcosis, 5.356
- multiple nerve involvement and, 5.202
- herpes infection and, 5.350
- isolated. See also specific type
- in multiple sclerosis, 5.318
- localization of lesions causing, 5.187f, 5.187–188
- in multiple sclerosis, 5.318
- neuroimaging in evaluation of, 5.70
- pain associated with, 5.192
- radiation therapy and, 5.358
- in sarcoidosis, 5.280, 5.327
- saccadic system and, 5.33
Cranial nerve II. See Optic nerve
Cranial nerve III (oculomotor nerve), 5.8f, 5.35, 5.35f, 5.40–44f, 5.44–45f, 5.48f, 5.55f
- aberrant regeneration of, 5.197–198, 5.198f
- anisocoria and, 5.265–266
- light-near dissociation and, 5.266f, 5.267
- in accommodation, 11.23
- anatomy of, 2.108f, 2.123–126, 5.8f, 5.35, 5.35f, 5.40, 5.40f, 5.41–44f, 5.44–45f, 5.48f, 5.55f
- congenital palsy of, 7.246
- divisions of, 6.19
- extraocular muscles innervated by, 2.21, 6.19–20, 7.12
- eyelid disorders and, 5.271
- fascicular portion of, 2.124
- gaze palsy caused by lesions of, 5.228
- horizontal gaze and, 5.36, 5.37f
- inferior division of, 1.215
- intra-axial lesions of, 5.191
- muscles innervated by, 2.123
- nucleus complex of, 2.123, 2.123f
- in ocular motility disorders, 5.188, 5.191, 5.193f, 5.193–198, 5.194f, 5.196f, 5.198f
- cavernous sinus/superior orbital fissure lesions and, 5.202–206
- palsy of. See Third nerve (oculomotor) palsy
- subnuclei of, 2.123
- superior division of
- description of, 2.125
- palsy of, 6.128
- vertical gaze and, 5.36f, 5.36–37
Cranial nerve IV (trochlear nerve), 5.8f, 5.35, 5.35f, 5.40, 5.40f, 5.41f, 5.42f, 5.43f, 5.44f, 5.48f, 7.13
- anatomy of, 2.12f, 2.127–128, 5.8f, 5.35, 5.35f, 5.40, 5.40f, 5.41f, 5.42f, 5.43f, 5.43–44, 5.48f
- extraocular muscles innervated by, 2.21, 6.19
- fascicles of, 2.128
- horizontal gaze and, 5.37f
- Horner syndrome in lesions of, 5.260f
- intra-axial lesions of, 5.191, 5.192
- in ocular motility disorders, 5.185, 5.186, 5.188–189, 5.198–200, 5.199, 5.199f
- cavernous sinus/superior orbital fissure lesions and, 5.202–206
- palsy of. See Fourth nerve (trochlear) palsy
- superior oblique myokymia and, 5.250
- vertical gaze and, 5.36f, 5.36–37
Cranial nerve V (trigeminal nerve), 5.41f, 5.42f, 5.43f, 5.47f, 5.47–49, 5.48f, 5.55
- anatomy of, 2.107–108f, 2.128–129, 5.41f, 5.42f, 5.43f, 5.55
branches of. 2.107f

cold-induced anterior segment trauma and, 8.385
corneal sensation and, 8.42

divisions of, 2.131–133, 5.16f, 5.42f, 5.43f, 5.47f,
5.48–49, 7.9–10, 7.14

efferent pathway of, 7.280
facial pain caused by lesions of, 5.297, 5.298, 5.298f
in herpes simplex infection, 8.213
in herpes zoster, 8.226, 8.227
innervations by, 2.128, 2.129f
intracranial pathway of, 2.131
lacrical functional unit innervated by, 8.5f
main sensory nucleus of, 2.129–130
mandibular division of, 2.133. See also Cranial nerve
V (trigeminal nerve), V1 (ophthalmic nerve)
maxillary division of, 2.132, 7.14. See also Cranial nerve
V (trigeminal nerve), V2 (maxillary nerve), V3 (mandibular nerve)
mesencephalic nucleus of, 2.129
in migraine, 5.291
motor nucleus of, 2.131
nasociliary branch of, 7.13
neurotrophic keratopathy/persistent corneal epithelial
defects caused by damage to, 8.42, 8.80, 8.81f
nuclear complex of, 2.129
in ocular motility disorders, cavernous sinus/superior
orbitalis fissure lesions and, 5.202–206
ophthalmic division of, 2.130, 2.131–132, 2.132f,
7.14. See also Cranial nerve V (trigeminal nerve),
V1 (ophthalmic nerve)
pathways of, 2.129f
sensory nucleus of, 2.129–130
spinal nucleus and tract of, 2.130–131
V1 (ophthalmic nerve), 5.16f, 5.43f, 5.47f, 5.48
V2 (maxillary nerve), 5.16f, 5.42f, 5.43f, 5.47f, 5.48f, 5.49
V3 (mandibular nerve), 5.16f, 5.42f, 5.47f, 5.49f
Cranial nerve VI (abducens nerve), 5.8f, 5.35, 5.35f,
5.40, 5.40f, 5.40–41, 5.41f, 5.42f, 5.43f, 5.48f, 5.53f
anatomy of, 2.107f, 2.133, 5.8f, 5.35, 5.35f, 5.40–41,
43f, 5.48f, 5.53f, 7.13f
extraocular muscle innervation by, 6.19, 7.12
gaze palsy caused by lesions of, 5.228
horizontal gaze and, 5.36, 5.37, 5.37f, 5.38
in one-and-a-half syndrome, 5.191
intra-axial lesions of, 5.192
in ocular motility disorders, 5.189
in pregnancy affecting, 5.333
in paralytic ectropion secondary to, 7.297
underactivity and, 5.275, 5.276–277
onset of, 5.276, 5.277–285
facial movement abnormalities caused by disorders
overactivity and, 5.281–285, 5.282f, 5.282t, 5.283f
underactivity and, 5.275, 5.275–277f, 5.277–281,
5.278t, 5.279f. See also Facial paralysis/weakness
horizontal gaze and, in one-and-a-half syndrome, 5.191
intra-axial lesions of, 5.192
mandibular branch of, 5.51f, 5.52, 5.276–277f
motor nucleus of, 2.133
muscles innervated by, 7.155
nonmotor pathways of, 7.280f
palsy of, 6.136f. See also Facial paralysis/weakness
aberrant regeneration after, 7.258
brow ptosis after, 7.263
lacrimal pump function affected by, 7.296, 7.297f
paralytic ectropion secondary to, 7.297f
parasympathetic fibers of, 7.280
peripheral lesions involving, 5.278–280, 5.279f
pregnancy affecting, 5.333
sarcoidosis involving, 5.280, 5.327
supranuclear lesions involving, 5.276f, 5.277–278
surgical ablation of, 7.258
surgical decompression of, for hemifacial spasm,
5.284
synkinesis caused by disorders of, 5.271, 5.271f, 5.277
temporal (frontal) branch of, 2.134, 5.51f, 5.52,
5.276–277f, 7.155f
vertical gaze and, 5.37f
vertical gaze and, 5.36f
vestibular imbalance caused by lesions of, 5.217
in vestibular-ocular reflex, 5.214, 5.217
Cranial neuropathy syndrome, idiopathic multiple,
5.202
Cranial suture, 6.203–204, 6.204f
Craniofacial anomalies, syndromic, 7.38–39
Craniofacial bones, 5.6–7, 5.9
Craniofacial malformations, nonsynostotic, 6.209–212
branchial arch syndromes, 6.210–211, 6.210–211f
Crouzon syndrome, 6.206, 6.206f, 7.38f, 8.191f
fetal alcohol syndrome, 6.211–212, 6.212f
mandibulofacial dysostosis. See Craniofacial
malformations, Treacher Collins/Treacher
Collins-Graves-Kiss syndrome
nonsynostotic, 6.209–212
oculoauroculovertical spectrum/sequence
/syndrome (OAVS), 6.210, 8.191f, 8.195f,
8.195–196
Pfeiffer syndrome, 6.207
Pierre Robin sequence (anomaly/deformity), 6.211, 8.192
Saethre-Chotzen syndrome, 6.207, 6.208f
Treacher Collins/Treacher Collins-Francischetti syndrome (mandibulofacial dysostosis), 6.196, 6.211, 6.211f, 7.38f, 8.192
eyelid manifestations of, 4.207t
Craniosynostosis
Anatomy of, 6.203–204
Apert syndrome, 6.206–207, 6.207f, 6.209f
brachycephaly, 6.205
branchio-oto-renal (BOR) syndrome, 6.206
Crouzon syndrome, 6.206, 6.206f, 7.38f, 8.191t
definition of, 6.203
dolichocephaly, 6.205
etiology of, 6.205–206
Kleeblattschädel, 6.205
Pfeiffer syndrome, 6.207f
plagiocephaly, 6.204–205
Saethre-Chotzen syndrome, 6.207, 6.208f
scaphocephaly, 6.205
syndromic, 6.206–207, 7.39, 7.39f
CRAO. See Central retinal artery occlusion
Crash cart, 1.298
CRAVE study, 12.135
Crawford stent and hook, 7.293, 7.293f
CRB1 mutations, 12.258
CRBP1. See Cellular retinol-binding protein 1
Creases (eyelid). See Eyelid(s), creases of
Creatine kinase MB, 1.87
Creeping angle closure, 10.126.
See also Angle-closure glaucoma
“Crescent moon sign,” in internal carotid artery dissection, 5.262f, 5.342
Crest cells. See Neural crest cells
CREST syndrome, 1.164
CREST trial. See Carotid Revascularization Endarterectomy Versus Stenting Trial-2
Cretinism, 1.41
Creutzfeldt-Jakob disease (CJD)
congenital corneal transplant in transmission of, 8.254, 8.416t
description of, 1.211, 5.357
CRF. See Corneal resistance factor
Cri-du-chat syndrome, 6.386t
Cribiform plate, 5.6f. See also Lamina cribrosa
Cricothyrotomy, 1.299, 1.302
Crigger-Najjar syndrome, 2.204t
CRION. See Chronic relapsing inflammatory optic neuropathy
CRISPR–Cas9, 2.198
Critical angle, 3.40, 3.50–51
Crizanlizumab, for sickle cell disease, 1.135
CRN. See Convergence-retraction nystagmus
Crocodile shagreen, 8.121
Crocodile tears, 5.277
Crohn disease, 1.156
Croloem. See Cromolyn
Cromolyn
description of, 2.412t
for hay fever conjunctivitis, 8.289
for lung disease, 1.128
Cross cylinder technique
Jackson, See Jackson cross cylinder
for refraction, 3.163–165, 3.164f, 3.165f
Cross-fixation, in infantile esotropia, 6.87–88, 6.88f
Cross-sectional studies, 1.12
Crossed diplopia, 6.75
Crossing over, 2.175, 2.216–217
Crosslinking. See Corneal (collagen) crosslinking
Crouzon syndrome, 6.206, 6.206f, 7.38f, 8.191t
Crowding phenomenon
in amblyopia, 6.56
definition of, 6.54
CRP. See C-reactive protein
CRS. See Congenital rubella syndrome
CRV. See Central retinal vein
CRVO. See Central retinal vein occlusion
CRYO-ROP. See Cryotherapy for Retinopathy of Prematurity
Cryoablation, for retinopathy of prematurity, 12.185–186
Cryoglobulin deposition, ophthalmic findings in, 8.198–199
Cryopexy
transconjunctival, 12.398
transscleral, 12.398
Cryoprobe, for lens extraction, 11.195
in ICCE, 11.200
Cryotherapy, 7.205, 7.210, 7.240
for conjunctival papillomas, 8.239, 8.333
for intermediate uveitis, 9.150
for lagenous conjunctivitis, 8.295
with ocular surface surgery for neoplasia, 8.329
retinal cavernous hemangioma treated with, 12.168
for retinal hemangioblastoma/von Hippel-Lindau disease/syndrome, 4.285
for retinoblastoma, 4.300
for trichiasis/distichiasis, 8.88
von Hippel–Lindau syndrome treated with, 12.167
Cryotherapy for Retinopathy of Prematurity (CRYO-ROP), 6.326, 6.331
Cryptococcal meningitis, 1.277
Cryptococcosis, 9.299–300
Cryptococcus neoformans/gatti (cryptococcosis), 5.356, 8.249t, 8.251
choroiditis, 9.333
in HIV infection/AIDS, 5.356
ocular infection caused by, 5.356
optic nerve infection caused by, 4.243, 4.243f, 5.356
retinal infection caused by, 4.147
Cryptogenic stroke, 1.119
Cryptophthalmos, 6.191, 6.193, 6.193f, 7.180, 7.181f
Cryptophthalmos-syndactyly (Fraser syndrome), 4.207t, 6.193
Crystal deposition, corneal, 8.173, 8.182t
in cystinosis, 8.181f, 8.181–182
in hematologic disorders, 8.197–199, 8.198f, 8.199f
Crystal violet stain, 4.31f
Crystalline corneal/stromal dystrophy, Schnyder (SCD), 6.270, 6.387f, 8.135f, 8.136f, 8.145f, 8.151–152, 8.152f. See also Schnyder corneal dystrophy hyperlipoproteinemia and, 8.151, 8.179
Crystalline keratopathy, infectious, 8.268, 8.268f
corneal deposits and, 8.182f
after penetrating keratoplasty, 8.427, 8.427f
Crystalline lens, See Lens
Crystalline/pseudocrystalline keratopathy, infectious, 4.79–80, 4.80f
after penetrating keratoplasty, 4.79
Crystalline retinopathy
cause of, 12.302–304, 12.303f
drugs that cause, 12.302–304
tamoxifen as cause of, 12.303, 12.304f
West African, 12.303–304, 12.305f
Crystallins, 11.15f, 11.15–16. See also Lens proteins
α, 2.284, 11.15, 11.15f, 11.15–16
β, 11.16
βγ, 2.284–285, 11.15, 11.15f, 11.16
description of, 2.281, 2.284–285
γ, 11.16
taxon-specific, 2.285
CS. See Cockayne syndrome
CSC. See Central serous chorioretinopathy
CSCD (congenital stromal corneal dystrophy). See Congenital (congenital hereditary) stromal corneal dystrophy
CSD. See Cat-scratch disease
CSF. See Cerebrospinal fluid; Contrast sensitivity function
CSLO. See Confocal scanning laser ophthalmoscopy/ophthalmoscope
CSM method. See Central, Steady, and Maintained (CSM) method
CSME. See Clinically significant diabetic macular edema
CSNB. See Congenital stationary night blindness
CSR (central serous retinopathy). See Central serous chorioretinopathy
CSROP. See Clinically significant retinopathy of prematurity
CST. See Cavernous sinus thrombosis
CT/CT scan. See Computed tomography
CT angiography. See Computed tomography angiography
CT venography. See Computed tomography venography
CTA. See Computed tomography angiography
CTTs. See Cytotoxic T cells
CTN5 gene, 6.270
in cystinosin, 8.181
CTRs. See Capsular tension rings
CTV. See Computed tomography venography
Curil. See Capsular tension rings
Cytotoxic T cells
Cytotoxicity
CT scan of
Cup, optic. See Cupping of optic nerve/nerve head/disc;
Optic cup
Cup-disc ratio
in AAION/NAION, 5.120, 5.121f
in glaucoma evaluation, 10.48, 10.53
in infants and children, 10.160
Cupping of optic nerve/nerve head/disc asymmetry of, 10.48–49, 10.49f
description of, 6.187, 6.402f
glaucomatous, 10.46, 10.47f, 10.48–49, 10.49f
in infants and children, 10.46
visual field changes correlated with, 10.74–75
physiologic, 10.48
vertical elongation and, 10.49, 10.50f
Curative chemotherapy, 1.239
Curly fibers, in Thiel-Behnke corneal dystrophy, 8.136, 8.145f. See also Thiel-Behnke corneal dystrophy
Curvature
corneal, 8.25–26. See also Cornea, topography of axial, 8.28, 8.29f, 13.16, 13.16f, 13.17f
in cornea plana, 8.96f, 8.100
evaluation of, 8.25–36
corneal zones and, 8.25, 8.25f, 8.26f
keratometry for, 8.26–27, 8.27f
keratoscopy for, 8.27–28, 8.28f
Placido disk-based topography for, 8.27–28, 8.28, 8.35f
shape/curvature/power and, 8.25–26
tomography for, 8.33–36, 8.34f, 8.35f, 8.35t
topography for, 8.28–36, 8.29f, 8.30f, 8.31f, 8.32f, 8.32t, 8.33f, 8.35f
after keratorefractive surgery, 3.269
mean, 8.28
measurement of, 13.14–19, 13.15f, 13.16f, 13.17f, 13.18f, 13.19f, 13.44–45, 13.45f
power and, 8.25–26, 13.7–9
radius of, 3.127f, 8.8, 8.27
in cornea plana, 8.100
instantaneous (meridional/tangential power), 13.16–17, 13.17f
keratometry in measurement of, 8.27
refractive surgery affecting, 13.9, 13.26–28, 13.27f, 13.28f
IOL power calculation and, 13.193–197, 13.196f
in schematic eye, 3.127t
radius of, 3.127t
Curvature maps, 8.28–33, 8.29f, 8.30f, 8.31f, 8.32f, 8.33f, 13.14–19, 13.15f, 13.17f, 13.19f, 13.44–45, 13.45f.
See also Cornea, topography of interpretation of, 8.28–31
in keratoconus, 8.165, 8.165f, 8.167f
in pellucid marginal degeneration, 8.31, 8.33f, 8.169, 8.170f
postoperative, 13.23, 13.24f
Curvature of field
definition of, 3.72
schematic diagram of, 3.72f
Curvilinear capsulorrhexis, 9.315
Curvularia, 8.249f, 8.251
Cushing syndrome
corticotrroph adenomas associated with, 1.48
elevated intraocular pressure in, 10.110
hypertension associated with, 1.54
Custom (wavefront-guided) ablation, 13.31, 13.46, 13.76–77
higher-order aberrations and, 13.13, 13.31–32, 13.76–77
for LASIK re-treatment/enhancement, 13.99
for mixed astigmatism, 13.97
multifocal, 13.167, 13.168f
outcomes of, 13.31–32, 13.97
overcorrection and, 13.102
patient selection/relative contraindications and, 13.80
postoperative aberrations and, 13.13, 13.102
preoperative planning/laser programming for, 13.31,
13.46, 13.81
for presbyopia, 13.167, 13.168f
wavefront analysis before, 13.31, 13.46, 13.80
Cutaneous horn (exuberant hyperkeratosis), 4.211,
7.188–189
Cutaneous leishmaniasis, 8.252
Cuticular (basal laminar) drusen, 4.162, 12.274, 12.275f
Cutler-Beard flap, 7.221, 7.223f
Cutting head, of microkeratome, 13.84, 13.85, 13.85f
Cutler-Beard flap, 7.221, 7.223f
Cyclophotocoagulation/cycloablation
Cycloplegia/cycloplegics, 2.380, 11.23
topical, 8.61
agents used in, 6.11–12
for amblyopia treated with, 6.59
for chemical injuries, 8.383
in children, 6.11–12
inonasal perforation, 8.376
for corneal abrasions, 8.399
description of, 2.381
for hyphema, 8.394, 10.105
indications for, 3.38
for insect/arachnid injuries, 8.387
intraocular pressure affected by, 10.110
near reflex spasm treated with, 6.94
ocular surface toxicity and, 8.90f
after penetrating and perforating trauma repair,
8.409
for recurrent corneal erosions, 8.87
refraction with. See Cycloplegic refraction
for thermal injuries, 8.385
for traumatic anterior uveitis, 8.389–390
for uveitis, 9.113, 9.131
for vegetative injuries, 8.387
Cycloplegic refraction. See also Refraction; Refraction,
clinical
agents used in, 6.11–12
in amblyopia treatment, 6.57
in children, 3.174, 6.10–12
description of, 3.168–169
in infantile esotropia, 6.88
before refractive surgery, 13.40
laser programming and, 13.40, 13.81
technique of, 6.11
Cyclosporine/cyclosporine A, 1.179, 2.258, 2.371
2.404t, 2.415
for atopic keratoconjunctivitis, 8.294
for Behçet disease, 9.217, 12.230
for corneal graft rejection prophylaxis, 8.430
for dry eye, 8.61t, 8.63
before refractive surgery, 13.173
for graft-vs-host disease, 8.304
for hay fever conjunctivitis, 8.289
for Mooren ulcer, 8.315, 8.316
for peripheral ulcerative keratitis, 8.313
for scleritis, 8.324
for superior limbic keratoconjunctivitis, 8.84
for Thysgeson superficial punctate keratitis, 8.307
topical, 8.61t, 8.63
for uveitis, 9.108
for vernal keratoconjunctivitis, 6.249, 8.291, 8.292
Cyclothymic disorder, 1.196
Cyclotropia, relative, 5.185
Cycloversion, fusional, 6.40
Cyclovertical strabismus, 6.162
Cylate. See Cyclopentolate hydrochloride
overcorrection and, 13.102
postoperative aberrations and, 13.80
preoperative planning/laser programming for, 13.31,
13.46, 13.81
for presbyopia, 13.167, 13.168f
wavefront analysis before, 13.31, 13.46, 13.80
Cutaneous horn (exuberant hyperkeratosis), 4.211,
7.188–189
Cutaneous leishmaniasis, 8.252
Cuticular (basal laminar) drusen, 4.162, 12.274, 12.275f
Cutler-Beard flap, 7.221, 7.223f
Cyclophotocoagulation/cycloablation
Cycloplegia/cycloplegics, 2.380, 11.23
topical, 8.61
agents used in, 6.11–12
for amblyopia treated with, 6.59
for chemical injuries, 8.383
in children, 6.11–12
inonasal perforation, 8.376
for corneal abrasions, 8.399
description of, 2.381
for hyphema, 8.394, 10.105
indications for, 3.38
for insect/arachnid injuries, 8.387
intraocular pressure affected by, 10.110
near reflex spasm treated with, 6.94
ocular surface toxicity and, 8.90f
after penetrating and perforating trauma repair,
8.409
for recurrent corneal erosions, 8.87
refraction with. See Cycloplegic refraction
for thermal injuries, 8.385
for traumatic anterior uveitis, 8.389–390
for uveitis, 9.113, 9.131
for vegetative injuries, 8.387
Cycloplegic refraction. See also Refraction; Refraction,
clinical
agents used in, 6.11–12
in amblyopia treatment, 6.57
in children, 3.174, 6.10–12
description of, 3.168–169
in infantile esotropia, 6.88
before refractive surgery, 13.40
laser programming and, 13.40, 13.81
technique of, 6.11
Cyclosporine/cyclosporine A, 1.179, 2.258, 2.371
2.404t, 2.415
for atopic keratoconjunctivitis, 8.294
for Behçet disease, 9.217, 12.230
for corneal graft rejection prophylaxis, 8.430
for dry eye, 8.61t, 8.63
before refractive surgery, 13.173
for graft-vs-host disease, 8.304
for hay fever conjunctivitis, 8.289
for Mooren ulcer, 8.315, 8.316
for peripheral ulcerative keratitis, 8.313
for scleritis, 8.324
for superior limbic keratoconjunctivitis, 8.84
for Thysgeson superficial punctate keratitis, 8.307
topical, 8.61t, 8.63
for uveitis, 9.108
for vernal keratoconjunctivitis, 6.249, 8.291, 8.292
Cyclothymic disorder, 1.196
Cyclovertical strabismus, 6.162
Cylate. See Cyclopentolate hydrochloride
Cylinder axis
  cross cylinder technique for determining, 3.163–166
  finding of, for regular astigmatism, 3.156–158,
  3.157–3.158f
  locating of, 3.156, 3.157f
  minus cylinder phoropter refinement of, 3.29–30, 3.30f
  plus cylinder phoropter refinement of, 3.30
  refinement of, 3.29–30, 3.30f; 3.163
  straddling, 3.158, 3.158f
Cylinder power
  cross cylinder technique for determining, 3.163–166
  finding of, for regular astigmatism, 3.158
  lensmeter measurement of, 3.284, 3.284f
  minus cylinder phoropter refinement of, 3.31
  plus cylinder phoropter refinement of, 3.31–32,
  refinement of, 3.31–32, 3.163–165, 3.164f
Cylindrical lenses
  axis orientation in, 3.17–18
  minus, 3.17f
  plus, 3.17f
Cylindroma (adenoid cystic carcinoma/ACC), 7.100,
  7.193, 7.193f
  of lacrimal gland, 4.230–231, 4.231f
CYP1B1 gene, 6.259, 6.277
  in glaucoma, 10.111, 10.150
  primary congenital, 8.108
  in Peters anomaly, 8.97, 8.103, 10.150
  CYP2D6, 2.270
CYP4V2, 12.257f, 12.258, 12.269
Cyst(s).
  See also specific type
  colobomatous, 6.224
  dermoid, 6.223–224, 6.223–224f. See also Dermoids
  epithelial inclusion, 6.250
  irid, 6.272f, 6.272–273
  microphthalmia with, 6.224, 6.225f
  Cystadenoma (oncocytoma), 4.71–72, 4.72f, 8.337
  Cystathionine β-synthase, 6.308
  Cysteamine, 6.270, 12.293
  for cystinosis, 8.182
  Cysteine-rich proteins, in neurofibromatosis, 4.238
  Cystic carcinoma, adenoc (ACC/cylindroma),
  description of, 7.100, 7.193, 7.193f
  of lacrimal gland, 4.230–231, 4.231f
  Cystic fibrosis, 1.124
  orbital involvement and, 4.228
  Cysticercus cellulosae, 9.285
  Cystine, 2.235
  Cystine accumulation/crystals, in cystinosis, 8.181f,
  8.181–182
  Cystinosis, 2.235, 6.270, 6.387f, 6.389t, 8.181–182,
  8.183f, 12.293
  corneal changes in, 8.181f, 8.181–182, 8.183f
  cysteamine for, 8.182
  in infants and children, 8.181
  Cystoid degeneration, peripheral, 4.148, 4.149f, 12.326
  reticular (RPCD), 4.148, 4.149f, 12.326
  typical (TPCD), 4.148, 4.149f, 12.326
  Cystoid macular edema (CME), 2.359, 2.391, 2.394,
  2.410, 4.140, 4.152–153, 4.153f, 4.154f. See also
  Macular edema
  angiographic, after cataract surgery, 11.163–164,
  11.164f
  birdshot uveitis in, 12.224
  cataract surgery as cause of, 12.157, 12.159,
  12.260
  central retinal vein occlusion as cause of, 12.136f
  characteristics of, 12.156–157
  corticosteroids for, 12.159, 12.393
  after cataract surgery, 11.165
  in cytomegalovirus retinitis, 12.235
  differential diagnosis of, 12.157
  drugs that cause, 12.301
  edema sources in, 12.156–157
  etiologies of, 12.157
  fingolimid as cause of, 12.302
  fluorescein angiography of, 12.36f, 12.157
  incidence of, 12.157, 12.159
  in Irvine-Gass angiopathy, 12.157
  nicotinic acid as cause of, 12.301
  optical coherence tomography of, 12.132f, 12.157,
  12.158f
  petaloid, 12.157
  postoperative, cataract surgery and, 11.163–165,
  11.164f, 11.187
  in glaucoma, 11.164, 11.187
  after Nd:YAG laser capsulotomy, 11.157
  vitreous prolapse and, 11.143–144
  predisposing factors for, 12.157, 12.159
  pseudophakic
  definition of, 12.157
  imaging of, 12.394f
  optical coherence tomography of, 12.158f
  pars plana vitrectomy for, 12.394f
  in retinal dystrophies, 12.260, 12.260f
  retinal vein occlusion as cause of, 12.135. See also
  Retinal vein occlusion
  retinitis pigmentosa and, 12.260
  spontaneous resolution of, 12.159
  subretinal diseases that cause, 12.157
  taxanes as cause of, 12.301
  treatment of, 12.159
  vision loss caused by, 12.225
  vitrectomy for, 12.159, 12.393, 12.394f
  Cystotome, for ECCE, 11.196
  Cytarabine, epithelial cysts caused by, 8.130
  Cytobrush, 8.210
  Cytochrome P450, 2.351
  Cytokeratins, in immunohistochemistry, 4.33
  Cytochemical staining
  in immunohistochemistry, 1.154–155, 1.241
  in inflammation, 9.21, 9.22–24
  inhibitors of. See Biologic response modifiers
  intercellular signaling of, 9.21
  interferons, 9.21, 9.24t
  interleukins, 9.21, 9.22–23
  lipopolysaccharide effects on, 9.7
  mast cell–derived, 9.49
  retinal pigment epithelium synthesis of, 9.58
  in tear film, 2.252, 8.11–13, 8.12f
  types of, 9.21, 9.22–24t
Cytology (ocular), 4.34t. See also Fine-needle aspiration biopsy
impression, in superior limbic keratoconjunctivitis, 8.84
Cytomegalovirus (CMV), 1.237t, 1.261–262, 1.279, 5.349f,
keratitis caused by, 8.231–232, 8.232f
Posner-Schlossman syndrome caused by, 9.135
retinitis caused by, 2.364, 4.145, 4.146f, 5.349, 12.235–236, 12.238f
characteristics of, 9.254–257
in children, 9.255–256
imaging of, 9.255f
retinal detachments secondary to, 9.324, 9.329f
treatment of, 9.256–257
Cytosine, 2.176
Cytoskeletal (urea-soluble) lens proteins, 2.285, 11.15f,
11.16–17
Cytotoxic edema, 2.461t
Cytotoxic hypersensitivity (type II) reaction. See also
Cytotoxic T cells
apoapoptotic processes induced by, 9.46
assassination by, 9.46
autoimmunity and, 9.44
CD8 expression by, 9.36, 9.44
Cytotoxicity mechanisms of, 9.46, 9.47f
description of, 9.44, 9.46
precursor, 9.46
in Stevens-Johnson syndrome (Stevens-Johnson
syndrome/toxic epidermal necrolysis overlap and
toxic epidermal necrolysis), 8.296
suicide induction by, 9.46
Cytotoxicity
antibody-dependent cellular, 9.47–48
CD8+ T cell, 9.47f
Cytovene. See Ganciclovir
Cytovene IV. See Ganciclovir
D
D. See Diopter
D-15 test, in low vision evaluation, 5.79
D-penicillamine, for Wilson disease, 8.189
Dacizuamab, 2.406f
for multiple sclerosis, 5.321t, 9.152
Dacyroadenitis, 4.224, 7.68, 7.98, 7.312–313, 8.208f
Epstein-Barr virus causing, 8.208f, 8.230–231
mumps virus causing, 8.208f, 8.240
Dacryocystectomy, 7.317
Dacryocystitis
acute, 6.229
description of, 7.289, 7.313–315, 7.315f, 8.208f, 9.158
Dacryocystocele, 6.213, 6.225, 6.228–230, 6.229f, 7.289, 7.290f
Dacryocystography, 7.300
Dacryocystorhinostomy (DCR)
dacryocystitis treated with, 7.315
for nasolacrimal duct obstruction, 6.236, 7.286, 7.295, 7.307–310, 7.308–309f
Dacryolith, 7.305f, 7.305–306, 7.313
Dacryops, 4.208
Dacryosintigraphy, 7.300
Dactylitis, 1.154
DAISY digital format, of audio books, 3.323
Dalen-Fuchs nodules/spots, 8.200, 8.230–231
Dalfampridine, for nystagmus, 5.245
DALK. See Deep anterior lamellar keratoplasty
DAlYS. See Disability-adjusted life years
Danazol, 1.309t
Dantrolene, for malignant hyperthermia, 1.292
Dapiprazole hydrochloride, 2.387
Daraprim. See Pyrimethamine
Dark adaptation
absorptive lenses for, 3.192
in congenital stationary night blindness, 6.338
in electro-oculography, 12.50
in full-field (Ganzfeld) electoretinography, 12.42
in Oguchi disease, 12.253
spectral luminous efficiency function in, 3.109
Dark adaptometry, 12.57–58
Darkroom prone-position test, for primary angle-closure suspect, 10.122
DASH diet, 1.57, 1.58f
DAT. See Dual antiplatelet therapy
Data
clinical practice improvements using, 1.23–24
continuous, 1.6
normal distribution of, 1.6, 1.28
Data presentation
continuous quality improvement through, 1.28, 1.29–30f
control charts for, 1.28, 1.30f
histograms for, 1.28, 1.29f
Pareto chart for, 1.28, 1.30f
run charts for, 1.28, 1.30f
scatter diagrams for, 1.28, 1.29f
Dawson fingers, 5.67f
Day blindness (hemeralopia), 12.264
in cone/cone-rod dystrophies, 5.102
DC cardioversion. See Direct-current (DC)
cardioreversion
DCCT. See Diabetes Control and Complications Trial
DCN (decorin) gene
in congenital stromal corneal dystrophy, 8.136t
in posterior amorphous corneal dystrophy, 8.136t
DCR. See Dacryocystorhinostomy
DCs. See Dendritic cells
DDT. See Dye disappearance test
deMorsier syndrome (septo-optic dysplasia), 5.143–144, 6.361, 6.363f
Deafness (hearing loss)
cataract surgery in patient with, 11.170
pigmentary retinopathy and, 12.284. See also Usher syndrome
vestibular nystagmus and, 5.241, 5.241t, 5.242
Debride ment
for Acanthamoeba keratitis, 8.278
for chemical injuries, 8.383
for epithelial defects
after LASIK, 13.112
after surface ablation, 13.108
for fungal keratitis, 8.275
for herpes simplex epithelial keratitis, 8.219
layer-based approach to use of, 8.417
for limbal stem cell deficiency, 8.94
for recurrent corneal erosions, 8.79, 8.87
for surface ablation, 13.82–84, 13.83f
for thermal injuries, 8.385

Decentration/dislocation (IOL), 11.127, 11.144
Decentered ablation, 13.104, 13.104f
Decamethonium, 2.382
Neurotrophic cornea after, 8.80
layer-based approach to use of, 8.417
for keratoconus, 8.167
indications for, 8.420
for herpetic eye disease, 8.225
disadvantages of, 8.422
complications of, 8.435
in children, 8.451
in posterior amorphous corneal dystrophy, 8.136t
Decreased vision. See Low vision; Vision loss/impairment
Decussation, optic nerve, 6.43
Deep anterior lamellar keratoplasty (DALK), 6.263, 6.270, 8.411, 8.412, 8.412f, 8.433, 8.434–435
advantages of, 8.421–422t
in children, 8.451
complications of, 8.435
intraoperative, 8.420t
postoperative, 8.421t
disadvantages of, 8.422t
for herpetic eye disease, 8.225
indications for, 8.420t
for keratoconus, 8.167
layer-based approach to use of, 8.417t
neurotrophic cornea after, 8.80
preoperative evaluation/preparation and, 8.418
rejection and, 8.411, 8.435, 8.435f
Deep-brain stimulation, for Parkinson disease, 1.205
Deep capillary plexus, 12.16
Deep cervical fascia, 7.153
Deep lamellar endothelial keratoplasty (DLEK), 8.412f, 8.436, 8.437f
Deep mimetic muscles, 7.153
Deep plexus, 2.57
Deep stromal neovascularization, 3.232
Deep superior sulcus, 7.141, 7.141f
Deep temporal artery, 5.15f
Deep temporal fascia, 7.155

Deep venous thrombosis, 5.345. See also Thromboembolism; Thrombosis/thrombotic disorders
in activated protein C resistance, 1.146–147
in antiphospholipid syndrome, 1.163–164
treatment of, 1.139, 1.164
Defense mechanisms
of external eye, 8.11–14, 8.12–13f, 8.13f
impaired. See Immunocompromised host
Defensins, in tear film, 8.6f
Deferoxamine, 12.298–299
Difibrillators-cardioverter, implantable (ICD). See Implantable cardioverter-defibrillator
Defibrillators, implanted, laser surgery in patient with, 13.37
Defocus, 3.40, 3.276, 3.276f
Defocus aberrations, positive and negative, 13.11, 13.11f
Deformable intraocular lenses, 13.170
Deferral, 12.298–299
Deleterious effects, 12.298–299
Delay; Delayed
hypersensitivity (DH). See also Delayed hypersensitivity (DH) T lymphocytes
Immunocompromised host
Thrombosis/thrombotic disorders
in activated protein C resistance, 1.146–147
in antiphospholipid syndrome, 1.163–164
treatment of, 1.139, 1.164
inflammatory diseases mediated by, 9.44
in sympathetic ophthalmia, 9.45–46
T helper-cell 2, 9.43
in toxocara granuloma, 9.45

Delayed suprachoroidal hemorrhage, after cataract surgery, 11.160

Delayed visual maturation (DVM), 6.186–187
Deletion 4p, 6.386
Deletion 5p, 6.386
Deletion 18p, 6.386
Deletion 18q, 6.386
Delirium, 1.187

hallucinations and, 5.173

Delivery (birth), difficult, corneal edema caused by, 8.109
Delle, 6.172, 6.173
Dellen, 8.79, 8.92, 8.368
management of, 8.368

DEM. See Diagnostic electron microscopy

Demarcation lines
pigmented, in rhegmatogenous retinal detachment, 12.324
in retinopathy of prematurity, 6.328
in retinoschisis, 12.328

Dementia
AIDS-associated (HIV encephalopathy/HIV-associated neurocognitive disorder), 5.348.
See also HIV infection/AIDS
Alzheimer disease as cause of, 1.209–210
cataract surgery in patient with, 11.169–170
hallucinations and, 5.173
Lewy body, 1.210
vascular, 1.210
visual symptoms of, 1.210

Demodex, 6.245, 8.253, 8.254
blepharitis/blepharoconjunctivitis and, 8.72, 8.72
brevis, 8.205, 8.253
folliculorum, 8.205, 8.253
as normal flora, 8.205, 8.206
ocular infection caused by, 8.208, 8.208
rosacea and, 8.69, 8.253

Demodicosis, 6.245
de Morsier syndrome (septo-optic dysplasia), 5.143–144, 6.361, 6.363

Demulcents, 8.62–63

Demyelination/demyelinating disease
intranuclear ophthalmoplegia and, 5.190
multiple sclerosis, 5.315–320, 5.316f. See also Multiple sclerosis
neuroimaging in evaluation of, 5.72t
neuromyelitis optica and, 5.320–323
optic nerve involvement/optic neuritis and, 2.474f, 4.244, 4.244f, 5.114, 5.114f, 5.115, 5.317–318, 12.52
depression, 5.173
in newborn, 5.230–231
in neonatal, 5.230–231
extraocular muscles controlling, 5.36f, 5.46f
inferior rectus muscle, 5.36f, 5.46f
superior oblique muscle, 5.36f, 5.46f

Depression of eye (downgaze)
description of, 5.230–231, 6.33, 6.38
disorders/limitation of, 5.228–229
in newborn, 5.230–231
in neonatal, 5.230–231
extraocular muscles controlling, 5.36f, 5.46f
inferior rectus muscle, 5.36f, 5.46f
superior oblique muscle, 5.36f, 5.46f

Depression (perimetry), generalized, in glaucoma, 10.69

Depressor supercilii muscle, 2.31f
Deprivation amblyopia, 6.55, 6.379

Depth of field
in camera obscura, 3.5, 3.5f
definition of, 3.40, 3.57, 3.58f
reduced, 3.8f

Depth of focus, 3.40, 3.57, 3.58f
Depth perception, stereopsis versus, 6.43

Dermal appendages of eyelid, neoplasms of, 4.214–218, 4.215f, 4.216f, 4.217f
Dermal fillers, for facial rejuvenation, 7.270f, 7.270–271
Dermal (intradermal) nevus, 4.219, 4.220f, 7.196
Dermal melanocytosis, 7.198, 7.198f, 8.339
Dermal/dermal orbital/oculodermal (nevus of Ota) melanocytosis, 4.63f, 4.64, 8.339
glaucoma associated with, 10.30
of iris, 4.259
Dermal orbital melanocytosis. See Dermal/orbital ocudermal (nevus of Ota) melanocytosis

Dermatan sulfate
in cornea, 8.9
in mucopolysaccharidoses, 8.175f

Dermatitis. See also Dermatoblepharitis
α-agonists causing, 10.178, 10.178f
atopic, 8.287
atopic keratoconjunctivitis and, 8.292
cataracts associated with, 11.66
eyelid involvement and, 8.287
vernal keratoconjunctivitis and, 8.289
contact, eyelid involvement and, 8.285–287, 8.286f
zoster, 8.227, 8.229

Dermatoblepharitis, 8.208f
corneal, 8.285–287, 8.286f
herpes simplex virus causing, 8.208, 8.213, 8.214f, 8.216
varicella-zoster virus causing, 8.208, 8.225–230, 8.226f. See also Herpes zoster ophthalmicus

Dermatocochalasis
brow ptosis and, 7.259, 7.263
description of, 7.249, 7.249f

Dermatologic diseases. See also Skin, disorders of retinal degeneration associated with, 12.286

Dermatomyositis, 1.167f, 1.167–168
eyelid manifestations of, 4.207f
Dermis, eyelid, 4.201, 4.201f
Dermis-fat grafts, 7.36, 7.37f
Dermis, eyelid, 4.201, 4.201f
epibulbar/limbal, 4.6, 4.47, 4.49f, 6.223–224, 6.223–224f, 7.40–41
congenital, 4.203
conjunctival, 4.47, 4.49f
conical, 4.73, 8.196
epipalbar/limbal, 4.6, 4.47, 4.49f
of eyelid, congenital, 4.203
Goldenhar syndrome and, 4.47
limbal, Goldenhar-Gorlin syndrome and, 8.195, 8.195f
orbital, 4.223, 4.224f

Dermolipomas (lipodermoids), 7.41, 7.42f
description of, 4.47–48, 4.48f, 6.210, 6.256–257
Goldenhar syndrome and, 4.48
Derry disease, 6.389f

DES. See Drug-eluting stent; Dry eye syndrome

Descemet membrane/layer, 4.73, 4.74f, 8.7f, 8.9
age-related changes in, 8.115
age-related thickening of, 2.266f
anatomy of, 2.53, 2.54f, 8.7f, 8.9
Bowman layer versus, 2.51
breaks in
description of, 6.260
in primary congenital glaucoma, 6.280, 6.280f
traumatic, 6.262, 6.262f
chalcosis findings in, 12.362
in congenital hereditary endothelial dystrophy, 8.160
in congenital stromal corneal dystrophy, 8.152
copper deposits/Kayser-Fleischer ring and, 8.118f, 8.173, 8.189, 8.189f
definition of, 2.266
deposits in/pigmentation of, 8.118f, 8.132
in Wilson disease, 8.189, 8.189f
detachment of
after cataract surgery, 11.131
after deep anterior lamellar keratoplasty, 8.435
folds in, 8.41–42
in Fuchs endothelial corneal dystrophy, 8.42, 8.436f, 8.437f
advantages of, 8.421–422, 8.438
cataract surgery and, 8.446–447
complications of, 8.437f
intraoperative, 8.420–421, 8.440
postoperative, 8.421t, 8.440–449
advantages of, 8.422t, 8.438–440
endothelial cell loss after, 8.448–449
for Fuchs endothelial corneal dystrophy, 4.92, 4.93f
graft dislocation/decentration after, 8.442f, 8.442–443, 8.443f
hemi, 8.449–450
indications for, 8.420f
primary graft failure and, 8.447
pupillary block after, 8.444f, 8.444–445
rejection and, 8.437f, 8.448
results, 8.437f
visual acuity after, 8.438–440

Descemet membrane endothelial keratoplasty (DMEK), 8.412, 8.412t, 8.436, 8.436f, 8.437f
advantages of, 8.421–422, 8.438
cataract surgery and, 8.446–447
complications of, 8.437f
intraoperative, 8.420–421, 8.440
postoperative, 8.421t, 8.440–449
advantages of, 8.422t, 8.438–440
endothelial cell loss after, 8.448–449
for Fuchs endothelial corneal dystrophy, 4.92, 4.93f
graft dislocation/decentration after, 8.442f, 8.442–443, 8.443f
hemi, 8.449–450
indications for, 8.420f
primary graft failure and, 8.447
pupillary block after, 8.444f, 8.444–445
rejection and, 8.437f, 8.448
results, 8.437f
visual acuity after, 8.438–440

Descemet membrane endothelial transfer (DMET), 8.449

Descemet stripping/Descemet stripping automated endothelial keratoplasty (DSEK/DSAEK), 8.412, 8.412t, 8.436, 8.436f, 8.437f
advantages of, 8.421–422, 8.438
cataract formation and, 11.56
primary graft failure and, 8.447
pupillary block after, 8.444f, 8.444–445
rejection and, 8.437f, 8.448
results of, 8.437f
visual acuity after, 8.438–440
Descemetocoele, management of, 8.369
  lamellar keratoplasty for, 8.433, 8.433f
Descemotorhexis
  in DMET, 8.449
  in DSEK, 8.436
  for Fuchs endothelial corneal dystrophy, 8.157–158, 8.449
Descending optic atrophy, 4.246
Desmin, in immunohistochemistry, 4.33
Desmoid tumors, 6.222
Desmopressin, for von Willebrand disease, 1.144
Desmosomes, 2.51, 2.52f, 2.73f
Destructive interference, 3.100, 3.119
Deutan red-green color deficiency, 12.54
Deuteroanomalous dichromatism, 12.250t
Deuteroanomalous trichromatism, 12.250t
Developmental defects. See also Congenital anomalies;
  specific type of lens, 11.39–42
  Developmental glaucomas, 10.153–156. See also Glaucoma, pediatric
  Developmental hyperopia, 3.143
  Developmental myopia, 3.142–143, 3.174
  Deviation maps, 10.65, 10.65f
  Deviations, 5.230–231. See also Esodeviations;
    Exodeviations; Horizontal deviations; Strabismus;
    Vertical deviations; specific type
  comitant (concomitant), 5.183, 5.184, 5.186
  definition of, 6.16
  in infantile esotropia, 6.88
  esodeviations
    accommodative, 6.90. See also Accommodative
    esotropia
    definition of, 6.85
    in divergence insufficiency, 6.94
    epidemiology of, 6.85
    extraocular muscle surgery amounts for, 6.160, 6.160t
    risk factors for, 6.85
    types of, 6.86f
  exodeviations
    control of, 6.100
    convergence insufficiency, 6.103
    definition of, 6.99
    exotropia. See Exotropia
    extraocular muscle surgery amounts for, 6.160, 6.161t
    latent, 6.99
    manifest, 6.99
    risk factors for, 6.99
    head tilt and, 5.185
    incomitant, 6.16
    incomitant (noncomitant), 5.183, 5.184, 5.187.
  See also specific type
    primary, 6.38
    secondary, 6.39
    seizure activity and, 5.230
    skew. See Skew deviation
    strabismic amblyopia and, 6.46–47
    terminology used to describe, 6.15–16
    tonic, 5.230–231
    in gaze preference, 5.228
    variations in size of, 6.16
    vertical. See Vertical deviations
Devic disease (neuromyelitis optica/NMO), 5.107t, 5.116–118, 5.117t, 5.320–323
clinical presentation of, 5.320–322
diagnosis of, 5.322–323
treatment of, 5.323
Dexacidin. See Dexamethasone/neomycin sulfate/polyoxymyxin B sulfate
Dexamethasone, 1.175
  for corneal graft rejection prophylaxis, 8.430
  treatment, 8.430
  elevated intraocular pressure after photoablation associated with, 13.105
  intravitreal implant of, 9.97, 9.150
  pellet formulation of, for uveitis, 9.97–98
  for toxoplasmosis, 6.410
  for vernal keratoconjunctivitis, 8.291
Dexamethasone implant, 2.364
  complications of, 12.404
  retinal vein occlusion treated with, 12.137
Dexamethasone/neomycin sulfate/poloxymyxin B sulfate, 2.422t
Dexamethasone sodium phosphate, 2.400t, 2.402t
Dexamethasone/tobramycin, 2.422t
Dexasporin. See Dexamethasone/neomycin sulfate/polyoxymyxin B sulfate
Dextroversion, 6.37
DFP. See Disopropyl phosphofluoridate
DH. See Delayed hypersensitivity
DHA. See Docosahexaenoic acid
DHD. See Dissociated horizontal deviation
DI. See Divergence insufficiency/paralysis
Diabetes Control and Complications Trial (DCCT), 1.35, 2.345, 12.96
Diabetes insipidus, diabetes mellitus, optic atrophy, and deafness (DIDMOAD/Wolfram) syndrome, 2.220
pleiotropism in, 6.408–409
Diabetes mellitus (DM), 6.408–409. See also specific Diabetic entries
asteroid hyalosis and, 12.346
blood glucose testing in, 1.40
cataract surgery in, 12.116, 12.117–12.120t
cataracts associated with carbohydrate (“sugar”), aldose reductase in development of, 11.19
  description of, 11.19, 11.60f, 11.60–61
  surgery for, 11.170
  preoperative evaluation and, 11.80–81
  characteristics of, 1.33
  classification of, 1.33–34
  complications of
    acute, 1.38–39
    coronary artery disease, 1.40
    glycemic control effects on, 1.36
    ketoacidosis, 1.38–39
    large-vessel disease, 1.40
    long-term, 1.39–40
    macrovascular, 1.36
    myocardial infarction, 1.40
    nephropathy, 1.39
    neuropathy, 1.39–40
nonketotic hyperglycemic hyperosmolar coma, 1.38–39
ophthalmic, 1.40–41. See also Diabetes mellitus, cataracts associated with; Diabetic macular edema; Diabetic retinopathy
retinopathy, 1.36, 1.40
corneal changes in, 4.159, 8.173, 8.199–200
neurotrophic keratopathy/persistent corneal defects and, 8.81, 8.81t, 8.199
definition of, 1.33
Diabetes Control and Complications Trial, 1.35, 2.345, 12.96
diagnosis of, 1.34–35
gestational, 1.34
glaucoma and, 10.83
glycemic control in, 1.35–36
hemoglobin A1c in
as diagnostic marker, 1.34
retinopathy progression relative to, 1.36f
hyperglycemia associated with, 1.33
hypertension in, 1.56, 1.65
insulin-dependent, 12.91
latent autoimmune diabetes in adults, 1.34
lifestyle modifications for, 1.35
metabolic syndrome as risk factor for, 1.35
microvascular complications of, 1.33
non–insulin-dependent, 12.91
ocular surgery considerations in, 1.284, 1.286–287
ophthalmic considerations and. See Diabetes mellitus, cataracts associated with; Diabetic macular edema; Diabetic retinopathy
ophthalmic examinations for, 12.93–94, 12.95t
perioperative management for ocular surgery in patients with, 1.284
prediabetes, 1.34–35
preoperative fasting considerations in, 1.287
prevalence of, 1.33
refractive surgery in patient with, 13.37, 13.190–191
retinal vein occlusion risks, 12.128
retinopathy of. See Diabetic retinopathy
risk reduction methods, 1.35–36
signs and symptoms of, 1.34
treatment of, 1.36–38, 1.286–287
type 1, 1.34, 12.91
glycemic control in, 1.35–36
insulin administration for, 1.37
pancreas transplantation for, 1.37–38
pathogenesis of, 1.33–34
prevalence of, 1.33
quality-of-life improvements in, 1.37
treatment of, 1.36–38
type 2, 1.34, 12.91
characteristics of, 1.34
in children, 1.34
glycemic control in, 1.35–36
hypertension associated with, 1.33
impaired glucose tolerance progression to, 1.35
insulin resistance associated with, 1.34
metformin for, 1.38
noninsulin therapy for, 1.38
prevalence of, 1.33
thiazolidinediones for, 1.38
United Kingdom Prospective Diabetes Study, 12.96–97
Diabetic keratopathy, refractive surgery in patient with, 13.190
Diabetic ketoacidosis (DKE), 1.38–39
Diabetic macular edema (DME)
cataract surgery and, 11.80, 11.189, 12.116
center-involved, 12.92, 12.109, 12.110f
classification of, 12.109–110, 12.110f
clinically significant (CSME), 12.92, 12.110, 12.114
contrast sensitivity issues in, 12.56
definition of, 12.92
focal, 12.110
mechanism of, 12.108, 12.109f
non–center-involved, 12.109, 12.111f
optical coherence tomography of, 12.111f
spectral-domain optical coherence tomography of, 12.109f, 12.125
treatment of
afibercept, 12.113
anti-VEGF therapy, 12.101, 12.110, 12.111–113
bevacizumab, 12.113
corticosteroids, 12.113–114
Diabetic Retinopathy Clinical Research Network findings, 12.112f, 12.113
intravitreal steroids, 12.101
laser surgery, 12.114–115, 12.376
overview of, 12.110–111
pars plana vitrectomy, 12.115
ranibizumab, 12.111–112, 12.112f
surgery, 12.114–115, 12.388
vitrectomy, 12.388
vision loss caused by, 12.94
Diabetic nephropathy, 12.98
Diabetic neuropathy, neurotrophic keratopathy/persistent corneal defects and, 8.81, 8.81t, 8.199
Diabetic papillopathy, 5.125, 5.125f
Diabetic retinopathy, 4.155f, 4.159–160, 4.160f, 4.161f, 6.408–409
anemia and, 12.98
aspirin and, 12.100
background. See Diabetic retinopathy, nonproliferative
cataract surgery and, 11.80–81, 11.189
cotton-wool spots associated with, 12.140–141
description of, 12.91
diabetic nephropathy associated with, 12.98
epidemiology of, 12.92–93
4:2:1 rule for, 12.99
glycemic control for, 12.96–98
hemoglobin A1c levels in, 12.96, 12.98
iris neovascularization and, 4.159, 4.160f
ischemic heart disease and, 1.105
medical management of, 12.96–98
neurotrophic keratopathy/persistent corneal epithelial defect and, 8.81, 8.81t
nonproliferative (NPDR/background). See also Diabetic macular edema
anti-VEGF therapy for, 12.101–102
clinical findings in, 12.99
definition of, 12.99

intraretinal hemorrhages associated with, 12.100f
intraretinal microvascular abnormalities in, 12.100f
microaneurysms associated with, 12.100f
optical coherence tomography angiography of, 12.94f
panretinal photocoagulation for, 12.101
posterior vitreous detachment creation for, 12.102
progression of, to proliferative diabetic retinopathy, 12.101
ranibizumab for, 12.102
scatter photocoagulation for, 12.116
severity of, 12.95f, 12.99
vision loss in, 12.101
in older adults, 1.184
ophthalmic examinations for, 12.93–94, 12.95t
papillopathy and, 5.125
pathogenesis of, 12.93
photocoagulation for, 4.160, 4.161f
pregnancy-related progression of, 12.93–94
prevalence of, 1.184
progression of, 1.36, 1.40
fenofibrate effects on, 12.102
hypertension as risk factor for, 12.98
pregnancy-related, 12.93–94
proliferative (PDR), 2.301
anti-VEGF therapy for, 12.103–104, 12.386
complications of, 12.103–108
definition of, 12.91–92
extraretinal fibrovascular proliferation associated with, 12.102
high-risk characteristics of, 12.103
laser surgery for, 12.104–107
management of, 12.103–108
neovascular proliferation associated with, 12.102
neovascularization in, 12.151
nonproliferative diabetic retinopathy progression to, 12.101
nonsurgical management of, 12.103–104
optical coherence tomography angiography of, 12.94f
panretinal photocoagulation for, 12.104, 12.106, 12.106f
photocoagulation for, 12.94
in pregnancy, 12.94
proangiogenic factors in, 12.102
proliferative sickle cell retinopathy versus, 12.151
ranibizumab for, 12.104
scatter photocoagulation for, 12.116
severe carotid artery occlusive disease associated with, 12.98
severity of, 12.95f, 12.101
studies of, 1.78
Diabetes Control and Complications Trial, 1.35, 2.345, 12.96
Early Treatment Diabetic Retinopathy Study, 12.99–101
United Kingdom Prospective Diabetes Study, 12.96–97
systemic medical management of, 12.96–98
terminology associated with, 12.91–92
vision loss from abnormalities associated with, 12.98
lipid levels and, 12.98
mechanisms of, 12.101
Diabetic Retinopathy Clinical Research Network cataract surgery in diabetes mellitus studies, 12.116, 12.117–12.120t
diabetic macular edema treatment, 12.112f, 12.113
Diabetic Retinopathy Study (DRS), 12.104–105
Diagnostic and Statistical Manual of Mental Disorders (DSM) depression criteria, 1.188
Diagnostic electron microscopy (DEM), 4.34t, 4.42
diagnostic positions of gaze, 6.64
Diagnostic/screening tests. See Screening
Diagnostic ultrasonography. See Ultrasonography/ultrasound (echography)
Dialyses, 4.19–20, 4.20f
Diabetes mellitus studies, 12.116, 12.117–12.120t
Diabetic macular edema treatment, 12.112f, 12.113
Diet/diet therapy
DASH, 1.57, 1.58t
for dry eye, 8.61f, 8.64, 8.68
genetic diseases managed with, 2.235
hypercholesterolemia managed with, 1.74
retinopathy of prematurity and, 12.184–185
in vitamin A deficiency, 8.196, 8.197
Diethylcarbamazine, for loiasis, 8.282
Difference map, after keratorefractive surgery, 13.23, 13.23f
Diffraction of light, 3.91, 3.104–106, 3.105f
Diffactive multifocal intraocular lenses, 3.259f, 3.259–260, 13.166, 13.166f
Graves disease, See also Diffuse toxic goiter, 1.43.


Diisopropyl phosphofluoridate (DFP), 2.379

Dihydropyridine calcium channel blockers, 1.61

Digitalis glycosides, 1.309

Digital resolution, of scanning laser ophthalmoscopy, 12.24

Digital subtraction angiography (DSA), 5.68 in arterial dissection, 5.342

Digitalis/digitoxin/digoxin description of, 12.305 ocular effects of, 1.106, 5.175 visual changes caused by, 5.175

Digitalis toxins, 1.309

Dihydropyridine calcium channel blockers, 1.61

Diisopropyl phosphofluoridate (DFP), 2.379


retinoblastoma differentiated from, 4.296f, 4.296–297

teratoid, 4.179

Dilated cardiomyopathy, anticoagulation therapy for, 1.100

Dilated fundus examination, before refractive surgery, 13.44

Dilator muscle (iris), 4.182 in Horner syndrome, 5.258 innervation of, 5.53, 5.54 tadpole pupil caused by spasm of, 5.255 Dimethyl fumarate, for multiple sclerosis, 5.321t Dimorphic fungi, 8.249

Dinitrophenol, 2.330

Diode laser, See also Laser(s) for choroidal/ciliary body melanoma, 4.276 for cyclodestruction, 10.194, 10.195–196 in children, 10.163 for retinoblastoma, 4.300 for trabeculoplasty, 10.189–190 Diopters (D), 8.3, 8.8, 8.26, 8.27, 13.7 definition of, 3.40, 3.51 prism, 3.46, 3.47f values for, 3.52f Dioptic power, See also Diopter; Power (optical) of bifocal segments, 3.190 description of, 8.3, 8.8

Diphtheroids, 8.246

Diphtheria- tetanus- pertussis (DTP), 1.229

Diphenhydramine hydrochloride, 1.302

Diopter; Power (optical) See also Diopter; Power (optical) of bifocal segments, 3.190 description of, 8.3, 8.8 Diphtheroids, 8.246

Diphtheroids, 8.246

Diphtheroid bacteria, 8.246

Dipivefrin (DPE) hydrochloride, 2.385


Diabetes melitus, See also Diabetes mellitus

Diabetes insipidus, 10.170-171

Diabetic retinopathy, 13.44

Diabetes mellitus, 1.100

Diabrotica virgifera, 8.47

Diacetin, 2.368

Diacetyl. See Fluoronazole

Diacetyl. See Fluoronazole

Diacetyl. See Fluoronazole

Diacetyl. See Fluoronazole

Diabetes melitus, See also Diabetes mellitus

Diabetes mellitus, 1.100

Diabetes mellitus, 1.100
after LASIK, 13.125
in amblyopia patient, 13.186
localization of lesions causing, 5.187f, 5.187–188
monocular, 5.174, 5.185
in cataracts, 11.43–44, 11.45, 11.47, 11.70–71
in multiple sclerosis, 5.318
in myasthenia gravis, 5.192, 5.206, 5.324
myopathic/restrictive/orbital causes of, 5.186, 5.206–209, 5.207f
neuroimaging evaluation of, 5.73f
neuromuscular junction causes of, 5.206
neuromyotonia causing, 5.202
nuclear causes of, 5.188–189
one-and-a-half syndrome and, 5.191, 5.191f
orbital myositis causing, 5.207f, 5.207–208
orbital neoplasia causing, 5.208
paradoxical, 6.50, 6.50'/f
paretic syndromes causing, 5.186
multiple cranial nerve involvement and, 5.202
restrictive syndromes differentiated from, 5.186, 5.186f
physical examination in, 5.184f, 5.184–185, 5.185f
physiologic, 6.48
postoperative, 5.207, 5.209, 6.168
posttraumatic, 5.186, 5.206
press-on prisms for, 6.96
prisms for, 6.72
red-glass test for, 6.75
refractive procedure-induced, 5.209
restrictive syndromes causing, 5.186, 5.206–209, 5.207f
paretic syndromes differentiated from, 5.186, 5.186f
postsurgical, 5.207
posttraumatic, 5.186, 5.206
in sagging eye syndrome, 5.209
sixth nerve (abducens) palsy causing, 5.200f
5.200–201, 6.96
in superior oblique myokymia, 5.250, 5.251
suppression of, 6.49f
supranuclear causes of, 5.188, 5.188t
testing for, 6.75
third nerve (oculomotor) palsy causing, 5.188, 5.191, 5.193f, 5.193–198, 5.194f, 5.196f, 5.198f, 6.139
in thyroid eye disease, 5.186, 5.206, 6.140–141, 7.61–62
Tolosa-Hunt syndrome and, 5.203
uncrossed, 6.75
vergence dysfunction causing, See Vergences/ vergence system
vertebrobasilar insufficiency causing, 5.337, 5.337f
Diquafosol tetrasodium, 2.416
Direct-acting agonists
1- adrenergic agonists, 2.384
cholinergic
acetylcholine, 2.375–377
actions of, 2.375
adverse effects of, 2.378
indications for, 2.378
pilocarpine, 2.377–378
Direct carotid-cavernous fistulas, 7.78, 7.78f
Direct coronal scans, 7.27
Direct-current (DC) cardioversion
atrial fibrillation treated with, 1.103
ventricular tachycardia treated with, 1.104
Direct illumination, 3.292
Direct ophthalmoscope/ophthalmoscopy, 3.281
Direct- current (DC) cardioversion
ventricular tachycardia treated with, 1.104
atrial fibrillation treated with, 1.103
Direct- to- consumer genetic testing, 2.241
Direct ophthalmoscope/ophthalmoscopy, 3.281
Direct- current (DC) cardioversion
ventricular tachycardia treated with, 1.104
atrial fibrillation treated with, 1.103
Direct- to- consumer genetic testing, 2.241
Direct traumatic optic neuropathy, 5.139, 5.139f
Direct vasodilators, for hypertension, 1.63
Direct visualizing, 2.189
Direct thrombin inhibitors
coronary heart disease treated with, 1.90–91
indications for, 1.149
Direct-to-consumer genetic testing, 2.241
Direct traumatic optic neuropathy, 5.139, 5.139f
Direct vasodilators, for hypertension, 1.63
Direct visualization, in ophthalmic examination, 8.15–20, 8.16f, 8.17f, 8.18f, 8.19f, 8.20f. See also
Slit-lamp biomicroscopy/examination
Disability-adjusted life years (DALYs), 1.193
“Disc at risk,” 5.121f, 5.122
Disc edema. See Optic nerve head (ONH/optic disc), edema of
Disciform keratitis (endothelitis), 8.51f
CMV causing, 8.232, 8.232f
herpes simplex virus causing, 4.77f, 4.78, 8.220, 8.221f, 8.222
persistent bullous keratopathy and, 8.225
Disciform macular degeneration, ultrasonographic findings in, 2.471f
Disconjugate eye movements (vergences), 5.212, 5.212t, 5.226–228. See also specific type
dysfunction of, 5.227–228
Disconjugate (dissociated) nystagmus, 5.234, 5.247
Disconnection syndromes, 5.178
Discrete neurofibromas, 7.83
Disease
diabetes mellitus, 5.218–219, 5.220
posttest probability of, 1.19–20
pretest probability of, 1.18–21, 1.20t
risk factors and, cohort studies regarding associations between, 1.13
Disease-modifying antirheumatic drugs (DMARDs), 9.103. See also Immunomodulatory therapy/
immunotherapy/immunosuppression
alkylating agents, 1.179
ankylosing spondylitis treated with, 1.155
azathioprine, 1.179
biologic, 1.177t, 1.180–181
biosimilar agents, 1.180–181
calcineurin inhibitors, 1.179
hydroxychloroquine, 1.178–179
interleukin inhibitors, 1.180
Janus kinase inhibitors, 1.180
leflunomide, 1.178
methotrexate, 1.178
mycophenolate mofetil, 1.179
nonbiologic, 1.177t, 1.178–179
Disease-modifying antirheumatic drugs (DMARDs), 9.103. See also Immunomodulatory therapy/
immunotherapy/immunosuppression
alkylating agents, 1.179
ankylosing spondylitis treated with, 1.155
azathioprine, 1.179
biologic, 1.177t, 1.180–181
biosimilar agents, 1.180–181
calcineurin inhibitors, 1.179
hydroxychloroquine, 1.178–179
interleukin inhibitors, 1.180
Janus kinase inhibitors, 1.180
leflunomide, 1.178
methotrexate, 1.178
mycophenolate mofetil, 1.179
nonbiologic, 1.177t, 1.178–179
Disciform keratitis (endothelitis), 8.51f
CMV causing, 8.232, 8.232f
herpes simplex virus causing, 4.77f, 4.78, 8.220, 8.221f, 8.222
persistent bullous keratopathy and, 8.225
Disciform macular degeneration, ultrasonographic findings in, 2.471f
Disconjugate eye movements (vergences), 5.212, 5.212t, 5.226–228. See also specific type
dysfunction of, 5.227–228
Disconjugate (dissociated) nystagmus, 5.234, 5.247
Disconnection syndromes, 5.178
Discrete neurofibromas, 7.83
Disease
diabetes mellitus, 5.218–219, 5.220
posttest probability of, 1.19–20
pretest probability of, 1.18–21, 1.20t
risk factors and, cohort studies regarding associations between, 1.13
Disease-modifying antirheumatic drugs (DMARDs), 9.103. See also Immunomodulatory therapy/
immunotherapy/immunosuppression
alkylating agents, 1.179
ankylosing spondylitis treated with, 1.155
azathioprine, 1.179
biologic, 1.177t, 1.180–181
biosimilar agents, 1.180–181
calcineurin inhibitors, 1.179
hydroxychloroquine, 1.178–179
interleukin inhibitors, 1.180
Janus kinase inhibitors, 1.180
leflunomide, 1.178
methotrexate, 1.178
mycophenolate mofetil, 1.179
nonbiologic, 1.177t, 1.178–179
DNA (deoxyribonucleic acid) amplification of, in polymerase chain reaction, 4.36–40, 4.38f, 4.39f, 4.40f
coding region of, 2.178
damage to, 2.181–182
direct sequencing of, 2.189
methylation of, 2.180
mitochondrial (mtDNA), diseases associated with deletions/mutations of chronic progressive external ophthalmoplegia, 5.328–329, 5.329f
Leber hereditary optic neuropathy, 5.133
mutations in, 2.182–183
noncoding, 2.177–178
plasmid, 8.243
repair of, 2.181–182. See also Mutation sequencing of, 2.189
next-generation (NGS/massively parallel), 4.39f
telomeric, 2.178
virus, 8.211, 8.212. See also DNA viruses
DNA probes, 4.41
in microarray, 4.41
multiplex ligation-dependent amplification of (MLPA), 4.39f
DNA viruses, 1.236, 1.237f, 8.211, 8.212–239
adenoviruses (Adenoviridae), 8.233–236
herpesviruses (Herpesviridae), 8.212–233
papovaviruses, 8.238–239
poxviruses (Poxviridae), 8.236–238
Docetaxel, 12.301
Docosahexaenoic acid (DHA), 2.324, 12.70
dominant inheritance
autosomal, 2.206–208, 2.207f
description of, 2.202–203
X-linked, 2.209, 2.210f
dominant-negative effect, 2.197
dominant optic atrophy, 5.135, 5.136f, 6.367–368, 6.368f
donor corneal grafts; Keratoplasty
endothelial failure of, 4.84, 4.85f
late non–immune-mediated, 8.427–428
primary after endothelial keratoplasty (DMEK/DSEK), 8.447
after penetrating keratoplasty, 8.423, 8.423f
for epikeratoplasty (epikeratophakia), 13.62
eye banking and, 8.413–417, 8.415f, 8.416f, 8.416t
for homoplastic corneal inlay, 13.60
prior LASIK affecting, 13.198
rejection of, 4.84, 4.85f, 8.316–318, 8.428–431. See also Rejection
screening of, 8.414, 8.415t, 8.416t
storage of, 8.413–417, 8.415t, 8.416f, 8.416t
Dopamine agonists, for Parkinson disease, 1.205
Dopamine–norepinephrine reuptake inhibitors, 1.203t
Doppler imaging, 5.70, 7.31. See also Ultrasonography/ultrasound
carotid, 5.70
orbital, 5.70–71
Dorello canal, 2.133, 5.41, 5.42f
sixth nerve (abducens) injury/palsy and, 5.201
doripenem, 1.273
dorsal midbrain (Parinaud) syndrome, 5.37, 5.229, 5.230f
in children, 5.231
close–retraction nystagmus in, 5.229, 5.250
in  children, 5.231
description of, 2.475
eyelid retraction in, 5.229, 5.250, 5.274, 5.275t
light–near dissociation in, 5.229, 5.230f, 5.266t, 5.266–267
multiple sclerosis and, 5.319
dorsal nasal artery, 2.23f, 2.38f
dorsal subnucleus, of cranial nerve VII (facial), 5.49
dorsal vermis, 5.33, 5.40f
dorsal visual processing stream, 5.224
dorsolateral pontine nuclei (DLPN), 5.33, 5.34f, 5.33, 5.40f, 5.224
dorsum sella, 5.6d
dorozolamide/timolol maleate, 2.389
in combination preparations, 10.174
in  children, 10.165
description of, 2.391
light–near dissociation in, 5.229, 5.230f, 5.266t, 5.266–267
multiple sclerosis and, 5.319
dorozolamide, 2.391t, 2.393, 10.173t, 10.175t, 10.179–180
in children, 10.165
in combination preparations, 10.174t
dorozolamide hydrochloride/timolol maleate, 2.389t, 2.391t, 2.397f
dot–and–blot hemorrhages, ischemia causing, 4.153–154, 4.155f, 5.170, 5.171f
dots, in epithelial basement membrane dystrophy, 8.137–138, 8.138f
double anterior chamber, after deep anterior lamellar keratoplasty, 8.435
double–elevator palsy. See Monocular elevation deficiency
double freeze–thaw technique, 7.240
double heterozygotes, 2.215
“Double hump” sign, in plateau iris, 10.127, 10.127f
double–K method, 3.252
double Maddox rod test, 5.184–185, 5.185f, 6.69f, 6.69f, 6.120
in fourth nerve (trochlear) palsy, 5.198
double pinhole apertures, 3.285, 3.286f
DMEK, 8.442f
DMEK, 8.442–443, 8.443f
DMEK, 8.442f
DMEK, 8.442–443, 8.443f
DMEK, 8.442f
DMEK, 8.441–442f
Double-ring sign
description of, 6.361, 6.362
in optic nerve hypoplasia, 5.143, 5.143f
Double simultaneous stimulation, in confrontation
testing, in hemispatial neglect, 5.181
Double-slit experiments, 3.94, 3.101, 3.101f, 3.105
Double vision. See Diplopia

Down syndrome
clinical features of, 2.223, 2.224t
 genetic errors in, 2.223
hypocoagulation in, 6.9
idiopathic intracranial hypertension associated with,
6.372
ocular findings in, 2.224t, 6.386t
pharmacogenetics and, 2.233–234
pseudopapilledema associated with, 6.372
Downbeat nystagmus, 5.243t, 5.244–245, 5.245t, 5.246t
Downgaze (depression of eye/deorsumversion/
deoorsunduction)
description of, 5.230–231, 6.38
disorders/limitation of, 5.228–229
in newborn, 5.230–231
extraocular muscles controlling, 5.36t, 5.46t
 inferior rectus muscle, 5.36t, 5.46t
superior oblique muscle, 5.36t, 5.46t
Downward-slanting palpebral fissure
description of, 6.196
pattern strabismus and, 6.107, 6.108f
syndromes with, 6.196
Doxazosin, intraoperative floppy iris syndrome and,
2.359–361
intravitreal, 2.360–361
intraocular, 2.359–360, 2.360t
intraocular lenses for, 2.364–365
intravitreal, 2.360t, 2.361
liposomes for, 2.366
local administration, 2.359–361
microelectromechanical systems for, 2.367
nanotechnology for, 2.366–367
ocular inserts for, 2.363–364
periorificial injections, 2.359
punctal plug-mediated, 2.366
routes for, 2.353f
sustained-release, 2.363–365
systemic administration, 2.361–362
topical. See Topical anesthesia/anesthetics
Drug dependence, 1.198–199
Drug-eluting stent (DES), percutaneous coronary
intervention with, 1.92
Drug-induced cicatricial pemphigoid
(pseudopemphigoid), 8.91, 8.92, 8.299
Drug-induced thrombocytopenia, 1.141–142
Drug-induced uveitis, 9.139–140
Drug-induced thrombocytopenia, 1.141–142
Drug Quality and Security Act (2013), 2.372
Drug resistance. See specific agent and specific organism
Drug withdrawal syndromes, 1.68–69
Drugs. See also specific drug or drug group
allergic reaction to. See Allergic reactions/allergies;
specific drug
color-vision abnormalities caused by, 12.304–305
compliance with, 2.373
compounding of, 2.372–373
crystalline retinopathy caused by, 12.302–304, 12.304t
as diagnostic agents, 2.444–445
dry eye and, 2.415–416, 8.61–62, 8.62t
fixed, dilated pupil caused by, 5.310
ganglion cell toxicity caused by, 12.301
glaucoma caused by
angle closure/angle-closure glaucoma and,
10.122–123, 10.145f, 10.145–146
open-angle glaucoma and, 10.109–111
hallucinations/illusions caused by, 5.175
hyaloideal separation effects on, 12.85
lens changes caused by, 11.51–53, 11.52f
corneal (collagen) crosslinking
corneal deposits and pigmentation caused by,
8.182t
contact dermatoblepharitis caused by, 8.286f
corneal crystalline deposits, 8.129f, 8.130–132, 8.131f
fixed, dilated pupil caused by, 5.310
ganglion cell toxicity caused by, 12.301
glaucoma caused by
angle closure/angle-closure glaucoma and,
10.122–123, 10.145f, 10.145–146
open-angle glaucoma and, 10.109–111
hallucinations/illusions caused by, 5.175
hyaloideal separation effects on, 12.85
lens changes caused by, 11.51–53, 11.52f
macular edema caused by, 12.301–302, 12.302f
microvasculopathy caused by, 12.300–301
noncompliance with, 2.373, 2.373f
occlusive retinopathy caused by, 12.300–301
ocular. See also specific agent
conjunctivitis/keratoconjunctivitis/keratopathy
crystalline deposits and pigmentation caused by,
8.129f, 8.130–132, 8.131f
corneal deposits, 8.182f
mucous membrane (cicatrical) pemphigoid
(pseudopemphigoid) caused by, 8.91, 8.92, 8.299
neurotrophic keratopathy/persistent corneal
epithelial defects caused by, 8.80–81, 8.81t
refractive surgery and, 13.37
topical. See Eyedrops
toxic ulcerative keratopathy/keratoconjunctivitis
crystalline deposits and pigmentation caused by,
8.129f, 8.130–132, 8.131f
corneal deposits, 8.182f
ocular adverse effects of, 1.307–309, 1.308–309t
ocular toxicity and

description of, 12.305–306

NAION and, 5.123

optic neuropathy caused by, 5.107f, 5.137–139

optic nerve toxicity caused by, 12.301

retinal toxicity caused by

alkyl nitrites, 12.300, 12.300f

chloroquine derivatives, 12.295–297, 12.296f
clofazimine, 12.298
deferoxamine, 12.298–299
dideoxyinosine, 12.299

hydroxychloroquine, 12.295–297, 12.296f

MEK inhibitors, 12.299, 12.299f

nucleoside reverse transcriptase inhibitors, 12.299

phenothiazines, 12.297–298, 12.298f
catartic (basal laminar), 4.162, 12.274, 12.275f

definition of, 12.65

cuticular (basal laminar), 4.162, 12.274, 12.275f
definition of, 12.63
diffuse, 4.160, 4.161f
eye-onset, 12.273, 12.274f

fluorescein angiography of, 12.65

fundus camera imaging of, 12.23, 12.23f

geographic atrophy and, 12.66

giant, 4.295, 5.108f, 5.143

retinoblastoma differentiated from, 4.295

in tuberous sclerosis, 4.295

hard (hyaline), 4.162, 4.162f, 12.65

histologic appearance of, 12.63, 12.64f

large colloid, 12.274

optic nerve/nerve head/disc (ODD), 4.247, 4.247f,

5.108f, 5.140–143, 5.141f, 6.373f, 6.373–374

astrocytic hamartoma differentiated from, 5.108f,

5.143

autofluorescence in identification of, 5.89, 5.90f,

5.141f, 5.142

apapilledema/pseudopapilledema and, 4.247, 5.107,

5.108f, 5.141f, 5.142–143

transient visual loss and, 5.141, 5.161, 5.164

ultrasonography in identification of, 5.95, 5.141f,

5.142

optical coherence tomography of, 12.65–66

photoreceptors affected by, 12.64

pigment epithelial detachment associated with, 12.64

refractile, 12.23f

soft, 4.162, 4.162f, 12.65, 12.68, 12.75, 12.200f,

12.272

spectral-domain optical coherence tomography of,

12.64f

subretinal deposits, 12.200

Drusenoid deposits, subretinal (reticular pseudodrusen/
RPD), 4.162, 4.163, 4.163f, 4.171f, 12.65f, 12.65–66

Drusenoid pigment epithelial detachment, 12.64,

12.272, 12.274f

“Dry” age-related macular degeneration. See

Nonneovascular (“dry”/nonexudative) age-related
macular degeneration

Dry eye disease, 7.310

Dry eye (keratoconjunctivitis/keratitis sicca [KCS]),

3.234–235, 8.45, 8.53–69. See also Ocular surface,
disorders of; specific causative factor

aqueous tear deficiency causing, 8.45, 8.53, 8.54f,

8.55f, 8.55–58, 8.61f, 8.61–65, 8.62f, 8.65f. See also
Aqueous tear deficiency

blepharitis and, 8.68, 8.72, 8.76

cataract surgery in patient with, 11.173

corneal melting/keratolysis and, 11.132

clinical approach to, 8.53–69, 8.54f, 8.55f
decreased vision/transient visual loss and, 5.99, 5.164
definition of, 8.53
diagnostic classification of, 8.53–54, 8.55f
evaporative, 8.45, 8.53–54, 8.54–55f, 8.58–60, 8.59f,

8.60f, 8.66–67f, 8.66–69

in graft-vs-host disease, 8.303

illusions and, 5.174

keratoprosthesis for, 8.452–453

lacrimal plugs for, 8.61f

after LASIK, 13.78–79, 13.172

mechanisms of, 8.53–55, 8.54f, 8.55f

medications causing, 8.61–62, 8.62f

in mucous membrane pemphigoid, 8.303

mucus-fishing syndrome and, 8.89

multifocal IOLs and, 13.155

non-Sjögren syndrome, 8.55f

pain and, 5.295

in peripheral ulcerative keratitis, 8.312–313

after photorefractive keratectomy, 13.78–79, 13.172

after photorefractive keratectomy, 13.79

refractive surgery and, 13.42, 13.78–79, 13.172

after photorefractive keratectomy, 13.79

severity of, 8.57f

Sjögren syndrome, 8.39, 8.55f, 8.56–58, 8.58f

in Stevens-Johnson syndrome (Stevens-Johnson
syndrome/toxic epidermal necrolysis overlap and
toxic epidermal necrosis), 8.298

after surface ablation, 13.76

epithelial defect and, 13.107–108

systemic diseases associated with, 8.59f

tear film evaluation in, 8.38–41, 8.40f, 8.55–56

stains used in, 8.36–37, 8.37f, 8.38f, 8.56

tear film osmolarity and, 8.39, 8.53

treatment of, 8.61f, 8.61–69, 8.62f, 8.65f, 8.66f, 8.66–67f

medical management

of aqueous tear deficiency, 8.61f, 8.61–64, 8.62f

of evaporative dry eye, 8.66f, 8.66–67f, 8.66–69

surgical management, of aqueous tear deficiency,

8.64–65, 8.65f

Dry eye syndrome (DES)
cyclosporine A for, 2.258

description of, 2.250, 2.253

lifitegrast for, 2.258

medications for, 2.415–416

neural feedback loop in, 2.255

ocular surface inflammation in, 2.257f, 2.257–258
Dystrophies, 4.10, 4.12. See also specific type
Dystrophic lipidization, 12.66
Dystopia canthorum, 6.191, 6.192f
Dysthyroid ophthalmopathy/orbitopathy. See Dysthymic disorder, 1.195
Dysraphism, 6.183
Dyspnea, 1.124
rod–cone.
retinal.
f photoreceptor (diffuse), 4.170, 4.171f, 12.272, 12.276
butterfly-type pattern, 12.276, 12.276f
choroidal
Bietti crystalline dystrophy, 12.258, 12.269, 12.282t
central areolar, 12.277
choroideremia, 12.267–268, 12.268f
classification of, 12.255
gyrate atrophy, 12.268–269, 12.269f
cone
bull’s-eye pattern associated with, 12.265, 12.265f
description of, 12.264–265
electroretinography findings in, 12.46, 12.47f, 12.265
genes and loci associated with, 12.256f
with supernormal rod ERG, 12.49
cone–rod
genes and loci associated with, 12.256f
Jalili syndrome, 12.286
retinitis punctata albescens, 12.258, 12.258f
corneal, 4.81–94, 8.133–160, 8.134t, 8.135t, 8.136f.
See also Corneal dystrophies; specific type
cataract/cataract surgery in patient with, 11.84, 11.174, 11.174–175
multifocal IOLs, 13.155
degenerations differentiated from, 8.111, 8.111f
hereditary. See Hereditary dystrophies
macular, 4.168–169f, 4.168–170, 4.171f. See also Macular dystrophies
adult-onset vitelliform lesions, 12.272, 12.273f
atypical, 12.277
Best disease, 12.271, 12.272f
electroretinography findings in, 12.46, 12.47f
North Carolina, 12.277, 12.278
ocult, 12.277
pattern dystrophies, 12.276f, 12.276–277
Sorsby, 12.275f, 12.275–276
Stargardt disease. See Macular dystrophies
macular corneal (MCD), 4.91, 4.91t, 4.92f, 8.135t, 8.136t, 8.145t, 8.149–151, 8.150f
panretinal
clinical findings of, 12.261, 12.263f
Coats reaction associated with, 12.260
nonsyndromic, 12.258–259
syndromic, 12.259
pattern, 4.170, 4.171f, 12.67, 12.272, 12.276f, 12.276–277
adult-onset foveomacular vitelliform, 4.170, 4.171f
butterfly-type (BPD), 4.170, 12.276, 12.276f
photoreceptor (diffuse), 4.170, 4.172f
retinal. See Retinal degeneration; Retinal dystrophies
rod–cone. See also Retinitis pigmentosa
in Bardet-Biedl syndrome, 12.284
characteristics of, 12.261–264, 12.262–12.264f
conventional testing of, 12.261
electroretinography evaluations, 12.46, 12.47f, 12.261
imaging of, 12.262–12.264f
macula-spared, 12.46, 12.47f
stromal, 4.91, 4.91t, 4.92f
Dystrophin, 2.180, 12.285

E
E., See Irradiance
E., See Illuminance
E. coli. See Escherichia/Escherichia coli
E-Selectin, 9.11–12
Eagle Vision glaucoma implant, 10.214
eales disease, 9.237, 9.238
Early macular telangiectasia, 12.277
Early Manifest Glaucoma Trial (EMGT), 10.88, 10.113
Early-onset “drusenoid” macular dystrophies, 12.273–276, 12.274–12.275f
Early-onset (childhood) nystagmus, 5.235–239. See also Nystagmus
Early Treatment for Retinopathy of Prematurity (ETROP), 6.326, 6.331, 6.332, 12.179, 12.185
EAU. See Experimental autoimmune uveoretinitis
EB. See Elementary body
EBAA (Eye Bank Association of America), 8.414
EBMD. See Epithelial dystrophies, epithelial and subepithelial, basement membrane
Ebola virus
description of, 1.264–265, 9.270–271, 9.271f
panuveitis, 12.247
EBRT. See External-beam radiotherapy
EBV. See Epstein-Barr virus
EBV-HLH. See Epstein-Barr virus-associated hemophagocytic lymphohistiocytosis
ECA. See External carotid artery
ECCE. See Extracapsular cataract extraction
Eccentric fixation, 3.310
of eyelid, 4.201, 4.202, 8.4
saccadic dysfunction and, 5.222, 5.240
ECD. See Erdheim-Chester disease

Master Index • 111
ECDC. See European Centre for Disease Prevention and Control

ECG. See Electrocardiography/electrocardiogram

Echinocandins, 2.431, 2.431f

Echinococcus granulosis (echinococcosis)
description of, 7.53
orbital infection caused by, 4.228

Echocardiography
cardiac emboli identification and, 5.168
in cerebral ischemia/stroke, 5.168
congestive heart failure evaluations, 1.97
coronary heart disease using, 1.87
ejection fraction evaluations, 1.97
stress, 1.87
stroke evaluations, 1.112

Echography. See Ultrasoundography/ultrasound (echography)

Echothiophate, 2.378, 10.173

t

Echography.

Echo time (TE), 2.457

Echinococcus granulosus

Echinocandins, 2.431, 2.431t

t

Econopred. See Prednisolone

Econopred Plus. See Prednisolone acetate

ECG. See Electrocardiography/electrocardiogram

Econopred Plus. See Prednisolone acetate

Ectopia lentis, 10.129–130, 10.130f, 10.131f, 11.39–41, 11.40f
angle-closure glaucoma and, 10.129–130, 10.130f, 10.130f, 10.131f
cataract surgery in patient with, 11.181–183, 11.182f, 11.183f
in Ehlers-Danlos syndrome, 1.141

Ectopic lacrimal gland, 6.226

Ectopic tissue masses, 6.223–225f, 226

Etropion, 2.72

anophthalmic, 7.144, 7.144f
cicatrical
clinical features of, 7.230f
surgical repair of, 7.233f, 7.233–234
classification of, 7.229, 7.231
congenital, 7.174, 7.176f
of eyelid, 6.194
of iris, 6.267
definition of, 7.229
involutional
clinical features of, 7.230f
horizontal eyelid laxity as cause of, 7.231
lateral tarsal strip procedure for, 7.231, 7.232f
lower eyelid tightening surgery for, 7.231, 7.232f
medial spindle procedure for, 7.231, 7.232f
mechanical, 7.230f, 7.234
paralytic, 7.230f, 7.254–255
tarsal, 7.232
types of, 7.229–231, 7.230f
uveae, 2.72, 4.188, 4.189f, 4.255, 4.256f, 4.259, 4.259f, 6.267, 10.137f

Eczema, of eyelid, 8.45f

ED (epithelial debridement). See Debridement

Edema
corneal. See Cornea, edema of
epithelial, 8.42, 8.46f
cataract surgery and, 11.128f, 11.128–130
intraocular surgery and, 8.42
macular. See Macular edema
optic disc, in bartonellosis, 9.241
optic nerve/nerve head/disc. See Optic nerve head
(ONH/optic disc), edema of
retnal, 4.152–153, 4.153f, 4.154f
stromal, 8.42
cataract surgery and, 11.128f, 11.128–130
Edetate disodium, 2.371f
for band keratopathy, 8.119

EDI-OCT. See Enhanced depth imaging optical coherence tomography

Edinger-Westphal (EW) nucleus, 2.15, 2.71, 2.124, 2.126, 2.127f, 5.44f, 5.54, 5.55f

EDOF. See Extended-depth-of-focus

Edrophonium, 2.381

description of, 1.305
in myasthenia gravis diagnosis, 5.324–325
toxic reaction to/side effects of, 5.324–325

EDS. See Ehlers-Danlos syndrome

EDTA (ethylenediaminetetraacetic acid), 9.313
for band keratopathy, 8.119

Edwards syndrome, 6.386f

EEG. See Electroencephalography
in cone dystrophies, 5.102
  findings associated with, 12.46, 12.47f, 12.265
with supernormal rod ERG findings, 12.49
cone–rod dystrophy phenotype in, 12.304–305
electrodes used in, 12.42
enhanced S-cone disease/syndrome findings, 12.49,
12.266, 12.267f
full-field (Ganzfeld), 5.96
  in cone dystrophies, 5.102
  in melanoma-associated retinopathy, 5.102–103
in multiple evanescent white dot syndrome, 5.101
functions of, 12.42
fundus albipunctatus findings, 12.252
hereditary retinal disease evaluations, 6.335
hydrochloroquine toxicity findings, 12.45, 12.49f
inherent noise in, 12.44
Knobloch syndrome findings, 6.347
Leber congenital amaurosis findings, 6.336, 12.266
in low vision evaluation, 5.96, 5.96–97
macular dystrophy findings, 12.44, 12.46
melanoma-associated retinopathy findings, 12.286
multifocal (mfERG), 5.96
  in melanoma-associated retinopathy, 5.102–103
in multiple evanescent white dot syndrome, 5.101
multiple evanescent white dot syndrome on, 5.101,
12.224
in newborn, 12.44
night blindness findings, 12.46
in nonparaneoplastic autoimmune retinopathy, 5.103
ocular ischemic syndrome findings, 12.138, 12.139f
pattern, 12.45–46, 12.46–12.49f
peak-time shift in, 12.44
photophobia findings, 12.46
retinitis pigmentosa evaluations, 9.310
rod monochromatism findings, 12.250
S-cone monochromatism findings, 12.250
siderosis bulbi findings, 12.362
uveitis evaluations, 9.90
vigabatrin-related abnormalities of, 12.305
X-linked retinitis pigmentosa findings, 12.50
Elementary body (EB), 8.248–249
Elevast. See Epinastine
Elevated episcleral venous pressure, 10.102f, 10.102–103, 10.103f
  adnexal signs of, 10.31
  in children and adolescents, 10.150f
intraocular pressure and, 10.20, 10.102
open-angle glaucoma caused by, 10.102f, 10.102–103, 10.103f
  Sturge-Weber syndrome and, 10.30, 10.155
Elevated intraocular pressure, 10.3, 10.89–90. See also Intraocular pressure
in angle closure/angle-closure glaucoma, 10.117–118
  acute, 10.123–125
  management of, 10.184
  chronic, 10.126
  subacute/intermittent, 10.125
  in angle-recession glaucoma, 10.106–108
aqueous humor dynamics and, 10.5, 10.5f, 10.13–19, 10.14f
cataract surgery and, 10.211, 10.213, 11.75, 11.128f, 11.129, 11.136
corneal edema and, 11.129
ECCE, 11.198
epithelial ingrowth and, 11.133
expulsive suprachoroidal hemorrhage and, 11.159, 11.160
flat or shallow anterior chamber and, 11.134,
11.135–136
in glaucoma, 11.67, 11.75, 11.187
postoperative hyphema and, 11.159
retained lens material and, 11.141
retrobulbar hemorrhage and, 11.158
stromal/epithelial corneal edema and, 11.129
in central retinal artery occlusion, 12.146
in central retinal vein occlusion, 10.84, 12.133
in chemical injury, management and, 8.383
in children, 10.158–159
circadian/diurnal variation and, 10.3, 10.8, 10.22,
10.80–81, 10.81f, 10.86, 10.87
in combined-mechanism glaucoma, 10.7
conjunctiva affected by, 10.31
corneal blood staining and, 4.86
corticosteroids causing, 10.100, 10.108, 10.109–110
optic nerve damage and, 10.110
refractive surgery and, 13.41, 13.92, 13.104–105,
13.182, 13.201
uveitis and, 10.110
drugs for. See Antiglaucoma agents; Glaucoma,
management of: specific agent
episcleral venous pressure and, 10.20, 10.102
factors causing, 10.21f, 10.21–22
frequency of, 10.20f, 10.20–21
in glaucoma, 10.3, 10.79–81, 10.81f
angle closure/angle-closure glaucoma, 10.117,
10.118
  acute, 10.123–124
  management of, 10.184
  chronic, 10.126
  subacute/intermittent, 10.125
angle-recession glaucoma, 10.106–108
cataract surgery and, 11.75
combined-mechanism glaucoma, 10.7
corticosteroids after refractive surgery and, 13.41,
13.182, 13.201
ghost cell glaucoma, 10.106
glaucoma risk and, 10.3, 10.8, 10.79–81, 10.81f
glaucomatocyclitic crisis (Posner-Schlossman
syndrome) and, 10.101
hemolytic glaucoma, 10.106
indications for surgery and, 10.197
open-angle glaucoma, 10.79–81, 10.81f
optic neuropathy and, 10.46–47
pediatric glaucoma, 10.147, 10.166
phacoctyl glaucoma/uvitis, 11.67
pigmentary glaucoma, 10.95
postoperative, 10.108
refractive surgery and, 13.41, 13.180–183, 13.182f,
13.200–201
uveitis and, 10.100
glaucoma risk and, 10.3, 10.8, 10.79–81, 10.81f
Encephalocoele, 6.225, 7.39
Encephalofacial angiomatosis/encephalofacial cavernous hemangiomatosis. See
Encephalotrigeminal/encephalofacial angiomatosis/hemangiomatosis (Sturge-Weber syndrome/SWS)
Encephalomyelitis, acute disseminated, optic nerve involvement and, 4.244, 4.244f
Encephalopathy
HIV (AIDS dementia complex/HIV-associated neurocognitive disorder), 5.348
inherited, migrainelike headache and, 5.294–295
posterior reversible (PRES) syndrome, 5.333–335, 5.335f
transmissible spongiform, 5.357
Endogenous endophthalmitis.
See
Endoderm, 2.143, 2.145
Endocrine diseases and disorders.
Encephalotrigeminal/encephalofacial angiomatosis/encephalocele, 6.225, 7.39f
Encephalopathy
HIV (AIDS dementia complex/HIV-associated neurocognitive disorder), 5.348
inherited, migrainelike headache and, 5.294–295
posterior reversible (PRES) syndrome, 5.333–335, 5.335f
transmissible spongiform, 5.357
Endophthalmitis, 1.199, 7.138
Endoperoxides, 2.408
Endonasal dacryocystorhinostomy, 7.307, 7.309, 7.309f
Endogenous infection, uveal, 4.185
End-stage renal disease
Enclavation, 13.141
End-stage renal disease
diabetic nephropathy as cause of, 1.39
hypertension as cause of, 1.214
Endocrine diseases and disorders. See also specific type corneal changes in, 8.199–201, 8.200f, 8.201f
multiple endocrine neoplasia syndromes, 8.200
Endocrine signaling, of cytokines, 9.21
Endoderm, 2.143, 2.145f
Endogenous endophthalmitis. See Endophthalmitis, endogenous
Endogenous infection, uveal, 4.185
Endonasal dacryocystorhinostomy, 7.307, 7.309, 7.309f
Endoperoxides, 2.408
Endophthalmitis, 1.199, 7.138
acute postoperative, 9.291–292
Bacillus, 8.247, 8.403, 12.363
bacterial, vitreous affected in, 4.127, 4.128f
bacterial toxin induction in, 9.9
bevacizumab and, 10.163, 10.209, 10.209f, 10.210f, 12.390–391, 12.391f
bleb-associated, 10.163, 10.209, 10.209f, 10.210f, 12.390–391, 12.391f
Candida, 9.295–299, 9.296f, 9.299f
after cataract surgery, 6.305
chronic postoperative
bacterial causes of, 9.292
clinical findings of, 9.292, 9.292f
diagnosis of, 9.293
fungal causes of, 9.292–293
Nd:YAG laser capsulotomy triggering of, 9.292
overview of, 9.291–292
Propionibacterium acnes as cause of, 9.292, 9.292f
treatment of, 9.293
definition of, 9.291
endogenous, 12.237–239, 12.238f
bacterial, 9.294–295
fungal, 9.295–302, 9.296f, 9.298f, 9.300f
fungal, 12.239, 12.239f
Aspergillus as cause of, 9.300–301
Candida, 9.295–299, 9.296f, 9.299f
coccidioidomycosis as cause of, 9.301–302
cryptococcosis as cause of, 9.299–300
endogenous, 9.295–302, 9.296f, 9.298f, 9.300f
manifestations of, 9.295
“string of pearls” in, 9.296f
hypopyon of, 9.6
infectious, 4.119, 4.119f, 4.127, 4.128f. See also specific type and causative agent acute anterior uveitis associated with, 9.137
after cataract surgery, 11.127, 11.140, 11.160–163, 11.161f
innate immune response in, 9.5
after intravitreal injections, 12.404
after penetrating and perforating ocular trauma, 8.247, 8.403
phacoanaphylactic/lens-induced granulomatous (phacoantigenic/lens-associated uveitis), 4.118–119, 4.119f, 11.66
postoperative, 2.428
acute-onset, 11.162, 12.388–390, 12.390f
bleb-associated, 10.163, 10.209, 10.209f, 10.210f, 12.390–391, 12.391f
after cataract surgery, 4.119, 4.119f, 11.127, 11.140, 11.160–163, 11.161f
prevention of, 11.93–95, 11.94f, 11.161–162
chronic (delayed-onset), 11.162, 11.163, 12.390, 12.391f
after penetrating keratoplasty, 8.424
prophylaxis of, 11.93–95, 11.94f, 11.161–162
Propionibacterium acnes causing, 4.119, 4.119f, 8.246, 11.140, 11.162
posttraumatic, 12.362–363
Propionibacterium acnes causing, 4.119, 4.119f, 8.246, 11.140, 11.162
Streptococcus viridans as cause of, 12.404
yeast, 12.239–240, 12.240f
Endophthalmitis Study Group of the European Society of Cataract and Refractive Surgeons (ESCRS), on postoperative endophthalmitis, 11.94, 11.162
Endophthalmitis Vitrectomy Study (EVS), 11.161, 11.162, 12.389–390
Endophytic retinoblastoma, 6.352, 6.352f
Endoplasmic reticulum aminopeptidase (ERAP), 9.65
Endoscopic brow- and forehead-lift, 7.264, 7.265
Endoscopic cyclophotocoagulation (ECP)/endoscopic laser delivery, 10.194, 10.195, 10.196. See also Cyclophotocoagulation/cycloablation cataract surgery and, 11.186
for pediatric glaucoma, 10.163–164
Endoscopic dacryocystorhinostomy, 7.309
Endoscopic photoocoagulation (ECP), for childhood glaucomas, 6.287–288, 6.288f
Endoscopic transnasal surgery, 7.132
Endothelial cell density, 8.10
age-related decrease in, 8.10, 8.23
reduction of after endothelial keratoplasty (DMEK/DSEK), 8.448–449
specular microscopy in evaluation of, 8.23
Endothelial cell migration, DMEK and, 8.449
Endothelial cells
  activation of, 9.10, 9.12
  in angiogenesis, 12.79
  of cornea, 2.54, 2.266–267, 2.267f, 2.267t
Endothelial degenerations, 8.126–128
  age-related, 8.115
Endothelial dystrophies, 4.92–94, 4.93f, 4.94f, 8.135t
cataract surgery in patient with, 11.84, 11.175
congenital hereditary (CHED/CHED2), 4.92–93,
  4.94f, 8.135f, 8.136f, 8.160, 8.161f
  Fuchs (FECD), 4.92, 4.93f, 8.23f, 8.135f, 8.136f,
  8.156–158, 8.157f
descemeterorrhesis/DMET for, 8.157–158, 8.449
  IOL implantation and, 11.149, 13.155
  refractive surgery and, 13.43, 13.178
  multifocal IOL implantation, 13.155
  posterior polymorphous (PPCD/PPMD), 4.93–94, 4.94f
glaucoma and, 8.159, 10.31
  posterior polymorphous (PPCD/PPMD/CHED1), 8.135f, 8.136f, 8.158–160, 8.159f, 8.160f
Endothelial failure. See also Endothelial graft rejection
  after endothelial keratoplasty (DMEK/DSEK), 8.447
  after penetrating keratoplasty, 8.48, 4.58f
  late non-immune-mediated, 8.427–428
  primary, 8.423, 8.423f
Endothelial graft rejection. See also Endothelial failure;
  Rejection
  after endothelial keratoplasty (DMEK/DSEK), 8.437f, 8.447–448
  epithelial edema with, 9.54f
  Khodadoust line, 9.54, 9.54f
  after penetrating keratoplasty, 8.429, 8.430f
  stromal edema with, 9.54f
Endothelial keratoplasty (EK). See Keratoplasty, endothelial
Endothelial meshwork, 2.64, 2.65f
Endothelial nitric oxide synthase (eNOS), 2.394–395
Endothelial pump, corneal hydration and, 8.9
  pachymetry in evaluation of, 8.41–42
Endothelial rings, corneal, traumatic, 8.388
Endothelitis (disciform keratitis), 8.51f
  CMV causing, 8.232, 8.232f
  herpes simplex virus causing, 4.77f, 4.78, 8.220,
  8.221f, 8.222
  persistent bullous keratopathy and, 8.225
Endothelium, corneal, 4.73, 4.74f, 8.7f, 8.10. See also
  under Endothelial
  anatomy of, 8.7f, 8.10
  deposits in, 8.118t, 8.132
  dysfunction of, 8.52
  keratoplasty for, 8.411, 8.436–450. See also
  Keratoplasty, endothelial
  novel methods for treatment of, 8.449–450
  healing/repair of, 4.16
  keratorefractive surgery and, 13.32–33
  multifocal IOL implantation and, 13.155
  phakic IOL implantation and, 13.141
  angle-supported lenses, 13.146
  iris-fixated lenses, 13.145
  posterior chamber lenses, 13.146
  pigmentation of/deposits in, 8.118f
  drug-induced, 8.132
Endotoxin. See also Lipopolysaccharide
  in innate immune response activation, 9.7
microbial, 8.244
uveitis induced by, 9.8, 9.62
Endovascular coiling, for carotid-cavernous fistula, 7.79f
Energy
  definition of, 3.106
  kinetic, 3.106
  phaco, 11.99. See also Power
  potential, 3.106
  transfer of, 3.106
Enhanced depth imaging optical coherence tomography
  (EDI/EDI-OCT)
  autofluorescence imaging and, 12.39
  central serous chorioretinopathy findings, 12.67,
  12.191, 12.193f
  in choroidal/ciliary body melanoma, 4.265, 4.268
  choroidal layer on, 12.79, 12.193f
  choroidal-scleral interface on, 12.66
  description of, 12.25
  in metastatic eye disease, 4.307
  in optic nerve/nerve head/disc drusen, 5.142
  pachychoroid on, 12.76
  in posterior scleritis, 9.124
  in uveitis, 9.85, 9.88f
Enhanced S-cone disease (ESCD), 12.266, 12.267f
Enhanced S-cone syndrome, 12.49
Enophthalmos, 5.271, 7.24
  cataract surgery in patient with, 11.77
  definition of, 7.23
  in metastatic breast carcinoma, 7.106f
  in orbital blowout/floor fractures, 7.114–115, 7.116
  eNOS. See Endothelial nitric oxide synthase
Entacapone, for Parkinson disease, 1.205
  See eNOS.
Enteroaggregative (EAEC), 8.246
Enteroaggregative Escherichia coli (EAEC), 8.246
Enterobacter, 8.246
Enterocytozoon, 8.252
Entracephalitis, 6.315
Enteropathic arthritis, 1.154, 6.315
Enteropathogenic Escherichia coli (EPEC), 8.246
Enterovirus-71, 8.246
Enteroviruses, 8.240t
  acute hemorrhagic conjunctivitis caused by, 8.240,
  8.240t
Enthesitis, 1.154
  Enthesitis-related arthritis (ERA), 1.154, 6.315t, 9.142
  Entrance pupil, 3.124, 3.130–131
Entropion
  upper eyelid, 7.234
  spastic, 7.235
  marginal, 7.238
  cicatricial, 7.237–238f, 239
  congenital, 6.194, 7.179, 7.179f
  involutional
  causes of, 7.234
  clinical features of, 7.235f
  retractor disinsertion as cause of, 7.234–235
  surgical repair of, 7.236, 7.236f
  temporizing measures for, 7.235f, 7.235–236
  transconjunctival approach to, 7.236, 7.236f
  lower eyelid, 7.234
corneal preparation for, 13.83, 13.83f, 13.84
epithelial debridement, 13.83, 13.83f
epithelial preservation, 13.84
glaucoma/ocular hypertension and, 13.181, 13.182
immediate postablation measures for, 13.92–93
outcomes of, 13.84
Epiretinal membranes (ERMs), 9.323
asymptomatic, 12.336
causes of, 12.332
contracture of, 12.335
definition of, 12.332
fluorescein angiography findings, 12.335
in idiopathic macular holes, 4.132
incidence of, 12.333
optical coherence tomography of, 12.335, 12.383f
of, 12.333
"pseudohole" appearance with, 12.334
retinal distortion caused by, 6.145
scanning laser ophthalmoscopy of, 12.334f
secondary, 12.333
signs and symptoms of, 12.334–12.335f, 12.334–336
spectral-domain optical coherence tomography of, 12.335f
treatment of, 12.336, 12.382, 12.383f
vitreoc截膜 (ED), 4.387
vitreomacular traction syndrome versus, 12.382–383
Episclera, 2.58, 4.107, 4.107f. See also Epikeratitis
in glaucoma, 10.31, 10.102t, 10.102–103, 10.103f
healing/repair of, 4.16
immune-mediated disorders of, 8.318–316
melanosis of, 8.338, 8.338–340, 8.339f, 8.339t
nodular fasciitis causing tumor of, 4.112
Episcleral arterial circle, 2.24
Episcleral implants, radioactive, 1.238
Episcleral plexus, 5.21, 10.5f
Episcleral venous pressure (EVP), 10.19–20
elevated, 10.102t, 10.102–103, 10.103f
adenal signs of, 10.31
in children and adolescents, 10.150f
intraocular pressure and, 10.20, 10.102
open-angle glaucoma caused by, 10.102t, 10.102–103, 10.103f
Sturge-Weber syndrome and, 10.30, 10.155
normal, 10.20, 10.102
Episcleral vessels, 2.57, 2.57f
Epikeratitis, 4.109, 8.46f, 8.318f, 8.318–319
in herpes zoster, 8.227
immune-mediated, 8.318, 8.318–319
nodular, 4.109, 8.318, 8.318f
nonsteroidal anti-inflammatory drugs for, 9.113
in reactive arthritis/Reiter syndrome, 8.305–306
in rosacea, 8.70, 8.70f
scleritis versus, 9.117
simple (diffuse injection), 4.109, 8.318
in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrosis overlap and toxic epidermal necrosis), 8.296–297
Epithelial basement membrane dystrophy, 3.277, 3.278f
Epithelial cells. See also Epithelium
keratinization of (keratinized/degenerated)
in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrosis overlap and toxic epidermal necrosis), 8.297
in superior limbic keratoconjunctivitis, 8.84
in vitamin A deficiency, 8.196
Epithelial cysts. See also Epithelial inclusion cysts
of cornea, drug-induced, 8.130
description of, 6.170–171
of orbit, 4.223–224
Epithelial debridement (ED). See Debridement
Epithelial defects
conjunctival, 8.46f
corneal/persistent corneal, 8.46f, 8.80–82, 8.81f, 8.82f
acid burns causing, 8.380, 8.380f
after cataract surgery, 11.132, 11.173
glaucoma medication toxicity and, 10.31
after LASIK, 13.93, 13.112
in diabetes mellitus, 13.190
management of, 8.368
after penetrating/deep anterior lamellar keratoplasty, 8.80, 8.424
after small-incision lenticule extraction, 13.205
after surface ablation, 13.107–108
topical anesthetic use/abuses and, 8.80–81, 8.81f, 8.89, 8.89f
in toxic keratoconjunctivitis, 8.80–81, 8.81f
Epithelial degenerations, 8.115–120, 8.116f, 8.117f, 8.118f, 8.119f
Epithelial dystrophies
Epithelial downgrowth. See Epithelial ingrowth
Epithelial dystrophies
epithelial and subepithelial, 4.87, 4.87f, 8.135f, 8.135–141
basement membrane (EBMD/map-dot-fingerprint/Cogan microcystic/anterior basement membrane), 4.87, 4.87f, 8.135t, 8.135–138, 8.136f, 8.137f, 8.138f
cataract surgery in patient with, 11.174f, 11.174–175
recurrent corneal erosion and, 8.86, 8.87, 8.133, 8.138
reduced vision and, 5.99
multifocal IOIs, 13.155
gelatinous drop-like (GDLD), 8.135t, 8.140–141, 8.141f
Lisch (LECD), 8.135f, 8.136t, 8.140f
Meissmann/Stocker-Holt variant, 8.135, 8.136t, 8.139f
mucinous (SMCD), 8.135f
recurrent erosion (EREDs), 8.86, 8.87, 8.133, 8.135f
epithelial-stromal TGFβ1, 4.88f, 8.88–91, 4.89f, 4.90f, 4.91f, 4.91f, 8.133, 8.134, 8.135t, 8.136f, 8.142–149
granular, 8.135f
type 2 (GCD2/Avellino), 4.90, 4.91f, 4.91t, 8.135t, 8.136t, 8.145t, 8.148–149, 8.149f
amyloid deposits in, 8.148, 8.186t
refractive surgery and, 13.43
type 1 (GCD1/classic), 4.90, 4.90f, 4.91t, 8.135t, 8.136t, 8.145t, 8.147–148, 8.148f
lattice, 4.88–90, 4.89f, 4.91f, 8.135f, 8.136f, 8.145t, 8.145–147, 8.146f, 8.147f
reoccurrence of after corneal transplantation, 8.425
Reis-Bücklers (RBCD/CDB1/atypical granular), 4.88, 4.88f, 4.91f, 8.135t, 8.136t, 8.142f, 8.142–143
Thiel-Behnke (TBCD/CDB2), 4.88, 4.89f, 4.91t, 8.135f, 8.136t, 8.143–144, 8.144f
Epithelial edema, 8.42, 8.46f. See also Cornea, edema of
after cataract surgery, 11.128f, 11.128–130
Epithelial erosions, punctate (PEEs)
of conjunctiva, 8.46f
of cornea, 8.46f, 8.50, 8.50f, 8.50t
in exposure keratopathy, 8.80
in herpetic eye disease/neurotrophic keratopathy,
8.224
reductive surgery and, 13.42, 13.42f
vernal keratoconjunctivitis and, 8.290
Epithelial graft rejection, 8.428, 8.428f. See also
Rejection
Epithelial hyperplasia, 7.187–189, 7.188f
Epithelial inclusion cysts, 6.250
conjunctival, 4.59, 4.59f, 7.141, 7.141f, 8.114, 8.114f
concretions and, 8.113–114
nevi and, 4.64, 8.340
Epithelial ingrowth (downgrowth)
angle-closure glaucoma and, 10.141–142, 10.142f,
10.143f
cataract surgery and, 11.128t, 11.132–133
corneal graft failure and, 4.84, 4.85f
der after DSEK, 8.445, 8.445f
der after LASIK, 13.120–122, 13.121f
in diabetes mellitus, 13.190
nevi and, 8.52, 8.52f
Epithelial keratitis/keratopathy
adenovirus causing, 8.234, 8.235, 8.235f
CMV causing, 8.232
dry eye and, 8.56
in epidemic keratoconjunctivitis, 8.235, 8.235f
herpes simplex virus causing, 8.213, 8.214f, 8.216f,
8.216–219, 8.217f, 8.218f, 8.223t, 8.226t
measles virus causing, 8.239
punctate (PEK), 8.46f, 8.50, 8.50f, 8.50t
adenoviruses causing, 8.234
blepharitis/blepharoconjunctivitis and, 8.72, 8.73t,
8.74
exposure causing, 8.80
herpes simplex virus causing, 8.216, 8.216f
in herpes zoster, 8.227, 8.228
microsporidial, 8.280, 8.280f
superficial Thyegeon (SPK), 8.306–307,
8.307f
varicella-zoster virus causing, 8.226, 8.226f
Epithelial slough, LASIK and, 13.112
Epithelial-stromal TGFBI dystrophies, 4.88f, 4.88–91,
4.89f, 4.90f, 4.91t, 4.91f, 8.133, 8.134, 8.135t, 8.136t,
8.142–149
granular, 8.135t
- type 2 (GCDC2/Avellino), 4.90, 4.91f, 4.91t, 8.135t,
8.136t, 8.145t, 8.148–149, 8.149f
- amylloid deposits in, 8.148, 8.186t
reductive surgery and, 13.43
- type 1 (GCDC1/classic), 4.90, 4.90f, 4.91t, 8.135t,
8.136t, 8.145t, 8.147–148, 8.148f
- lattice, 4.88–90, 4.89f, 4.91t, 8.135t, 8.136t, 8.145t,
8.145–147, 8.146f, 8.147f
recurrence of after corneal transplantation, 8.425
Reis-Bücklers (RBDC/DDBI/atytical granular),
4.88, 4.88f, 4.91t, 8.135t, 8.136t, 8.142f,
8.142–143
Thiel-Behnke (TBCD/CDB2), 4.88, 4.89f, 4.91t,
8.135t, 8.136t, 8.143–144, 8.144f
Epithelial tumors, 4.10f, 4.11f
ocular surface, 8.332t, 8.332–337
benign, 8.322t, 8.322–324, 8.333f
malignant, 8.334–337, 8.335f, 8.336f
preinvasive, 8.332t. See also Conjunctival or
corneal intraepithelial neoplasia
pigmented, of uvea and retina, 4.279–280, 4.280f
Epithelial ulcer, geographic, in herpes simplex keratitis,
8.217, 8.217f, 8.218f
Epithelioid cells, macrophage activation into, 9.4
Epithelioid histiocytes, 4.7, 4.8f
Epithelioid (Leber) cells. See also Macrophage(s)
in choroidal/ciliary body melanoma, 4.192, 4.193f,
4.194–195
Epithelioid melanoma, 4.192, 4.193f, 4.194–195
Epitheliopathy
in herpetic keratitis, 8.224
in microsporidiosis, 8.280, 8.280f
in toxic keratoconjunctivitis, 8.90
Epithelium. See also under Epithelial; Ocular surface
ciliary
nonpigmented, benign adenomas of, 4.279
pigmented
acquired hyperplasia of, 4.279, 4.280f
benign adenomas of, 4.279
conjunctival, 4.47, 4.48f, 8.7, 8.7f
corneal resurfacing by (conjunctivalization), 8.362
cyts of, 4.59, 4.59f, 8.114, 8.114f. See also Epithelial
inclusion cysts
nevi and, 8.64
dysplasia of (conjunctival intraepithelial neoplasia/
CIN), 4.61, 4.63f, 8.37, 8.38f, 8.332t, 8.334,
8.335f. See also Conjunctival or corneal
intraepithelial neoplasia; Ocular surface
melanocytic, 4.63t, 4.65, 4.66, 4.67f
in external eye defense, 8.13
tumors of, 8.332t, 8.332–337
cornea. See Cornea, epithelium of
debridement of
for epithelial defects
after LASIK, 13.112
after surface ablation, 13.108
for surface ablation, 13.82–84, 13.83f
in external eye defense, 8.12f, 8.13, 8.13f, 8.13–14,
8.207
healing of, keratorefractive surgery and, 13.32–33
delayed, 13.93–94, 13.108
iris pigment. See Iris pigment epithelium
lens, 4.116f, 4.117, 11.10f, 11.12f, 11.12–13
active transport and, 11.21
degenerations of, 4.120–121, 122f. See also Cataract
development of, 11.27, 11.27f
opacification of (capsular cataract), 11.38
topography of, 4.116f, 4.117
preparation of, for refractive surgery, 13.82–84, 13.83f
preservation techniques for
in epi-LASIK, 13.84
in LASEK, 13.84
retinal pigment. See Retinal pigment epithelium
tumors of. See Epithelial tumors
“Epithelium-off” (“epi-off”) corneal crosslinking, 13.130, 13.132, 13.133. See also Corneal (collagen) crosslinking
“Epithelium-on” (“epi-on”) corneal crosslinking, 13.133f. See also Transepithelial corneal crosslinking
Epitope(s)
in adaptive immune response, 9.27, 9.30 antigenic, 9.27, 9.41 definition of, 9.27 idiotypes versus, 9.41 Epley procedure, for benign paroxysmal positional vertigo, 5.243 e-Aminocaproic acid, 2.446–447 Epstein-Barr virus (EBV), 1.237t, 1.262, 6.243, 7.313, 8.230, 9.257–258dacryoadenitis caused by, 8.208t, 8.230–231ocular infection caused by, 8.208t, 8.230–231, 8.231fEpstein-Barr virus-associated hemophagocytic lymphohistiocytosis (EBV-HLH), 1.262 EPYC gene, in posterior amorphous corneal dystrophy, 8.136tEquisetum, 1.219 in epidemic keratoconjunctivitis, 8.234 in exposure keratopathy, 8.80 in herpetic eye disease/neurotrophic keratopathy, 8.224 refractive surgery and, 13.42, 13.42f in keratoconus, 8.224t in vernal keratoconjunctivitis and, 8.290 recurrent, 8.79, 8.86–88 dystrophic, 8.86, 8.87, 8.133, 8.135t in chronic blepharoconjunctivitis, 8.86t, 8.87t, 8.133t in lattice corneal dystrophy type 1, 8.147 in Reis-Bücklers corneal dystrophy, 8.143 in Reis-Bücklers corneal dystrophy, 8.143 eye pain in, 5.295, 8.86, 8.87 management of, 8.368 posttraumatic, 8.86, 8.87 eyelid, 8.45t Ertapenem, 1.273 Er:YAG lasers. See Erbium:yttrium-aluminum-garnet (Er:YAG) lasers Erysiphe, 11.195 Erysiphe Schizaceae, 11.195 Erysiphe rosae, 11.195 Erysiphe trifolii, 11.195 Erysipelas, 1.223 Erythrocyte sedimentation rate (ESR), 1.153 in giant cell arteritis/AAION, 5.120, 5.120t, 5.314 in NAION, 5.120t in optic neuritis, 5.115 Erythrocytes, mean corpuscular volume of, 1.132. See also Red blood cells (RBCs) Erythrocyte sedimentation rate (ESR), 1.153 in giant cell arteritis/AAION, 5.120, 5.120t, 5.314 in NAION, 5.120t in optic neuritis, 5.115 Erythromycin, 1.274–275, 2.418t, 2.421t, 2.427 for chlamydial conjunctivitis, 8.263 in neonates, 8.265 for chlamydial infections, 8.265 for meibomian gland dysfunction, 8.68 for rosacea, 8.71 for trachoma, 8.262–263, 8.263 Erythropoiesis, 1.131 Erythropoietin, 1.132 Erythropoietin, 1.136 ESCD. See Enhanced S-cone disease Escherichia/Escherichia coli (E. coli) description of, 2.419, 8.247 as normal flora, 8.205 ocular infection caused by, 8.247 reactive arthritis associated with, 1.155 Shiga toxin-producing, 1.142 urinary tract infections caused by, 12.238 ESCRS (Endophthalmitis Study Group of the European Society of Cataract and Refractive Surgeons), on postoperative endophthalmitis, 11.94, 11.162 ESCS. See Enhanced S-cone syndrome Eserine. See Physostigmine Esmolol, 1.64 Eso- (prefix), 6.15 Esodeviations. See also Esotropia; specific type accommodative, 6.90. See also Accommodative esotropia definition of, 6.85 in divergence insufficiency, 6.94 epidemiology of, 6.85 extraocular muscle surgery amounts for, 6.160, 6.160t risk factors for, 6.85 types of, 6.86f Esophageal cancer, 1.219 Esophoria, 3.142 Esotropia. See also Esodeviations accommodative, 2.379, 5.227 amblyopia associated with, 6.91 definition of, 6.90 description of, 6.57 evaluation of, 6.91 high AC/A ratio, 5.227, 6.90–92 management of, 6.91–92 nonrefractive, 6.90 partially, 6.90–92 pathogenesis of, 6.90–91 refractive, 6.90–92 refractive surgery and, 13.188 types of, 6.88t, 6.90–91 acquired nonaccommodative basic, 6.93 consecutive esotropia, 6.95 cyclic esotropia, 6.93 description of, 6.92 divergence insufficiency, 6.94 near reflex spasm, 6.94
sensory esotropia, 6.93–94
types of, 6.86f
age-related distance, 6.94
botulinum toxin injection for, 6.97
congenital. See Esotropia, infantile
in congenital fibrosis of the extraocular muscles
(CFEOM), 6.135
consecutive, 6.16, 6.95
contact lens trial before refractive surgery and,
13.199
cyclic, 6.93
diplopia and, 6.102
in Duane retraction syndrome, 6.95–97, 6.132f,
6.133
eoxotropia following, 6.16
high myopia and, 6.97, 6.143–144
Hirschberg test for, 6.67, 6.68f
hyperopia and, 3.175
incomitant, 6.95–97, 6.96f
infantile, 6.86f
amblyopia associated with, 6.87–89
botulinum toxin injections for, 6.89
Chavasse theory of, 6.87
Ciancia syndrome, 6.88, 6.95
clinical features of, 6.87–88
cross-fixation associated with, 6.87–88, 6.88f
cyclopegic refraction for, 6.88
definition of, 6.87
evaluation of, 6.87–88
management of, 6.88–89
medial rectus muscle recession for, 6.89
mental illness and, 6.87
ocular alignment in, 6.88–89
pathogenesis of, 6.87
prematurity as risk factor for, 6.87
smooth-pursuit asymmetry associated with, 6.88
surgical treatment of, 6.89
V-pattern strabismus associated with, 6.109,
6.112f
Worth “sensory” concept of, 6.87
large-angle, 6.87
negative angle kappa and, 6.67, 6.68f
nystagmus and, 6.86f, 6.95. See also Nystagmus
latent, 5.238
nystagmus blockage syndrome as cause of, 6.155
postoperative, 6.102
postsurgical, 6.102
postsurgical consecutive, 6.95
prevalence of, 6.85
primary inferior oblique muscle overaction associated
with, 6.117
pseudoesotropia, 6.85–87, 6.86f
risk factors for, 6.85
sensory, 6.93–94
small-angle, 6.102
spontaneous consecutive, 6.95
strabismus surgery for, 6.91
types of, 6.86f
V-pattern strabismus associated with, 6.109, 6.112f
ESR. See Erythrocyte sedimentation rate
Essential (physiologic/simple) anisocoria, 5.256f, 5.257
Essential blepharospasm, benign (BEB), 5.281–283,
5.282f, 5.282t, 7.256–258
Essential/progressive iris atrophy, 4.100, 4.101f, 8.111,
8.126, 8.127f, 10.136, 10.137f. See also Iridocorneal
endothelial (ICE) syndrome
cataract and, 11.68
Essential thrombocythemia (ET), 1.142–143
Esthesiometry, 8.42–43
Estimated lens position (ELP), 3.239, 3.243, 3.248–250,
3.249f, 3.252–253
Estradiol, 1.309
Estrogen receptors, in immunohistochemistry, 4.35
ET. See Essential thrombocytemia
Etanercept, 1.180, 2.405, 6.322
for sarcoidosis, 9.199
ETDRS. See Early Treatment Diabetic Retinopathy Study
Ethambutol
screening recommendations for, 1.257
tuberculosis treated with, 1.257
Ethanol. See also Alcohol
as tissue fixative, 4.26, 4.26f
Ethmoid air cells, 7.19–20, 7.282
Ethmoid/ethmoidal arteries, 5.12, 5.13f, 5.14
Ethmoid/ethmoidal bone, 2.6f, 2.8, 5.7f, 5.8, 5.9f, 7.7–8f
Ethmoid sinus, 2.12, 2.14
air cells of, 5.8, 5.10f, 7.20
bacterial infections of, 7.8
squamous cell carcinoma of, 7.102, 7.103f
Ethmoidal complex, 5.8
Ethmoidal foramen
anterior/posterior, 5.11
description of, 7.9
Ethmoidal suture, frontal, 5.8
Ethnic background. See also Race
multiple sclerosis and, 5.315
ocularpharyngeal dystrophy and, 5.329
sarcoidosis and, 5.327
spasmus nutans and, 5.239
Vogt-Koyanagi-Harada syndrome and, 4.186
Ethosuximide, 1.207
Ethylene glycol, 12.303
optic neuropathy caused by, 5.137
Ethylenediaminetetraacetic acid (EDTA), 9.313
for band keratopathy, 8.119
Etodolac, 2.409f
Etoside, for retinoblastoma, 4.299
Etoricoxib, 1.176
ETROP. See Early Treatment for Retinopathy of
Prematurity
European Centre for Disease Prevention and Control
(ECDC), 1.224
European Glaucoma Prevention Study, 10.89
European Glaucoma Society, angle closure definitions
and, 10.117
Euryblepharon, 6.195, 7.174–175, 7.176–177f, 7.178f,
7.178–179
Evaporative dry eye, 8.45, 8.53–54, 8.54f, 8.55f, 8.58–60,
8.59f, 8.60f. See also Dry eye
blepharitis and, 8.68, 8.72
meibomian gland dysfunction and, 8.40–41, 8.53–54,
8.54f, 8.55f, 8.58–59, 8.60f, 8.66f, 8.66–67f, 8.66–69
Ewing sarcoma, 6.218

See also
ocular prostheses after, 7.140–141, 7.147 for penetrating ocular injury, 12.233 disadvantages of, 7.138
definition of, 7.135, 7.137 complications of, 7.138–139 advantages of, 7.138

treatment of, 8.66–69
rosacea and, 8.60, 8.70
retinoblastoma associated with, 4.302

potential/cortical potential/response corneal pachymetry in, 8.41–42.
See also corneal curvature evaluation in, 8.25–36, 13.14–19, corneal biomechanics measurement in, 8.43
corneal curvature evaluation in, 8.25–36, 13.14–19, 13.15f, 13.16f, 13.17f, 13.18f, 13.19f, 13.44–45, 13.45f. See also Cornea, curvature of corneal pachymetry in, 8.41–42. See also Pachymetry/pachymeter before corneal transplantation, 8.418
diabetes mellitus-related, 12.93–94, 12.95t
diabetes melitus-related, 12.93–94, 12.95t
in dioplia, 5.184f, 5.184–185, 5.185f
direct visualization in, 8.15–20, 8.16f, 8.17f, 8.18f, 8.19f, 8.20f

esthesiometry in, 8.42–43
in glaucoma, 10.48, 10.49t, 10.157t, 10.157–160
in infants and children, 10.157t, 10.157–160
in low vision evaluation, 5.78–97. See also Low vision, assessment of
in nonorganic disorders, 5.301–311, 5.302f, 5.303f, 5.304f, 5.305f, 5.307f, 5.308f, 5.309f
OCT in, 8.21–22, 8.22f
in ocular surface neoplasia, 8.328
in penetrating and perforating ocular trauma, 8.401–402, 8.402t
in primary congenital glaucoma, 10.151–152, 10.152t, 10.157t, 10.157–160
before refractive surgery, 13.36t, 13.39–44, 13.42f, 13.43f
ancillary tests and, 13.44–46, 13.45f
in retinoblastoma, 4.292, 4.292f
scanning in, 8.20–24, 8.21f, 8.22f, 8.23f, 8.24f
slit-lamp biomicroscopy in, 8.15–20, 8.16f, 8.17f, 8.18f, 8.19f, 8.20f
specular microscopy in, 8.23, 8.23f
stains used in, 8.36–37, 8.37f, 8.38f, 8.56
ear film/tear production evaluation and, 8.38–41, 8.40f
stains used in, 8.36–37, 8.37f, 8.38f, 8.56
in transient visual loss evaluation, 5.163
ultrasound biomicroscopy in, 8.20–21, 8.21f
Excavated optic nerve/head/disc, 5.137f
congenital, 5.145
in glaucoma, 5.136, 5.137f
Excessive blinking, 6.201–202
Excision repair, 2.181
Excisional biopsy, 7.203f, 7.204 in conjunctival nevi, 8.341 in primary acquired melanosis, 8.342
Exciting eye, 4.185, 9.199–200. See also Sympathetic ophthalmia

Excretory lacrimal system. See Lacrimal drainage system

Exyclo- (prefix), 6.16

Exycloduction. See Extorsion

Exenatide, 1.205

Exenteration basal cell carcinoma treated with, 7.204 considerations for, 7.146 definition of, 7.135 extended, 7.146 lacrimal drainage system tumors treated with, 7.317 for melanoma, 4.277, 8.344 rhabdomyosarcomas treated with, 7.89 sebaceous carcinoma treated with, 7.207 subtotal, 7.146 total, 7.146, 7.147f types of, 7.146–147, 7.147f

Exercise, coronary heart disease risk modification using, 1.73

Exercise stress testing, for coronary heart disease diagnosis, 1.88

Exfoliation. See also Exfoliation/pseudoexfoliation syndrome true, infrared radiation/heat causing, 4.102, 11.57 Exfoliation/pseudoexfoliation syndrome, 4.101–103, 4.102f, 4.124, 10.111, 10.31, 10.91f, 10.91–93, 10.92f, 10.130, 10.131f, 11.65f, 11.65–66 cataract surgery in patient with, 11.79, 11.184 glaucoma and (pseudoexfoliation glaucoma), 10.111, 10.31, 10.91, 10.93, 10.130, 10.131f IOL decentration/dislocation and, 11.144 postoperative hyphema and, 11.158 zonular incompetence and, 10.92, 10.93, 10.130, 10.131f, 11.65–66, 11.181, 11.182f, 11.184f

Exo- (prefix), 6.15

External-beam radiotherapy (EBRT) for choroidal hemangioma, 4.283 for choroidal melanoma/ciliary body melanoma, 4.276 description of, 1.237–238 for lymphoma, 4.312 for metastatic eye disease, 4.310 for retinoblastoma, 4.301 secondary tumors and, 4.302, 4.302 for uveal lymphoid proliferation/infiltration, 4.314

External carotid artery (ECA), 5.12, 5.13

External dacryocystorhinostomy, 7.307, 7.308

External hordeolum (stye), 4.203–204, 7.183, 8.76, 8.76f

External jugular vein, 5.23

External limiting membrane (ELM), 4.140f, 4.141f anatomy of, 12.15 definition of, 2.91 development of, 2.155 histology of, 12.11, 12.12f

External (outer) eye. See also specific structure anatomy of, 8.3–14 cataract surgery in patient with abnormalities of, 11.172–174 common clinical findings in disorders of, 8.45–46f defense mechanisms of, 8.11–14, 8.12–13f examination of, 8.15–43. See also Examination; Examination, ophthalmic before cataract surgery, 11.77–78 in primary congenital glaucoma, 10.158 immune-related disorders of, 8.285–326. See also Immune response (immunity) infections of. See Infection (ocular) External validity, 1.26

Extinction, 5.84


Extraconal fat, 6.28

Extraconal surgical space, 7.123

Extracranial to intracranial bypass surgery, for ocular ischemic syndrome, 12.140

Extracranial trunk, of cranial nerve VII (facial), 5.52

Extranodal marginal zone B-cell lymphoma (EMZL), 7.92, 7.95

Extranodal marginal zone lymphoma (MALToma) of conjunctiva, 4.70, 4.71f, 8.349–350, 8.350f of orbit, 4.232, 4.233f

Extraocular muscle(s) (EOMs), 5.45–46, 5.46f. See also Ocular motility; specific muscle action of description of, 6.31–32 gaze position and, 6.34–37, 6.35–37f primary, 6.34 secondary, 6.34 tertiary, 6.34 anatomy of, 2.17–18f, 5.45–46, 5.46f, 7.12, 7.12f arc of contact, 6.32 arterial system of, 6.23 assessment of, 7.243 blood supply of, 2.21, 6.23–24, 6.30 congenital cranial dysinnervation disorders involving, 2.163 congenital fibrosis of, 6.134–135 in convergence-retraction nystagmus, 5.250 course of, 6.19–22 damage to, 7.139 development of, 2.162–163 fascial relationships of, 6.23–28, 6.26–27f fiber structure in, 6.24 fibrosis of congenital, 6.134–135 in thyroid eye disease, 6.140 fine structure of, 2.22 formation of, 2.162–163 function of, 7.11–12, 7.243 global layer of, 6.24 growth and development of, 6.181–182 inflammation of. See Myositis inherited conditions affecting, 5.328–330, 5.329f innervation of, 2.21, 5.40f, 5.40–45, 5.41f, 5.42–43f, 5.44f, 6.19–22, 7.12–13. See also Cranial nerve(s) insertion of, 2.20, 2.21f, 6.19–22, 6.31 lost, 6.162, 6.169 magnetic resonance imaging of, 2.459f myasthenia gravis effects on, 6.142 names of, 2.17 ophthalmic artery supply of, 6.23
orbital distribution of, 2.20
orbital implant migration caused by displacement of, 7.140f
orbital layer of, 6.24
orbital relationships of, 6.25–28, 6.26–27f
origin of, 2.18, 2.20f, 6.19–22
pulley system of, 6.28, 6.32
retrobulbar injection–related damage to, 6.146
slipped, 6.162, 6.169, 6.169f
structure of, 6.24, 6.25f
surgery of. See Extraocular muscle surgery;
Strabismus surgery
3-step test of, 6.73–75, 6.74f
in thyroid eye disease, 4.226, 4.227f, 5.131, 5.206f
optic neuropathy and, 5.131, 5.132f
tyroid eye disease effects, 6.140
venous system of, 6.23–24
yoke muscles, 6.38
Extraocular muscle surgery, 6.155–157, 6.156f. See also specific type or disorder
adjustable sutures used in, 6.165
in amblyopia, 6.160
anesthesia for, 6.174–175
in awake patients, 6.165
complications of, 6.168–174
adherence syndrome, 6.172
alignment issues, 6.168
allergic reactions, 6.170, 6.171f
anterior segment ischemia, 6.172–173, 6.173f
anti-elevation syndrome, 6.168–169
conjunctival scarring, 6.171–172, 6.172f
delle, 6.172, 6.172f
diplopia, 6.168
epithelial cyst, 6.170–171
eyelid position changes, 6.173, 6.173f
foreign-body granuloma, 6.170
iatrogenic Brown syndrome, 6.168
infections, 6.170, 6.170f
lost muscles, 6.169
orbital cellulitis, 6.170, 6.170f
pulled-in-two syndrome, 6.169–170
pyogenic granuloma, 6.170
refractive changes, 6.173–174
scleral perforation, 6.170
slipped muscles, 6.169, 6.169f
unsatisfactory alignment, 6.168
cyclovertical strabismus, 6.162
distance–near incomitance and, 6.162
for esodeviations, 6.160, 6.160f
esotropia correction with, 6.159
evaluation before, 6.159
for exodeviations, 6.160, 6.161f
exotropia after, 6.17
formulas for, 6.160–161f
fornix incision for, 6.162–163
hangback recession, 6.163
horizontal deviations, 6.161
horizontal incomitance and, 6.161
hypertropia treated with, 6.164–165
hypotropia treated with, 6.164–165
incisions for, 6.162–163
incomitance and, 6.161–162
indications for, 6.159–160
limbal incision for, 6.163
malignant hyperthermia secondary to, 6.174–175
monocular horizontal recession-resection procedures, 6.161
for nystagmus, 5.236
oblique muscles
inferior, 6.164f, 6.165–166
tightening procedures, 6.164f, 6.166–167
weakening procedures, 6.164, 6.165–166
oculocardiac reflex, 6.174
planning of, 6.160–162
posterior fixation, 6.167
postoperative nausea and vomiting secondary to, 6.174
prior surgery and, 6.162
reasons for, 6.159
rectus muscles
hypertropia, 6.164–165
hypotropia, 6.164–165
slipped, 6.169, 6.169f
tightening procedures, 6.163–164, 6.164
weakening procedures, 6.163, 6.164f
stay sutures used in, 6.167
for superior oblique myokymia, 5.251
sutures used in
adjustable, 6.165
posterior fixation, 6.167
stay, 6.167
symmetric, 6.160–161f
techniques for, 6.164f
tightening procedures
for inferior oblique muscle, 6.166
for oblique muscles, 6.164f, 6.166–167
for rectus muscles, 6.163–164, 6.164f
for superior oblique muscle, 6.167
transposition procedures, 6.167
vertical incomitance and, 6.161
weakening procedures
for inferior oblique muscle
bilateral, 6.165
indications for, 6.118
for superior oblique muscle palsy, 6.123, 6.123f
surgical procedures for, 6.164f, 6.165–166
for V-pattern strabismus, 6.111
for oblique muscles, 6.164f, 6.165–166
for rectus muscles, 6.163, 6.164f
Extraocular myopathy. See also specific disorder
inherited conditions causing, 5.328–330, 5.329f
in thyroid eye disease, 4.226, 4.227f, 5.206
Extrastriate cortex, 5.34f
Extrinsic pathway, of coagulation cascade, 1.138f
Exuberant granulation tissue (pyogenic granuloma), 4.55, 4.55f
Exuberant hyperkeratosis (cutaneous horn), 4.211, 7.188
Exudates
hard, 4.140, 4.152, 4.153f, 12.122, 12.160
in leukemia, 4.315
macular, 12.124f
soft. See Cotton-wool spots
Exudative hemorrhagic chorioretinopathy, peripheral (PEHCR), 4.270f, 4.271
Exudative retinal detachment
causes of, 12.320
diagnostic features of, 12.321t
in familial exudative vitreoretinopathy, 12.343
imaging of, 12.325f
management of, 12.325–326
photocoagulation as cause of, 12.379
retinal surface in, 12.326
subretinal fluid findings in, 12.326
Exudative/“wet” age-related macular degeneration. See Neovascular (“wet”/exudative) age-related macular degeneration
Eye. See also specific ocular entries
age-related changes in, 1.183–184
anatomy of. See also specific structure
early conceptions of, 11.3, 11.3f, 11.4f
axes of, 3.128–129, 3.129f
axial length of
angle closure and, 10.121
extremes of, cataract surgery in patient with, 11.184–185
in infants and children, in primary congenital glaucoma, 10.160
in IOL power determination, 11.82–83, 11.83f, 11.85
hypotony affecting, 11.185
unexpected refractive results after surgery and, 11.150, 11.176
in primary congenital glaucoma, 10.160
compartments of, 2.48
genital anomalies of, 4.6, 4.7f, 4.12t, 6.182–183, 6.183t. See also Congenital anomalies; specific type
glaucoma associated with, 10.4t, 10.6t, 10.147, 10.148t, 10.151. See also Glaucoma, pediatric
curvature of, 3.268
depression of (downgaze). See Depression of eye (downgaze)
development of. See also specific structure
abnormalities of, 4.6, 4.7f, 4.12t. See also Congenital anomalies; specific type
glaucoma associated with, 10.4t, 10.6t, 10.153–156. See also Glaucoma, pediatric
dimensions of, 6.179t, 6.179–180
orders of
atopic keratoconjunctivitis, 6.249
blepharitis, 6.244–245, 245f
conjunctivitis. See Conjunctivitis
ligneous conjunctivitis, 6.249
ocular allergies, 6.246f, 6.246–249, 6.247–248t
ophthalmia neonatorum. See Ophthalmia neonatorum
vernal keratoconjunctivitis, 6.248–249, 249f
dry. See Dry eye
elevation of (upgaze). See Elevation of eye
embryologic development of, 2.143–144, 2.144–146f, 2.148f, 2.152t. See also Ocular development
examination of, 8.15–43. See also Examination
before refractive surgery, 13.36t, 13.39–44, 13.42f, 13.43f
ancillary tests and, 13.44–46, 13.45f
external. See External (outer) eye
fellow. See Fellow eye
fluid transport in, 2.294f
glands of, 2.30t
growth and development of
abnormal, 6.182–183, 6.183t
normal, 6.179–182
Gullstrand mathematical model of, 3.59, 3.124, 3.125, 3.126f, 3.127t, 3.243, 3.270
hereditary diseases of. See Hereditary dystrophies
infection of. See Infection (ocular)
information about position of (efference copy information), 5.40
injury to. See Trauma
malformation of, 6.182–183
normal flora of, 8.205–206, 8.206t
optic of
accommodation, 3.140–141
axes, 3.128–129, 3.129f
binocular states, 3.139–140
contrast sensitivity, 3.134–136, 3.135–136f
contrast sensitivity function, 3.134–136
developmental hyperopia, 3.143
developmental myopia, 3.142–143
mathematical models of, 3.125, 3.126f
pupil size effects on visual resolution, 3.129–131
refractive errors, 3.141f, 3.141–142
refractive states, 3.136–139, 3.137–138f
schematic eye and, 3.125–128, 3.126f, 3.127t, 3.128f. See also Schematic eye
visual acuity, 3.131–134, 3.132–133f
phthisical (phthisis bulbi), 4.22, 4.23, 4.23f
retinoblastoma regression and, 4.301
physical examination of. See Examination
removal of. See Anophthalmic socket surgery;
Enucleation; Evisceration; Exenteration
schematic, 3.127t
in systemic malignancies, 4.197, 4.303–316
traumatic injury of. See Trauma
tumors of. See Intraocular tumors
Eye Bank Association of America (EBAA), 8.414
Eye banking, 8.413–417, 8.415f, 8.416f, 8.416t. See also Cornea, transplantation of; Donor cornea
screening for prior LASIK and, 13.198
Eye drops. See Eyedrops
eye fields
frontal (FEFs), 5.32f, 5.33, 5.34f, 5.37f
saccadic control and, 5.219, 5.220
seizures/tonic deviations and, 5.230
parietal, 5.32f
supplementary (SEFs), 5.32f, 5.33
Eye marking, before phacoemulsification, 11.104
Eye movements. See also Ocular motility
abnormalities of
National Eye Institute classification of, 6.147
nystagmus. See Nystagmus
active force generation test, 6.73
binocular
vergence, 6.37, 6.39–40
versions, 6.37–39
electromyography of, 6.32–33
forced duction test, 6.73
monocular

ductions, 6.33
field of action, 6.33–34

gaze position effects on extraocular muscle action, 6.34–37, 6.35–37f
primary action, 6.34
secondary action, 6.34
terminal action associated with, 6.33
tertiary action, 6.34
motor units, 6.32–33
optical coherence tomography tracking of, 12.27
optokineti system of, 6.40
saccadic system of, 6.40
saccadic velocity, 6.73
smooth-pursuit system of, 6.40
supranuclear control systems for, 6.40
vergence system of, 6.40
vestibulo-ocular system of, 6.40

Eye muscles. See Extraocular muscle(s)

Eye pain. See Pain

Eye patches. See Patching

Eye-popping reflex, 5.274

'Eye strain,' pain and, 5.295

Eyelash. See Globe

Eyebrow

botulinum toxin injection in, 7.269
ptosis. See Brow ptosis

Eyelids

Bailey-Lovie, 3.133
for children, 3.38
contrast sensitivity testing, 3.315, 3.316f
distance from patient to, 3.149
Early Treatment Diabetic Retinopathy Study (ETDRS), 3.23f, 3.133f, 3.313f, 3.315f
 pictorial representation of, 3.23f
Snellen
disadvantages of, 3.132–133
letters on, 3.131–134, 3.132f
visual acuity testing using, 3.22, 3.23f

Eyedrops (topical medications)

administration of, 10.184–185
adherence and, 10.186
in children, 10.165

anesthetic
abuse of, 8.89f, 8.89–90
for cataract surgery, 11.92

antibiotic, after cataract surgery, 11.95

conjunctivitis, for glaucoma. See also Corticosteroid(s)

ptosis caused by, 5.273, 5.273f
for glaucoma. See also Antiglaucoma agents

administration of, 10.184–185
adherence and, 10.186
in children, 10.165
ocular allergies treated with, 6.247f
ocular toxicity of, 8.80–81, 8.81f, 8.90f, 8.90–91
contact dermatomeloblepharitis, 8.285–287, 8.286f
pediatric administration of, 6.11–12

Eyeglasses. See Spectacle lenses (spectacles)

Eyelashes (cilia), 2.28, 4.201, 7.170, 8.3, 8.4f

accessory. See Distichiasis

entropion/ptosis of. See Trichiasis

lice infestation of, 8.255
misdirection of. See Trichiasis

in staphylococcal blepharitis, 8.72f, 8.73t, 8.74, 8.254

Eyeld(s), 4.201–221, 5.52, 8.3–4, 8.4f. See also Lower eyelids; Upper eyelids

age-related changes in, 1.183
aluminum deposits in, 4.206–207, 4.207f, 4.207t, 8.186f, 8.187
anatomy of, 2.26–37, 2.28f, 4.201f, 4.201–202, 5.52, 8.3–4, 8.4f
apraxia of opening of, 5.273t, 5.274
arterial supply of, 2.38f, 7.170
in atopic dermatitis, 8.287
basal cell carcinoma of
description of, 4.212f, 4.212–213, 4.213f
intracutaneous extension of, 4.310
biopsy of, 7.203f, 7.203–204
blepharoptosis of. See Ptosis

blood supply to, 2.37–38, 2.38f
botulinum toxin injection into, 6.146
cantal tendon of, 7.168–169, 7.169f
coloboma of
description of, 7.179–180, 7.180f
in Treacher Collins syndrome (mandibulofacial dystostosis), 4.207f

conjunctiva of. See Conjunctiva

connective tissue of, 7.168–169
in contact dermatomeloblepharitis, 8.285–287, 8.286f
creases of, 5.52, 6.197, 7.160, 8.4f
cysts of, 4.208, 4.208f
congenital dermoid, 4.203
ductal, 4.208, 4.208f
epidermoid/epidermal, 4.208, 4.208f
inclusion/sebaceous, 4.208, 4.208f
degenerations of, 4.206f, 4.206–207, 4.207f, 4.207f
orders of, 4.201–221, 5.269–275, 8.45t
blepharon, 6.193
ankyloblepharon, 6.193–194, 6.194f
cataract surgery in patient with, 11.174
chalazia, 6.198–199, 6.199f
chalazion, 7.181–183, 7.182–183f, 7.191, 7.207
coloboma, 6.193, 6.193f
common clinical findings in, 8.45t
congenital, 4.202–203, 4.203f, 6.191–198
ankyloblepharon, 7.175–176, 7.176–177f
coloboma, 7.179–180, 7.180f
cryptophthalmos, 7.180, 7.181f
distichiasis, 7.179, 7.179f
ectropion, 7.174, 7.176f
tropion, 7.179, 7.179f
epiblepharon, 7.176f, 7.178–179
epicanthus, 7.176–177, 177f
euryblepharon, 7.174–175, 7.176–177f, 7.178f, 7.178–179
infantile (capillary) hemangioma, 7.180–181
congenital tarsal kink, 6.194–195
cryptophthalmos, 6.191, 6.193, 6.193f
distichiasis, 6.195, 6.195f
dystopia canthorum, 6.191, 6.192f
ectropion, 6.194
edema, 7.184, 7.184f
entropion, 6.194
epiblepharon, 6.194, 6.195f
epicanthus, 6.196, 6.196f
epithelial lesions, 6.200
euryblepharon, 6.195
evaluation of, 5.169f, 5.269–272, 5.270f, 5.271f
excessive blinking, 6.201–202
eyelid imbriculoma, syndrome, 7.185–186
floppy eyelid syndrome, 7.184–185, 7.185f
hemangiomas, 6.199
horderelon, 6.198–199, 7.183–184, 7.184f, 7.191
immune-mediated, 8.285–287, 8.286f
infections, 6.198–199
inflammatory, 6.198–199
lice infestation, 8.255
lymphedema, 7.184, 7.184f
Marcus Gunn jaw-winking syndrome, 6.198
neoplasms, 4.209–221, 4.210
reduction of, See Entropion
in thyroid eye disease, 4.226, 4.227f, 7.191
See also
ptosis of.

Entropion

epidermal lesions, 6.200
morphologic measurements of, 6.191, 6.192f
in molluscum contagiosum, 8.236–237, 8.237f
infections of, 8.58
before refractive surgery, 13.41, 13.42, 13.43f

Ectropion

evaluation of, 5.169f, 5.269–272, 5.270f, 5.271f
excessive blinking, 6.201–202
lymphedema of, 7.184, 7.185f
hemangiomas, 6.199
in herpes zoster ophthalmicus, 8.227, 8.227f

Entropion

in herpes simplex blepharoconjunctivitis/

inversion of. See Entropion

keratosis of, 8.46f
actinic, 4.210–212, 4.211f, 4.212f
seborrheic, 4.209, 4.209f, 4.210f

lacerations of
description of, 6.378
repair of. See Eyelid(s), surgery/reconstruction of
lower. See Lower eyelids

lymphatic supply of, 2.38, 2.39f, 7.170–171
lymphedema of, 7.184, 7.184f
malformations of, 6.191
malpositions of
blepharoptosis. See Ptosis
ectropion. See Ectropion
entropion. See Entropion
history-taking for, 7.229
nonorganic disorders and, 5.310–311
physical examination of, 7.229
symblepharon, 7.239
trichiasis, 7.239f, 7.239–240
margin of, 2.27, 2.30f, 4.201f, 8.3
anatomy of, 7.163, 7.163f, 7.170, 7.170f
disease of, 8.45
ectropion of. See Ectropion
in evaporative dry eye, 8.55f, 8.58
infections of, 8.254–255, 8.255f
inspection of, 7.288
inversion of, 7.179. See also Entropion
lacerations of, 7.214, 7.215–216f
neus of, 7.196f
reconstruction for defects involving, 7.220–225
in rosacea, 8.70
sebaceous carcinoma of, 7.207
upper eyelid crease to, measurement of, 7.242
vascular and mesenchymal tumors of, 8.345f,
8.345–348
meibomian glands of, 7.170
melanoma of, 4.220, 4.221f
milia of, 7.189, 7.189f
in molluscum contagiosum, 8.236–237, 8.237f, 8.238f
morphologic measurements of, 6.191, 6.192f
movement of, 2.255
muscles of, 2.28, 2.31f, 2.33–35, 5.52
levator, 7.165, 7.165f
for protraction, 7.161–163, 7.162–163f
for retraction, 7.164–167, 7.165–167f
neoplasms of. See Eyelid(s), tumors of
nevi involving, 4.218f, 4.218–220, 4.219f
normal flora of, 8.205, 8.206f
orificial fat, 7.164, 7.164f
orificial septum, 7.163–164
orbital tumors from, 7.101
palpebral fissure of, 2.26, 2.27f, 2.36f
in Parkinson disease patients, 1.206
perforating injury of, 6.377f
plexiform neurofibroma involving, 5.269f
positional changes in, 6.173, 6.173f
protraction of
muscles for, 7.161–163, 7.162–163f
spasm (benign essential blepharospasm/BEB). See
Blepharospasm
ptosis of. See Ptosis
racial variations in, 2.27, 2.29f, 7.160–161, 7.161f
redundancy of. See Dermatochalasis
130 • Master Index

retraction of, 5.274, 5.275f, 5.275t
bilateral, 7.253, 7.254f
causes of, 7.253
congenital, 7.253
definition of, 7.252
in dorsal midbrain (Parinaud) syndrome, 5.229, 5.252, 5.274, 5.275t
iatrogenic, 7.253
lower, 7.252, 7.253f, 7.254
management of, 7.253
muscles for, 7.164–167, 7.165–167f
in thyroid eye disease, 4.226, 4.227f, 5.131, 5.274, 5.275f, 5.275t, 7.253
upper, 7.253, 7.254f
in rosacea, 8.70
in scleroderma, 4.207t
sebaceous adenocarcinoma/sebaceous gland
carcinoma of, 4.210t, 4.215–218, 4.216f, 4.217f, 8.327, 8.337f, 8.337–338
skin of, 2.27–29, 2.29–30f, 4.201, 4.210, 7.159–161, 7.160–161f, 8.3–4
amyloid deposits in, 4.206–207, 4.207f, 4.207t, 8.186f, 8.187
healing/repair of, 4.17
melanoma arising in, 4.220, 4.221f
tumors of: See also Eyelid(s), tumors of
melanoma, 4.220, 4.221f
in SLE, 4.207t
specimen collection from, 8.208–209, 8.209t
squamous cell carcinoma of, 4.213, 4.214f
actinic keratosis and, 4.211
well-differentiated (keratoacanthoma), 4.209–210, 4.210f, 4.211f
in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and
toxic epidermal necrolysis), 8.297, 8.297f, 8.298
structural layers of, 7.159–171
subcutaneous connective tissue of, 7.159–161
suborbicular fat pads of, 7.168
surgery/reconstruction of
eyelid defects
lower eyelid, 7.222–225, 7.223–224f
not involving eyelid margin, 7.220, 7.221f
upper eyelid, 7.220–221, 7.222f
for eyelid trauma. See Eyelid(s), trauma to
indicators for, 7.205
lateral canthal defects, 7.225, 7.226–227f
medial canthal defects, 7.226, 7.227f, 7.228
for mucous membrane pemphigoid, 8.303
principles of, 7.220
priorities in, 7.219–220
suspenory anatomy of, 7.165f
systemic diseases manifesting in, 4.206–207, 4.207t
in systemic sclerosis, 4.207t
tarsus of, 7.168, 7.169f
in thyroid eye disease, 4.226, 4.227f, 5.131, 5.274, 5.275f, 5.275t. See also Thyroid eye disease
topography of, 4.201f, 4.201–202
trauma to
blunt, 7.213
burns, 7.218–219, 7.218–219f
canthal soft tissue, 7.214–216
dog bites as cause of, 7.218
human bites as cause of, 7.218
lacerations, 7.214–216f
management of, 7.213
margin, 7.214, 7.215–216f
penetrating, 7.213–216
repair of. See Eyelid(s), surgery/reconstruction of
secondary repair of, 7.216–218, 7.217f
tarsconjunctival flaps for, 7.218
tumors of, 4.209–221, 4.210f, 8.327
actinic keratoses valuable for, 7.199
forces of, 7.218
intraocular extension of, 4.310
epithelial lesions, 7.189–190, 190f
melanocytic, 4.218f, 4.218–220, 4.219f
blue nevi, 7.198
dermal melanocytosis, 7.198, 7.198f
ephelis, 7.197
lentigo simplex, 7.197
nevi, 7.195–197, 7.196–197f
solar lentigo, 7.197–198, 198f
sources of, 7.194–195
clinical evaluation of, 7.186–187
cutaneous horn, 7.188–189
cylindroma, 7.193, 7.193f
dermal, 4.214, 4.215f
dermal appendage, 4.214–218, 4.215f, 4.216f, 4.217f
eccrine hidrocystoma, 7.193
Kaposi sarcoma, 5.349, 7.211, 7.211f
intraocular extension of, 4.310
epithelial hyperplasia, 7.187–189, 7.188f
frozen section/Mohs surgery for, 4.44f, 4.44–45
in situ epithelial malignancies, 7.199–200
keratoacanthoma, 4.209–210, 4.210f, 4.211f, 7.199–200
lentigo maligna, 7.200
malignant, 4.210f, 4.212f, 4.212–213, 4.213f
7.205–205, 7.201–203f
intraocular extension of, 4.310
intraocular extension of, 4.310
Kaposi sarcoma, 5.349, 7.211, 7.211f, 8.345f, 8.347–348
melanocytic (melanoma), 4.220, 4.221f
melanoma, 7.208–211, 7.209f
Merkel cell carcinoma, 7.212, 7.212f
sebaceous adenocarcinoma/sebaceous gland
squamous cell carcinoma, 4.213, 4.214f, 7.205–206, 7.206f
actinic keratosis and, 4.211
in situ, 7.199
well-differentiated (keratoacanthoma), 4.209–210, 4.210f, 4.211f
melanocytic
  benign, 4.218f, 4.218–220, 4.219f, 4.221f
  malignant (melanoma), 4.220, 4.221f
pilomatrixoma, 7.194, 7.195f
premalignant
epidermal, 7.198–199, 7.199f
epidermal (actinic keratosis), 4.210–212, 4.211f, 4.212f
melanocytic, 7.200
pseudoepitheliomatous hyperplasia, 7.188
sebaceous adenoma, 7.191
sebaceous hyperplasia, 7.191
syringomas, 7.192, 7.192f
systemic malignancies and, 4.209, 4.210f
trichilemmoma, 7.194
trichoepithelioma, 7.193, 7.194f
trichofolliculoma, 7.193, 7.194f
vascular and mesenchymal, 8.345–348
verruca vulgaris, 7.188, 7.188f
vascular supply of, 2.37–38, 2.38f, 5.12, 5.13f, 5.14f, 5.17, 7.157, 7.158–159f, 7.170–171
venous drainage of, 5.21f, 5.23, 7.171
vertical rectus muscle attachment of, 6.30f
Eyelid artifact, in perimetry, 10.66
Eyelid droop. See Ptosis
Eyelid hygiene
  in blepharitis/meibomian gland dysfunction, 8.66–68, 8.72, 8.76
  in chalazion/hordeolum, 8.77
Eyelid imbrication syndrome, 7.185–186
Eyelid myokymia, 5.282f, 5.284
Eyelid retractor/speculum
  for examination in conjunctival foreign body, 8.397
  for examination/management in chemical injury, 8.381, 8.382f
  for globe exposure, in cataract surgery, 11.105, 11.105f
Eyelid taping
  for exposure keratopathy, 8.80
  for floppy eyelid syndrome, 8.83
  as tarsorrhaphy alternative, 8.373
Eyelid weights
  for corneal exposure in facial palsy, 5.281
  for exposure keratopathy, 8.80
Eyelid–globe incongruity, 2.257

F
F, See Trifluridine
FA. See Facial artery; Fluorescein angiography
Fab fragment, of B cells, 9.41
Fabry disease (angikeratoma corporis diffusum), 2.204f, 2.232f, 2.235, 6.270, 6.388t, 8.176–178, 8.177f, 12.291–292
Face. See also under Facial
  aging. See Aging face
  anatomy of, sensory and motor components and, 5.47–52
  arterial network of, 7.157, 7.158–159f
  mimetic muscles of, 7.153, 7.154f
  rejuvenation techniques for. See Facial rejuvenation
  sensory innervation of, 7.155
superficial musculoaponeurotic system of, 7.151–153, 7.152f
temporal/parietal fascia of, 7.151, 7.153
vascular supply of, 7.157, 7.158–159f
Facelift. See Facial rejuvenation
Facial angiofibromas, 2.229, 6.397
  in tuberous sclerosis, 5.331f, 5.334f
Facial angina. See Nevus/nerve, flammeus
Facial artery (FA), 2.23f, 2.38f, 5.12, 5.13f, 5.14f, 5.15f
Facial asymmetry, torticollis and, 6.82
Facial clefts. See Craniofacial malformations
Facial colliculus, 2.134, 5.49
Facial colliculus syndrome, 5.189
Facial contracture, spastic paretic, 5.284
Facial defects. See Craniofacial malformations
Facial description, in confrontation testing, 5.83
Facial diplegia
  in Guillain-Barré syndrome, 5.280
  in pontine lesions, 5.278
Facial dystonia
  benign essential blepharospasm, 7.256–258
  hemifacial spasm, 7.258
Facial genu, 5.40, 5.41
  in hemifacial spasm, 7.258
Facial myokymia, 5.282f, 5.284
Facial nerve block, for cataract surgery, 11.92, 11.93f
Facial nerve. See Cranial nerve VII
Facial myokymia, 5.282f, 5.284
Facial nerve block, for cataract surgery, 11.92, 11.93f
Facial numbness, pain associated with, 5.298
Facial nerve, 5.275, 5.276–277
  overactivity and, 5.281–285, 5.282f, 5.283f
  underactivity and, 5.275, 5.276–277f, 5.277–281, 5.278f, 5.279f
  See also Facial paralysis/weakness
evaluation of, 5.269, 5.271f, 5.271–272
Facial muscles, innervation of, 5.49–52, 5.50–51f.
  See also Cranial nerve VII
Facial myokymia, 5.282f, 5.284
Facial nerve. See Cranial nerve VII (facial nerve)
Facial nerve block, for cataract surgery, 11.92, 11.93f
Facial numbness, pain associated with, 5.298
Facial pain, 5.289, 5.296–298.
  Headache; See also Facial numbness, pain associated with
Facial paralysis/weakness, 5.275, 5.276–277f, 5.277–281, 5.278f, 5.279f
  bilateral, 5.280
  brainstem lesions causing, 5.278, 5.278f
  cataract surgery in patient with, 11.174
  in HIV infection/AIDS, 5.280
  nuclear lesions causing, 5.276f
  paralytic ectropion, 7.254–255
  peripheral lesions causing, 5.278–280, 5.279f
  progressive, 5.280
  recurrent, 5.280
  in sarcoidosis, 5.280, 5.327
  seventh nerve lesions causing, 5.275, 5.276–277f
  supranuclear lesions causing, 5.276f, 5.277–278
  treatment of, 5.280–281
  upper eyelid paralysis, 7.255–256
Facial rejuvenation
autologous fat grafting for, 7.271
botulinum toxin for, 7.269–720
dermal fillers for, 7.270f, 7.270–271
hyaluronic acid fillers for, 7.270, 7.270f
laser skin resurfacing for, 7.268–269
nonsurgical, 7.268–271, 7.270f
soft-tissue dermal fillers for, 7.270f, 7.270–271
surgical techniques for, 7.271–276, 7.272–275f
Facial surgery, 7.271–276, 7.272–275f. See also Eyelid(s), surgery/reconstruction of: specific procedure
Facial synkinesis, 5.271, 5.271f
Facial tic (habit spasm), 5.285
Facial vein, 5.21f, 5.22, 5.23
eyelids drained by, 5.21f, 5.23
Facial venous system, 5.23
Facilitated diffusion, glucose transport into lens and, 11.17
Factitious disorders, 1.197
ocular surface, 8.88–90, 8.89f
Factor IX
activation of, 1.138
deficiency of, 1.144
Factor V, 1.146
Factor V Leiden, 1.146–147
Factor VII, 1.138
Factor VIII deficiency. See Hemophilia A
Factor Xa inhibitors, 1.149
Facultative suppression, 6.49
Fadenoperation, 6.128, 6.164
FALK. See Femtosecond anterior lamellar keratoplasty
Fallopian canal, 5.52, 5.56
Falk. See Fetusomal anterior lamellar keratoplasty
Familial adenomatous polyposis (FAP/Gardner syndrome), 12.285–286
congenital hypertrophy of retinal pigment epithelium in, 2.201, 2.202f
description of, 6.349, 6.350f
retinal manifestations of, 4.144–145, 4.269
Familial amyloid polyneuropathy (FAP), 4.134, 4.134f, 4.206
vitreous involvement/opacification and, 4.134, 4.134f
Familial amyloidosis, 4.134, 4.134f, 4.206, 8.186f, 8.187
Finnish/gelsolin type (Meretoja syndrome), 4.206, 8.186f, 8.187, 8.188f
with lattice corneal changes, 8.146, 8.185–187
primary of cornea (subepithelial amyloidosis/gelatinous drop-like dystrophy), 8.135f, 8.136f, 8.140–141, 8.141f, 8.185–187, 8.186f
Familial cerebello retinal angiomatosis. See von Hippel-Lindau (VHL) disease/syndrome
Familial Creutzfeldt-Jakob disease (ICJD), 5.357
Familial disorder, 2.210
Familial dysautonomia (FD/Riley-Day syndrome)
congenital corneal anesthesia and, 8.108
description of, 2.204f, 2.229, 6.271
Familial exudative vitreoretinopathy (FEVR), 6.347–348, 6.348f, 12.343–344, 12.345f
Familial glaucoma iridiodioplasias. See Axenfeld-Rieger syndrome
Familial hemiplegic migraine, 5.291
Familial juvenile nephropathisis, 12.285
Familial juvenile systemic granulomatosis, 6.319
Familial oculorenal syndromes, 6.319–320, 6.319–320f
Familial juvenile systemic granulomatosis, 6.391–392, 6.391–392f
Family history/familial factors.
Familial oculorenal syndromes, 6.391–392, 6.391–392f
Familial papillary renal carcinoma, 12.285–286
Familial peritoneal dialysis, 2.200
Familial Raynaud syndrome, 1.179
Familial retinoblastoma, 1.112
Familial retinourinary syndrome, 2.213
Familial renal/properitoneal cystic disease, 2.212
Familial retinopathy associated with deafness, 1.179
Familial retinopathy, 2.212
Familial exudative vitreoretinopathy (FEVR), 6.347–348, 6.348f
Familial systemic granulomatosis, 6.319
Familial uveoretinopathy, 1.111
Faminsky syndrome, 11.17
Famotidine, 1.288
Faropenem, 1.273
Fas ligand (CD95 ligand/FasL)
FAS.
FasL.
FasL.
Fas ligand (CD95 ligand)
Fas ligand (CD95 ligand/FasL)
FasL.
Faropenem, 1.273
FAS. See Fetal alcohol syndrome
Fas ligand (CD95 ligand/FasL)
in apoptosis
description of, 9.57
in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis), 8.296
congenital cerebellar malformation, 8.296
in effector blockade, 9.57
Fasanella-Servat procedure, 7.250
Fascia, orbital, 6.27
Fascia bulbi, 2.44, 6.26. See also Tenon capsule
cranial nerve III (oculomotor), 5.44–50
cranial nerve IV (trochlear), 5.43
Fas ligand (CD95 ligand/FasL)
in apoptosis
description of, 9.57
in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis), 8.296
congenital cerebellar malformation, 8.296
in effector blockade, 9.57
Fasanella-Servat procedure, 7.250
Fascia lata, 7.255
Fascia posterior, 7.255
Fascia solitarius, 5.51
Fascicles
cranial nerve III (oculomotor), 5.44–45
cranial nerve IV (trochlear), 5.43
cranial nerve V (trigeminal), 5.48
cranial nerve VI (abducens), 5.41
cranial nerve VII (facial), 5.49
Fascicular ocular motor nerve palsy, 5.191
Fascitis, nodular, 4.112, 4.113f, 8.347
episcleral tumor caused by, 4.112
Fastigial nucleus, 5.40
Fasting, preoperative, 1.287–288
Fasting hypoglycemia, 1.300
Fasting hypoglycemia, 1.300
Fasting, preoperative, 1.287–288
Fasting plasma glucose (FPG), in diabetes mellitus diagnosis, 1.34
Fat decompression, 7.130
Fat emboli/embolism
description of, 12.141, 12.173
transient visual loss caused by, 5.165
Fat-suppression/saturation techniques, in MRI, 5.58, 5.58f, 5.62–65, 5.65f, 5.66f, 5.67f
Fatal familial insomnia (FFI), 1.211, 5.357
Fatty acid supplements, for dry eye, 8.61, 8.61f, 8.64, 8.68
Fatty streak, 1.81
FAZ. See Foveal avascular zone
FBN1 gene, 6.307
in Marfan syndrome, 8.194
Fc receptors
antibody, 9.12
description of, 9.3
mast-cell, 9.19
types of, 9.47
FCD. See Fleck corneal dystrophy
FCJD. See Familial Creutzfeldt-Jakob disease
FD. See Familial dysautonomia
FD-OCT. See Fourier-domain optical coherence tomography; Frequency-domain optical coherence tomography
FDA. See Food and Drug Administration
FDCA. See Food, Drug, and Cosmetic Act
FDF perimetry. See Flicker-defined form (FDF) perimetry
FDG-PET (fluorodeoxyglucose positron emission tomography) in sarcoidosis, 5.328
FDT perimetry. See Frequency-doubling technology (FDT) perimetry
Fecal immunochemical test (FIT), for colorectal cancer screening, 1.218–219
FECD. See Fuchs endothelial corneal dystrophy
Federal Fairness to Contact Lens Consumers Act, 3.235
FEFs. See Frontal eye fields
Feiz and Mannis formula, for IOL power determination/selection, 11.86
Fellow eye. See also Sympathetic ophthalmia
macular hole risks, 12.339
in patient with AAION, 5.120, 5.120t, 5.121–122
in patient with acute angle closure, 10.123, 10.125
in patient with exfoliation syndrome, 10.91
in patient with malignant optic glioma of adulthood, 5.130
in patient with NAION, 5.120t, 5.123
in patient with optic neuritis, 5.115
in patient with traumatic/angle-recession glaucoma, 10.108
retinal detachment in, 12.319
sympathetic ophthalmia and. See Sympathetic ophthalmia
Fells modification of Harada-Ito procedure, 6.167
Feldty syndrome, 1.152
Femto-LASIK. See Femtosecond laser in situ keratomileusis
Femtosecond anterior lamellar keratoplasty (FALK), 8.412t, 8.431, 8.434
Femtosecond laser, 13.29
for anterior/deep anterior lamellar keratoplasty, 8.412t, 8.431, 8.434
for arcuate keratotomy incisions, 13.54, 13.55
for cataract extraction, 11.125–126
for corneal inlay insertion, 13.61, 13.169
for corneal intrastromal treatment, 13.168
for intrastromal corneal ring segment incisions/channels, 13.64
for LASIK flap creation, 13.8t, 13.87–90, 13.88f, 13.89f, 13.90t, 13.90f
advantages/disadvantages/complications of, 13.88, 13.90t, 13.122–124, 13.123f
re-treatment/enhancements and, 13.98
steep or flat corneas and, 13.44–45, 13.79
for lenticule extraction, 13.8t, 13.27–28, 13.203
for photodisruption, 13.29
for presbyopia treatment, 13.168
for relaxing incisions after penetrating keratoplasty, 8.432
for small-incision lenticule extraction, 13.204
Femtosecond laser-assisted keratoplasty (FLAK), 8.412t, 8.431, 8.434
Femtosecond laser in situ keratomileusis (FLASK), 13.8t. See also Femtosecond laser, for LASIK flap creation
Femtosecond lenticule extraction (FLEk), 13.8t, 13.27–28, 13.203
Fenofibrate, diabetic retinopathy progression affected by, 12.102
Fenoprofen, 2.409t
Fenoterol, 1.128
Fentanyl, 1.290, 1.306
Fermat principle
definition of, 3.40, 3.70
description of, 3.86–88, 3.274
point spread function and, 3.275
wavefront analysis based on, 3.274
Ferrara rings, 13.62–63. See also Intrastromal corneal ring segments
Ferrous sulfate, for iron deficiency anemia, 1.133
Ferry lines, 8.118t
Fetal alcohol syndrome (FAS), 1.199, 6.183, 6.211–212, 6.212f, 6.361
Fetal lens nucleus, 4.117, 11.13, 11.27–28f, 11.28–29
opacification of (congenital nuclear cataract), 11.38, 11.39f
Fetal vasculature, persistent. See Persistent fetal vasculature
Fetus
irradiation effects on, 1.239
maternal antiglaucoma agents affecting, 10.185–186
FEV1. See Forced expiratory volume over 1 second
FEV1/FVC ratio. See Forced expiratory volume over 1 second/forced vital capacity (FEV1/FVC) ratio
FEVR. See Familial exudative vitreoretinopathy
Feynman, Richard, 3.96
FFI. See Fatal familial insomnia
FGFs. See Fibroblast growth factors
FHU. See Fuchs heterochromic uveitis
Fiber layer of Henle (HFL), 2.84, 2.92, 2.94f, 4.140, 4.141f, 5.24. See also Nerve fiber layer
Fibric acids, for hypercholesterolemia, 1.75f
Fibrillin, 2.298
defects in, in Marfan syndrome, 8.193–194, 11.40
Fibrillin-1, 6.307
Filamentous fungi, 8.249, 8.249, 8.251

Filamentary keratopathy, 8.56, 8.56

See Fifth cranial nerve.

Field of vision.

See Field loss, vision rehabilitation for, 3.325–326

See Field defects.

Fibroxanthoma.

Fibrovascular plaque, anterior, in persistent fetal vasculature, 8.125, 8.126f

Fibroxanthoma. See Fibrous histiocytoma

Field defects. See Visual field defects

Field loss, vision rehabilitation for, 3.325–326

Field of vision. See Visual field

Fifth cranial nerve. See Cranial nerve V

Filamentary keratopathy, 8.56, 8.56f

in graft-vs-host disease, 8.304

treatment of, 8.63

Filamentous fungi, 8.249, 8.249t, 8.250f, 8.251

keratitis caused by, 8.251, 8.273, 8.274f, 8.275

as normal flora, 8.206f

ocular infection caused by, 8.251

Filaments, corneal, 8.46f

in aqueous tear deficiency, 8.56, 8.56f

Filaments (bacteria), gram-positive, 8.244t, 8.248–249

Filariae

Loa loa, 8.282

orbital involvement and, 4.228

onchocercal, 8.252–253

Filgrasin, 2.285, 11.16

Filtering bleb

cataract surgery in eye with, 11.187

d lenspha
timulitis associated with, 10.163, 10.209, 10.209t, 10.210f

evaluation for, before glaucoma surgery, 10.31

 inadvertent, after cataract surgery, 11.130–131

LASIK and, 13.182

in trabeculectomy, 10.200, 10.206–207, 208f

postoperative complications and, 10.209, 10.209t, 10.210, 10.210f, 10.211

Filtering procedures, 10.197–211. See also

Trabeculectomy

cataract surgery after, 10.211–213, 11.186, 11.187

conjiunctival evaluation before, 10.31

flat or shallow anterior chamber/angle-closure

glaucoma and, 10.144–145

LASIK and, 13.182

for neovascular glaucoma, 10.135

for pigmented glaucoma, 10.96

Fimbriae, bacterial, 8.244

Fine-needle aspiration biopsy (FNAB), 4.34

Fimbriae, bacterial, 8.244

Fingerprint lines, in epithelial basement membrane

dystrophy, 8.117

Fingolimod- associated macular edema (FAME), 5.320, 5.321

for multiple sclerosis, 5.320, 5.321t, 9.152

macular edema and, 5.320, 5.322f

Fingolimod-associated macular edema (FAME), 5.320, 5.322f

Finnish (gelsolin) type amyloidosis (Meretoja syndrome), 4.206, 8.186t, 8.187, 8.188f

Finnish Twin Cohort Study, 10.10

Finoff transilluminator, 3.33

FIPTs. See Focal intraretinal peripapillary transducts

First-generation antipsychotics, 1.199–201, 1.200t

First-generation cephalosporins, 2.419

First nodal point, 3.66

First-order aberrations, 13.11

First-order approximation. See Paraxial rays

First-order neuron, 5.52, 5.53, 5.53f

Horner syndrome caused by. See Paraxial rays

First-order neuron, 5.52, 5.53, 5.53f

Horner syndrome caused by lesions of, 5.257, 5.259, 5.260f

First principal plane, 3.56, 3.58

FISH. See Fluorescence in situ hybridization

Fish eye disease, 8.180

Fishbone diagram, 1.30–31
Fissures
calcaneal, 5.29f, 5.29–30
-orbital, 5.6f, 5.7f, 5.9f, 5.11
-inferior, 5.7f, 5.9f, 5.11
-superior, 5.6f, 5.7f, 5.9f, 5.11
-ophthalmoplegia caused by lesions of, 5.203

Fistulas
arteriovenous, 7.78, 7.78f
-glaucoma associated with, 10.30
carotid-cavernous, 5.203–206, 5.204f, 5.205f,
7.78–79f, 80
-neuroimaging in evaluation of, 5.70, 5.72f, 5.204,
5.204f, 5.205f
-congenital lacrimal, 6.228, 6.229f
-lacrimal–cutaneous, 7.286, 7.286f
-Fistulizing procedures, 10.197–211. See also Filtering procedures

FIT. See Fecal immunochaemic test

Fite-Faraco stain, 4.31f

Fitting (contact lens), after refractive surgery, 13.199, 13.200. See also Contact lenses, fitting of

Fitzpatrick skin type, 7.268

5-Fluorocytosine, 2.431

5-FU. See Fluorouracil/5-fluorouracil

Fixation (visual), 5.212, 5.212f, 5.213–214
-alternating, 6.16
-amblyopia evaluations, 6.56–57
-assessments of, in preverbal children, 6.300
-dysfunction of, 5.214
-eccentric
-anomalous retinal correspondence versus, 6.51
-definition of, 6.54
-maintained, 6.6
-monocular, 6.16

near, 6.64
-in normal vision, 3.313–314
-nystagmus and, 5.215, 5.240, 5.241f
-for retinoscopy, 3.152
-spasm of. See Ocular motor apraxia
-steady, 6.6
-uncentral, 6.6

-unsteady, and unmaintained, 6.6
-vestibular-ocular reflex suppression and, 5.225,
5.225f

-in visual acuity assessment in children, 6.5–6

Fixation loss, in perimeter, 5.86

Fixation reflex, 6.300

Fixation switch diplopia, 5.209

Fixatives, for tissue preservation, 4.26, 4.26f

Fixed, dilated pupil, nonorganic causes of, 5.310

Fixed-combination medications, 2.397, 2.397f

FKHL7 gene. See FOXC1 (FKHL7) gene

FL. See Follicular lymphoma

Flagella, bacterial, 8.244

FLAIR (fluid-attenuated inversion recovery) images,
5.62, 5.63f, 5.65, 5.66f, 5.67f, 5.72f, 5.75, 7.28
-in multiple sclerosis, 5.65, 5.66f, 5.316f, 5.319

FLAK. See Femtosecond laser-assisted keratoplasty

Flame hemorrhages, ischemia causing, 4.153, 4.155f

Flap(s)
-advancement, 8.359, 8.359f
-bipedicle, 8.359f, 8.359–360
-conjunctival, 8.354f, 8.356–360, 8.357f, 8.358f, 8.359f

for bare sclera after pterygium excision, 8.353,
8.354f
cataract surgery and
-for ECCE, 11.196
-for ICCE, 11.199
-leak causing inadvertent filtering bleb and,
11.130–131
-for postoperative corneal edema, 11.129–130
-for herpetic eye disease, 8.225
-for neurotrophic keratopathy/persistent corneal epithelial defects, 8.82, 8.357
-for peripheral ulcerative keratitis, 8.313
-removal of, 8.360
-for trabeculectomy, 10.200, 10.201f, 10.202f
-closure of, 10.204, 10.206f
-management of, 10.207–208
-for trabeculotomy, in children, 10.161–162

Cutler-Beard, 7.221, 7.223f

epi-LASIK, 13.84

eyelid defects reconstructed using, 7.220

Gundersen, 8.357f, 8.357–358, 8.358f, 11.129

LASIK, 13.30, 13.73, 13.75f, 13.79, 13.82, 13.84–90
-aberrations associated with creation of, 13.102–
103, 13.103f
-buttonhole, 13.110, 13.110f
-corneal inlay insertion and, 13.60, 13.169
-corneal transplantation and, 13.198
-dislocation of, 13.113, 13.115–116
-striae and, 13.113
-traumatic, 13.115–116
-femtosecond, 13.8f, 13.87–90, 13.88f, 13.89f, 13.90f
-aberrations and, 13.102–103
-advantages/disadvantages/complications of,
13.88, 13.90f, 13.122–124, 13.123f
-re-treatment/enhancements and, 13.98
-steep or flat corneas and, 13.44–45, 13.79
-glaucoma/ elevated intraocular pressure and,
13.181, 13.201

haze formation and, 13.33

-immediate postablation care of, 13.92–93
-infected, 13.107, 13.107f, 13.117–119
-diffuse lamellar keratitis differentiated from,
13.117–118, 13.118f, 13.118f
-microkeratome, 13.84–87, 13.85f, 13.86f, 13.87f
-aberrations and, 13.102
-complications associated with, 13.110f,
13.110–112, 13.111f
-re-treatment/enhancements and, 13.98
-penetrating keratoplasty and, 13.180
-re-treatment/enhancements and, 13.98–99, 13.99f
-retinal detachment repair and, 13.185, 13.197
-steep or flat corneas and, 13.44–45, 13.79
-striae in, 13.112–115, 13.114f, 13.115f
-modified Hughes, 7.223–224f, 7.224

Mustardé, 7.224, 7.225f

scleral, for trabeculectomy, 10.200–201, 10.203f
-closure of, 10.204, 10.205f
-management of, 10.207–208

single pedicle, 8.359f, 8.359–360

Flap folds, after LASIK, 13.112–115, 13.114f, 13.115f. See also Striae

Flap tears, of retina, 12.315, 12.318–319

Flarex. See Fluorometholone
Flash visual evoked potential, 5.95
in nonorganic disorder evaluation, 5.302
Flashing lights. See Photopsias
Flat anterior chamber. See Anterior chamber, flat or shallow
Flat refracting surface, optics of, 3.44–45
Flattening
in myopia surgery, 13.26, 13.80
progressive, after radial keratotomy, 13.51
Flaviviridae, 1.265
Flattening
Flat anterior chamber.
Flexible sigmoidoscopy, for colorectal cancer screening,
Flexible-loop anterior chamber intraocular lenses,
FLEx. See Fleurettes,
Fleck corneal dystrophy (FCD), 8.135f, 8.136f, 8.153, 8.163f
Fleck corneal dystrophy (FCD), 8.135f, 8.136f, 8.153, 8.163f
Fleurettes
in retinoblastoma, 4.175, 4.175f
in retinocytoma, 4.178, 4.178f
in medulloepithelioma, 4.178, 4.178f
in retinoblastoma, 4.174–175, 4.175f
FlexOptic intraocular lens, 13.170
Flexible sigmoidoscopy, for colorectal cancer screening,
Flexible-endothelial keratoplasty,
Flexner-Wintersteiner rosettes, 6.353
Flexible-endothelial keratoplasty,
Fleischer rings, 4.95f, 4.96, 6.254, 8.117, 8.118f, 8.163f
Flexible-endothelial keratoplasty,
Fleischer rings, 4.95f, 4.96, 6.254, 8.117, 8.118f, 8.163f
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
Flexible-endothelial keratoplasty,
in choroidal melanoma/ciliary body melanoma, 4.265
choroidal neovascularization on, 12.36, 12.37f,
12.72–73, 12.73–12.74f
in choroidal nevus, 4.257
chordoidemia on, 12.268
in Coats disease, 4.295, 4.295f, 6.359, 6.359f, 12.160f
cystoid macular edema on, 12.36f, 12.157f
in Dengue fever, 9.267
description of, 3.303
drusen on, 12.65
epiretinal membranes on, 12.335
familial exudative vitreoretinopathy on, 12.345f
fluorescein dye used in, 12.36
foveal avascular zone in, 12.9
fovea in, 12.34
fusional maldevelopment
fusion/fusional maldevelopment
in intermediate uveitis, 9.148
in iris melanoma, 4.260–261
ischemic central retinal vein occlusion on, 12.132
in iris melanoma, 4.260–261
in intermediate uveitis, 9.148
in juvenile dermatomyositis, 9.398
in juvenile dermatomyositis, 9.398f
in juvenile dermatomyositis, 9.398f
illustration of, 12.34f
in low vision evaluation, 5.89, 5.89f
lupus vasculitis on, 12.231
in lymphoma, 4.311
macular telangiectasia type 2 on, 12.163, 12.163f
in metastatic eye disease, 4.306
in multifocal choroiditis and panuveitis syndrome,
macular telangiectasia type 2 on, 12.163, 12.163f
in lymphoma, 4.311
macular telangiectasia type 2 on, 12.163, 12.163f
in lupus erythematosus, 9.878
in neurosyphilis, 9.253, 9.254f
in ochronosis, 5.16
in ocular sympathetic ophthalmia, 9.198f
in ocular ischemic syndrome, 9.310, 12.138, 12.139f
in optic nerve/vitreous head/disc drusen versus
papilledema, 5.142
in optic neuritis, 5.123f
optical coherence tomography angiography versus, 12.29
in pars planitis, 9.148
in pregnancy, 12.36
prepapillary vascular loops on, 12.341
in primary vitreoretinal lymphoma, 9.305
in punctate inner choroiditis, 9.163f, 9.182, 9.183f
radiation retinopathy on, 12.170, 12.170f
recirculation phase of, 12.34
retinal cavernous hemangioma on, 12.169f
in retinal disease, 12.33–38, 12.34f, 12.36–12.37f.
See also specific disease
in retinal disease, 12.33–38, 12.34f, 12.36–12.37f.
See also specific disease
cavernous hemangioma, 4.286
hemangioblastoma, 4.284, 4.284f
retinal pigment epithelium cells on, 12.34
in serpiginous choroiditis, 9.163f, 9.175f
skin yellowing caused by, 12.36
Stargardt disease on, 12.269–270, 12.270f
in subretinal fibrosis and uveitis syndrome, 9.163f,
9.184
in sympathetic ophthalmia, 9.200, 9.201f
-technique for, 12.33–34, 12.34f
in tubercular uveitis, 9.236, 9.237f
uveal effusion syndrome on, 12.204f
in uveitis, 9.88, 9.89f
vascular filling defects in, 12.35
vitreoretinal traction syndrome on, 12.337
in Vogt-Koyanagi-Harada disease/syndrome,
in West Nile virus, 9.263, 9.264f
wide-angle, 12.36, 12.37f
Fluorescein sodium/benoxinate, 2.439f
Fluorescein sodium/proparacaine, 2.439f
Fluorescence, 3.11f
Fluorescence in situ hybridization (FISH), 2.221–222,
4.38f
Fluorescent polymerase chain reaction, 2.239
Fluorescent treponemal antibody absorption (FTA-ABS) test, 1.253, 9.224–225, 12.241
Fluorexon, 8.36
5-Fluorocytosine. See Fluocytosine
Fluordeoxyglucose positron emission tomography (FDG-PET), in sarcoidosis, 5.328
Fluorometholone (FML) description of, 2.400f, 2.402, 2.402f
elevated intraocular pressure after photoablation associated with, 13.182
for Thygeson superficial punctate keratitis, 8.307
Fluorometholone/sulfacetamide, 2.422
Fluorophores, in fundus autofluorescence, 12.29
Fluorophotometry, 10.17
Fluoroquinolones, 2.420, 2.422–423
adverse effects of, 1.274
for bacterial conjunctivitis, 6.240
for bacterial keratitis, 8.269, 8.270f, 8.271
corneal deposits caused by, 8.131
description of, 1.274
for gonococcal conjunctivitis, 8.259
in neonates, 8.264
for gonococcal infections, 1.251
Flurouracil/5-fluorouracil (5-FU)
for Thygeson superficial punctate keratitis, 8.307
for bacterial conjunctivitis, 6.240
for bacterial keratitis, 8.269, 8.270f, 8.271
corneal deposits caused by, 8.131
description of, 1.274
for gonococcal conjunctivitis, 8.259
in neonates, 8.264
for gonococcal infections, 1.251
Flurouracil/5-fluorouracil (5-FU) bleb-associated endophthalmitis and, 10.209
description of, 2.359, 2.371f, 2.413–414
for ocular surface tumors, 8.327, 8.330f, 8.331
in trabeculectomy, 10.205–207
Fluoxetine, 1.308
Fluphenazine, oculogyric crisis caused by, 5.231
Fluribiprofen sodium, 2.409
Flurisoxene, 8.36
Fluvastatin, 1.75
Flutter
nystagmus syndrome
in neonates, 8.264
“Flying spot” excimer lasers, 3.277
Flying spot lasers, for photoablation, 13.31
FML. See Flurometholone
FML Forte Liquifilm. See Flurometholone
FML Liquifilm. See Flurometholone
FML-S. See Flurometholone/sulfacetamide
FML S.O.P. See Flurometholone
FMN/FMNS. See FMN/FMN
fMRI. See Functional magnetic resonance imaging
siderosis bulbi secondary to, 12.362, 12.363f
surgical removal of, 12.360–362
zinc as, 12.362
Foreign body giant cells, 4.7, 4.9f
Foreign-body granuloma, 6.170
Foreign-body sensation, in corneal abrasion, 8.398
Forkhead genes/forkhead transcription factor
Axenfeld-Rieger syndrome and, 8.97f, 8.102, 10.150
ecustroma and, 10.150
in Peters anomaly, 8.97f, 8.103
Form-deprivation errors, 12.216
Form-deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formaline as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formaline as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, amblyopia
Formalin, as tissue fixative, 4.26, 4.26t
Form- vision deprivation amblyopia, 6.55.
Form- deprivation errors, 12.216
Form- deprivation amblyopia, 6.55. See also
Visual deprivation, am
Fumagillin, for microsporidal keratoconjunctivitis, 8.280
Functional imaging, 5.70
Functional magnetic resonance imaging (fMRI), 5.70, 5.75
Functional vision loss. See Nonorganic (functional/ nonphysiologic) ophthalmic disorders
Fundus
arteriolar narrowing of, 12.261
color photograph of, 12.23, 12.23f
evaluation of, 8.19. See also Fundus autofluorescence; Fundus photography; Ophthalmoscopy/ophthalmoscopy; Slit-lamp biomicroscopy/examination
before cataract surgery, 11.80–81
in chorioidal melanoma/ciliary body melanoma, 4.263f, 4.265
in conjunctival neoplasia, 8.328
in glaucoma, 10.32
in infants and children, 10.160
in ischemic optic neuropathy, 5.120, 5.121f
in low vision evaluation, 5.81–82, 5.82f, 5.83f
in ocular ischemic syndrome, 5.170, 5.171f
in optic neuropathy versus maculopathy, 5.100, 5.100f
before refractive surgery, 13.44
examination of, in children, 6.12
Leber congenital amaurosis findings, 6.336, 6.337f
in Leber hereditary optic neuropathy, 5.133, 5.134f
in multiple sclerosis, 5.318
ocular, 3.296
ocular torticollis findings, 6.84
optic disc drusen evaluations, 6.374
primary congenital glaucoma–related findings, 6.284
relative depth of, 3.64
retinitis pigmentosa findings, 12.261, 12.262f
“sunset glow” appearance of, 12.232f, 12.232–233
tomato ketchup, 4.281, 4.283f
Fundus albipunctatus, 12.252, 12.253f
Fundus autofluorescence (FAF), 2.330f, 5.89–90, 5.90f
in acute posterior multifocal placoid pigment epitheliopathy, 9.163f, 9.171, 9.172f
in acute retinal pigment epithelitis, 9.189
in acute zonal occult outer retinopathy, 5.90, 9.163f, 9.191, 9.192f
Best disease on, 6.343f
in birdshot chorioretinopathy, 9.163f, 9.166f, 9.167f
in chorioidal melanoma/ciliary body melanoma, 4.265, 4.266f
in cone dystrophies, 5.102
definition of, 12.29
description of, 12.23f
drusen demonstrating, 5.89, 5.90f, 5.141f, 5.142
fluorophores, 12.29
Gardner syndrome on, 6.350f
hyperspectral, 12.33
in low vision evaluation, 5.89–90, 5.90f
in multiple evanescent white dot syndrome, 9.163f, 9.186f
near-infrared, 12.32–33
optic disc drusen on, 6.373f, 6.374
in punctate inner choroiditis, 9.163f
retinal disease evaluations, 12.29, 12.31–33
retinal pigment epithelium tears on, 12.31, 12.32f
in serpiginous choroiditis, 9.163f, 9.176f
Stargardt disease on, 6.340, 12.270
in subretinal fibrosis and uveitis syndrome, 9.163f
in uveitis evaluations, 9.89
Fundus biomicroscopy. See Slit-lamp biomicroscopy/examination
Fundus camera, 3.301
disadvantages of, 12.23
flash illumination used by, 12.23
for fluorescein angiography, 12.23, 12.36
for indocyanine green angiography, 12.23
operating principles of, 12.22–23
retinal disease evaluations using, 12.22–23, 12.23f
Fundus coloboma, 2.470f
Fundus flavimaculatus (Stargardt disease/juvenile macular degeneration), 4.168–169f, 4.168–170, 6.339, 12.269. See also Stargardt disease
ATP-binding cassette (ABC) transporter protein mutations causing, 4.168–169
description of, 12.44
electroretinography findings in, 12.48f
retinal pigment epithelium in, 4.168–169f, 4.169–170
Fundus oculi, 2.83
Fundus photography in chorioidal melanoma/ciliary body melanoma, 4.263f, 4.265
exudative retinal detachment on, 12.325f
lattice degeneration on, 12.310–12.311f
retinopathy of prematurity screening uses of, 12.184
Fundus pulverlentus, 12.276–277
Fundus-related perimeter, 3.317
Fungal cell wall, 8.249
Fungal endophthalmitis, 12.239, 12.239f
Aspergillus as cause of, 9.300–301
Candida, 9.295–299, 9.296f, 9.299f
coccidioidomycosis as cause of, 9.301–302
cryptococcosis as cause of, 9.299–300
endogenous, 9.295–302, 9.296f, 9.298f, 9.300f
manifestations of, 9.295
“string of pearls” in, 9.296f
Fungal infections antifungal agents for, 1.277, 1.278f
description of, 1.258
Fungal orbital cellulitis, 6.215
Fungal uveitis
ocular histoplasmosis syndrome, 9.272–275, 9.273–274f
polymerase chain reaction for, 9.90
Fungemia, 12.239
Fungi, 8.208, 8.249f, 8.249–251. See also specific organism or type of infection
allergic sinusitis caused by, orbital involvement and, 4.228
chorioretinitis caused by, 4.147, 4.147f
eyelid infections caused by, 8.254–255, 8.255f
isolation techniques for identification of, 8.211
keratitis caused by, 4.78, 4.78f, 8.208, 8.273–276, 8.274f
after photoablation, 13.106–107
plant/vegetable materials and, 4.78, 8.273, 8.387, 8.399
as normal flora, 8.206
ocular infection caused by, 8.208, 8.249–251, 8.254–255, 8.282–283
corneal opacity and, 8.16f
neuro-ophthalmic signs of, 5.353–356, 5.354f, 5.355f
optic nerve infection caused by, 4.243f, 4.243–244
orbital infection caused by, 4.226–228, 4.228f
aspergillosis, 4.227–228, 4.228f
mucormycosis/zygomycosis/phycomycosis, 4.226–227, 4.228f
retinal infection caused by, 4.146–147, 4.147f
scleritis caused by, 8.282–283
stains and culture media for identification of, 8.209f, 8.275

Fungizone. See Amphotericin B

Fusarium, 8.207, 8.208
endophthalmitis, 12.239
keratitis caused by, 4.78, 4.78f, 8.208f, 8.251, 8.273–274, 8.274f, 8.275
oxysporum, 8.251
solanus, 8.251f, 8.274f, 8.275

G

G-W adaptometer. See Goldmann-Weekers (G-W) adaptometer

G6P. See Glucose-6-phosphate

G6PD deficiency. See Glucose-6-phosphate dehydrogenase (G6PD) deficiency

Gα phase, 2.174, 2.176

Gβ phase, 2.175

Gδ phase, 2.175–176

G protein α-subunit (GNAQ/GNA11) genes
in nevus of Ota, 4.64
in uveal melanoma, 4.197

GA. See Geographic atrophy

GABA (gamma-aminobutyric acid) agonists, for nystagmus, 5.245, 5.246

Gabapentin
for nystagmus, 5.236, 5.245, 5.246
for postherpetic neuralgia, 8.230

GAD. See Generalized anxiety disorder; Glutamic acid decarboxylase

Gadolinium, 5.60, 5.75
description of, 2.458
in MR angiography, 5.68
in multiple sclerosis imaging, 5.316f, 5.319
T1-weighted magnetic resonance imaging enhanced with, 7.28, 7.28f

GAGs. See Glycosaminoglycans

Gail model, 1.217

Gain/gain adjustment (eye movement), 5.39–40
pursuit system and, 5.224, 5.225
vestibular-ocular reflex (VOR), 5.215–216
in toxic vestibular dysfunction, 5.243

Gal-1-PUT (galactose-1-phosphate uridyltransferase), defective/deficiency of, in galactosemia, 11.61
Galactitol (dulcitol), in cataract formation, 11.61

Galactosialidoses, 6.389f, 8.179

Galen, vein of, 5.22

Galilei system, 3.248

Gallamine, 2.382

Gallium scanning, in sarcoidosis, 5.328

Garabedian technique, 2.215

Gamma (γ)-aminobutyric acid (GABA) agonists, for nystagmus, 5.245, 5.246

Gamma (γ)-crystallins, 11.16

Gammopathy, benign monoclonal, crystalline corneal deposits in, 8.198

Ganciclovir, 8.215f
acute retinal necrosis treated with, 12.236
for cytomegalovirus
anterior segment, 8.232
description of, 9.256
retinitis, 12.235, 12.238f
description of, 2.360f, 2.432f, 2.434–435
for Epstein-Barr virus, 1.261
for herpes simplex virus, 8.215f, 8.219, 9.252
Gnostic optics, 3.40, 3.60, 3.66
Gaussian reduction formulas, 3.243
Gaze. See also Ocular motility
cardinal positions of, 6.31, 6.32f, 6.35, 6.64
direction of, 6.147
downgaze, 6.38
horizontal, 5.37f, 5.37–38
left, 6.37
positions of, 6.31
cardinal, 6.31, 6.32f, 6.35, 6.64
definition of, 6.64
diagnostic, 6.64
extraocular muscle action and, 5.46, 5.46f, 6.34–37
field of action, 6.33
nystagmus affected by, 5.240–241
ocular alignment assessment using, 6.64
primary, 6.31, 6.64
secondary diagnostic, 6.31
for strabismus, 6.64
tertiary diagnostic, 6.31
for vertical strabismus, 6.64
right, 6.37
upgaze, 6.37
vertical, 5.36, 5.36f, 5.36–37
Gaze deviations
description of, 1.208
seizure activity and, 5.230
Gaze-evoked nystagmus, 5.38, 5.222, 5.234
See also Nystagmus
in internuclear ophthalmoplegia, 5.189, 5.190f
rebound, 5.240–241
substance abuse as cause of, 1.199
Gaze-evoked transient visual loss, 5.164
Gaze palsy, 5.228–230, 5.229f, 5.230f
in ataxia-telangiectasia, 5.334f
horizontal, 5.228
in one-and-a-half syndrome, 5.191
in sixth nerve palsy, 5.189, 5.200, 5.200f
ipsilateral, 5.41, 5.200, 5.200f
in multiple sclerosis, 5.318
nonorganic, 5.309
in sarcoidosis, 5.327
vertical, 5.228
Gaze preference, 5.228
GBD. See Global Burden of Disease Study
GCA. See Giant cell arteritis
GCC. See Ganglion cell complex
GCD1. See Granule corneal dystrophy, type 1
GCD2. See Granule corneal dystrophy, type 2
GCIP. See Ganglion cell layer with the inner plexiform layer
GCL. See Ganglion cells/ganglion cell layer
GDLD. See Gelatinous droplete corneal dystrophy
GDx. See Scanning laser polarimetery/polarimeter
Gel-forming drops, for drug delivery, 2.366
Gelatinase, 2.294
Gelatinous droplet corneal dystrophy (GDLD/primary familial amyloidosis), 8.135f, 8.136t, 8.140–141, 8.141f, 8.185–187, 8.186f
Gelsolin gene mutation
amyloidosis/amyloid deposits (Meretoja syndrome) and, 4.206, 8.186f, 8.187, 8.188f
lattice corneal dystrophy and, 4.206
Gelsolin (Finnish) type familial amyloidosis (Meretoja syndrome), 4.206, 8.186, 8.187, 8.188

Gender, in glaucoma, 10.9, 10.121

Gene(s)
cancer, 2.183–184
definition of, 2.176, 2.213
disease association for, 2.187–188
expression of. See Gene transcription and translation;
Genetic/hereditary factors; Genetics
independent assortment of, 2.216–217
linkage studies of, 2.187
recessive, 2.202
segregation of, 2.215–216
size variations among, 2.213
structure of, 2.176–177
word origin of, 2.213
Gene assignments, 2.187–188
Gene dosage, 2.187
Gene expression profile, 4.40
in choroidal/ciliary body melanoma, 4.197
Gene mapping, 2.188
Gene therapy
adeno-associated virus vectors, 2.194, 2.196
for choroidemia, 12.268
dominant diseases treated with, 2.197–198
genetic diseases treated with, 2.236
for Leber congenital amaurosis, 6.337, 12.266
replacement of absent gene product in X-linked and recessive diseases, 2.194, 2.196
retinal, 9.58
for retinal dystrophies, 12.260, 12.266
Stargardt disease treated with, 6.340
Gene transcription and translation
definition of, 2.179
overview of, 2.178–179
General anesthesia, 1.289–290, 6.174, 12.50. See also Anesthesia
for cataract surgery, 11.92
in arthritis, 11.171
in claustrophobia, 11.169
in patient unable to communicate, 11.170
for penetrating and perforating trauma repair, 8.403
Generalized anxiety disorder (GAD), 1.197
Generalized gangliosidosis (GM1 gangliosidosis type I), 8.176
Generalized seizures, 1.207
Generalized tonic-clonic seizures, 1.207
Generic drugs, antiglaucoma, 10.186
Genetic, 2.210–211
Genetic counseling. See Genetic testing/counseling
Genetic diseases and disorders. See also specific disease or disorder
chelation of excessive metabolites, 2.235
clinical management of, 2.234–236
complications of, 2.236
dietary control of, 2.235
drug therapy for, 2.236
enzyme replacement therapy for, 2.235
ethnic concentration of, 2.229
explanation of, 2.234
gene therapy for, 2.236
genetic testing for, 2.238
multifactorial inheritance of, 2.232–233
polygenic inheritance of, 2.232–233
prevalence of, 2.171
racial concentration of, 2.229
sequelae of, 2.236
single-gene, 2.218
treatment of, 2.235–236
variability of, 2.218–219
vitamin therapy for, 2.236
Genetic/hereditary factors. See also Family history/familial factors; Genetics, clinical; Inborn errors of metabolism
in age-related cataracts, 11.41–42
in choroidal melanoma, 4.253
in corneal dystrophies, 8.133, 8.134, 8.136f
in glaucoma, 10.10, 10.11, 10.11f
in children and adolescents, 10.150
in multiple sclerosis, 5.315
in retinoblastoma, 4.285
Genetic heterogeneity, 2.212, 2.213f, 12.255
Genetic linkage, 2.175
Genetic map, 2.213
Genetic markers, 2.187. See also specific type
Genetic testing/counseling
AAO Task Force on Genetic Testing
recommendations for, 2.240–241
for age-related macular degeneration, 12.63
description of, 2.205, 2.236–237, 2.238
direct-to-consumer, 2.241
family history in, 2.237
in glaucoma, 10.11
issues in, 2.237–238
of minors, 2.241
preimplantation genetic diagnosis, 2.221, 2.239–240
prenatal diagnosis, 2.239
referrals for providers of support for persons with disabilities, 2.240
reproductive issues, 2.238–240
requirements of, 2.237
in retinoblastoma, 4.289–291, 4.290f
in von Hippel–Lindau syndrome, 4.285
Genetic therapy. See Gene therapy
Genetics
clinical. See also Family history/familial factors;
Genetic/hereditary factors; specific disorders
chromosome analysis. See Chromosome analysis
chromosomes, 2.213–217
expressivity, 2.220
genes, 2.213–217
genetic counseling and. See Genetic testing/counseling
inheritance patterns. See Inheritance
lyonization, 2.230–231, 2.231f
meiosis, 2.215, 2.216f
mitosis, 2.215
mutations, 2.217–220. See also Mutation
overview of, 2.199–200
pedigree analysis in, 2.200–201, 2.201f
penetrance, 2.219
pleiotropism, 2.220
terminology associated with, 2.210–212
definition of, 2.171
molecular
cell cycle, 2.173–176, 2.174f
daNAm damage and repair, 2.181–182
gene structure, 2.176–177
gene therapy. See Gene therapy
gene transcription and translation. See Gene transcription and translation
mitochondrial diseases. See Mitochondrial diseases
mutations
disease and, 2.182–183
screening for, 2.189–194, 2.190–193f
noncapping DNA, 2.177–178
myopia and, 3.143
pharmacogenetics, 2.233–234
Geniculate body/nucleus/ganglion, 5.51f, 5.56,
Geniculocalcarine radiation, 2.116
Geniculocalcarine pathways (optic radiations), 2.116,
Geniculate ganglionitis, facial paralysis/weakness
Geographic atrophy (GA), of retinal pigment epithelium
Geometric optics, 3.43–89.
Geometric wavefront, 3.70–71, 3.274
Geometric scattering, 3.91, 3.97–98
Geometric wavefront, 3.70–71, 3.274
Genocillin sulfate, 2.418, 2.425, 12.300
Genentac. See Gentamicin
Genentac. See Gentamicin
Gentamicin sulfate, 2.418t, 2.425, 12.300
Gentrol. See Gentamicin
Geographic atrophy (GA), of retinal pigment epithelium, 4.164, 4.164f
in Best vitelliform dystrophy, 12.271
description of, 12.64, 12.66, 12.67f, 12.68
in drusenoid retinal pigment epithelium detachment, 12.272
Geographic epithelial ulcer, in herpetic simplex keratitis, 8.217, 8.218f
Geographic map lines, in epithelial basement membrane dystrophy, 8.137, 8.137f
Geometric optics, 3.43–89. See also specific aspect aberrations. See Aberrations
axial (longitudinal) magnification, 3.63–64
basic rules of, 3.86
conjugate points, 3.64
conoid of Sturm, 3.76, 3.76f
critical angle, 3.50–51
definition of, 3.43
depth of field, 3.57, 3.58f
depth of focus, 3.57, 3.58f
description of, 3.54–57
general refracting system, 3.58–67
IOLs and, 11.120, 11.121f
Jackson cross cylinder. See Jackson cross cylinder mirrors. See Mirror(s)
nodal points, 3.66–67, 3.67f
physical optics and, 3.119
power cross, 3.16, 3.17f, 3.77, 3.77–3.78f
power-versus-meridian graph, 3.79f, 3.79–80
principal planes, 3.56–57, 3.57f
principles of, 3.43
prisms. See Prism(s)
ray tracing. See Ray tracing
real objects, 3.61
reduced optical system, 3.67–68, 3.68–3.69f
refraction by single curved surface, 3.51–54
refractive index, 3.43–44
spherical equivalent, 3.76
Geometric wavefront, 3.70–71, 3.274
Geometric wavefront, 3.70–71, 3.274
"thick-lens formula," 3.54–55
total internal reflection, 3.50, 3.50f
transverse magnification, 3.62
two-sided lenses. See Two-sided lenses
virtual objects, 3.61
Geometric scattering, 3.91, 3.97–98
Geometric wavefront, 3.70–71, 3.274
GERD. See Gastroesophageal reflux disease
Geriatrics. See Age/aging; Older adults
German measles, 6.410. See also Rubella
Germinal center, lymphoid follicle, 4.50f, 4.51, 4.51f,
4.69, 4.70, 4.70f, 4.71f
Germinative zone, 11.12, 11.12
Germinative zone, 11.12, 11.12
Germline mutations, 6.358
Gerstmann syndrome, 5.156, 5.179
Gerstmann-Sträussler-Scheinker (GSS) syndrome, 5.357
Gestational age, retinopathy and
Gestational age, retinopathy and. See Retinopathy of prematurity
Gestational diabetes mellitus, 1.34
GFR. See Glomerular filtration rate
Ghost cells/ghost cell glaucoma, 4.103, 4.104f, 10.105–106, 10.106f, 12.347
vitreous hemorrhage and, 4.133, 10.105, 10.106
Ghost dendrites, in herpes simplex keratitis, 8.217, 8.218f
Ghost images
with multifocal IOLs, 13.156
after photoablation, 13.102
after small-incision lenticule extraction, 13.205
GHT. See Glaucoma Hemifield Test
Giant cell(s)
foreign body, 4.7, 4.9f
Langhans, 4.7, 4.9f
macrophage activation into, 9.4
multinucleated, 4.7, 4.7f
in focal posttraumatic choroidal granulomatous inflammation, 4.22f
in granulomatous conjunctivitis, 4.52, 4.52f
in sarcoidosis, 4.187, 4.187f
Touton, 4.7, 4.7f
in juvenile xanthogranuloma, 4.187, 4.188f
Giant cell arthritis (GCA/temporal arteritis), 5.89, 5.89f, 5.313–315, 7.62–63, 9.125f
AAION and, 5.120, 5.313
central retinal artery occlusion caused by, 12.145
description of, 1.168, 12.195
diplopia in, 5.192, 5.313
facial pain associated with, 5.288, 5.297
headache in, 5.288, 5.313
indocyanine green angiography of, 12.196f
neuro-ophthalmic signs of, 5.313–315
occult, 5.120, 5.170
optic nerve affected in, 4.244f, 4.244–245, 5.120
polymyalgia rheumatica associated with, 1.168
transient monocular visual loss and, 1.119
transient visual loss and, 5.120, 5.161, 5.162,
5.169–170, 5.313–314
vasculitis, 7.62–63

Giant congenital melanocytic nevi, 4.218

Giant drusen, 4.295, 5.108f, 5.143
retinoblastoma differentiated from, 4.295
in tuberculous, 4.295

Giant fonnix syndrome, 7.141

Giant papillae, conjunctival, 8.48, 8.48f
Giant papillary conjunctivitis (GPC), 3.231f, 3.234,
7.142, 7.142f
after penetrating keratoplasty, 8.426

Giant tears, of retina, 12.315

Giemsa stain, 4.31f

Gigantism, 1.47

Gilenya. See Fingolimod

Gillespie syndrome
aniridia in, 10.155
description of, 2.225

Glands of Krause, 2.28f, 2.30t, 2.41, 2.251, 2.253, 4.202,
7.168, 7.280

Glands of Moll, 2.29, 2.30f, 2.30t, 4.201, 7.191, 8.4, 8.4f
Glands of Wolfing, 2.30t, 2.41, 2.251, 2.253, 4.202,
7.168, 7.280, 8.4f

Glands of Zeis, 2.28, 2.30f, 2.30t, 2.250, 4.201, 7.183,
7.191, 8.4, 8.4f
chalazion/hordeolum and, 4.204, 4.206f, 8.76, 8.77
hordeolum caused by infection of, 4.203–204
sebaceous adenocarcinoma arising in, 4.215

Glare
assessment of, 3.318
cataracts and, 11.45, 11.47, 11.70, 11.70f, 11.77
definition of, 3.318
digoxin as cause of, 1.106
with IOIs, 11.144, 11.150–152
angle-supported lenses, 1.146
iris-fixated lenses, 1.145
multifocal lenses, 1.156
in optic neuropathy versus maculopathy, 5.100f
after photoablation, 13.102
polarized sunglasses for reduction of, 3.99,
3.192–193
as positive dysphotopsia, 11.150
pupil size and, 13.40
after radial keratotomy, 13.51
rainbow, after LASIK with femtosecond laser flap
creation, 13.123–124
before refractive surgery, 13.41

Glare testing, in cataract evaluation, 11.77

Glass foreign body, 8.399, 8.400f

Glass lenses
high-index, 3.195
standard, 3.195
tempering of, 3.195

Glass prisms in Prentice position, 3.45, 3.46f

Glassblower’s cataract, 11.57

Glasses. See also Spectacle lenses (spectacles)
anisometropia correction with, 3.139

in bright light, 3.130
existing initial estimate of refractive error from, 3.27
Glatiramer, for multiple sclerosis, 5.321f

Glaucoma, 10.3–11, 10.10. See also Angle-closure
glaucoma; Elevated intraocular pressure; Open-angle
glaucoma; Uveitis-glaucoma-hyphema (UGH)
syndrome
age affecting development of
angle-closure glaucoma and, 10.9
open-angle glaucoma and, 10.7, 10.81–82
angle-recession, 4.18, 4.103–104
posttraumatic, 10.39–40, 10.40f, 10.41f, 10.106–108,
10.107f
aniridia and, 10.120, 10.150, 10.154–155
anterior chamber evaluation in, 10.32–40, 10.33t,
10.34f, 10.35f, 10.37f, 10.38f, 10.39f, 10.40f, 10.41f.
See also Gonioscopy
aphakic, 6.285, 10.130–132, 10.156–157
tube shunt implantation for, 10.215
aqueous misdirection and. See Glaucoma, malignant
Axenfield-Rieger syndrome and, 4.99, 8.97t, 8.102,
10.31, 10.150, 10.153–154
biomicroscopy in evaluation of
slit-lamp, 10.30–32
ultrasound, 10.77, 10.124f
pediatric glaucoma and, 10.160
cataracts and, 4.103, 10.97f, 10.97–98, 10.128, 10.211,
management of, 10.211–213, 10.213, 11.186f,
11.186–187. See also Cataract surgery,
glaucoma and
preoperative evaluation/care and, 11.75
childhood. See Glaucoma, pediatric
ciliary block. See Glaucoma, malignant
classification of, 10.3–5, 10.4t, 10.6t
in children, 10.4t, 10.6t, 10.147–150, 10.148t,
10.149–150t
clinical evaluation of, 10.29–77. See also specific type
gonioscopy in, 10.32–40, 10.33t, 10.34f, 10.35f,
10.37f, 10.38f, 10.39f, 10.40f, 10.41f
history and general examination in, 10.29–32
in infants and children, 10.157
in infants and children, 10.151–152, 10.152t,
10.157t, 10.157–160
optic nerve and, 10.41–46, 10.43f, 10.44f, 10.45f
in infants and children, 10.160
optic neuropathy and, 10.46–59, 10.47f, 10.49f,
10.50f, 10.51f, 10.55f, 10.56f, 10.57f, 10.58f
visual field examination in, 10.59–77. See also
Perimetry; Visual field testing, in glaucoma
combined-mechanism, 10.7
congenital, 4.98, 4.99f, 8.95, 8.108–109, 10.4t, 10.147,
10.148t, 10.151f, 10.151–153, 10.152f, 10.152t.
See also Glaucoma, pediatric; Primary congenital

glaucoma
conjunctiva affected in, 10.31
cornea affected in, 10.31
cornea plana and, 8.96t, 8.100–101
enlargement/megalocornea and, 8.95, 8.96t,
8.99–100, 8.108, 10.31, 10.147, 10.158
opacities and, 8.108–109
corneal thickness and, 10.25, 10.31, 10.81, 10.82,
10.86–87, 10.90, 10.159
corticosteroid-induced, 6.321, 9.319, 10.109–110
refractive surgery and, 13.41, 13.182, 13.201

definitions and, 10.3
developmental, 10.153–156. See also Glaucoma, pediatric
diabetes mellitus and, 10.83
drug-induced
angle-closure glaucoma and, 10.122–123, 10.145f, 10.145–146
open-angle glaucoma and, 10.109–111
drugs for, 10.170–186, 10.171–174t. See also Antiglaucoma agents
environmental factors in, 10.10
epidermolytic, 4.103, 10.109–110, 10.110
hemolytic, 4.103, 10.109–110, 10.110–111, 10.114
mechanisms in, 10.7–10.9r
erisk factors/clinical features of, 10.84–10.85
gender affecting risk of, 10.9, 10.121
glaucoma-hereditary factors in, 8.108, 10.10, 10.11, 10.11r
ghost cell, 4.103, 10.10f, 10.105–106, 10.106f, 12.347
hemolytic, 4.103, 10.10f, 10.105, 10.106
hemorrhage/hyphema and, 4.103, 10.10f, 8.394, 10.50, 10.51f, 10.85f, 10.85–86. See also Uveitis–glaucoma–hyphema (UGH) syndrome
hemosiderin in, 4.103, 10.10f
incidence of, 1.184, 10.7, 10.8
infantile, 6.230, 10.4r, 10.147, 10.148t. See also Glaucoma, pediatric
inflammatory
angle-closure glaucoma and, 10.138f, 10.138–139, 10.139f
open-angle glaucoma and, 10.100–102, 10.102f
intraocular pressure in. See also Elevated intraocular pressure
description of, 10.3, 10.20–21, 10.46–47, 10.79, 10.80–81, 10.81f
monitoring of, 1.130
IOL implantation and, 11.149
iridocorneal endothelial syndrome and, 4.101, 8.127, 10.136f, 10.136–138, 10.137f
iris bombé and, 10.32, 10.129, 10.131f, 10.138, 10.139f
juvenile open-angle, 10.4r, 10.147, 10.148r, 10.153. See also Glaucoma, pediatric
lens evaluation in, 10.32
lens-induced, 4.103, 4.103f, 4.122, 10.96–98, 10.97f, 10.119, 11.67–68, 11.68f
angle-closure glaucoma and, 10.96, 10.119, 10.128–132
in children and adolescents, 10.149f
open-angle glaucoma and, 10.96–98, 10.97f
lens particle, 10.98, 11.67
leukemia and, 10.3, 4.315
low-tension, 10.3, 10.4r, 10.85f, 10.85–88, 10.86f.
See also Glaucoma, normal-tension
systemic nocturnal hypotension as risk factor for, 1.66–67
malignant (aqueous misdirection/ciliary block glaucoma), 10.32, 10.139–141, 10.140f
cataract surgery and, 10.139, 11.139
in children and adolescents, 10.149f
after penetrating keratoplasty, 8.424
management of
in children, 10.160–166
clinical trials in evaluation of, 10.111–115
interrelationship between medical and surgical treatment and, 10.111
medical, 10.169–186. See also Antiglaucoma agents
agents used in, 10.170–186, 10.171–174t. See also Antiglaucoma agents; specific drug
in children, 10.153
combined medications in, 10.182
in elderly patients, 10.186
general approach to, 10.183–186
long-term therapy and, 10.183–184
during pregnancy/lactation, 10.185–186
prognosis and, 10.84
after refractive surgery, 13.201
surgical, 10.187–212. See also Glaucoma surgery; specific procedure
cataract surgery and, 10.211–213, 10.213, 11.186f, 11.186–187
in children, 10.160–164, 10.161f, 10.162f
in elderly patients, 10.221
in Marfan syndrome, 8.194
megaloacornea and, 8.95, 8.96f, 8.99–100, 8.108
melanocytoma and, 4.106, 4.258
melanomalous, 4.105f, 4.106, 4.194
microcornea and, 8.95–99
microphosphakia and, 10.130, 10.131f, 11.33
nanophthalmos and, 4.108, 4.109, 10.144
neovascular, 4.188, 10.38f, 10.38–39, 10.132f, 10.132–135, 10.133f, 10.134f, 10.135f
iris examination in, 10.32, 10.39, 10.135f
rubeosis iridis and, 4.188
tube shunt implantation for, 10.215
nerve damage caused by, 12.328
nerve fibers/nerve fiber layer in, 10.48, 10.49f
diffuse/focal loss and, 10.50–52, 10.51f
patterns of loss and, 10.67–69, 10.68f, 10.69f, 10.70f
neurofibromatosis and, 10.156
in children, 10.156
neuroretinal rim changes in, 10.48–50, 10.49f, 10.50f
normal-tension (NTG), 10.3, 10.4r, 10.85f, 10.85–88, 10.86f
diagnostic evaluation of, 10.87
differential diagnosis of, 10.86f, 10.86–87
disc hemorrhages in, 10.85f, 10.85–86
 genetic/hereditary factors in, 10.11f
prognosis/therapy of, 10.87–88
risk factors/clinical features of, 10.85f, 10.85–86
open-angle. See Open-angle glaucoma
ophthalmoscopic signs of, 10.48, 10.49f
optic neuropathy/optic nerve changes in, 5.107f, 5.136, 5.137f, 10.3, 10.46–59, 10.47f, 10.49f, 10.50f, 10.51f, 10.55f, 10.56f, 10.57f, 10.58f
imaging in evaluation of, 10.53–59, 10.55f, 10.56f, 10.57f, 10.58f
optic nerve/nerve head/disc evaluation and, 10.32, 10.41–46, 10.43f, 10.44f, 10.45f, 10.48–59, 10.49f, 10.50f, 10.51f, 10.55f, 10.56f, 10.57f, 10.58f
normal-tension glaucoma and, 10.86
perimetry changes correlated with, 10.74–75
recording findings and, 10.53
patterns of nerve loss and, 10.67–69, 10.68f, 10.69f, 10.70f
outflow facility in, 10.19
classification of glaucomas and, 10.3–5, 10.4t, 10.6t
intraocular pressure and, 10.5, 10.5f, 10.13, 10.14f, 10.19
laser trabeculoplasty affecting, 10.188
tonometry in measurement of, 10.19
outflow obstruction mechanisms in, 10.5, 10.6t
oxidative stress in, 2.345
pain caused by, 5.295
in pars planitis, 9.151
in pathologic myopia, 12.218, 12.218f
pediatric (childhood/congenital/infantile/juvenile),
4.98, 4.99f, 8.95, 8.108–109, 10.4f, 10.147–167
algorithm for, 6.279f
aniridia and, 10.150, 10.155
gonioscopic appearance of, 10.159
anomalies associated with, 10.4t, 10.6t, 10.147, 10.148t, 10.151
anterior segment examination in, 10.158
aphakic, 6.285, 10.156–157
Axenfeld-Rieger syndrome and, 4.99, 8.97t, 8.102, 10.31, 10.150, 10.153–154
axial length measurements in, 10.160
cataract surgery and, 10.149t, 10.156
central corneal thickness in, 10.159
classification of, 6.277, 6.278f, 6.279f, 10.4t, 10.6t, 10.147–150, 10.148t, 10.149–150t
corneal edema and, 8.108–109
corneal enlargement and, 8.95, 8.96f, 8.99–100, 8.108, 10.31, 10.147, 10.158
corneal opacities and, 8.108–109
corticosteroids as cause of, 6.284
definition of, 6.277
developmental, 10.153–156
diagnosis/differential diagnosis of, 10.151–152, 10.152t
examination/evaluation in, 10.151–152, 10.152t, 10.157t, 10.157–160
external examination in, 10.158
follow-up of, 6.290–291, 10.167
hereditary factors in, 10.111, 10.150
genes of, 6.277–278
gonioscopy in, 10.159
history in, 10.157
juvenile open-angle, 6.278, 6.284, 10.4t, 10.147, 10.148t, 10.153
medical therapy for, 10.153, 10.164–165
megalocornea and, 8.95, 8.96t, 8.99–100, 8.108
neurofibromatosis and, 10.156
optic nerve/fundus evaluation in, 10.160
pachymetry in, 10.159
Peters anomaly and, 4.74, 10.150, 10.154
primary, 10.4t, 10.147–148, 10.148t
congenital, 4.98, 4.99f, 8.95, 8.108–109, 10.4t, 10.147, 10.148t, 10.151f, 10.151–153, 10.152f, 10.152t. See also Primary congenital glaucoma
anterior segment findings in, 6.282, 6.282f
axial length in, 6.283
central corneal thickness in, 6.281
clinical manifestations of, 6.279–280, 6.280f
corneal edema in, 6.279–280
coneal findings in, 6.280f, 6.280–281
definition of, 6.278
diagnostic examination for, 6.280–283, 6.282–283f
differential diagnosis of, 6.281f
genetics of, 6.277–278
gonioscopy for, 6.282, 6.282f
goniotomy for, 6.285, 6.286f
incidence of, 6.278
natural history of, 6.283–284
optic nerve findings in, 6.282–283, 6.283f
optical coherence tomography of, 6.283
pathophysiology of, 6.278
surgical treatment of, 6.285–287, 6.286f
tonometry in, 6.281–282
trabeculotomy, 6.286f, 6.286–287
genetics of, 10.111t, 10.150
infantile, 10.151
juvenile open-angle, 10.4t, 10.147, 10.148t, 10.153
prognosis for, 6.290–291, 10.166–167
secondary, 10.4t, 10.148, 10.149–150t, 10.156–157
acquired condition, 6.284
after cataract surgery, 6.285
classification of, 6.278
nonacquired conditions associated with, 6.284f
Sturge-Weber syndrome and, 5.332f, 10.155
surgery for, 10.153, 10.164–165
strabismus and, 10.166–167
tonometry in, 10.158–159
incidence of, 6.283–284
perimetry changes correlated with, 10.74–75
recording findings and, 10.53
patterns of nerve loss and, 10.67–69, 10.68f, 10.69f, 10.70f
prevalence of, 10.7–8, 10.9
primary, 10.3–5. See also Angle-closure glaucoma, primary; Open-angle glaucoma, primary
congenital, 4.98, 4.99f, 8.95, 8.108–109, 10.4f, 10.147, 10.148f, 10.151f, 10.151–153, 10.152f, 10.152f. See also Primary congenital glaucoma anterior segment findings in, 6.282, 6.282f
axial length in, 6.283
central corneal thickness in, 6.281
clinical manifestations of, 6.279–280, 6.280f
corneal edema in, 6.279–280
corneal findings in, 6.280f, 6.280–281
definition of, 6.278
diagnostic examination for, 6.280–283,
6.282–283f
differential diagnosis of, 6.281f
genetics of, 6.277–278
gonioscopy for, 6.282, 6.282f
goniometry for, 6.285, 6.286f
incidence of, 6.278
natural history of, 6.283–284
optic nerve findings in, 6.282–283, 6.283f
optical coherence tomography of, 6.283
pathophysiology of, 6.278
surgical treatment of, 6.285–287, 6.286f
tonometry in, 6.281–282
trabeculotomy, 6.286, 6.286–287
juvenile open-angle, 10.4f, 10.147, 10.148f, 10.153
management of. See Antiglaucoma agents;
Glaucoma surgery
open-angle, 2.233, 2.345, 2.377–378, 2.381, 2.387
pseudoexfoliation/exfoliation syndrome and (pseudoexfoliation glaucoma), 4.101–103, 4.102f, 10.11f, 10.31, 10.91, 10.93, 10.130, 10.131f
pseudophakic, 10.130–132
pupillary-block, in retinopathy of prematurity, 12.181
pupils affected in, 10.30, 10.33f
race affecting risk of, 10.7–8, 10.9, 10.81, 10.82,
10.120
in angle-closure glaucoma, 10.9, 10.117, 10.120
in open-angle glaucoma, 10.7–8, 10.81, 10.82
radiation-related, 4.276
reactive oxygen species in, 2.345
refraction/refractive errors in, 10.9, 10.29, 10.122
refractive surgery and, 13.41, 13.180–183, 13.182f,
13.200–201
retinal vein occlusion risks secondary to, 12.125
retinoblastoma and, 4.292
retinopathy of prematurity as risk factor for, 6.334
risk factors for
in angle-closure glaucoma, 10.9, 10.120–122
in open-angle glaucoma, 10.8, 10.9t, 10.80–83
ruberosis iridis and, 4.188
scleral involvement/scleritis and, 8.323, 10.31
screening perimetry in, 10.62
secondary, 4.101–106, 4.102f, 4.103f, 4.104f, 4.105f,
4.106, 10.5. See also Angle-closure glaucoma, secondary; Open-angle glaucoma, secondary
in infants and children, 10.4f, 10.148, 10.149–150t
management of. See Antiglaucoma agents;
Glaucoma surgery
ruberosis iridis and, 4.188
slit-lamp biomicroscopy in evaluation of, 10.30–32
spatial frequencies affected by, 3.136
Sturge-Weber syndrome and, 5.332f, 5.334f, 6.401–402,
10.30, 10.155
surgery for, 10.187–221. See also Glaucoma surgery;
specific procedure
tests for, 10.29–77. See also Glaucoma, clinical
evaluation of
threshold perimetry in, 10.61f, 10.61–62, 10.63f
topiramate causing, 10.145f, 10.145–146
transient visual loss and, 5.163t, 5.164
trauma and, 4.103–104, 4.104f, 10.39–40, 10.40f,
10.41f, 10.98, 10.103–108, 10.104f, 10.106f,
10.107f
in children and adolescents, 10.149t
tube shunt implantation for, 10.213–217, 10.214f,
10.218f
tumors causing, 4.105f, 4.106, 10.98–100, 10.99f,
10.138
in children and adolescents, 10.149t
ultrasound biomicroscopy in evaluation of, 10.77,
10.124f
pediatric glaucoma and, 10.160
uveal lymphoid proliferation/infiltration and, 4.314
uveitis and, 9.317, 10.100–102, 10.102f, 10.134,
10.139, 10.139f. See also Uveitis-glaucoma-hyphema (UGH) syndrome
in children and adolescents, 10.149t
optical coherence tomography of, 9.85
visual field changes in, 10.59–77. See also Visual field
defects, in glaucoma
evaluation of. See also Perimetry; Visual field
testing, in glaucoma
patterns of field loss and, 10.67–69, 10.68f,
10.69f, 10.70f
serial fields/progression and, 10.71–75, 10.72f,
10.73f, 10.74f
single field and, 10.62–67, 10.64f, 10.65f, 10.66f,
10.67f
vitrectomy and, 10.143
Glaucoma diagnosis (GDx) test. See Scanning laser
polarimetry/polarimeter
Glaucoma drainage devices (tube shunts), 10.196–197,
10.213–217, 10.214f, 10.218f
cataract extraction combined with, 10.213
complications associated with, 10.217, 10.218t
corneal graft failure and, 8.428
description of, 6.146, 6.287, 6.323
in iridocorneal endothelial syndrome, 8.127
LASIK and, 13.182
neovascular glaucoma and, 10.135
pediatric glaucoma and, 10.161, 10.163
strabismus and, 10.166–167
uveitis/uveitic glaucoma and, 10.214
Glaucoma filtering surgery, 9.319
Glaucoma genes, 10.10, 10.11, 10.11f
Glaucoma Hemifield Test (GHT), 10.65, 10.65f
Glaucoma Laser Trial (GLT), 10.188
Glaucoma surgery, 10.187–221. See also specific procedure
for angle-closure glaucoma, 10.220
cataract development after, 11.56
cataract surgery and, 10.211–213, 10.213, 11.186–187,
11.187
chamber deepening/goniosynechialysis, 10.220
in children, 10.160–164, 10.161f, 10.162f
strabismus and, 10.166–167
corneal graft failure and, 8.428
deep sclerectomy, 10.217–219
in elderly patients, 10.221
electroablation, 10.219
filtering procedures, 10.197–211. See also Filtering procedures; Trabeculectomy
goniotherapy, 10.160, 10.161, 10.161f, 10.163
incisional surgery, 10.196–220. See also Trabeculectomy
for angle-closure glaucoma, 10.220
cataract surgery, 10.213
with trabeculectomy, 10.211–213
complications of, 10.187
for open-angle glaucoma, 10.113–115
trabeculectomy, 10.197–211
with cataract surgery, 10.211–213
tube shunt implantation, 10.213–217, 10.214f, 10.218t
interrelationship between medical and surgical treatment and, 10.111
laser surgery, 10.188–196
cyclodestruction, 10.194–196, 10.195f
gonioplasty/iridoplasty, 10.193–194
iridotomy, 10.191–193, 10.192f
trabeculoplasty, 10.88, 10.113–115, 10.188–191, 10.190f
LASIK and, 13.182, 13.201
microshunts, 10.219–220
minimally invasive, 10.219–220
nonpenetrating, 10.217–219
peripheral (surgical) iridectomy, 10.125, 10.220
peripheral iridoplasty, 10.193–194
after refractive surgery, 13.201
shunting surgeries, 10.213–217, 10.214f, 10.218f,
10.219–220. See also Microshunts; Tube shunts
trabeculectomy, 10.160, 10.161–162, 10.162f, 10.219
in uveitis patients, 6.323
viscocanalostomy, 10.217–219
Glucoma suspect, 10.4f, 10.89
angle-closure, 10.4f, 10.117, 10.117f, 10.122–123
open-angle, 10.4f, 10.89
screening tests for, 10.62
Glucoma tube shunts. See Tube shunts
Glucomatocyclitic crisis (Posner-Schlossman syndrome)
acute anterior uveitis in, 9.135–136
description of, 10.100–101
Glucomatous cupping. See Cupping of optic nerve/nerve head/disc, glaucomatous
Gluaclabs. See Methazolamide
Gluomflecken, 4.120, 10.124, 11.68
GLC1A gene, 10.10, 10.11f
GLC3A gene, 10.11f
GLC1A myocilin gene, 10.150
GLC1B gene, 10.11f
GLC3B gene, 10.11f
GLC1C gene, 10.11f
GLC3C gene, 10.11f
GLC1D gene, 10.11f
GLC3D gene, 10.11f
GLC1E gene, 10.11f
GLC1F gene, 10.11t
GLC1G gene, 10.11t
GLC1I gene, 10.11t
GLC1J gene, 10.11t
Glial cells, 2.317
optic nerve, 4.241, 4.242f
retinal, 5.24
in healing/repair, 4.17
ischemia and, 4.152
Glioblastoma/glioblastoma multiforme, optic nerve (malignant optic glioma of adulthood/MOGA), 4.249, 5.130–131
Gliomas, optic nerve/pathway/chiasm (OPGs), 4.249, 4.249f, 4.295, 5.126, 5.128t, 5.129f, 5.129–131 in children (juvenile), 4.249
malignant (malignant optic gliomas of adulthood/MOGAs/glioblastomas), 4.249, 5.130–131
malignant (malignant optic gliomas of childhood/MOGAs/glioblastomas), 4.249
in neurofibromatosis, 5.130, 5.334t
Gliosis, retinal, 4.157, 4.158, 4.158f
of peripapillary nerve fiber layer, 5.109
Glionic (sclerotic) lesions, in multiple sclerosis, 5.316, 5.316f
Glistenings, IOL, 11.151
Global Burden of Disease Study (GBD), 1.193
Global Initiative for Chronic Obstructive Lung Disease (GOLD), 1.124
Global layer, of extraocular muscles, 6.24, 6.27
Globe
atrophy/disorganization of (atrophia/phthisis bulbi), 4.22–23, 4.23f
retinoblastoma regression and, 4.301
congenital and developmental anomalies of, 6.263
displacement of, 4.223, 7.23–24
exposure of
for ICCE, 11.199
for phacoemulsification, 11.105, 11.105f
gross dissection of, for pathologic examination, 4.28f, 4.28–30, 4.29f
injuries to
lacerating, 12.358
needle perforation/peretration of, 12.358, 12.395f, 12.395–396
perforating, 12.358
primary repair of, 12.359
scleral rupture, 12.352, 12.358
surgical management of, 12.359–360
vitrectomy for, 12.359–360
wound closure of, 12.359
layers of, 2.48–49
luxation of, 6.207–208
oribtal tumors from, 7.101
orientation of, pathologic examination and, 4.27, 4.27f
palpation of, 7.25
penetrating injuries of, 12.358
description of, 6.376
needle penetration/perforation and. See Penetrating and perforating ocular trauma; Trauma
position of, 7.24
posterior view of, 2.24f
ptosis of, 7.114
retraction of
in Duane retraction syndrome, 6.134
in induced convergence-retraction, 6.153
rupture-traumatic injury of, surgical repair of,
8.403–409, 8.404f, 8.405f, 8.407f, 8.408f. See also
Corneoscleral lacerations
stabilization of, for clear corneal incision, 11.106
suspensory ligament of.
See Lockwood ligament
topographic features of, 2.48–49
Globe-conserving therapy, for retinoblastoma, 4.299
Globe tenting, 7.5
Glomerular filtration rate (GFR), 2.351–352
Glomus tumor, 8.345
t
GLP-1. See Glucagon-like peptide 1
GLT (Glaucoma Laser Trial), 10.188
Glucagon-like peptide-1 (GLP-1), 1.205
Glucocorticoids. See also Corticosteroid(s)
administration of, 2.403, 2.407
t
adverse effects of, 2.401–403
cell-specific effects of, 2.399
in elderly patients, 2.401
granulomatosis with polyangitis treated with, 1.172
immune-mediated inflammation effects of, 2.399
indications for, 2.399
intraocular pressure elevation by, 2.401–402, 2.402f
t
potency of, 1.175
t
regimens for, 2.403–407
rheumatic disorders treated with, 1.174–176, 1.175
for thyroid eye disease, 7.60–61
types of, 2.403–407
Glucose
aqueous humor concentration of, 2.274–275
in cataract formation, 11.19, 11.60. See also Diabetes mellitus
lens metabolism of, 2.290
metabolism of, in lens, 11.17–19, 11.18f
plasma levels of, in diabetes mellitus. See Glycemic control
in retinal pigment epithelium, 2.323
in tear film, 2.252
Glucose-6-phosphate (G6P), in lens glucose/carbohydrate metabolism, 11.17, 11.18f
Glucose-6-phosphate dehydrogenase (G6PD) deficiency, 1.136
Glucose control. See Glycemic control
Glucose surveillance. See Glycemic control
β-Glucuronidase deficiency, in Sly syndrome, 8.175f
Glutamic acid dehydrogenase (GAD), downbeat nystagmus and, 5.244
Glutaraldehyde, as tissue fixative, 4.26, 4.26f
Glutathione (GSH) in aqueous humor, 2.275
description of, 2.341
in lens, oxidative changes and, 11.17, 11.20
oxidation-reduction cycle, 2.340
reactive oxygen species and, 2.339
Glutathione peroxidase (GSH-Px), 2.341
in lens, 11.20
Glycemic control in diabetes mellitus, 1.35–36
for diabetic retinopathy, 12.96–98
Glycerin, 2.397, 2.398f
Glycerol, 10.174f, 10.182–183
Glycocalyces, 2.396, 2.397f
Glycosaminoglycans (GAGs) corneal haze after surface ablation and, 13.109
corneal hydration and, 8.9
description of, 2.53, 2.263, 2.297, 7.57
in Fleck corneal dystrophy, 8.153
in macular corneal dystrophy, 8.149–150
in mucopolysaccharidoses, 8.178
in mucopoly saccharidase, 8.174
in thyroid eye disease, 4.226
Glyco. See Glycerin
GM1 gangliosidoses
description of, 2.204f, 6.389f
I (generalized), 8.176
GM2 gangliosidosis (Tay-Sachs disease)
description of, 2.204f, 6.389f, 8.176–178, 12.291, 12.291f
type I, 2.204f, 12.291
type II, 2.204f
GMS (Gomori or Grocott methenamine silver) stain, 4.31f, 9.298f
GNAI1 gene
in nevus of Ota, 4.64
in uvea melanoma, 4.197
GNAQ gene
in nevus of Ota, 4.64
in uvea melanoma, 4.197
Goblet cells, 4.47, 4.48f, 8.5, 8.6f
description of, 2.30f, 2.43, 2.44
mucin production by, 2.253
in mucous membrane pemphigoid, 8.299, 8.300
Goiter. See also Hyperthyroidism; Thyroid eye disease
diffuse toxic, 1.43
in Graves hyperthyroidism, 1.43
GOLD. See Global Initiative for Chronic Obstructive Lung Disease
Gold compounds/salts, corneal deposits of/ pigmentation caused by, 8.118f, 8.132
Gold eyelid weights for corneal exposure in facial palsy, 5.281
for exposure keratopathy, 8.80
Gold standard, 1.15–16
Goldberg syndrome, 8.179
Goldberg theory of reciprocal zonular action, 13.162
“Golden ring” sign, 11.110
Goldenhar syndrome/oculoauriculovertebral dysplasia, 2.144
craniofacial malformations associated with, 6.210f, 6.210–211
dermoids/dermolipomas/lipodermoids and, 4.47, 4.48
dermolipomas associated with, 6.256
description of, 4.47, 6.131
epibulbar dermoids associated with, 6.256, 6.256f
Goldman (kinetic) perimetry, 5.84, 5.85f. See also Perimetry
in nonorganic disorder evaluation, 5.308, 5.308f
Goldmann applanation, 6.281
Goldmann applanation tonometry (GAT), 3.282, 3.293, 10.22–23, 10.23f, 10.24f. See also Applanation tonometry/tonometer
corneal thickness affecting, 13.105, 13.181
infection control and, 10.27
LASIK, 13.105, 13.200–201
surface ablation, 13.105, 13.181–201
Goldmann equation, 2.271, 2.273, 10.13
Goldmann-Favre syndrome. See Enhanced S-cone disease (ESCD)
Goldmann lenses, for gonioscopy, 10.33, 10.34f, 10.35
Goldmann perimetry, 10.31, 10.32
Goldmann 3-mirror contact gonioscopy lens, 3.295–296, 3.296f
Goldmann-Weekers (G-W) adaptometer, 12.57–58
Goldmann-Witmer (GW) coefficient
calculation of, 9.41–42
for Fuchs heterochromic uveitis, 9.41–42
polymerase chain reaction and, 9.91 for toxoplasmosis, 9.91
for furoxan, 9.91
Golimumab, 1.180, 9.110
Gomori methenamine silver (GMS) stain, 4.31f, 9.298f
Gonadotroph adenomas, 1.48
Gonadotropin-producing pituitary tumors, 1.48
Goniolenses, 10.33–35, 10.35f. See also Gonioscopy
in children and adolescents, 10.159
Gonioplasty, laser, 10.193–194
Gonioscopy, 6.282, 6.282f, 10.32–40, 10.33f, 10.34f, 10.35f, 10.37f, 10.38f, 10.39f, 10.40f, 10.41f
assessment/documentation systems for, 10.36–40, 10.37f, 10.38f, 10.39f, 10.40f, 10.41f before cataract surgery, 11.79
chamber angle, 4.97–98, 4.98f, 10.32–40, 10.33f, 10.34f, 10.35f, 10.37f, 10.38f, 10.39f, 10.40f, 10.41f in traumatic/angle-recession glaucoma, 10.39–40, 10.40f, 10.41f, 10.107, 10.107f in choroidal/ciliary body melanoma, 4.262, 4.263f, 4.265
direct, 10.33, 10.35f
dynamic (compression/indentation), 10.35, 10.35f, 10.36,10.123 in elevated episcleral venous pressure, 10.102 in Fuchs heterochromic uveitis/iridocyclitis, 10.101, 10.102f
in glaucoma, 10.32–40, 10.33f, 10.34f, 10.35f, 10.37f, 10.38f, 10.39f, 10.40f, 10.41f angle-closure, 10.123, 10.124f, 10.125 in infants and children, 10.159 inflammatory, 10.100 lens particle, 11.67
neovascular, 10.38f, 10.38–39, 10.134 normal-tension, 10.87 primary open-angle, 10.79 traumatic/angle-recession, 10.39–40, 10.40f, 10.41f, 10.107, 10.107f
indirect, 10.33–36, 10.35f in pediatric glaucoma, 10.159 in iris nevus, 4.255 Koepppe-type lenses in, 10.33 normal angle landmarks in, 10.34f in pigment dispersion syndrome, 10.94, 10.94f trabecular meshwork, 4.97–98, 4.98f, 10.33f, 10.34f in trauma evaluation, 10.39–40, 10.40f, 10.41f, 11.190 Goniosynechialysis
for angle-closure glaucoma, 10.220
with cataract extraction, 10.213
for subacute/intermittent angle closure, 10.126
Goniotomy, 9.320, 10.160, 10.161, 10.161f, 10.163 primary congenital glaucoma treated with, 6.285, 6.286f in uveitis patients, 6.323
Gonococcus (Neisseria gonorrhoeae/gonorrhea), 6.238f, 6.238–239, 8.207, 8.208f, 8.245, 8.246j
conjunctivitis/hyperacute conjunctivitis caused by, 8.208f, 8.245, 8.257f, 8.258–260, 8.259f, 8.260f in neonates, 8.257f, 8.258, 8.264
invasive capability of, 8.207
l infections, 1.250–251
resistant strains of, 8.259, 8.264
Gorlin syndrome (basal cell nevus syndrome), 7.201, 7.202f
eyelid manifestations of, 4.210f
Gottron sign, 1.167
Gout, 8.188
corneal changes in, 8.119, 8.188
GPA. See Granulomatosis, with polyangiitis; Guided Progression Analysis
GPC. See Giant papillary conjunctivitis
G6PD deficiency. See Glucose-6-phosphate dehydrogenase (G6PD) deficiency
GPDS1 genes, 10.11f
GPR143 gene, 6.407
Graded-density sunglasses, 3.192–193
Gradedenigo syndrome, 5.201, 5.345
Gradient echo sequences, 7.28–29
Gradient method, for accommodative convergence/accommodation ratio measurement, 3.177–178, 6.71
Graft(s)
conjunctival, 8.351t
for chemical injuries, 8.384
indications for, 8.351t, 8.353, 8.356
for limbal stem cell deficiency, 8.94
in pterygium surgery, 8.351, 8.353t, 8.353–355, 8.354f, 8.356
recurrence rate and, 8.353t
after tumor removal surgery, 8.329
conjunctival-limbal, for pterygium, 8.353t
corneal, 8.316. See also Cornea, transplantation of;
Donor cornea; Keratoplasty
allografts (allogeneic transplantation), 8.316, 8.411–451, 8.412t, 8.412–413t arcuate keratotomy incisions in, 13.56–57 autologous (autologous transplantation), 8.411, 8.451–452 disease recurrence in, 8.225, 8.232
Granular-lattice corneal dystrophy, 8.440–444, 8.441f, 8.442f, 8.443f
Granulocytic sarcoma (chloroma), 4.316, 6.218
Granulomas, 4.7, 4.8f, 4.9f. See also Granulomatosis;
Granulomatous disease/inflammation
chialazia, 8.77
conjunctival/ocular surface, 8.467, 8.47t
foreign-body, 4.52, 4.53f
Grating acuity
contrast sensitivity and, 5.88
definition of, 6.54
in strabismic amblyopia, 6.54
testing for, 6.8, 6.9f, 6.56–57
Graves disease, 7.54. See also Thyroid eye disease
hyperthyroidism associated with, 1.43–44
radioactive iodine uptake testing for, 1.42
thyroid-stimulating immunoglobulins in, 1.42

dislocation/decentration of, after endothelial keratoplasty, 8.440–444, 8.441f, 8.442f, 8.443f
DMEK, 8.442f, 8.442–443, 8.443f
DSEK, 8.441, 8.442f
endothelial failure of, 4.84, 4.85f
late non-immune-mediated, 8.427–428
primary
after endothelial keratoplasty (DMEK/DSEK), 8.447
after penetrating keratoplasty, 8.423, 8.423f
rejection of, 4.84, 4.85f, 8.316–318, 8.428–431.
See also Rejection
for eyelid repair, in burn patients, 8.385
immune privilege and, 8.316
limbal, 8.351f. See also Limbal transplantation
for chemical injuries, 8.380, 8.384
indications for, 8.351t
mucous membrane, 8.351t, 8.365–366
indications for, 8.351t, 8.366
for mucous membrane pemphigoid, 8.303, 8.366
rejection of. See Rejection
Graft-host interface
arcuate keratotomies incisions in, 13.56–57
pathology in
after DSEK, 8.445–446, 8.446f
after lamellar keratoplasty, 8.435
Graft-vs-host disease (GVHD), 8.303–305, 8.305f
superior limbic keratoconjunctivitis and, 8.83
Gram-negative bacteria, 8.243, 8.244f
cocci, 8.244f, 8.245, 8.246f
therapy for infection caused by, 8.270t
as normal flora, 8.206t
rods, 8.244t, 8.247f, 8.247–248
therapy for infection caused by, 8.270t
Gram-positive bacteria, 8.243, 8.244t
cocci, 8.243, 8.244t, 8.244–245, 8.245f
therapy for infection caused by, 8.270t
filaments, 8.244t, 8.248–249
rods, 8.244t, 8.245–247, 8.246f
Gram stain, 4.31t, 8.243–244, 8.244t
Granular corneal dystrophy, 8.135t, 8.145t. See also specific type
atypical. See Reis-Bücklers corneal dystrophy
genetics of, 8.136t
recurrence of after corneal transplantation, 8.425, 8.425f
refractive surgery and, 13.43
type 1 (GCD1/classic), 4.88–4.90, 4.89f, 4.90f, 4.91t, 8.135t, 8.135f, 8.145t, 8.146–148, 8.146–148f
type 2 (GCD2/Avellino), 4.90, 4.91f, 4.91t, 8.135t, 8.136f, 8.145t, 8.148–149, 8.149f
amyloid deposits in, 8.148, 8.186t
refractive surgery and, 13.43
Granular cytomegalovirus retinitis, 9.255f
Granular-lattice corneal dystrophy. See Granular corneal dystrophy, type 2
in Parinaud oculoglandular syndrome, 4.51, 8.265
pyogenic, 4.55, 4.55f, 8.345t, 8.346, 8.346f
after pterygium excision, 8.356
in sarcoidosis, 4.52, 4.52f, 8.347
foreign-body, 4.52, 4.53f, 6.170
iris, 9.300f, 9.302
macular, 6.317f
necrobiotic
in episceritis, 4.109
in scleritis, 4.110, 4.110f
posterior pole, 12.245
pyogenic, 4.55, 4.55f, 6.170, 6.171f, 8.345t, 8.346, 8.346f
after pterygium excision, 8.356
in sarcoidosis, 4.52, 4.52f, 4.187, 4.187f, 5.126f, 5.327, 8.347
toxicara, 9.45
in toxicocariasis, 12.244, 12.245f
unifocal eosinophilic, 6.219, 6.219f
zonal, 4.119, 4.119f
Granulomatosis. See also Granulomas; Granulomatous disease/inflammation
eosinophilic, with polyangiitis, 1.172
with polyangiitis (GPA/Wegener granulomatosis)
definition of, 9.158
description of, 1.171–172, 7.34, 7.63–64, 7.64f, 12.195, 12.196f
diagnosis of, 9.159–160
ocular manifestations of, 8.347
laboratory investigations for, 9.125f
manifestations of, 9.158–159, 9.159f
nasolacrimal duct obstruction associated with,
7.306, 7.306f
necrotizing scleritis in, 9.120f
ocular involvement in, 9.159
optic neuritis and, 5.115
treatment of, 9.160
vision loss in, 9.159
Granulomatous arthritis, pediatric, 6.318
Granulomatous colitis. See Crohn disease
Granulomatous conjunctivitis, 4.51–52, 4.52f
in Parinaud oculoglandular syndrome, 8.265–266
Granulomatous disease/inflammation, 4.7. See also
Granulomas; Granulomatosis
conjunctivitis, 4.51–52, 4.52f
in Parinaud oculoglandular syndrome, 8.265
focal posttraumatic choroidal, 4.22, 4.22f
Granulomatous hypersensitivity reaction, 1.125
Granulomatous ileocolitis. See Crohn disease
Granulomatous inflammatory infiltrate, necrobiotic, in episceritis, 4.109
Granulomatous necrotizing scleritis, 9.120f, 9.120–121
Granulysin, in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis
overlap and toxic epidermal necrolysis), 8.296

Grating acuity
correlation with, 5.88
definition of, 6.54
in strabismic amblyopia, 6.54
testing for, 6.8, 6.9f, 6.56–57
Graves disease, 7.54. See also Thyroid eye disease
hyperthyroidism associated with, 1.43–44
radioactive iodine uptake testing for, 1.42
thyroid-stimulating immunoglobulins in, 1.42
Graves ophthalmopathy. See Thyroid eye disease
Graves orbitopathy, 2.470f
Gray (Gy), 1.237
Gray line, 2.28
Grayscale map, 5.86, 5.87f
Gray matter, 2.458, 2.459
Gray (Gy), 1.237
Graves orbitopathy, 2.470f
Groenouw dystrophy type I (granular corneal
gene, 12.253
GRK1 See GSS syndrome.
GSH-Px.
GSH.
Gruber (petroclinoid) ligament, 5.41
Growth factors
Grouped pigmentation of retina (bear tracks), 4.269, 6.349
Habit spasm, 5.285
HAcetate. See Acetic acid
HAART (highly active antiretroviral therapy).
see also
H1- receptor blockers, for ocular allergy. See Antihistamines
H&E (hematoxylin-eosin) stain, 4.31
Hair follicle tumors, 7.193–194
Hair cells, 5.38, 5.39
Haigis formula, 3.249f, 3.249–250
for IOL power determination/selection, 11.85
Hair cells, 5.38, 5.39f, 5.214
Hair follicle tumors, 7.193–194
Haldol. See Haloperidol
Haller and Zinn, circle of (circle of Zinn), 2.120, 2.122f
Haller layer, 2.76, 2.77f, 12.19
Hallermann-Streiff-François syndrome
(oculomandibulodyscephaly), 8.191
Hallucinations, 5.158, 5.173, 5.175–178
cortical origin of, 5.158, 5.176–178
hypnagogic, 5.177
hypnopompic, 5.177
nonvisual causes of, 5.174
occipital lobe lesions causing, 8.208
optic nerve origin of, 5.176
parietal lobe lesions causing, 5.175, 5.177
sleep-associated, 5.177
temporal lobe lesions causing, 5.155, 5.176–177
H
H2 blockers, 1.288
H1-receptor blockers, for ocular allergy. See Antihistamines
H&E (hematoxylin-eosin) stain, 4.31
HA-MRSA. See Hospital-associated (HA) methicillin-resistant Staphylococcus aureus
Haab striae, 6.260, 6.261f, 6.280f, 6.280–281, 8.109, 10.31, 10.147, 10.151, 10.152f, 10.158, 10.166
HAART (highly active antiretroviral therapy). See Antiretroviral therapy
Habit spasm, 5.285
HAcetate. See Acetic acid
Haemophilus influenzae, 1.249–250
conjunctivitis caused by, 8.208t, 8.256, 8.257t
invasive capability of, 8.207
bleb-associated endophthalmitis caused by, 8.248, 12.391
characteristics of, 1.249–250
conjunctivitis caused by, 4.52, 8.208t, 8.256, 8.257t
as normal flora, 8.206t
preseptal cellulitis caused by, 8.256
treatment of, 1.250
type b (Hib), 1.249–250, 8.248
vaccines for, 1.231, 1.250
Hagberg-Santavuori disease, infantile, 6.389t
Haigis formula, 3.249f, 3.249–250
Asenapine (Seroquel), 11.85
Hair cells, 5.38, 5.39f, 5.214
Hair follicle tumors, 7.193–194
Haldol. See Haloperidol
Haller and Zinn, circle of (circle of Zinn), 2.120, 2.122f
5.17, 10.44, 10.46, 12.17
Haller layer, 2.76, 2.77f, 12.19
Hallermann-Streiff-François syndrome
(oculomandibulodyscephaly), 8.191
Hallucinations, 5.158, 5.173, 5.175–178
cortical origin of, 5.158, 5.176–178
hypnagogic, 5.177
hypnopompic, 5.177
nonvisual causes of, 5.174
occipital lobe lesions causing, 5.158, 5.176–178
ocular origin of, 5.175
optic nerve origin of, 5.176
parietal lobe lesions causing, 5.175, 5.177
sleep-associated, 5.177
temporal lobe lesions causing, 5.155, 5.176–177
H
H. See Fluence
H1 blockers, 1.288
H1-receptor blockers, for ocular allergy. See Antihistamines
H&E (hematoxylin-eosin) stain, 4.31
H&E (hematoxylin-eosin) stain, 4.31
HA-MRSA. See Hospital-associated (HA) methicillin-resistant Staphylococcus aureus
Haloperidol
HAcetate. See Acetic acid
Haemophilus/Haemophilus influenzae, 2.419, 7.46, 8.208t, 8.244t, 8.248
biotype III (H aegyptius), 8.207
conjunctivitis caused by, 8.208t, 8.256, 8.257t
invasive capability of, 8.207
bleb-associated endophthalmitis caused by, 8.248, 12.391
characteristics of, 1.249–250
conjunctivitis caused by, 4.52, 8.208t, 8.256, 8.257t
as normal flora, 8.206t
preseptal cellulitis caused by, 8.256
treatment of, 1.250
type b (Hib), 1.249–250, 8.248
vaccines for, 1.231, 1.250
Hagberg-Santavuori disease, infantile, 6.389t
Haigis formula, 3.249f, 3.249–250
Hard exudates, 4.140, 4.152, 4.153, 12.122, 12.160
Hard drusen, 4.162, 4.162, 12.65
Hard- design progressive addition lenses, 3.182, 3.183
See Hard contact lenses.
Hard contact lens method, for IOL power calculation
Harboyan syndrome, 6.259
HARBOR study, 12.82
Harada-Ito procedure
Hamartomas, 4.6, 4.50, 5.331–332, 7.40
Hamartin, 5.334
Halos
Haloperidol, oculogyric crisis caused by, 5.231
Hallucinosis, peduncular, 5.176
Haptic of IOL, insertion of lens and, 11.116, 11.117, 11.119, 11.119
Harada-Ito procedure
Haptic of IOL, insertion of lens and, 11.116, 11.117, 11.119, 11.119
Harada-Ito procedure
description of, 6.124
Fells modification of, 6.124
HARBOR study, 12.82
Harboyan syndrome, 6.259
Hard contact lens method, for IOL power calculation after refractive surgery, 13.195
Hard contact lenses. See Rigid gas-permeable (RGP) contact lenses
Hard-design progressive addition lenses, 3.182, 3.183
Hard drusen, 4.162, 4.162f, 12.65
Hard exudates, 4.140, 4.152, 4.153f, 12.122, 12.160
in leukemia, 4.315
“Hard” tubercles, 4.7, 4.8f. See also Tubercles
Hardy-Rand-Rittler (HRR) plates
for color vision testing, 12.54
in low vision evaluation, 5.78–79
Harlequin syndrome, 5.257
Harmonious anomalous retinal correspondence, 6.76
Hartmann screen, 3.286
Hartmann-Shack wavefront sensor/aberrometry, 3.277, 3.289, 3.290f, 13.9, 13.10f
Hashimoto thyroiditis, 1.45–46, 7.54, 7.57
Hassall-Henle bodies/warts (peripheral corneal gutter), 2.53, 8.115, 8.128
“Hatchet face,” in myotonic dystrophy, 5.329
HATTS. See Hemagglutination treponemal test for syphilis
HAV. See Hepatitis, A
Hay fever conjunctivitis, 8.288–289
Hay-Wells syndrome, 6.194
Haze formation
after corneal crosslinking, 13.135
after LASIK, 13.33
diffuse lamellar keratitis and, 13.116
pressure-induced stromal keratopathy and, 13.119
surface ablation re-treatment/enhancements and, 13.98
late-onset, 13.109
regression after surgery and, 13.109
after small-incision lenticule extraction, 13.205
after surface ablation, 13.33, 13.52, 13.92, 13.108–110, 13.109f
corticosteroids in reduction of, 13.33, 13.94, 13.108–109
mitomycin C in reduction of, 13.33, 13.92, 13.109
undercorrection and, 13.102, 13.108–109
vitreous, in intermediate uveitis, 9.81f, 9.81–82, 9.82f
wound healing and, 13.33
Hb. See Hemoglobin
HbA1c. See Hemoglobin A1c
HBV. See Hepatitis, B
HBV. See Hemagglutination treponemal test for syphilis
HCl. See Hydrochloric acid
HCO3. See Bicarbonate
HCT. See Hematopoietic stem cell transplantation
HCV. See Hepatitis, C
HDE. See Humanitarian device exemption
HDL-C. See High-density-lipoprotein cholesterol
HDL cholesterol. See High-density-lipoprotein cholesterol
Head
bony anatomy of, 5.5–11, 5.6f, 5.7–8f, 5.9f, 5.10f
torticollis of. See Torticollis
vascular anatomy of, 5.11–23
arterial, 5.11–20, 5.13–14f, 5.15f, 5.16f, 5.17f, 5.18f, 5.20f
venous, 5.21f, 5.21–23, 5.22f, 5.23f
Head lice, ocular infection caused by, 8.255
Head movements
abnormal, spasmus nutans and, 5.239
vestibular-ocular reflex and, 5.214, 5.215
Head thrusts
in ocular motor apraxia patients, 5.223
vestibular-ocular reflex gain evaluation and, 5.215–216
Head-tilt, chin-tilt maneuver, 1.297
Head trauma, 7.119. See also Trauma abusive, 6.381–384, 6.382–383f
anisocoria caused by, 5.256f, 5.262–263
chiasmal injury caused by, 5.152
convergence insufficiency caused by, 5.227
fourth nerve (trochlear) palsy caused by, 5.199, 5.200
optic nerve damage caused by, 5.139f, 5.139–140
pupil irregularity caused by, 5.255
restrictive syndromes caused by, 5.186, 5.206
seventh nerve (facial) palsy caused by, 5.280
sixth nerve (abducens) palsy caused by, 5.201
Headache, 5.287–295, 5.288f
algesic rebound, 5.293
in arteriovenous malformations, 5.291, 5.292f, 5.343
in carotid dissection, 5.342
classification of, 5.287
cluster, 5.289f, 5.294
Horner syndrome and, 5.260f, 5.261, 5.294
evaluation of, 5.287–288, 5.288f
in giant cell (temporal) arthritis, 5.288, 5.313
in hemicrania continua, 5.289f, 5.294
in  giant cell (temporal) arteritis, 5.288, 5.313
idiopathic stabbing, 5.296
trigeminal autonomic cephalgias, 5.289f, 5.293–294
treatment of, 5.292–293
transient visual loss and, 5.161, 5.162, 5.171–172,
“thunderclap,” 5.346
in subarachnoid hemorrhage, 1.121
tension-type, 5.292–293
“thunderclap,” 5.346
transient visual loss and, 5.161, 5.162, 5.171–172,
177, 5.287. See also Migraine headache
treatment of, 5.292–293
trigeminal autonomic cephalgias, 5.289f, 5.293–294
trochlear (trocleitis), 5.296
Healing, ophthalmic wound. See Wound(s), healing/repair of
Healon/Healon-GV/Healon5, 2.445, 11.96, 11.97
Hearing loss
cataract surgery in patient with, 11.170
pigmentary retinopathy and, 12.284. See also Usher syndrome
retinitis pigmentosa and, 12.284
vestibular nystagmus and, 5.241, 5.241f, 5.242
Heart block, 1.101
Heart disease. See Coronary heart disease; Ischemic heart disease
Heart failure. See Congestive heart failure
Heat, anterior segment injuries caused by, 8.384–385, 8.385f
Heavy-chain disease, crystalline corneal deposits and, 8.198
Heavy chains, immunoglobulin, overproduction of, crystalline corneal deposits and, 8.198
Heavy eye syndrome (strabismus fixus), 5.208
HEDS (Herpetic Eye Disease Study), 8.216, 8.222, 8.223f, 11.175
Heerfordt syndrome, 1.162, 9.195
Heidenhain variant of Creutzfeldt-Jakob disease, 5.357
Height maps, 13.22, 13.22f
Heimann-Bielschowsky phenomenon, 5.238–239, 6.152
Heimlich maneuver, 1.299
Helical CT scanners, 7.27
Helicases, 2.181
Helicobacter pylori, 7.92
gastric cancer and, 1.219
Helicoid peripapillary choroidopathy. See Serpiginous choroidopathy
Heliotrope rash, 1.167, 1.167f
HELLP (hemolysis, elevated liver enzymes, and low platelet count) syndrome, 12.197f
Helmholtz hypothesis (capsular theory) of accommodation, 11.22, 13.159–160, 13.160f
Helmholtz type keratometer, 8.27
Helminths, 8.252–253
Helper T cells. See also CD4+ T cell(s); T cell(s); specific T helper cell
accessory molecules expressed by, 9.31
in adaptive immune response, 9.30, 9.32f
antigen receptor on, 9.30
classification of, 9.32
differentiation of, 9.32–35
priming of, 9.31
subsets of, 9.32
Th1, 9.32–33
Th2, 9.32
Th17, 9.33–34
Hemagglutination treponemal test for syphilis (HATTS), 1.253
Hemangioblastomas, 6.353, 6.400, 6.400f
cerebellar, with retinal angiomatosis (von Hippel-Lindau disease), 4.284–285, 5.330, 5.331f, 5.334f
retinal, 4.144, 4.144f, 4.283–285, 4.284f. See also Retinal angiomatosis in von Hippel–Lindau disease/syndrome, 5.330, 5.331f, 5.334f, 12.165–166, 12.166f, 12.168
Hemangiomas (hemangiomatosis), 4.281–286. See also Angiomas (angiomatosis)
capillary, 8.345f, 8.345–346. See also Infantile (capillary) hemangioma
cavernous, 4.6, 8.345f, 8.345f, 8.346, 12.168, 12.169f. See also Cavernous hemangioma
in Sturge-Weber syndrome, 4.197, 4.281, 5.332f, 5.334f
doctors of conjunctiva, 4.50, 8.345f, 8.345–346
definition of, 6.219
eyelid, 4.214, 4.215f, 5.271, 6.199, 8.345f, 8.345–346
infantile (capillary). See Infantile (capillary) hemangioma
of orbit, 4.6, 4.233, 4.234f, 6.219–221
cavernous, 4.6, 4.233, 4.234f
infantile (capillary), 4.233
transient visual loss and, 5.164
plaque, 6.220, 6.220f
propranolol for, 6.220, 6.221f
Hemiret i nal vein occlusion (HRVO), 12.130, 12.133.

Hemicrania

Hemiatrophy, progressive facial (Parry-Romberg syndrome), 8.192f.

Hemianopia, 5.105

Hemi- Descemet membrane endothelial keratoplasty (hemi-DMEK), 8.449–450.

Hemihypertrophy, progressive (Pierre Robin syndrome), 8.296.

Hemeralopia (day blindness), 12.264.

Hematoxylin–eosin (H&E) stain, 4.31.

Hematopoietic tissue, tumors arising in, 4.10, 4.11f.

Hematopoietic stem cell transplantation (HCT), 1.242.

Hematopoietic growth factors, 1.242.

Hematologic disorders. See also specific type

Hematogenous seeding, 8.206.


Hemiretinal vein occlusion (HRVO), 12.130, 12.133f.

Hemispatial neglect (hemineglect), 5.181.

Hemispheric transient ischemic attack (HTIA), stroke and, 5.168–169.

Hemoglobin (Hb), 12.373, 12.374f

normal level of, 1.132

synthesis defects involving, 1.134–136

Hemoglobin Aβ (HbAβ), in diabetes mellitus, 1.34.

diabetic retinopathy and, 12.96, 12.98.

Hemoglobin S, 1.135, 12.149.

Hemoglobinopathies, sickle cell. See Sickle cell anemia/sickle cell disease; Sickle cell retinopathy.

Hemolysis, elevated liver enzymes, and low platelet count (HELLP) syndrome, 12.197f.

Hemolysis, renal response to, 1.136.

Hemolytic anemia

carotid syndrome), 8.296.

Hemolytic glaucoma, 4.103, 4.104f, 10.105, 10.106.

Hemolytic-uremic syndrome (HUS), 1.136, 1.142.

Hemoglobin A1c (HbA1c) synthesis defects involving, 1.134–136.

Hemoglobin (Hb), 12.373, 12.374.

Hemoglobin S, 1.135, 12.149.

Hemoglobinopathies, sickle cell. See Sickle cell anemia/sickle cell disease; Sickle cell retinopathy.

Hemorrhage.

Hemorrhage, suprachoroidal/choroidal.

Hemorrhage, subarachnoid, 1.121, 6.382.


Hemorrhage, retinal.

in central retinal vein occlusion, 4.156, 4.158f.

in carotid disease, 12.138.

in central retinal vein occlusion, 4.156, 4.158f.

in glaucoma, 10.50, 10.51f.

in ocular ischemic syndrome, 5.170, 5.171f.

in retinal ocular, ruptured aneurysm causing, 5.340, 5.340f.

peripapillary, 6.373.

retinal. See also specific type

in abusive head trauma, 6.382–383, 383f, 12.366, 12.366f.

in branch retinal vein occlusion, 4.159.

in carotid occlusive disease, 12.138.

in central retinal vein occlusion, 4.156, 4.158f.

in glaucoma, 10.50, 10.51f.

in leukemia, 4.315, 4.315f, 6.414.

in ocular ischemic syndrome, 5.170, 5.171f.

retrobulbar, cataract surgery and, 11.158, 11.171.

salmon-patch.

description of, 12.150, 12.150f.

syphilitic keratitis and, 8.107, 8.308, 8.309f.

subarachnoid, 1.121, 6.382.

arteriovenous malformations causing, 5.343.
with ocular hemorrhage, 5.340, 5.340f
ruptured aneurysm causing, 5.340
subconjunctival, 8.115f, 8.387–388, 8.388f
submacular
in neovascular age-related macular degeneration, 12.85, 12.385
posttraumatic, 12.354f
vitrectomy for, 12.385, 12.386f
subretinal, 6.373
choroidal neovascularization versus, 12.211
in polypoidal choroidal vasculopathy, 12.76
suprachoroidal/choroidal, 4.18, 4.19f, 12.394–395, 12.395f
angle-closure glaucoma and, 11.141
cataract surgery and, 11.159, 11.171
delayed, 11.160
expulsive, 11.159–160
flat anterior chamber and, 11.134
expulsive, 4.18, 4.19f
cataract surgery and, 11.159–160
after filtering surgery, 10.210–211
vitreous, 2.302, 4.132–133
in central retinal vein occlusion, 12.135
echography for, 12.347
hemolytic/ghost cell glaucoma and, 4.133, 10.105, 10.106
peripheral neovascularization, 12.232
photocoagulation as cause of, 12.379
in polypoidal choroidal vasculopathy, 12.75
posterior vitreous detachment and, 12.309
in proliferative diabetic retinopathy, 12.103, 12.107–108
trauma-related, 12.357
treatment of, 12.309
in Valsalva retinopathy, 12.171
vision loss caused by, 12.346
Hemorrhagic chorioretinopathy, peripheral exudative (PEHCR), 4.270f, 4.271
Hemorrhagic choroidal detachment, melanoma differentiated from, 4.170–171
Hemorrhagic conjunctivitis, 1.264
acute (AHC), 8.240, 8.240f
Hemorrhagic disease of the newborn, 1.145
Hemorrhagic occlusive retinal vasculitis (HORV), 2.361, 12.300–301
Hemorrhagic stroke. See Stroke
Hemosiderin
corneal blood staining and, 4.86, 4.86f
in glaucoma, 4.103, 4.104f
Hemosiderosis/siderosis bulbi, 4.103, 4.120, 11.58, 11.58–59
glaucoma and, 4.103, 10.103
Hemostasis
clot formation in, 1.138
disorders of
amyloidosis, 1.140
cataract surgery in patient with, 11.171–172
causes of, 1.138
clinical manifestations of, 1.140
Ehlers-Danlos syndrome, 1.140
essential thrombocythemia, 1.142–143
essential thrombocytopения, 1.142–143
hemophilia A, 1.144
hemophilia B, 1.144
hereditary hemorrhagic telangiectasia, 1.140
idiopathic thrombocytopenic purpura, 1.141
laboratory tests for, 1.139–140
Marfan syndrome, 1.140–141
osteogenesis imperfecta, 1.140
platelet disorders, 1.141–144
pseudoxanthoma elasticum, 1.140
scurvy, 1.140
thrombocytopenia, 1.141–142
thrombocytosis, 1.142–143
thrombotic thrombocytopenic purpura, 1.142
vascular disorders, 1.140–141
von Willebrand disease, 1.144–145
laboratory evaluation of, 1.139–140
pathways of, 1.138f
physiology of, 1.138–139
Henderson-Patterson bodies, 8.237
Henle fiber layer/Henle layer (HFL), 2.84, 2.92, 2.94f, 4.140, 4.141f, 5.24. See also Nerve fiber layer
definition of, 12.9
histiolo gy of, 12.11, 12.12f
myopia macular schisis of, 12.209
HEP. See Hepatoerythropoietic porphyria
Heparan sulfate
in microbial adherence, 8.207
in mucopolysaccharidoses, 8.175f
Heparin
coronary heart disease treated with, 1.91t
indications for, 1.150
low-molecular-weight
coronary heart disease treated with, 1.91t
description of, 1.149
stroke prevention uses of, 1.114
unfractionated, 1.149
Hepatic disease. See Hepatitis; Liver disease
Hepatitis
A, 1.224, 1.232
B, 1.224, 1.226, 1.232, 1.237f
C, 1.226, 1.237f, 1.263
D, 1.263
E, 1.263
G, 1.263
immunization for, 1.224–226, 1.225f, 1.232
Hepatocellular cancer, 1.220, 1.224
Hepatoerythropoietic porphyria (HEP), 8.190
Hepatolenticular degeneration (Wilson disease), 8.189f, 8.189–190, 11.62. See also Wilson disease
cataracts associated with, 8.189, 11.62
oculogyric crisis in, 5.231
penicillamine for, 8.189
Hepcidin
ferrous sulfate effects on, 1.133
in iron deficiency anemia, 1.132
Herbert pits, 8.261, 8.261f
Hereditary, 2.210–211. See also Genetics
Hereditary benign intraepithelial dyskeratosis, 8.332f
Hereditary dystrophies. See also specific type
cchoroidal
Bietti crystalline dystrophy, 12.258, 12.269, 12.282f
choroidemia, 12.267–268, 12.268f
classification of, 12.255
gyrate atrophy, 12.268–269, 12.269f
Hereditary factors.

Herpes simplex virus (HSV), 2.434, 7.269, 8.212–225
Herpes simplex keratitis, 2.447
Hermansky-Pudlak syndrome, 1.144, 2.229, 6.407, 12.288
Heritability, 2.210

Hering's law of equal innervation/motor correspondence

Hereditary optic neuropathy, 5.107t, 5.133–135, 5.134f, 5.136f
Leber (LHON), 5.133–135, 5.134f, 6.368f
description of, 2.185–186
family history of, 2.200
mitochondrial DNA mutations and, 5.133
optic neuritis and, 5.115, 5.133
Hereditary retinoblastomas, 2.226–227
Hereditary sensory and autonomic neuropathy, type III
See Familial dysautonomia

Hereditary spherocytosis, 1.136
Hereditary vitreoretinopathies, familial exudative
Hereditary vitreoretinopathies, familial exudative, 6.347–348, 6.348f
Hering's law of equal innervation/motor correspondence
description of, 2.124, 6.38, 6.115–116, 6.121, 7.242, 7.242f, 7.253
eyelid retraction and, 5.274
horizontal gaze and, 5.36f
nystagmus and, 5.247
ptosis enhancement and, 5.270f, 5.310
Heritability, 2.210
Hermansky-Pudlak syndrome, 1.144, 2.229, 6.407, 12.288
Her2Neu, in immunohistochemistry, 4.35
Herpes simplex keratitis, 2.447
Herpes simplex virus (HSV), 2.434, 7.269, 8.212–225
acute retinal necrosis/progressive outer retinal necrosis/nonnecrotizing herpetic retinitis caused by, 4.145, 5.350. See also Herpes simplex virus, retinitis caused by acyclovir for infection caused by, 8.215t, 8.219, 8.222, 8.223f
anterior uveitis associated with, 9.247–250
antiviral agents for, 8.205, 8.215, 8.215f, 8.219, 8.222, 8.223f, 8.224, 8.225
blepharitis/blepharoconjunctivitis/conjunctivitis caused by, 8.208t, 8.213, 8.214f, 8.216, 8.226f, 8.257f, 8.260t
characteristics of, 1.259–260
conjunctivitis caused by, 4.52, 6.239, 6.242, 8.208t, 8.213, 8.214f, 8.216, 8.226f, 8.257f, 8.260t
dermatoblepharitis caused by, 8.208t, 8.213, 8.214f, 8.216
famciclovir for infection caused by, 8.215t
infectious scleritis caused by, 9.124
iridocyclitis caused by, 8.222–224
keratitis caused by, 4.76–78, 4.77f, 4.80, 6.269, 8.208t, 8.213, 8.214f, 8.216f, 8.216–222, 8.217f, 8.218f, 8.220f, 8.221f, 9.334
Acanthamoeba keratitis differentiated from, 8.278
discomir, 4.77f, 4.78, 8.220, 8.221f, 8.222
persistent bullous keratopathy and, 8.225
epithelial, 8.213, 8.214f, 8.216f, 8.216–219, 8.217f, 8.218f, 8.226t
interstitial, 4.77f, 4.78, 4.80, 8.219–220, 8.220f, 8.222
necrotizing, 8.219, 8.220–221, 8.221f, 8.222, 8.223f
neurotrophic keratopathy/ulcers/persistent corneal epithelial defects and, 4.77f, 8.80, 8.81t, 8.217–218, 8.224, 8.225
nonnecrotizing, 8.219, 8.220f, 8.221f, 8.223t
after penetrating keratoplasty, 8.424, 8.425f
penetrating keratoplasty for, 8.225
recurrence of in graft, 8.225
recurrent corneal erosion and, 8.86
refractive surgery and, 13.173–174
treatment of, 8.219, 8.222
latency/recurrent infection and, 8.205, 8.207, 8.212, 8.213, 8.215–224, 8.216f, 8.217f, 8.218f, 8.220f, 8.221f, 8.223f, 8.226t
neonatal, 6.412
ocular hypertension associated with, 9.248–249
ocular infection/inflammation caused by, 6.412, 8.208t, 8.212–225
adenovirus infection differentiated from, 8.213–214
cataract surgery and, 7.175
complications of, 8.224–225
iridocorneal endothelial syndrome and, 8.127
neuro-ophthalmic signs of, 5.350, 5.350f
pathogenesis of, 8.213
primary infection, 8.213–215, 8.214f
recurrent infection, 8.215–224, 8.216f, 8.217f, 8.218f, 8.220f, 8.221f, 8.223f, 8.226. See also Herpes simplex virus, latency/recurrent infection and excimer laser exposure and, 13.173–174
refractive surgery and, 13.37, 13.173–174
treatment of, 8.205, 8.215, 8.215f, 8.219, 8.222, 8.223t
surgical, 8.225
varicella-zoster virus infection differentiated from, 8.225, 8.226t
ophthalmia neonatorum caused by, 6.239
perinatal infection caused by, 8.213
retinitis caused by, 4.145, 5.350
necrotizing, 4.145, 12.236–12.237f, 12.236–237, 12.238f
treatment of, 8.213

Type 1, 1.237f, 8.213
Type 2, 1.237f, 8.213
valacyclovir for infection caused by, 8.215f, 8.219, 8.222
Herpes zoster, 6.243, 6.243f, 8.225, 8.226–227, 9.248, 9.334. See also Herpes zoster ophthalmicus;
Varicella-zoster virus
acute retinal necrosis/progressive outer retinal necrosis/nonnecrotizing herpetic retinitis caused by, 5.350
acyclovir for, 8.229
conjunctivitis and, 4.52, 8.225–230, 8.226f
cranial nerve VII (facial) involvement and, 5.280
description of, 2.434
famciclovir for, 8.229
ophthalmic manifestations in, 5.298, 5.298f, 5.350, 8.226f, 8.226–230, 8.227f, 8.228f
retinitis caused by, necrotizing, 4.145, 5.350
scleritis/episcleritis and, 8.227, 8.228
vaccine in prevention of, 5.298, 8.229
valacyclovir for, 8.229
without vesicles (zoster sine herpete), 5.298
Herpes zoster ophthalmicus (HZO), 1.278, 5.298, 5.298f, 5.350, 8.226f, 8.226–230, 8.227f, 8.228f
Herpes simplex virus. See also specific virus
cytomegalovirus, 1.237, 1.261–262, 1.279
epstein-barr virus, 1.262
herpes simplex virus. See Herpes simplex virus
neuro-ophthalmic signs of, 5.350, 8.228f
neurotrophic keratopathy/per sus tent corneal epithelial defects and, 8.80, 8.81f, 8.227
refractive surgery and, 13.174
Herpesvirus (Herpesviridae)/herpesvirus infection, 8.212–233.
Herpesviridae/herpesvirus infection, 8.212–233. See also specific virus
cytomegalovirus, 1.237f, 1.261–262, 1.279
Epstein-Barr virus, 1.262
herpes simplex virus. See Herpes simplex virus
Herpesvirus (Herpesviridae)/herpesvirus infection, 8.212–233. See also specific virus
cytomegalovirus, 1.237f, 1.261–262, 1.279
Epstein-Barr virus, 1.262
Herpes simplex virus. See Herpes simplex virus
neuro-ophthalmic signs of, 5.350, 8.228f
refractive surgery and, 13.37, 13.173–174
type of, 1.259
varicella-zoster, 1.260–261
Herpetic keratitis, 2.394
Herpeticae chorioretinitis, 9.177
Herpetic encephalitis, 9.251
Herpetic Eye Disease Study (HEDS), 8.216, 8.222, 8.223f, 11.175
Herpetic keratitis, 2.394
Herpetic retinitis
necrotizing, 9.330, 9.330f
nonnecrotizing, 9.250–254
Herpex. See Idoxuridine
hESC. See Human embryonic stem cells
Hess screen, 6.120
Heterochromia (heterochromia iridis)
in Fuchs heterochromic uveitis/iridocyclitis, 10.101
in Fuchs uveitis syndrome, 9.145, 9.146f
in Horner syndrome, 5.258
pediatric iris, 6.274, 6.274f, 6.274t
in siderosis bulbi, 11.58f
Heteronymous diplopia, 6.75
Heterophoria method, for accommodative convergence/ accommodation ratio measurement, 3.177, 5.226, 5.227, 6.71
Heteroplasmy, 2.176
in Leber hereditary optic neuropathy, 5.133
Heterotopy, 6.28
Heterotropias/tropias
alternating, 6.64
bifocal segment decentration and, 3.191
definition of, 6.15
heterophoria versus, 6.64
heterotropia versus, 6.64
horizontal, 3.196–197
in monofixation syndrome, 6.51
refractive surgery and, 13.41
vertical, 3.197
Heterozygous, 2.214
Hex K. See Hexagonal keratotomy
Hexagonal cells, specular microscopy in evaluation of percentage of, 8.23
Hexagonal keratotomy (Hex K), 13.8t
Hexokinase, in lens glucose/carbohydrate metabolism, 11.17, 11.18f, 11.19
Hexosaminidase, defective/deficiency of, in gangliosidoses, 8.176
Hexosaminidase activator deficiency, 6.389t
Hexose monophosphate (HMP) shunt
description of, 2.289
in glucose/carbohydrate metabolism, in lens, 11.17, 11.18f, 11.19
Hexose monophosphate pathway, 2.260
HE. See Hydrofluoric acid
HPAs. See Humphrey perimeters/Humphrey Field Analyzers
HFL. See Henle fiber layer/Henle layer
HFS. See Hemifacial spasm
HGD. See Human Genome Project
Hib (Haemophilus influenzae type b), 1.249–250, 8.248
Hidrocystoma
apocrine, 4.208, 4.208f
eccrine, 4.208, 7.191
High AC/A ratio
in accommodative esotropia, 6.90–92
bifocal glasses for, 6.102
in intermittent exotropia, 6.100
High-density-lipoprotein cholesterol (HDL-C). See also Cholesterol
coronary heart disease prevention in, 1.71
pathogenesis of, 1.72
High-frequency ultrasound, 2.462
High hyperopia, cataract surgery in patient with, 11.184–185
High-index lenses, 3.195
High-index lens, 3.196
High (pathologic) myopia
cataract surgery in patient with, 11.184–185
chorioretinal atrophy in, 12.214f
choroid in, 12.212–216, 12.214–12.215f
choroidal neovascularization caused by, 12.89, 12.90f, 12.211f, 12.211–212
criteria for, 3.143
definition of, 12.207
description of, 3.143
esotropia associated with, 6.97, 6.143–144
exotropia associated with, 6.143–144
factors associated with, 12.207
glaucoma and, 10.82, 10.122, 12.218, 12.218f
global prevalence of, 12.207
macular holes in, 12.209
ocular expansion related to, 12.216
optic nerve in, 12.217–218, 12.218f
prevalence of, 12.207
prevention of, 12.207–208
retina in, 12.207–216, 12.209–215
sclera in, 12.216–217, 12.217f
surgical correction of
bioptics for, 13.157
phakic IOLs for, 13.140
refractive lens exchange for, 13.148, 13.150
retinal detachment and, 13.44, 13.183–184, 13.184, 13.197
swept-source optical coherence tomography of, 12.209f
traction effects on retinal vessels in, 12.209
High–plus–power lenses, 12.375
High–power intraocular lenses, 3.264
See also Aberrations; Irregular astigmatism;
Wavefront aberrations: specific type
keratorefractive surgery and, 3.276–277
after LASIK, 13.11, 13.12, 13.102–103, 13.103f
point spread function and, 3.305
pupil size and, 3.106
after radial keratotomy, 13.11, 13.12
after surface ablation, 13.11, 13.12, 13.13, 13.102
topography–guided laser ablation and, 13.32, 13.77
Zernike polynomials and, 3.139
Highly active antiretroviral therapy (HAART). See Antiretroviral therapy
Hilar adenopathy, 7.65f, 7.66
Hippus, 5.254
Hip fractures, 1.190
Hilar, test, 6.67, 6.68f
Histamine
in basophils, 9.19
in connective tissue mast cells, 9.3
hay fever conjunctivitis and, 8.288
in mast cells, 9.19
in mucosal mast cells, 9.3
Histiocytes, 4.7
epithelioid, 4.7, 4.8f
Histiocytic disorders, 7.95–97, 7.96f
Histiocytic lymphoma. See Primary central nervous system/intraocular/vitreoretinal/retinal lymphoma;
Primary vitreoretinal lymphoma
Histiocytoma, fibrous, 8.347
malignant, 4.112
orbital, 4.235
scleral, 4.112, 4.113f
Histiocytosis X. See Langerhans cell histiocytosis
Histo spots, 9.273, 9.273f
Histocompatibility antigens. See Human leukocyte antigens
Histocryl. See Cyanocrylate glue/adhesive
Histograms
description of, 1.28, 1.29f
for flow cytometry results, 4.36, 4.37f
Histoplasma capsulatum, 9.272, 12.86–87
Histoplasmosis, 12.86–87
Historical methods, for IOL power calculation after refractive surgery, 11.86–87, 13.194
History
in cataract, 11.69–71, 11.70t
evaluation for surgery and, 11.74–76
before corneal transplantation, 8.418
in diplopia, 5.183
family. See also under Genetic
in glaucoma, 10.10, 10.82, 10.121
angle–closure glaucoma and, 10.121
open–angle glaucoma and, 10.82
in ocular hypertension, 10.90
glaucoma evaluation and, 10.29–32
in infants/children/adolescents, 10.157
in headache, 5.287, 5.288t
in low vision assessment, 5.78–79
in ocular surface neoplasia, 8.328
in penetrating and perforating ocular trauma, 8.401
in refractive surgery evaluation, 13.35–39, 13.36t
in trauma, 8.401
HIV (human immunodeficiency virus), 6.348, 8.240t, 8.241. See also HIV infection/AIDS
antiretroviral therapy for, 1.268
clinical syndromes of, 1.267
congenital syphilis caused by, 8.240t, 8.241, 8.260t
description of, 1.266
etiology of, 1.266–267
opportunistic infections in, 1.269
pathogenesis of, 1.266–267
risk factors for, 1.267
syphilis involvement in, 1.253
treatment of, 1.268
HIV–1. See HIV infection/AIDS
HIV–2. See HIV infection/AIDS
HIV–associated neurocognitive disorder (HIV encephalopathy/AIDS dementia complex), 5.348
HIV–associated neuroretinal disorder (HIV–RND), 5.348
HIV infection/AIDS, 5.348–350, 8.240t, 8.241. See also AIDS (acquired immunodeficiency syndrome); HIV (human immunodeficiency virus)
CMV infection in, 5.349, 5.349f
retinitis, 5.349, 9.256, 12.235
conjunctivitis in, 8.240t, 8.241, 8.260t
cryptococcosis in, 5.356
encephalopathy in (AIDS dementia complex/HIV–associated neurocognitive disorder), 5.348
herpes simplex keratitis in, 8.222
herpes zoster and, 9.334
herpesvirus infection in, 8.222
intraocular lymphoma risks, 12.234
Kaposi sarcoma in, 5.349, 8.347
lymphoma in, 5.349
microsporidiosis in, 8.280, 8.280f
molluscum contagiosum in, 8.237, 8.238f
neuro–ophthalmic signs of, 5.348–350, 5.349f
neuroretinal disorder in, 5.348
ocular infection/manifestations and, 5.348, 8.240t, 8.241, 8.260t
ocular surface squamous neoplasia in, 4.61
ocular toxoplasmosis in, 9.281–282, 9.282f
progressive multifocal leukoencephalopathy in, 5.351
refractive surgery in patient with, 13.188–190
retinitis in, 4.145, 5.349, 9.256, 12.235
retinopathy associated with, 9.327, 9.328f
seventh nerve (facial) palsy in, 5.280
syphilis and, 9.219–220, 9.331–332
Toxoplasma retinochoroiditis/toxoplasmosis in, 5.352, 12.243
HIV-RND. See HIV-associated neuroretinal disorder
HIV-1 RND.
Hives, fluorescein angiography as cause of, 12.36
HLA(s). See Human leukocyte antigens
HLA-A29
birdshot chorioretinopathy and, 9.34, 9.64–65, 9.65t, 9.165
prevalence of, 9.64
HLA-B5, 12.230
HLA-B12, 9.215
HLA-B27, 1.154, 1.156
diseases associated with
ankylosing spondylitis, 9.130f, 9.131–132
clinical presentation of, 9.130, 9.130f
inflammatory bowel syndrome, 9.133
pattern of, 9.130
psoriatic arthritis, 9.133, 9.134f
reactive arthritis syndrome, 9.132–133, 9.133f
HLA-B51, 9.215
HLA-D, 9.63
HLA-DM, 9.63
HLA-DR4
Lyme disease and, 9.228
Vogt-Koyanagi-Harada syndrome and, 9.204
HMB-45, in immunohistochemistry, 4.34
melanoma diagnosis and, 4.68
HMG-CoA (3-hydroxy-3-methylglutaryl coenzyme-A) reductase inhibitors. See also Statins
cataracts and, 11.53
hypercholesterolemia treated with, 1.75t, 1.76
lipid-lowering uses of, 1.75t, 1.76
HMP shunt. See Hexose monophosphate (HMP) shunt
HMS. See Medrysone
Hoffer Q formula, 3.249f, 3.249–250
for IOL power determination/selection, 11.85, 11.86
Holes
macular, 4.131–132, 4.132f
contusion injury as cause of, 12.315
fellow-eye risk for development of, 12.339
formation of, 12.339, 12.340f
idiopathic
description of, 12.337–339, 12.338f
vitrectomy for, 12.384–385, 12.385f
International Vitreomacular Traction Study Classification System for, 12.336f
lamellar, 12.28f
management of, 12.339–340
optical coherence tomography of, 12.27f
in pathologic myopia, 12.209
posttraumatic, 12.355–357, 12.356f
rhegmatogenous retinal detachment caused by, 12.330, 12.330f
spontaneous resolution of, 12.340
stage 0, 12.339
stage 1, 12.339–340
stage 2, 12.339
stage 3, 12.339
stage 4, 12.339
surgical management of, 12.339–340
optic (optic pits, optic nerve/disc pits, optic pit maculopathy), 5.145
acquired, 10.49–50
outer-schisis-layer, 12.327, 12.327f
retinal
atrophic
definition of, 12.315
lattice degeneration and, 4.150, 12.310, 12.311f, 12.316f
retinal detachment secondary to, 12.310
description of, 12.378
lattice degeneration and, 4.150
operculated, 12.315–316
Holladay formulas, 3.249f, 3.250
for IOL power determination/selection, 11.85, 11.87
Hollenhorst plaques (cholesterol emboli), 12.141, 12.142f, 12.144
in branch retinal artery occlusion, 4.156
transient visual loss and, 5.165, 5.165f, 5.166f
Holmes-Adie syndrome, 5.264. See also Adie tonic pupil
Holmium:yttrium-aluminum-garnet (Ho:YAG) laser photothermal effects of, 13.29
for thermokeratoplasty, 13.127–128
Holocrine glands, of eyelid, 8.4
Homatropine hydrobromide, 2.380f
Homeobox genes/homeotic selector genes
in Axenfeld-Rieger syndrome, 8.97f, 8.102f
description of, 2.164–165
functions of, 2.171
in Peters anomaly, 8.97t, 8.103
Homeotic selector genes, 2.171
Homer Wright rosettes, 6.353
in medulloepithelioma, 4.179
in retinoblastoma, 4.175, 4.175f
Homing, 9.38
Homocysteine, 1.148
Homocystinuria, 2.204f, 6.308–309, 6.389t, 11.41, 12.282f
ectopia lentis in, 11.41
cataracts and, 11.41
vitamin B12 replacement therapy for, 11.41
Homozygous, 2.175, 2.215–216
Homologous chromosomes, 2.175, 2.215–216
Homonymous, 5.105f
Homonymous diplopia, 6.75
Homonymous hemianopia, 2.474f, 6.83
arteriovenous malformations causing, 5.343, 5.344f
cortical injury causing, 5.29
hallucinations within, 5.177
lateral geniculate body lesions causing, 5.154, 5.154f
in migraine headache, 5.171–172
in neuromyelitis optica, 5.320
occipital lobe lesions causing, 5.156–158, 5.157f, 5.158f, 5.159f
optic tract lesions causing, 5.147f, 5.153
optokinetic nystagmus (OKN) testing in evaluation of, 5.219
Hordeolum (hordeola)

Honeycomb-shaped corneal dystrophy.

Hordeolum (hordeola)

description of, 6.198–199, 7.183–184, 7.184f, 7.191, 8.76f, 8.76–77
external (stye), 4.203–204, 8.76, 8.76f
internal, 8.76, 8.77. See also Chalazion
HORIZON study, 12.81–82
Horizontal cells, 2.315f, 2.316, 5.24
Horizontal deviations. See also A-pattern strabismus;
V-pattern strabismus
in craniosynostosis, 6.208
dissociated, 6.17, 6.105, 6.105f, 6.129
extraocular muscle surgery for, 6.161
Maddox rod test for, 6.69
Horizontal eyelid shortening/tightening, for exposure
A-pattern strabismus;
Horizontal deviations.
Horizontal phaco chop technique, 11.114
Horizontal rectus muscles. See also Lateral rectus (LR) muscle; Medial rectus (MR) muscle
anatomy of, 6.20, 6.35f
inferior zone of, 6.24
innervation of, 6.34
in pattern strabismus, 6.109–110
primary position of, 6.35, 6.35f
recession/resection of
description of, 6.139
for esodeviations, 6.160
monocular, 6.161
for nystagmus correction, 6.157
superior zone of, 6.24
transposition of, 6.110, 6.112
Horizontal rotations, 6.31
Horizontal strabismus. See Horizontal deviations
Hormone(s)
in cancer chemotherapy, metastatic eye disease and, 4.310
hypothalamic, 1.47, 1.47f
ocular adverse effects of, 1.309f
thyroid. See Thyroid hormones
Hormone replacement therapy (HRT)
breast cancer and, 1.215
refractive surgery in patient taking, 13.37
tear production affected by, 8.62f
Horner muscle, 2.29, 2.32f, 7.163, 7.282
Horner syndrome, 5.256f, 5.257–262, 5.259f, 5.260f, 5.262f, 6.274–275, 6.415f
apracacliadine for diagnosis of, 2.386
carotid artery dissection causing, 5.162, 5.260f, 5.261, 5.262f, 5.297
cluster headache and, 5.260f, 5.261, 5.294
congenital, 5.261–262, 7.246
description of, 7.104, 7.243–244
imaging studies for, 2.473f
pharmacologic testing for, 5.258–259, 5.259f
ptosis and, 5.257, 5.259f, 5.272, 5.273f
vertebrobasilar insufficiency and, 5.337
Horner-Trantas dots, 6.248, 6.249f, 8.289–290, 8.290f
Horopter
definition of, 6.41
empirical, 6.41, 6.42f
Horror fusionis, 6.48
Horrors of the eyelids, 7.183–184
Horstmann bandage.
Host defenses, 8.11–14, 8.12–13
impaired. See Immunocompromised host
Host–microbe interactions, 1.245
Hot nodules, 1.44
"HOTV" character set, 3.23
HOTV optotypes, 3.133f
HOTV test, 6.6, 6.6f, 6.7f
"HOTV" character set, 3.23
"HOTV" test, 6.6
f
f
H2SO4.
Sulfurous acid
Hemiretinal vein occlusion
H2SO3.
Sulfuric acid
H2SO4.
Sulfurous acid
HSV.
See Herpes simplex virus
HTLV-1.
See Human T-lymphotropic virus type 1
HTLV-1.
See Human T-lymphotropic virus type 1
HTLV-1.
See Human T-lymphotropic virus type 1
HIV.
See Human immunodeficiency virus
HIV.
See Human immunodeficiency virus
Human leukocyte antigens (HLAs). See also specific HLA allelic variation, 9.63–64
disease associations with, 9.64–66, 9.65t
function of, 9.63
genotyping of, 9.63
haplotype of
definition of, 9.63
disease associations with, 9.64–66, 9.65t
in Mooren ulcer, 8.314
in mucous membrane pemphigoid, 8.299
in multiple sclerosis, 5.315
in reactive arthritis/Reiter syndrome, 8.305–306
in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis), 8.296

"Human optical bench," 3.14f
Human papillomavirus (HPV), 8.238
cancer associated with
cervical, 1.217–218, 1.237t
conjunctival intraepithelial neoplasia, 8.238
characteristics of, 1.264
conjunctival papillomas caused by, 4.59–60, 4.60f, 8.238–239, 8.239f, 8.332t, 8.332–334, 8.333f
eyelid infection/wart caused by, 4.204, 4.205f
ocular infection/papillomas caused by, 4.59–60, 4.60f, 8.238–239, 8.239f, 8.332t, 8.332–334, 8.333f
ocular surface squamous neoplasia and, 4.61
transmission of, 1.231
vaccination for, 1.225t, 1.231–232, 1.236
Human T-lymphotropic virus type 1 (HTLV-1), 1.237t
description of, 9.265–267, 9.266f
keratopathy associated with, 9.266
uveitis associated with, 9.263–264
Humanitarian device exemption (HDE), for Intacs use in keratoconus, 13.65–66
Humoral immune system/humoral immunity, 1.245
Humphrey perimeters/Humphrey Field Analyzers (HFAs), 5.87f, 10.60, 10.61, 10.61f, 10.64f, 10.64–65 visual field progression evaluation with, 10.71–74, 10.72f, 10.73f, 10.74f
Humphrey perimeter, 3.315
Humphrey Visual Field Index, 10.72–74, 10.74f
Hunter syndrome (MPS II), 2.204t, 6.388t, 8.174, 8.175t, 12.283t, 12.291
Hurler-Scheie syndrome (MPS IH/S), 8.174, 8.175t
Hurler syndrome (MPS IH/MPS1- H), 8.174, 8.175t, 8.176f, 12.282t, 12.290
Hurricane (vortex) keratopathy (cornea verticillata), 8.90, 8.129f, 8.130, 8.130f, 8.176, 8.177f
disease associations with, 8.130, 8.130f, 8.176, 8.177f
in chloroquine/hydroxychloroquine toxicity, 8.130
in Fabry disease, 6.270, 8.176, 8.177f
HUS. See Hemolytic-uremic syndrome
Hutchinson melanotic freckle, 7.200
Hutchinson sign, 5.49, 9.248
Hutchinson triad, 6.412, 8.308, 9.220
Huygens, Christiaan, wave theory of light, 3.94–95, 3.95f
Hyaline bodies, optic disc/nerve. See Optic disc (optic nerve head/ONH), drusen of
Hyaline deposits
in granular corneal dystrophy type 1, 8.147
in granular corneal dystrophy type 2, 8.148
Hyaline (hard) drusen, 4.162, 4.162f
Hyalocytes, 2.101, 2.294, 2.299f, 2.299–300, 4.125, 9.56
in vitreous, 12.7
Hyaloid artery/system, 3.94–95, 12.340–341 persistence/remnants of, 4.125–126, 4.126f. See also Persistent fetal vasculature
optic nerve/nerve head/disc edema differentiated from, 5.107
tunica vasculosa lentis development and, 11.29, 11.29f
Hyaloid (Cloquet) canal, 2.157, 4.125
Hyaloid corpuscle (Mittendorf dot), 4.126, 11.29, 11.31, 11.32f
Hyaloidocapsular ligament, 2.157
Hyalosis, asteroid, 4.133, 4.133f
Hyaluonan/hyaluronic acid, 2.293, 2.371f, 12.331
description of, 2.293
in thyroid eye disease, 4.226
in vitreous, 2.297
Hyaluronate/sodium hyaluronate, as viscoelastic, 11.95
elevated intraocular pressure and, 10.108
Hyaluronic acid fillers, 7.270, 7.270f
Hyaluronidase, 2.440
in Natowicz syndrome, 8.175t
Hybrid contact lenses, after radial keratotomy, 13.200
Hybridization
comparative genomic (CGH), 4.38t
fluorescence in situ (FISH), 4.38t
Hybridomas, 1.242
Hydatid cyst, orbital infection associated with, 4.228
Hydralazine, 1.64
Hydraulic mechanism theory, 7.114
Hydrochloric acid (HCl), ocular injuries caused by, 8.376f
Hydrocortisone, 1.175
Hydrochloric acid (HCl)
Hydrocortisone, 1.175
Hydrocortisone/neomycin sulfate/polymyxin B sulfate, 2.422t
Hydrocortisone/neomycin sulfate/polymyxin B sulfate/bacitracin zinc, 2.422t
Hydrodelineation, in phacoemulsification, 11.110
for anterior polar cataract, 11.181
for zonular dehiscence with lens subluxation or dislocation, 11.182
Hydrodissection, in phacoemulsification, 11.110
for advanced cataract, 11.180
for posterior polar cataract, 11.181
for zonular dehiscence with lens subluxation or dislocation, 11.182
Hydrodissection, in phacoemulsification, 11.110
for advanced cataract, 11.180
for posterior polar cataract, 11.111, 11.181
for traumatic cataract, 11.192
for zonular dehiscence with lens subluxation or dislocation, 11.182
Hydrofluoric acid (HF), ocular injuries caused by, 2.336, 2.337
Hydrogel polymers
Hydrogel contact lenses, 3.213
Hydrogel lenses
Hydrogen peroxide (H2O2), 2.336, 2.337
Hydrodissection, in phacoemulsification, 11.110
for zonular dehiscence with lens subluxation or dislocation, 11.182
Hydrofluoric acid (HF), ocular injuries caused by, 2.336, 2.337
Hydrogel contact lenses, 3.213
Hydrogel polymers
for IOLs, capsular opacification and, 11.153
in material addition techniques, 13.28
in keratoconus, 13.200
in keratoconus, 13.200
3-Hydroxy-3-methylglutaryl coenzyme-A (HMG-CoA) reductase inhibitors. See also Statins
cataracts and, 11.53
hypercholesterolemia treated with, 1.75t, 1.76
lipid-lowering uses of, 1.75t, 1.76
Hydroxyamphetamine
description of, 2.380t
in Horner syndrome diagnosis, 5.259–260, 5.261f
Hydroxyamphetamine hydrobromide/tropicamide, 2.380t
Hydroxyapatite orbital implant. See Orbital implants
Hydroxychloroquine, 1.164, 1.178–179, 1.308t
cornea verticillata caused by, 8.130
toxicity
description of, 12.295–297
multifocal electrophoretinography findings in, 12.45, 12.49f
nonneovascular age-related macular degeneration versus, 12.68
Hydroxyurea
esential thrombocythemia treated with, 1.143
sickle cell disease treated with, 1.135
Hyfrecator, for punctal occlusion, 8.65
Hyper- (prefix), 6.15
Hyperacuity testing, in age-related macular degeneration, 12.69
Hyperaldosteronism, hypertension caused by, 1.54
management of, 1.74–79
peripheral arterial disease and, 1.78
statins for, 1.75t, 1.76–77
Hyperemia
conjunctival, 6.237, 6.238t
in glaucoma, 10.31
prostaglandin analogues causing, 10.175
insect/arachnid injuries causing, 8.386
in scleritis, 9.117, 9.117f
Hyperfluorescence, in fluorescein angiography, 12.35
Hyperglobus, 7.23
Hyperglycemia. See also Diabetes mellitus; Glycemic control
blood–retina barrier breakdown caused by, 12.108
cataract formation and. See Diabetes mellitus (DM), cataracts associated with control of. See Glycemic control in diabetes mellitus, 1.33
Hyperglycinemia, 2.204t
Hyperhomocysteinemia, 1.148, 12.134
Hyperkeratosis
in actinic keratosis, 4.211
definition of, 4.202
exuberant (cutaneous horn), 4.211
Hyperlipidemia
cerebrovascular disease and, 1.78
ischemic heart disease and, 1.78
lifestyle modifications for, 1.74
management of, 1.74–79
peripheral arterial disease and, 1.78
statins for, 1.75t, 1.76–77
Hyperlipoproteinemias, 8.179. See also Hypercholesterolemia
corneal changes in, 8.179
arcus and, 8.120, 8.121, 8.179
Schnyder corneal dystrophy and, 8.151, 8.179
xanthelasma associated with, 4.206, 4.207f
Hyperlysinemia, 11.41
Hypermature cataract, 11.46, 11.49f
phacolytic glaucoma/uveitis and, 4.103, 10.97f, 10.97–98, 11.67
Hypermelanosis (complexion-associated melanosis), 4.63t, 4.65, 4.66, 4.66f
Hypermetric saccades, 5.221, 5.222, 5.248, 5.248f
Hyperopia, 6.180, 12.201
age-related increases in, 3.143
angle closure/angle-closure glaucoma and, 10.29, 10.122
anisometropic, 3.185f
after cataract surgery, prior refractive surgery and, 11.177
cataract surgery in patient with, 11.185
in children, 3.141, 3.174–175
consecutive, 13.101–102
converging lens for, 3.170, 3.170f
cornea plana and, 8.96f, 8.100
definition of, 3.3, 3.13, 3.124
developmental, 3.143
esotropia and, 3.175
glaucoma and, 10.29, 10.122
high, cataract surgery in patient with, 11.185
high accommodative convergence/accommodative (AC/A) esotropia and, refractive surgery and, 13.188
in infants, 3.141
isometropic, 3.185f
latent, refraction at near to detect, 3.36–38
microcornea and, 8.96f, 8.99
model of, 3.13, 3.13f
myopia overcorrection and, 13.101–102
conductive keratoplasty for, 13.129
pictorial representation of, 3.138f
prismatic effects of bifocal lenses in, 3.185
after radial keratotomy, 13.51, 13.52
correction of, 13.52
retinal reflex in, 3.152
spectacle lenses for, 3.211, 3.212
surgical correction of, 13.30
biotics for, 13.137, 13.157
conductive keratoplasty for, 13.128, 13.129f, 13.165
corneal curvature steepening and, 13.26, 13.80, 13.96
homoplastic corneal inlays and, 13.60
keratophakia for, 13.59–62, 13.62
LASIK for, 3.271, 3.271f, 13.96, 13.97
light-adjustable IOLs for, 13.153–154, 13.154f
monovision for, 13.165
myopia after (consecutive myopia), 13.101–102
nonlaser, 13.8
overcorrection and, 13.101–102
phakic IOLs for, 13.137, 13.138–140, 13.140
photoablation for, 13.74f
outcomes of, 13.96
photorefractive keratectomy for, 13.94, 13.96
phototherapeutic keratectomy for, 8.367
photothermal therapy for, 13.29
refractive lens exchange for, 13.148, 13.150
thermokeratoplasty for, 13.127
wavefront-optimized/wavefront-guided laser ablation for, 13.31
outcomes of, 13.31–32, 13.97
wavefront aberration produced by (negative defocus), 13.11

Hyperopic anisometropia, 3.140
Hyperopic astigmatism, 3.138, 3.138f
outcomes of photoablation for, 13.96
Hyperosmolar drugs, 2.443
Hyperosmolarity, tear film, dry eye and, 8.39, 8.53
Hyperosmotic/osmotic agents, 10.174, 10.182–183
for acute angle closure, 10.124–125, 10.184
Hyperparathyroidism, corneal changes and, 8.200–201
Hyperplasia, 4.10
epithelial, ciliary pigmented, 4.279, 4.280f
intravascular papillary endothelial, 8.345f
lymphoid/reactive lymphoid (RLH) of conjunctiva/ocular surface, 4.69–70, 4.70f, 8.327, 8.348–349, 8.349f
lymphoma and, 8.327, 8.348, 8.349
of orbit, 4.231, 4.232. See also Lymphomas, orbital; Lymphoproliferative disorders of uveal tract (primary choroidal lymphoma/uveal lymphoid proliferation/infiltration/lymphoma), 4.199, 4.199f, 4.313–314
pseudoadenomatous (Fuchs adenoma), 4.179, 4.279
pseudop epitheliomatous, 8.332f
sebaceous, 4.215, 4.216f
Hyperprolactinemia, 1.48
Hypersensitivity delayed definition of, 9.42
granulomatous form of, 9.44
subtypes of, 9.42
T cells
description of, 9.36, 9.42–44
inflammatory diseases mediated by, 9.44f
in sympathetic ophthalmia, 9.45–46
T helper-cell 2, 9.43
in toxocara granuloma, 9.45
T helper cell-17 in, 9.44
tuberculin form of, 9.28
immediate, 9.48–49
Hypersensitivity reactions. See also Allergic reactions/allergies
anaphylactic (immediate/type I)
atopic keratoconjunctivitis and, 8.292
contact dermatoblepharitis and, 8.286, 8.286f, 8.287
hay fever conjunctivitis and, 8.288
topical medications/substances and, 8.285, 8.286f, 8.287
cytotoxic (type II), in mucous membrane pemphigoid, 8.299
delayed (type IV) contact dermatoblepharitis as, 8.286, 8.286f, 8.287
in graft rejection, 8.316, 8.317
topical medications/substances and, 8.286, 8.286f, 8.287
immediate (type I/anaphylactic). See Hypersensitivity reactions, anaphylactic (immediate/type I)

Hypersplenism, 1.134, 1.136
Hypertelorism, 6.191, 7.23, 7.39
Hypertension. See also Pulmonary hypertension in adolescents, 1.68
ambulatory blood pressure monitoring in, 1.53
angina pectoris and, 1.65
arteriosclerotic vascular disease and, 12.122
asteroid hyalosis and, 12.346
in black patients, 1.52, 1.57
blood pressure in
ambulatory monitoring of, 1.53
classifications of, 1.52r, 1.52–53, 1.214
as cardiovascular risk factor, 1.55, 1.56f
cerebrovascular disease and, 1.66
characteristics of, 1.51–52
in children, 1.68
choroidopathy caused by, 12.123, 12.123–12.124f
chronic, 1.67–68
chronic renal disease and, 1.65
coronary heart disease risks, 1.73t
definition of, 1.214
in diabetes mellitus, 1.56, 1.65
diabetic retinopathy progression associated with, 12.98
end-stage renal disease secondary to, 1.214
etiology of, 1.53–55
evaluation of, 1.55–56
focal intraretinal peripapillary transudates caused by, 12.121–122, 12.122f
glaucoma and, 10.83
health risks associated with, 1.51, 1.214
heart failure and, 1.65
intracerebral bleeding secondary to, 1.120
intracranial. See Intracranial hypertension in intraventricular hemorrhage, 1.120
left ventricular hypertrophy and, 1.66
lifestyle modifications for, 1.57, 1.58f
malignant, 12.196
masked, 1.51, 1.53
metabolic syndrome and, 1.66
obesity as risk factor for, 1.66, 1.68
obstructive sleep apnea syndrome and, 1.66
ocular (OHT), 10.48, 10.89–90. See also Elevated intraocular pressure; Ocular hypertension refractive surgery and, 13.104–105, 13.180–183, 13.182f, 13.200–201
in older adults, 1.67
optic neuropathy caused by, 12.123, 12.125
oral contraceptives and, 1.67
pathogenesis of, 1.53–55
patient education and assessment in, 1.69–70
perioperative management for ocular surgery in patients with, 1.284
peripheral arterial disease and, 1.66
physical examination of, 1.55
in pregnancy, 1.67–68
prevalence of, 1.51, 1.214, 12.121
primary, 1.53
race and, 1.51–52
rebound, 1.69
renin-angiotensin-aldosterone system in, 1.53, 1.54
resistant, 1.54, 1.55
retinal complications of, 1.69–70, 1.70
retinal vascular diseases associated with, 12.121–125, 12.122–12.124
retinopathy caused by, 12.121–123, 12.122f, 12.124f
screening for, 1.214
secondary
causes of, 1.53–54, 1.55f
in children, 1.68
laboratory tests for, 1.55
stage 1, 1.52
stage 2, 1.52–53
stroke and, 1.66, 1.115
transient, 1.68
treatment of
advanced glycation cross-link breakers, 1.65
algorithm for, 1.60f
α1-blockers, 1.62–63
angiotensin-converting enzyme inhibitors, 1.59f, 1.61, 1.165
angiotensin II receptor blockers, 1.59f, 1.61
antihypertensives, 1.52, 1.56–57, 1.59–64
β-blockers, 1.62, 1.69
blood pressure thresholds as guidelines for, 1.60f
calcium channel blockers, 1.59f, 1.61–62
combination therapy, 1.63
combined α-adrenergic and β-adrenergic antagonists, 1.63
comorbidities, 1.65–66
considerations in, 1.57
DASH diet, 1.57, 1.58f
direct renin inhibitors, 1.63
direct vasodilators, 1.63
diuretics, 1.59f, 1.59–61
future, 1.64–65
lifestyle modifications, 1.57, 1.58f
nonpharmacologic, 1.57, 1.58f, 1.64
in older adults, 1.67
pharmacologic, 1.51–52. See also Antihypertensive therapy
radiofrequency ablation, 1.64–65
ventricular dysfunction and, 1.65
“white coat,” 1.53
withdrawal syndromes as cause of, 1.68–69
in women, 1.67–68
Hypertensive crisis, 1.69
Hypertensive retinopathy, 1.69, 1.70f
Hyperthyroidism
Graves, 1.43–44. See also Thyroid eye disease
orbitopathy/ophthalmopathy and. See Thyroid eye disease
radioactive iodine for, 7.60
Hypertensive medications, for recurrent corneal erosions, 8.87
Hypertrichosis, progestin analogues/latanoprost causing, 10.175, 10.175f
Hypertrophic subepithelial corneal degeneration, peripheral, 8.124–125, 8.125f
Hypertonia
dissociated vertical deviation and, 6.115
exotropia associated with, 6.100
inferior rectus muscle weakness as cause of, 6.128
rectus muscle surgery for, 6.164–165
superior oblique muscle palsy associated with, 6.123
Hypertyrosinemia/tyrosinemia, 8.183, 8.183–184,
Hyperviscosity, transient visual loss and, 5.171
Hyperviscosity retinopathy, central retinal vein occlusion versus, 12.134
Hyphae, 8.249, 8.250f
Hyphema
after cataract surgery, 11.149, 11.158–159
corneal blood staining and, 4.86
after cataract surgery, 11.159
glaucoma/elevated intraocular pressure and, 4.103, 4.104f, 8.395, 10.104f, 10.104–105. See also Uveitis-glaucoma-hyphema (UGH) syndrome normal-tension glaucoma and, 10.85f, 10.85–86
iris-fixated phakic IOL insertion and, 13.145
layered, 8.392, 8.393f
microscopic, 8.392, 8.392f
sickle cell disease and, 8.395, 8.396
elevated intraocular pressure and, 8.395, 8.395t, 8.396
sickle cell disease retinopathy/elevated intraocular pressure and, 10.104, 10.105
spontaneous, 8.393
total/eight-ball, 8.393, 8.393f
transient visual loss and, 5.164
traumatic, 8.391–396, 8.392f, 8.393f, 8.394f, 8.395f, 12.154
glaucoma/elevated intraocular pressure and, 8.395, 10.104f, 10.104–105
medical management of, 8.394–395
rebleeding after, 8.394, 8.394f, 10.104, 10.105
Ice pick headache, 5.294
ICE syndrome. See Iridocorneal endothelial (ICE) syndrome
ICG. See Indocyanine green
ICG angiography. See Indocyanine green angiography
Ichthyosis, 8.201–202
pre-Descemet corneal dystrophy and, 8.155
vulgaris, 8.201–202
ICP. See Intracranial pressure
ICRB. See International Classification of Retinoblastoma
ICROP. See International Classification of Retinopathy of Prematurity
ICRS. See Intrastromal corneal ring segments
ICSIL. See Intraocular Plasmocytic Sperm Injection
Idarucizumab, 1.149
IDDM (insulin-dependent diabetes mellitus). See Diabetes mellitus (DM), type 1
Idiopathic, for Leber hereditary optic neuropathy, 5.135
Idiopathic enlargement of blind spot syndrome, acute (AIBSE), 5.100–101, 5.101f
fundus autofluorescence in identification of, 5.90
Idiopathic intracranial hypertension (IIH/pseudotumor cerebri/PTC), 5.110–113, 5.111f, 6.370f, 6.370–371 in children, 5.113
headache and, 5.110, 5.112, 5.113, 5.288
Idiopathic macular holes, 4.131–132, 4.132f
description of, 12.337–339, 12.338f
fundus autofluorescence in identification of, 5.90
Idiopathic macular degeneration. See Polypoidal choroidal vasculopathy.
Idiopathic multiple cranial neuropathy syndrome, 5.202
Idiopathic orbital inflammation/inflammatory syndrome. See Nonspecific orbital inflammation
Idiopathic retinitis pigmentosa. See Retinitis pigmentosa
Idiopathic stabbing headache, 5.294
Idiopathic stellate maculopathy, 9.241
Idiopathic retinal vasculitis, aneurysms, and
See IFIS.
Idiopathic polypoidal choroidal vasculopathy. See Polypoidal choroidal vasculopathy
Idiopathic retinal vasculitis, aneurysms, and
nonvisual causes of, 5.175
optic nerve origin of, 5.175
Idiopathic enlargement of blind spot syndrome, acute (AIBSE), 5.100–101, 5.101f
fundus autofluorescence in identification of, 5.90
Idiopathic intracranial hypertension (IIH/pseudotumor cerebri/PTC), 5.110–113, 5.111f, 6.370f, 6.370–371 in children, 5.113
headache and, 5.110, 5.112, 5.113, 5.288
Idiopathic macular holes, 4.131–132, 4.132f
description of, 12.337–339, 12.338f
fundus autofluorescence in identification of, 5.90
Idiopathic macular degeneration. See Polypoidal choroidal vasculopathy.
Idiopathic multiple cranial neuropathy syndrome, 5.202
Idiopathic orbital inflammation/inflammatory syndrome. See Nonspecific orbital inflammation
Idiopathic retinitis pigmentosa. See Retinitis pigmentosa
Idiopathic stabbing headache, 5.294
Idiopathic stellate maculopathy, 9.241
Idiopathic retinal vasculitis, aneurysms, and
nonvisual causes of, 5.175
optic nerve origin of, 5.175
IdIOM. See Internal Limiting Membrane
Ilotycin. See Imidazoles
Image(s) in dense media, 3.12
magnification of. See also Magnification
contact lenses, 3.255
intraocular lenses, 3.255
paraxial theory of, 3.69
real, 3.41, 3.60–61
relocation of, 3.62
virtual
definition of, 3.42
formation of, 3.11, 3.11f
Maddox rod and, 3.75, 3.75f
real images versus, 3.61
Image displacement
through bifocal lenses, 3.184, 3.186f
definition of, 3.147
Image distance. See also Image Magnification
definition of, 3.3, 3.10
Image jump
definition of, 3.147
through bifocal lenses, 3.184–186, 3.187f
Image size. See contact lenses and, 3.206–208
Image vergence, 3.51
Imaging, of nearby objects, 3.9–10, 3.10f
Imaging studies
computed tomography. See Computed tomography
indications for, 2.454, 2.457, 2.473–476t
magnetic resonance imaging. See Magnetic resonance imaging
ordering of, 2.472, 2.473–476t
radiographic. See Neuroimaging; specific modality
ultrasound/ultrasonography. See Ultrasonography/ultrasound (echography)
Imbert-Fick principle, 10.22
Imbition pressure (IOP-SP), 8.9
Imidazoles, 2.429–431, 2.430f
for Acanthamoeba keratitis, 8.278
Iminipenem/cilastatin, 1.273, 2.418f
IgA. See Immunoglobulin A
IgA dermatosis, linear, 8.301
IgE. See Immunoglobulin E
IgE-mediated hypersensitivity reaction. See Immunoglobulin E (IgE)–mediated hypersensitivity reaction
IGF-I. See Insulin-like growth factor I (IGF-I)
IGF-IR. See Insulin-like growth factor I receptor
IGFBP5. See Insulin-like growth factor binding proteins
IgG. See Immunoglobulin G
IgG4-RD. See Immunoglobulin G4–related disease
Imipramine, 1.308f
Immediate hypersensitivity (type I) reaction, 9.48–49.
  See also Allergic reactions/allergies
  atopic keratoconjunctivitis and, 8.292
  contact dermatoblepharitis and, 8.285, 8.286f, 8.287
  hay fever conjunctivitis and, 8.288
  topical medications/substances and, 8.285, 8.286f, 8.287
Immersion ultrasonography, 3.245, 3.246f
for axial length measurement, in IOL power determination/selection, 11.83, 11.83
Immune- checkpoint inhibitors
description of, 7.206, 7.210–211
Vogt- Koyanagi- Harada syndrome caused by, 9.140f
Immune deficiency, in HIV infection/AIDS.
  See HIV infection/AIDS
Immune hypersensitivity reactions.
  See Hypersensitivity reactions
Immune privilege
  in anterior chamber/anterior uvea/vitreous, corneal allograft immunity and, 8.316
  corneal, 8.316, 9.54
  definition of, 9.51
Immune processing
  antigen in, 9.30, 9.33f
  CD4+ T cells in, 9.30–31
Immune reconstitution inflammatory syndrome (IRIS), 1.269, 9.329
Immune-related disorders. See Immune response (immunity), disorders of
immune response (immunity). See also Immune response arc
  of anterior chamber, 9.55–57
  of anterior uvea, 9.55–57
  cellular. See Adaptive immune response, lymphocyte-mediated immune effector responses
  of choroid, 9.57–59
  of conjunctiva, 9.53
  of cornea, 9.54f, 9.54–55
  definition of, 9.1, 9.6
  disorders of. See also specific type and specific structure affected
  in HIV infection/AIDS. See HIV infection/AIDS neuro-ophthalmic signs of, 5.313–318
  ocular disease and, 8.285–326
inflammation versus, 9.6
innate. See Innate immune response/innate immune system
mediator systems that amplify. See also Mediators
  complement, 9.17–19
  eicosanoids, 9.19–20, 9.20f
  fibrin, 9.18–19
  histamine, 9.18
  overview of, 9.17
  plasma-derived enzyme systems, 9.17–19
  plasminogen, 9.18
  platelet-activating factors, 9.20–21
  neutrophils in, 9.2
ocular disorders of, 8.285–326. See also specific structure affected and specific type
  conjunctival involvement and, 8.288–306
  corneal involvement and, 8.306–318
  transplant rejection and, 8.316–318, 8.428–431
  episcleral/scleral involvement and, 8.318–326
  eyelid involvement and, 8.285–287, 8.286f
  graft-vs-host disease and, 8.303–305
  mediators of. See Mediators
  ocular surface immunoregulation and, 8.11–13, 8.12–13f
  primary, 9.37–38
  regional, 9.51, 9.52f. See also Immunologic microenvironment
  of retina, 9.57–59
  of retinal pigment epithelium, 9.57–59
  secondary, 9.37–38
  of vitreous, 9.55–57
Immune response arc. See also Immune response mucosa-associated lymphoid tissue, 9.53
phases of, 9.28–37, 9.29f, 9.31–33f
  afferent, 9.29f, 9.29–30
  effector, 9.36–37
  processing, 9.30–35, 9.33f
  regional immunity and, 9.51, 9.52t
Immune ring, corneal, 8.51f
Immune system. See also Immune response arc
  components of, 9.2–5
  leukocytes of. See Leukocytes (white blood cells)
Immunization schedules, 1.223
Immunizations. See also Vaccines/vaccinations; specific disease
  active, 1.223
  contraindications for, 1.223–224
  development of, 1.223
  Haemophilus influenzae, 1.231–232
  hepatitis, 1.224–226, 1.225f
  hepatitis A, 1.224
  hepatitis B, 1.224, 1.226, 1.232
  hepatitis C, 1.226
  influenza, 1.225f, 1.226–227
  measles/mumps/rubella, 1.225f, 1.228–229
  meningococcal, 1.231
  passive, 1.223, 1.233
  pneumococcal pneumonia, 1.230–231
  polio, 1.229
  in pregnancy, 1.224
  recommendations for, 1.225t
  rotavirus, 1.230
  tetanus and diphtheria, 1.225t, 1.229–230
  travel-related, 1.232
  varicella-zoster, 1.225t, 1.227–228
  yellow fever, 1.232
Immunocompromised host. See also HIV infection/AIDS
  CMV infection in, 4.145, 4.146f
  herpes zoster in, 8.225, 8.226–227
  ocular infection in
    microsporidia causing, 8.280, 8.280f
    yeasts causing, 8.250
  ocular surface squamous cell carcinoma in, 8.336
  refractive surgery and, 13.37, 13.171
Immunofluorescence assay, in mucous membrane pemphigoid, 4.55

Immunoglobulin(s). See also Antibodies; specific type
- classes of, 9.39
- description of, 9.11
- disorders of, corneal crystal deposition and, 8.182f, 8.197–199, 8.198f, 8.199f
- functional properties of, 9.39, 9.41
- intravenous (IVIg), for neuromyelitis optica, 5.323
- isotypes of, 9.39, 9.40
- plasma cell production of, 9.37
- structural features of, 9.39, 9.39f

Immunoglobulin A (IgA), 2.252
- in conjunctiva, 9.53
- dermatosis, linear, 8.301
- molecular size of, 9.39

Immunoglobulin A1, 9.41
Immunoglobulin A2, 9.41

Immunoglobulin E (IgE), 2.399
- inflammatory reactions mediated by Fc receptors for, 9.3
- mast cells in, 9.3
- mast-cell degranulation mediated by, 9.48–49
- in tear film, 8.39
- in type I hypersensitivity/anaphylactic reactions, 8.285

Immunoglobulin E (IgE)–mediated hypersensitivity reaction, 2.351

Immunoglobulin G (IgG), 2.399
- κ-chain deposition, corneal, 8.198
- in multiple sclerosis, 5.319
- in nevromyelitis optica/neuromyelitis optica spectrum disorder, 5.117f, 5.118, 5.320, 5.322

Immunoglobulin G4, 9.41

Immunoglobulin G4 (IgG4)–positive plasmacytic infiltrates, in nonspecific orbital inflammation, 4.225

Immunoglobulin G4–related disease (IgG4-RD), 7.66f, 7.66–67

Immunoglobulin M
description of, 9.35
molecular size of, 9.39
primary immune response production of, 9.37

Immunohistochemistry, 4.33–35, 4.35f
- in melanoma diagnosis, 4.68
- in primary central nervous system/intraocular/vitreoretinal/retinal lymphoma diagnosis, 4.136, 4.312

Immunologic microenvironment
- of anterior chamber, 9.55–56
- of anterior uvea, 9.55–56
- of choriocapillaris, 9.57–58
- of choroid, 9.57–58
- of conjunctiva, 9.52f, 9.53
- of cornea, 9.54f, 9.54–55
- of retina, 9.57–58
- of retinal pigment epithelium, 9.52f, 9.57–58
- of vitreous, 9.52f, 9.55–56, 9.56

“Immunologic privilege,” corneal, 8.316

Immunologic tolerance, corneal transplantation and, 8.316

Immunology (ocular). See Immune response (immunity); Immune response arc

Immunomodulatory therapy/immunotherapy/immunosuppression (IMT), 2.403, 2.404–406f
- for atopic keratoconjunctivitis, 8.294
- for Behçet disease, 9.216–218
- for birdshot chorioretinopathy, 9.169
- for choroidal/ciliary body melanoma, 4.277
- for Cogan syndrome, 1.174
- for corneal graft rejection prophylaxis, 8.430
- for dermatomyositis, 1.168
- for graft-vs-host disease, 8.304
- for hay fever conjunctivitis, 8.289
- infectious pseudocrystalline keratopathy associated with, 4.79
- for lung disease, 1.128
- for melanoma, 7.210
- for Mooren ulcer, 8.316
- for mucous membrane pemphigoid, 8.303
- for multiple sclerosis, 5.116
- for nevromyelitis optica, 5.323
- for peripheral ulcerative keratitis, 8.313
- for polymyositis, 1.168
- for sarcoidosis, 9.199
- for scleritis, 8.324, 8.325f, 9.126
- for Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis), 8.297
- for systemic sclerosis, 1.166
- for uveitis
  - abatacept, 9.112
  - adalimumab, 9.110–111
  - alkylating agents, 9.105, 9.109–110
  - antimetabolites, 9.106–108
  - azathioprine, 9.106–107
  - biologic agents, 9.104, 9.110–113
  - chlorambucil, 9.110
  - complications of, 9.105
  - cyclophosphamide, 9.109–110
  - cyclosporine, 9.108
  - description of, 9.103
  - evaluations before initiating, 9.104–105
  - indications for, 9.104
  - infliximab, 9.111–112
  - interferon alfa-2a/2b, 9.112
  - methotrexate, 9.107
  - monitoring during, 9.105
  - mycophenolate mofetil, 9.107
  - nonbiologic agents, 9.104, 9.106–110
  - onset of action, 9.105
  - pregnancy contraindications for, 9.105
  - in psoriatic arthritis, 9.133
  - rituximab, 9.112
  - T-cell inhibitors, 9.108–109
  - tacrolimus, 9.108

Immunophenotyping, flow cytometry for, 4.36

Immunoregulatory systems
- of anterior chamber, 9.55–56
- of anterior uvea, 9.55–56
- of choriod, 9.57–58
- of conjunctiva, 9.52f, 9.53
- of cornea, 9.54f, 9.54–55
- of retina, 9.57–58
- of retinal pigment epithelium, 9.52f, 9.57–58
- of vitreous, 9.52f, 9.55–56, 9.56

"Immunologic privilege,” corneal, 8.316

Immunologic tolerance, corneal transplantation and, 8.316
of conjunctiva, 9.53
of cornea, 9.54–55
of retina, 9.59
of retinal pigment epithelium, 9.59
of vitreous, 9.56–57

Incisional surgery. See also Incision(s).
See INC.

Inborn errors of metabolism, 2.203, 2.205
Inactivated influenza vaccines (IIVs), 1.227
In vitro fertilization, 2.238
In situ hybridization, fluorescence (FISH), 4.38
In situ hybridization, of spectacle lenses, 3.195
Impairment resistance, of spectacle lenses, 3.195
Implantable cardioverter-defibrillator (ICD)
antiarrhythmic therapy with, 1.105
congestive heart failure treated with, 1.100
current-generation, 1.105
ocular surgery preoperative discussions, 1.282
for drug delivery, 2.364
intrastral corneal ring segment/Intacs, extrusion, 13.67, 13.68 f
Imprinting
definition of, 2.180
diseases caused by abnormalities in, 2.180–181
IMT. See Immunomodulatory therapy/immunotherapy/immunosuppression
In situ hybridization, fluorescence (FISH), 4.38 t
In vitro fertilization, 2.238
Inactivated influenza vaccines (IIVs), 1.227
Inborn errors of metabolism, 2.203, 2.205
lens dislocation and, 6.306
ocular findings in, 6.385, 6.387 f, 6.388–389 t, 6.390 f
prevalence of, 6.385
INC. See Interstitial nucleus of Cajal
Incision(s). See also Incisional surgery
for arcuate keratotomy, 13.27, 13.27 f, 13.53, 13.54–55
for cataract surgery. See also specific type of incision and type of surgery
clear corneal, 11.106 f, 11.106–107
closure of complications associated with, 11.130–131
after ECCE, 11.197–198
postoperative endophthalmitis and, 11.161
complications associated with, 11.130–131
flat or shallow anterior chamber, 11.134
dehiscence/rupture of, 11.131
for ECCE, 11.196
wound closure and, 11.197–198
for ICCE, 11.199–200
induced astigmatism and, 11.131–132
for manual small-incision surgery, 11.198
modification of preexisting astigmatism and, 11.123–124
for phacoemulsification clear corneal, 11.106 f, 11.106–107
scleral tunnel, 11.107 f, 11.107–108
postoperative leaking and, 11.118, 11.130–131
flat anterior chamber and, 11.135
angle-closure glaucoma and, 10.144–145
after radial keratotomy, 13.53
for keratotomy, 13.50, 13.50 f
traumatic rupture of, 13.52
scleral tunnel
for ECCE, 11.196
for phacoemulsification, 11.107 f, 11.107–108
self-sealing, beveled/biplanar, clear corneal incisions and, 11.106 f, 11.106–107
thermal wounds of, 11.131
fornix, 6.162–163
for intrastromal corneal ring segment placement, 13.64
for trabeculectomy, 10.200, 10.201 f, 10.202 f
Incision leaks, after cataract surgery, 11.118, 11.130–131
flat anterior chamber and, 11.135
angle-closure glaucoma and, 10.144–145
Incisional biopsy, 7.203, 7.203 f
Incisional surgery
corneal (keratorefractive), 13.8 f
for keratorefractive surgery, 13.26–27, 13.27 f
limbal, 6.163
limbal relaxing (LRIs), 13.8 t, 13.27 f, 13.53–54, 13.54 f, 13.54–58, 13.55 f, 13.56 f, 13.57 f
for trabeculectomy, 10.200, 10.201 f, 10.202 f
for trabeculectomy, 10.200, 10.201 f, 10.202 f
for trabeculectomy, 10.200, 10.201 f, 10.202 f
10.218
scleral tunnel
for trabeculectomy, 10.197–211
with cataract surgery, 10.211–213
tube shunt implantation, 10.213–217, 10.214 t, 10.218
Inciting eye. See Exciting eye
Inclusion-cell disease (ML II), 8.178
Inclusion conjunctivitis, chlamydial, 8.260, 8.263, 8.265
in adults, 8.260, 8.263
in neonates, 8.260, 8.265
Inclusion cysts, 6.250
epidermal, of eyelid, 4.208, 4.208 f
epithelial, conjunctival, 4.59, 4.59 f, 8.114, 8.114 f
concretions and, 8.113–114
nevi and, 4.64, 8.340
InocbotulinumotoxinA, 5.281. See also Botulinum toxin
Incitant deviation, 6.16
Incomitant esotropia, 6.95–97, 6.96 f
Incomitant deviation, 6.16
Incitant (noncomitant) deviations, 5.183, 5.184, 5.187. See also specific type
Incitant strabismus
abnormal head position caused by, 6.83
prism alternate cover test for, 6.66
Incomplete achromatopsia, 6.337

172 • Master Index
normal flora in, 8.205
nystagmus in, 5.235–237, 5.237f
ocular infections in, 8.257f, 8.263–265. See also specific type
ephthalmia neonatorum in, 8.257f, 8.263–265.
See also Ophthalmia neonatorum Refsum disease in, 12.290
retinal hemorrhage in, 6.382–383, 383f
retinopathy of prematurity in, 12.175
trauma in, 12.316–317, 12.365–366, 12.366f
vision in
decreased, 6.187–188
development of, 6.185
impairments in, 6.186–187
visual evoked potentials in, 5.95, 12.53
decreased vision and, 5.95
Infantile (capillary) hemangioma, 7.71f, 7.71–73, 7.180–181. See also Hemangiomas
of conjunctiva/ocular surface, 4.50, 8.345f, 8.345–346
eyelid, 4.214, 4.215f, 8.345f, 8.345–346
of orbit, 4.233
of retina. See Capillary hemangioblastoma; Retinal angiomatosis
Infantile (capillary) hemangiomas, 7.71f, 7.71–73, 7.180–181
Infantile cataract, 6.293, 11.34–39, 11.35f, 11.37f, 11.38f, 11.39f
Infantile exotropia, 6.86t
amblyopia associated with, 6.87–89
botulin toxin injections for, 6.89
Chavasse theory of, 6.87
Ciancia syndrome, 6.88, 6.95
clinical features of, 6.87–88
cross-fixation associated with, 6.87–88, 6.88f
cycloplegic refraction for, 6.88
definition of, 6.87
evaluation of, 6.87–88
management of, 6.88–89
medial rectus muscle recession for, 6.89
mental illness and, 6.87
ocular alignment in, 6.88–89
pathogenesis of, 6.87
prematurity as risk factor for, 6.87
smooth-pursuit asymmetry associated with, 6.88
surgical treatment of, 6.89
V-pattern strabismus associated with, 6.109, 6.112f
Worth "sensory" concept of, 6.87
Infantile exotropia, 6.103–104, 6.104f
Infantile glaucoma, 4.98, 4.99f, 10.4f, 10.147, 10.148t, 10.151. See also Glaucoma, pediatric; Primary congenital glaucoma
corneal opacities associated with, 6.257f, 6.260, 6.261f
description of, 6.230
Infantile Hagberg-Santavuori disease, 6.389f
Infantile malignant osteopetrosis, 6.212
Infantile nystagmus syndrome (INS), 5.235–237, 5.237f, 6.83, 6.148–149, 6.149f, 6.156f, 6.187, 6.335. See also Congenital nystagmus
Infantile primary congenital glaucoma. See Infantile glaucoma; Primary congenital glaucoma
Infantile strabismus. See also Strabismus
description of, 6.16
dissociated vertical deviation associated with, 6.129
fusion maldevelopment nystagmus syndrome associated with, 6.151, 6.154
primary inferior oblique muscle overaction associated with, 6.117
Infarction. See also specific type/tissue or organ involved
neuroimaging in evaluation of, 5.64f, 5.65f, 5.66, 5.67f, 5.75
Infection (ocular), 8.208t. See also specific type, structure affected, causative agent and under Infectious
Acanthamoeba causing, 8.208t, 8.252, 8.276–279, 8.277f, 8.278f
bacterial/bacteriology, 8.208t, 8.243–249, 8.244t.
See also Bacteria
corneal and scleral involvement and, 8.208t, 8.267–273, 8.268f, 8.269t, 8.270t, 8.273f, 8.282–283, 8.283f
eyelid margin and conjunctival involvement and, 8.255–266
basic concepts and, 8.205–211, 8.208t, 8.209t, 8.211f
caliculitis, 7.313, 7.314f
contact lens–related, 3.11, 3.12f, 3.11, 3.12
8.266–267, 8.273–274, 8.276, 8.277
corneal, 6.257t, 8.266–283. See also Keratitis, Scleritis
corneal opacity and, 8.16f
dacyroadenitis, 7.312–313
dacyrocystitis, 7.313–315, 7.315f
defense mechanisms and, 8.11–14, 8.12–13f, 8.13f, 8.206
diagnostic laboratory techniques in, 8.208–211, 8.209f, 8.211f
eyelid disorders caused by, 6.198–199
eyelid margin and conjunctival involvement and, 8.254–266. See also Conjunctivitis; Eyelid(s)
fungal/mycology, 8.208t, 8.249–251
corneal and scleral involvement and, 8.282–283
eyelid margin involvement and, 8.254–255, 8.255f
in infants and children
intrauterine and perinatal, corneal anomalies and, 8.107
ophthalmia neonatorum, 8.257t, 8.263–265
Loa loa causing, 4.228, 8.253, 8.282, 8.282f
microbiology of, 8.207–211, 8.208f, 8.209f, 8.211f.
See also specific causative factor
microsporidia causing, 8.208t, 8.209t, 8.209f, 8.282f
mycobacterial, 8.248
atypical organisms and, 8.248f, 8.272–273, 8.273f
neuroimaging in evaluation of, 5.72t
normal flora and, 8.205–206, 8.206t
orbital inflammation caused by. See Orbital inflammation, infectious causes of parasitic/parasitology, 8.208t, 8.252–253
conorneal and scleral involvement and, 8.208f, 8.266–283
eyelid margin involvement and, 8.254–255, 8.255f
pathogenesis of, 8.206–207
pediatric glaucoma and, 10.150t
after penetrating keratoplasty, 8.426, 8.426f
postoperative, 6.170, 6.170f
preseptal cellulitis caused by, 6.212–213
prions causing, 8.254
scleral involvement, 8.266–283
Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis) and, 8.295
viral/virology, 8.208, 8.211–241
Infection control, in clinical tonometry, 10.27
Infectious conjunctivitis, 4.52–53, 4.54f. See also specific type and causative agent
Infectious crystalline keratopathy, 8.268, 8.268f
conical deposits and, 8.182f
after penetrating keratoplasty, 8.427, 8.427f
Infectious diseases. See also Infection; specific organism and disorder
Borrelia burgdorferi, 1.254–255
Candida albicans, 1.258
Chlamydia trachomatis. See Chlamydia, trachomatis
Clostridium difficile, 1.249
cytomegalovirus, 1.237f, 1.261–262, 1.279
Ebola virus, 1.264–265
external eye, 8.208f. See also Infection; specific causative agent
bacterial, 8.208f, 8.243–249, 8.244f, 8.255–266
basic concepts and, 8.205–211, 8.208f, 8.209f;
8.211f
corneal and scleral involvement and, 8.266–283.
See also Keratitis; Scleritis
diagnostic laboratory techniques in, 8.208–211,
8.209f, 8.211f
eyelid margin and conjunctival involvement and,
8.254–266. See also Conjunctivitis; Eyelid(s)
fungal, 8.208f, 8.249–251, 8.254–255, 8.255f,
8.282–283
microbiology of, 8.207–211, 8.208f, 8.209f, 8.211f.
See also specific causative factor
normal flora and, 8.205–206, 8.206f
parasitic, 8.208f, 8.252–253, 8.254–255, 8.255f,
8.266–283
pathogenesis of, 8.206–207
prions causing, 8.254
viral, 8.208f, 8.211–241
fungal, 1.258
Haemophilus influenzae, 1.231, 1.249–250
hepatitis. See Hepatitis
herpes simplex virus. See Herpes simplex virus
human papillomavirus. See Human papillomavirus
influenza, 1.223, 1.226–227
malaria, 8.228–29
meningococcus, 1.231
microbiology of, 1.245–246
mumps, 1.228–229
Mycoplasma tuberculosis, 1.222, 1.256–257
Mycoplasma pneumoniae, 1.256
Neisseria, 1.250–251, 1.276
neuro-ophthalmic signs of, 5.348–357
ocular inflammatory. See Infectious ocular inflammatory disease
polio, 1.229
Pseudomonas aeruginosa, 1.251–252
rotavirus, 1.230
rubella, 1.229
screening for, 1.222–223
seventh nerve pathology caused by, 5.278f, 5.279–280
Staphylococcus, 1.246–247
Streptococcus, 1.247–249, 1.248f
syphilis. See Syphilis
Toxoplasma gondii, 1.258–259
varicella-zoster, 1.225f, 1.227–228
Zika virus, 1.265–266
Infectious endocarditis, community-acquired, 1.248
Infectious endophthalmitis, 4.119, 4.119f, 4.127, 4.128f
acute anterior uveitis associated with, 9.137
Infectious/microbial keratitis, 2.426, 4.75–80, 4.76f,
4.77f, 4.78f, 4.79f, 4.80f, 4.81f, 8.208f, 8.266–279,
8.307–309, 8.309f. See also specific type and causative agent
clinical presentation of, 8.267–268, 8.268f, 8.274f,
8.274–275, 8.276–277, 8.277f
contact lens wear and, 8.266–267, 8.273–274
for orthokeratology, 13.71
interstitial disease and, 8.307–309, 8.309f
intrauterine, 8.107
syphilitic, 4.80, 4.81f, 8.107, 8.308–309, 8.309f
laboratory evaluation/causes of, 8.266–269, 8.269t,
8.275, 8.277, 8.278f
after LASIK, 13.106f, 13.106–107, 13.107f, 13.117–
119, 13.118f, 13.119f
diffuse lamellar keratitis differentiated from,
13.117–118, 13.118f, 13.119f
management of, 8.269–272, 8.270f, 8.275–276,
8.277–279
orthokeratology and, 13.71
pathogenesis of, 8.267, 8.273–274, 8.276
after penetrating keratoplasty, 8.247
after photoablation, 13.106f, 13.106–107, 13.107f
reurrence of in graft, 8.225, 8.232
specimen collection in evaluation of, 8.210, 8.211f
stains and culture in identification of, 8.209f, 8.269,
8.273, 8.275
Infectious mononucleosis (IM), ocular involvement in,
8.230–231, 8.231f
Infectious ocular inflammatory disease. See also specific type and causative agent
dendophthalmitis, 4.119, 4.119f, 4.127, 4.128f
protozoal, 4.147–148, 4.148f, 8.252
Acanthamoeba keratitis, 8.208f, 8.252, 8.276–279,
8.277f, 8.278f
corneal opacity and, 8.16f
retinitis, 4.147–148, 4.148f
Infectious pseudocystiteline/crystalline keratopathy,
4.79–80, 4.80f
after penetrating keratoplasty, 4.79
Infectious scleritis
actinomycetes as cause of, 9.119f
clinical presentation of, 9.124
description of, 9.116
microbiological examination for, 9.125
pathophysiology of, 9.123–124
treatment of, 9.127
vision loss risks, 9.128
Infectious uveitis
acute retinal necrosis, 9.250, 9.251f
adenovirus as cause of, 9.272
bartonellosis as cause of. See Bartonella (bartonellosis)
Chikungunya fever as cause of, 9.268–269
cytomegalovirus as cause of, 9.248–249, 9.254–257,
9.255f
Dengue fever as cause of, 9.267f, 9.267–268

Master Index • 175
Ebola virus as cause of, 9.270–271, 9.271f
Epstein-Barr virus as cause of, 9.257–258
herpes simplex virus as cause of, 9.247–250, 9.248–249f
human T-lymphocytic virus type 1 as cause of, 9.265–267, 9.266f
immunologic uveitis versus, 9.311
leptospirosis as cause of, 9.232–233
Lyme disease as cause of. See Lyme disease
lymphocytic choriomeningitis virus as cause of, 9.261
measles as cause of, 9.261–263
mumps as cause of, 9.261
nocardiosis as cause of, 9.233
rubella as cause of, 9.258–261
rubella as cause of, 9.258–261
rhegmatogenous retinal detachment associated with, 9.262–263
Rift Valley fever as cause of, 9.265, 9.265f
rubella as cause of, 9.258–261
subacute sclerosing panencephalitis as cause of, 9.262–263
syphilis as cause of. See Syphilis
See also Tuberculosis
West Nile virus as cause of, 9.263–264
Whipple disease as cause of, 9.243–245, 9.244f
Zika fever as cause of, 9.269–270, 9.270
Inferior canaliculus, 2.32f
Inferior concha, 7.19
Inferior meatus, 5.11. See also Inferior turbinate
Inferior muscular artery, 5.14–15
Inferior oblique (IO) muscle, 5.36f, 5.46, 5.46f, 7.262
action of, 6.34f, 6.38f
advancement of, 6.166
anatomy of, 2.17f, 2.28f, 2.107f, 5.36f, 5.46, 5.46f, 6.19f
antiorization/anterior transposition of
anti-elevation syndrome caused by, 6.168
description of, 6.166
characteristics of, 2.19f, 6.21f
elevator function of, 6.73
field of action for, 6.33
innervation of, 5.40, 5.44, 5.44f
description of, 6.19
surgical considerations and, 6.29
magnetic resonance imaging of, 2.460f
origins of, 2.18, 6.20, 6.21f, 6.28
overaction of
bilateral, 6.117
clinical features of, 6.117–118
in craniosynostosis, 6.208
description of, 6.17
latent dissociated vertical deviation versus, 6.129–130
management of, 6.118
overerelevation in adduction caused by, 6.117f, 6.117–118
primary, 6.117
secondary, 6.117
in superior oblique muscle paralysis, 6.166
V-pattern strabismus caused by, 6.107
Y-pattern strabismus caused by, 6.113
palsy of
Brown syndrome versus, 6.124, 6.125f, 6.137
clinical features of, 6.124, 6.124f, 6.125f
management of, 6.124–125
pseudo-overaction of, 6.109, 6.113
pulley system, 6.28
tightening of, 6.166
transposition of, anterior, 6.166
underaction of, 6.17
weakening of
bilateral, 6.165
indications for, 6.118
for superior oblique muscle palsy, 6.123, 6.123f
surgical procedures for, 6.164f, 6.165–166
for V-pattern strabismus, 6.111
Inferior ophthalmic vein, 2.12, 2.12f, 2.26f, 2.34f, 5.8f, 5.21f, 5.22, 5.22f, 5.23f, 7.13f
Inferior orbital fissure, 2.6f
Inferior orbital groove, 5.9f
Inferior orbital vein, 6.23
Inferior orbitotomy
transconjunctival incisions for, 7.126–127, 7.127f
transcutaneous incisions for, 7.126, 7.126f
Inferior palpebral artery, 5.13f
Inferior palpebral vein, 5.21f
Inferior petrosal sinus, 5.22, 5.23f
Inferior punctum, 2.27
Inferior rectus (IR) muscle, 5.8f, 5.36f, 5.45, 5.46f
action of, 6.34f, 6.36f
anatomy of, 2.17f, 2.20f, 2.28f, 2.107f, 5.8f, 5.36f, 5.45, 5.46f, 7.12, 7.13f
classification of, 2.19f
development of, 6.17
computed tomography of, 2.456f
defpressor function of, 6.73
development of, 6.73
diagnosis of, 6.127–128
diagnosis of, 6.127–128
hydatid cyst of, 7.53f
diagnosis of, 6.124, 6.124
innervation of, 5.44, 5.44f, 6.19
lateral border of, 6.29
magnetic resonance imaging of, 2.460f
neurofibrovascular bundle, 6.29
origin of, 6.20, 6.22f
recession/resection of
description of, 6.29
surgery considerations for, 6.29
weakening of
for nystagmus, 6.156
procedures for, 6.163, 6.164f
Inferior rectus tendon, 6.19f
Inferior rectus tendon, 6.19f
Inferior retinal arcade, 5.14
Inferior sagittal sinus, 5.22f
Inferior staphyloma syndrome, 12.217, 12.217f
Inferior-superior (I-S) values, 8.31, 13.4
after intrastromal corneal ring segment implantation, 13.66
in keratoconus/corneal ectasia, 8.32f, 8.165, 8.165f
Inferior tarsal muscle, 2.35, 7.167
Inferior transseptal injection, of periocular
corticosteroids, 9.96, 9.97f
Inferior turbinate, 2.14f
Inferior turbinate fracture, 7.294
Inferolateral trunk, 5.12
Inferomedial orbital strut, 2.14
Inferonasal disc coloboma, 6.365f
Inferotemporal fossa, 2.12
Infiltrative lesions, orbital, 5.126f; 5.126–127
Infiltrative optic neuropathy, 5.107f, 5.126–127, 5.131–133
Inflamase Forte. See Prednisolone; Prednisolone sodium phosphate
Inflammation (ocular), 3.231t, 3.233–234, 4.6–9, 4.8f, 4.9f, 4.12f. See also Endophthalmitis; Uveitis; specific type or structure affected
acute, 4.6, 4.13
angle-closure glaucoma and, 10.138f, 10.138–139, 10.139f
anisocoria and, 5.258f
cataracts/cataract surgery and, 11.64f, 11.64–66, 11.139–140, 11.170–171
postoperative, 11.139–140
retained lens material and, 11.141
trauma and, 11.191
in chemical injury, management and, 8.382–384
choroidal. See also Chorioretinitis;
Chorioretinopathy; Choroidopathy
posttraumatic, 4.22, 4.22f
chronic, 4.6–7
conjunctival, 4.50f, 4.50–55, 4.51f, 4.52f, 4.53f, 4.54f, 4.55f
corneal, 4.75–81, 4.76f, 4.77f, 4.78f, 4.79f, 4.80f, 4.81f
cytokines in, 9.21, 9.22–24f
eicosanoids in, 9.19–20, 9.20f
eyelid, 4.203–204, 4.204f, 4.205f, 4.206f, 6.198–199
glaucoma and, 10.100–102, 10.102f, 10.138f, 10.138–139, 10.139f
granulomatous, 4.7
focal posttraumatic choroidal, 4.22, 4.22f
immune response versus, 9.6
infectious diseases and, protozoal, 4.147–148, 4.148f, 8.252
Acanthamoeba keratitis, 8.208t, 8.252, 8.276–279, 8.277f, 8.278f
corneal opacity and, 8.16f
retinitis, 4.147–148, 4.148f
lens-related, 4.118–119, 4.119f
leukotrienes in, 9.20
mediators of. See Mediators
nongranulomatous, 4.7
noninfectious. See Noninfectious ocular inflammatory diseases
nonspecific orbital, 6.215–216, 6.216f
open-angle glaucoma and, 10.100–102, 10.102f
optic nerve, 4.243f, 4.243–245, 4.244f, 4.245f
orbital. See Nonspecific orbital inflammation; Orbital inflammation
pain in, 5.295
pathologic findings associated with, 9.6
pupil irregularity and, 5.255
retinal, 4.145–148, 4.146f, 4.147f, 4.148f
in retinoblastoma, 4.291, 4.291f
scleral, 4.109–110, 4.110f, 4.111f
treatment of. See Anti-inflammatory agents
uveal tract, 4.185–187, 4.186f, 4.187f, 4.188f. See also Uveitis
in uveitis, 6.320–322
vitreal, 4.127, 4.128f. See also Endophthalmitis; Vitritis
in wound healing/repair, 4.13
Inflammatory anemia, 1.137
Inflammatory anisocoria, 5.258f
Inflammatory bowel disease (IBD)
acute anterior uveitis in, 9.133
ocular manifestations of, 1.157
spondylarthritides associated with, 1.156
Inflammatory cells, in anterior uveitis, 9.77, 9.79f
Inflammatory chorioretinopathies
acute posterior multifocal placoid pigment epitheliopathy. See Acute posterior multifocal placoid pigment epitheliopathy
acute retinal pigment epitheliitis, 9.162–164f, 9.189f, 9.189–190
acute zonal occult outer retinopathy. See Acute zonal occult outer retinopathy
birdshot chorioretinopathy. See Birdshot uveitis (birdshot retinocchoroidopathy/birdshot/vitiliginous chorioretinitis)
definition of, 9.161
multifocal choroiditis and panuveitis syndrome. See Multifocal choroiditis and panuveitis syndrome
multiple evanescent white dot syndrome. See Multiple evanescent white dot syndrome
punctate inner choroiditis. See Punctate inner choroiditis/chorioretinopathy
serpiginous choroiditis. See Serpiginous choroiditis
subretinal fibrosis and uveitis syndrome. See Subretinal fibrosis and uveitis syndrome
Inflammatory dendritic cells, 9.4
Inflammatory infiltrate, necrobiotic granulomatous, in episcleritis, 4.109
Inflammatory mediators. See Mediators
Inflammatory optic neuropathy, 5.113–118, 5.114f, 5.117f. See also Optic neuritis
chronic relapsing, 5.116
pain in, 5.295–296
Inflammatory pseudoguttae, 8.52
Inflammatory pseudotumor. See Nonspecific orbital inflammation
Inflammatory response. See also Endophthalmitis; Inflammation (ocular); Uveitis; specific type or structure
clinical manifestations of, 9.6
definition of, 9.6
lipopolysaccharide-induced, 9.8–9
Inflammatory vascular tumors, conjunctival/ocular surface, 8.346f, 8.346–347
Inflammatory vasculitis, 12.230, 12.230f. See also Vasculitis/vasculitides
Infliximab, 1.180, 2.405f, 6.322
anti-idiotypic antibodies' effect on, 9.41
for Behçet disease, 9.216
for Mooren ulcer, 8.316
for peripheral ulcerative keratitis, 8.313
sarcoidosis-associated uveitis treated with, 9.199
for scleritis, 8.324
for uveitis, 9.111–112
Infliximab-dyyb, 1.181
Influenza virus
antiviral agents for, 1.279
description of, 8.239, 8.240f
immunization for, 1.225f, 1.226–227
Informed consent
in behavioral disorder patients, 1.211–212
for cataract surgery, 11.87–88
ethical considerations in, 1.212
in neurologic disorder patients, 1.211–212
before ocular surgery, 1.282
in older adults, 1.187
for refractive surgery, 13.36t, 13.46–48, 13.47t
in patient with ocular or systemic disease, 13.171–172
phakic IOL insertion and, 13.140–141
refractive lens exchange and, 13.147–148
Infraorbital artery, 2.23f, 5.211f
disorders of, 5.191–206, 5.193f, 5.194f, 5.198f, 5.199f, 5.200f, 5.204f. See also Diplopia
Infraorbital artery, 2.23f, 5.12, 5.13f, 5.14f, 5.15f, 6.23, 7.8
Infraorbital canal, 2.11, 5.11, 7.8
Infraorbital foramen, 2.9f, 5.9f, 7.7f
Infraorbital groove, 2.6f, 2.8, 2.9f, 7.8
Infraorbital nerve, 5.48f, 5.49, 7.12f, 7.20
lacral functional unit innervated by, 8.5f
Infraorbital foramen, 2.9f, 5.9f, 7.7f
Infraorbital vein, 2.26f, 5.21f
Infraorbital vein, 2.26f, 5.21f
Infraorbital groove, 2.6f, 2.8, 2.9f, 7.8
Infraorbital nerve, 5.48f, 5.49, 7.12f, 7.20
lacral functional unit innervated by, 8.5f
Infraorbital vein, 2.26f, 5.21f
Infraorbital vein, 2.26f, 5.21f
Infrared (IR) radiation.
See also Radiation
Infrared meibography, 8.40, 8.40f
Infraocular artery, 2.23f, 5.12
Infraorbital artery, 5.12, 5.13
Infraorbital artery, 5.12, 5.13
Infraorbital artery, 5.12, 5.13, 5.19
Infraorbital foramen, 5.9f, 7.7f
Infraorbital groove, 2.6f, 2.8, 2.9f, 7.8
Infraorbital nerve, 5.48f, 5.49, 7.12f, 7.20
lacral functional unit innervated by, 8.5f
Infraorbital vein, 2.26f, 5.21f
Infraocular artery, 5.12
Infundibulum, 2.108f
Inheritance. See also Genetics; specific disorder
codominant patterns of, 2.203
dominant
autosomal, 2.206–208, 2.207t
description of, 2.202–203
X-linked, 2.209, 2.210t
maternal, 2.210, 2.218
multifactorial, 2.232–233
polygenic, 2.232–233
recessive
autosomal, 2.203–206
description of, 2.202–203
X-linked, 2.208–209, 2.209t
X-linked
description of, 2.208
disorders associated with, 2.210
dominant, 2.209, 2.210t
recessive, 2.208–209, 2.209t
Inherited disorders
migraine-like headache and, 5.294–295
neuro-ophtalmic signs of, 5.328–333, 5.334f. See also specific disorder
Inherited metabolic disorders. See Metabolic disorders
Initiative in Vision Rehabilitation on the ONE Network, 1.185
Injection drug use. See Substance abuse disorders
INL. See Inner nuclear layer
Inlays, corneal, 13.59–71, 13.169
alloplastic, 13.28, 13.60–61, 13.61f
homoplasmic, 13.60
in keratophakia, 13.60–61, 13.61f
for presbyopia, 13.59–71, 13.169
Innate immune response/innate immune system
adaptive immune response versus, 9.27
conjunctiva and, 9.53
definition of, 9.1
macrophage activation by, 9.14
mediator systems in. See Mediators
overview of, 9.5
subclinical presence of, 9.6
summary of, 9.7t
triggers of
bacterial-derived molecules, 9.7t, 9.7–9
exotoxins, 9.9
lipopolysaccharide, 9.7–8
overview of, 9.6–7, 9.7t
Innate immunity, 1.245
Inner ischemic retinal atrophy, 4.151, 4.151f
in diabetic retinopathy, 4.159
in retinal arterial and venous occlusions, 4.156, 4.159
Inner neuroplastic layer, 2.155f
Inner nuclear layer (INL), 2.92, 4.140f, 4.141f
histology of, 12.11, 12.12f, 12.15f
paracentral acute middle maculopathy of, 12.143
Inner-out segment junction, 12.12
Inner plexiform layer (IPL), 2.92, 4.140f, 4.141f, 12.11, 12.12f
Inner segments (IS), 2.85, 4.140f. See also Photoreceptor(s), inner segments of
cones, 12.11, 12.12f
ellipsoid, 12.12
of rods, 12.11, 12.12f
Innominaten artery, 5.12, 5.13f, 5.19
INO. See Internuclear ophtalmoplegia
Inoculum, 8.206
iNOS. See Inducible nitric oxide synthase
Inositol, 2.275
INR. See International normalized ratio
INS. See Infantile nystagmus syndrome
Insect hairs/stings, ocular injury/infection caused by,
Innate immune response/innate immune system
Innate immunity, 1.245
Inner ischemic retinal atrophy, 4.151, 4.151f
in diabetic retinopathy, 4.159
in retinal arterial and venous occlusions, 4.156, 4.159
Inner neuroplastic layer, 2.155f
Inner nuclear layer (INL), 2.92, 4.140f, 4.141f
histology of, 12.11, 12.12f, 12.15f
paracentral acute middle maculopathy of, 12.143
Inner-out segment junction, 12.12
Inner plexiform layer (IPL), 2.92, 4.140f, 4.141f, 12.11, 12.12f
Inner segments (IS), 2.85, 4.140f. See also Photoreceptor(s), inner segments of
cones, 12.11, 12.12f
ellipsoid, 12.12
of rods, 12.11, 12.12f
Innominaten artery, 5.12, 5.13f, 5.19
INO. See Internuclear ophtalmoplegia
Inoculum, 8.206
iNOS. See Inducible nitric oxide synthase
Inositol, 2.275
INR. See International normalized ratio
INS. See Infantile nystagmus syndrome
Insect hairs/stings, ocular injury/infection caused by, 8.386–387
Insomnia, fatal, 5.357
Instantaneous radius of curvature (meridional/tangential power), 13.16–17, 13.17f
Instrumentation.
Instrument myopia, 3.282, 3.286
Instrumental activities of daily living (IADLs), 1.187
Instrumentation. See Ophthalmic instrumentation;
Surgical instruments
Insulin
continuous subcutaneous infusion of, 1.37
type 1 diabetes mellitus treated with, 1.37
Insulin-dependent diabetes mellitus, 6.408, 12.91.
See also Diabetes mellitus (DM), type 1
Insulin growth factor-1 (IGF-1), retinopathy of
prematurity screening and, 12.182
Insulin-like growth factor, 2.448
Insulin-like growth factor binding proteins, 2.277
Insulin-like growth factor I (IGF-I), description of, 7.56
in retinopathy of prematurity pathophysiology, 6.325, 6.326f
Insulin-like growth factor I receptor (IGF-IR), 7.57
Insulin resistance
  metabolic syndrome and, 1.77
  in type 2 diabetes mellitus, 1.34
Insulinomas, 1.50
Intacs, 13.63. See also Intrastral corneal ring segments
corneal crosslinking with, 13.207
Integrins, 9.11
  Candida virulence and, 8.206
  in external eye defense, 8.12–13f
Intense pulsed-light (IPL) therapy
  for meibomian gland dysfunction, 8.69
  for rosacea, 8.71
"Intention to treat" analysis, 1.6
Intercellular adhesion molecules (ICAMs). See Cell adhesion molecules
Intercellular adhesion molecule-1 (ICAM-1), 2.252, 2.415, 9.11
  applications of, 3.103
  constructive, 3.100, 3.119
  definition of, 3.91
  destructive, 3.100, 3.119
  pictorial representation of, 3.101f
  subtractive, 3.100
Interference filters, narrow-band, 3.103, 3.104f
Interferogram, 12.25
Interferometry
  coherence length and, 3.101–102
  coherence time and, 3.101–102
  concept of, 3.102f
  description of, 3.303
  low-coherence, 3.102, 3.304, 8.21
  in meibomian gland dysfunction, 8.40, 8.40f
Interferons (IFNs), 1.308f
  α (interferon-alfa), 1.261, 2.448, 9.24f, 12.300
  for Behçet disease, 9.218
  for Mooren ulcer, 8.316
  for ocular surface tumors, 8.327, 8.330, 8.330f, 8.331, 8.331f
  conjunctival papilloma, 8.238–239, 8.239, 8.333
  optic neuropathy caused by, 5.137
  for uveitis, 9.112
  β, for multiple sclerosis, 5.321t
  definition of, 9.21
  description of, 2.447–448
  gamma
    characteristics of, 9.24f
    macrophage activation by, 9.42
    T helper cell-1 production of, 9.35
  for Mooren ulcer, 8.316
  for ocular surface tumors, 8.327, 8.330, 8.330f, 8.331, 8.331f
  conjunctival papilloma, 8.238–239, 8.239,
  8.333
  types of, 9.24f
Interferon-gamma release assay (IGRA)
  for tuberculosis detection, 1.222
  tuberculosis testing using, 9.29
INTERHEART study, 1.72
Interlenticular membranes, piggyback IOLs and, 13.150
Interlenticular opacifications, IOL, 11.151
Interleukin(s), 1.242
  definition of, 9.21
  in external eye defense, 8.6f, 8.11–13, 8.12f
  types of, 9.22–23t
Interleukin-1
  in dry eye, 8.53
  in external eye defense, 8.11–13, 8.12f
  in tear film, 8.11–13, 8.12f
  Interleukin-1 receptor antagonist (IL-1RA), in external eye defense, 8.6f, 8.12f
  Interleukin-1β, 9.22t
Interleukin-2, 7.210
  characteristics of, 9.22t
  T-cell synthesis and release of, 9.31
Interleukin-4
  in B-cell activation, 9.35, 9.43
  characteristics of, 9.22t
Interleukin-5
  characteristics of, 9.22t
  eosinophils and, 9.2
Interleukin-6
  characteristics of, 9.22t
  in inflammatory uveitis, 9.306
Interleukin-8, 9.23
Interleukin-10
  in intraocular lymphoma, 9.306
  in T regulatory cell effector function, 9.35
Interleukin-12
  antigen-presenting cell production of, 9.35
  characteristics of, 9.23t
Interleukin-17A, 9.23t
Interleukin inhibitors, 1.180
Intermarginal sulcus, 2.28
Intermediate capillary plexus, 12.16
Intermediate uveitis (IU), 6.312t, 6.316, 6.316f, 6.320, 6.321t, 12.231–232. See also Pars planitis; Uveitis; specific cause
characteristics of, 9.70
chronic, 9.82
conditions associated with, 9.147
evaluation of, 9.72t
floaters in, 9.76
human leukocyte antigen association with, 9.65t
in human T-lymphocytic virus type 1, 9.266
immune recovery and, 9.257
in Lyme disease, 9.229
in multiple sclerosis, 9.151–152
multiple sclerosis and, 5.318
pars planitis. See Pars planitis
peripheral vascular sheathing in, 9.75
signs of, 9.81–82, 82f
snowball opacities in, 9.82, 9.147, 9.148f
snowbanks in, 9.82, 9.147
symptoms of, 9.76, 9.77t
vitreous cells in, 9.81–82, 9.82t
vitreous haze in, 9.81f, 9.81–82
Intermittent ataxia, 2.204t
Intermittent exotropia
  age at onset, 6.99
  basic, 6.101
  characteristics of, 6.99–100
  control of, 6.100
  course of, 6.99
  dissociated horizontal deviation and, 6.105
  evaluation of, 6.100–101
  nonsurgical management of, 6.101–102
  normal retinal correspondence in, 6.99
  occlusion therapy for, 6.102
  patch test for, 6.101
  postoperative alignment, 6.102
  prisms for, 6.102
  recurrence of, 6.103
  refractive errors in, 6.101
  surgical treatment of, 6.102–103
  tenacious proximal fusion in, 6.71
  treatment of, 6.101–103
Intermittent strabismus, 6.182
Intermuscular septum, 2.44, 6.28–29, 7.12
Internal auditory artery, 5.20
Internal carotid artery (ICA), 5.10f, 5.12, 5.13f, 5.14, 5.15f, 5.16f, 5.18f, 5.27f, 7.14, 7.170
anatomy of, 2.106f
aneurysm of, 5.338, 5.339f
  chiasmal syndromes caused by, 5.147, 5.150
  third nerve (oculomotor) palsy and, 5.194, 5.194f, 5.196, 5.196f, 5.339
  cranial nerve relationship and, 5.42f, 5.43f
description of, 2.138
dissection of, 5.342–343
  Horner syndrome and, 5.162, 5.260f, 5.261, 5.262f, 5.297
  pain caused by, 5.297, 5.342
magnetic resonance imaging of, 2.460f
Internal hordeolum, 7.183, 8.77. See also Chalazion
Internal jugular vein, 5.22, 5.22f, 5.23
lesions of, Horner syndrome and, 5.260t
Internal limiting membrane (ILM), 4.140f
  amacrine cells in, 12.15
  anatomy of, 2.73f, 12.15
  development of, 2.155
  epiretinal membranes, 12.332
  hemorrhagic detachment of, 12.171
  histology of, 12.11, 12.12f
  nonproliferative sickle cell retinopathy findings, 12.150
  peeling of, 12.209
  in retinal healing/repair, 4.17
vitreoretinal interface, 2.296
  vitreous detachment and, 4.129
  vitreous remnants on, 12.332
Internal medullary lamina, 5.34
Internal posterior hordeolum. See Chalazion
Internal radiation therapy. See Brachytherapy
Internal reflectivity, 2.463
Internal scleral sulcus, 4.98
Internal ulcer of von Hippel, 4.74, 4.75f
International Agency for the Prevention of Blindness (IAPB), 11.6
International Classification of Retinoblastoma (ICRB), 6.354, 6.356f
International Classification of Retinopathy of Prematurity (ICROP), 6.325, 6.327f
International Classification System for Intraocular Retinoblastoma (ABC System), 4.297, 4.297f
International Committee for the Classification of Corneal Dystrophies (IC3D), 8.133–134, 8.134t, 8.135f
International Federation for Clinical Neurophysiology electrophysiologic testing standards, 12.41
International HapMap Project, 2.189–190
International League of Associations of Rheumatology, 1.157, 1.158f
International normalized ratio (INR), 1.140, 1.276
International Reading Speed Texts (iReST), 3.318
International Society for Clinical Electrophysiology of Vision (ISCEV)
electrophysiologic testing standards of, 12.41
full-field electroretinography standards, 12.42, 12.43f
International Society of Refractive Surgery (ISRS), K-Card developed by, 13.194
International Standards Organization (ISO), intraocular lens standards of, 3.263–264
International Study Group for Behçet disease, 9.212, 9.212f
International Vitreomacular Traction Study Classification System, 12.336f
Intracranial lesions, diplopia caused by, 5.189–191, 5.190f, 5.191f
Intracranial ophthalmoplegia (INO), 2.475f, 5.38, 5.189–190, 5.190f, 5.247, 6.144
  bilateral/wall-eyed bilateral (WEBINO), 5.189, 5.190f in multiple sclerosis, 5.318
  in multiple sclerosis, 5.318
  in nevromyelitis optica, 5.322
  nystagmus in, 5.189, 5.190f, 5.247
  pursuit dysfunction in, 5.226
Interphotoreceptor retinoid-binding protein (IRBP), 2.326, 4.172
Interphotoreceptor retinoid-binding protein–specific T-cell receptor transgenic mice, 9.62
Interpulse time (TI), 5.75
Interpubic distance, 6.203
  bifocal segment decentration and, 3.191
  in spectacle lens prescription, 3.198
  intrarater reliability, 1.24
Interrupted sutures, for penetrating keratoplasty, 8.419f
  removal/adjustment of, 8.419f, 8.431–432, 8.432f
Intersaccadic interval, 5.213
  saccadic intrusions/oscillations and normal, 5.247–248, 5.248f
  not normal, 5.248f, 5.248–249
Intersexes, 2.225
Interstitial keratitis (IK), 4.80, 4.81f, 8.46f, 9.220, 9.221f. See also Keratitis
  Epstein-Barr, 8.230, 8.231f
  glaucoma and, 10.139
  herpetic, 4.77f, 4.78, 8.40, 8.219–220, 8.220f, 8.222
  in infectious disease, 8.307–309, 8.309f
  syphilitic, 4.80, 4.81f, 8.107, 8.308–309, 8.309f
  intrauterine infection and, 4.80, 4.81f, 8.107, 8.308–309, 8.309f
Interstitial nucleus of Cajal (INC), 5.35, 5.35f
saccadic eye movements and, 5.220–221
vertical gaze and, 5.36, 5.36f, 5.38
Interstitial nucleus of medial longitudinal fasciculus, rostral (rMLF), 5.33, 5.35, 5.35f, 5.220
saccadic eye movements and, 5.220
vertical gaze and, 5.36, 5.36f, 5.220
Intervening sequence. See Introns
Intorsion (incycloduction), 6.33
A-pattern strabismus caused by, 6.107, 6.110
definition of, 6.33
extraocular muscles in, 5.46f
oblique muscles, 5.46f
rectus muscles, 5.46f
Intra-arterial chemotherapy, for retinoblastoma, 4.299–300, 4.300f
Intra-axial ocular motor nerve course, 5.41f
Intra-axial ocular motor nerve palsies, 5.191
Intracameradrug delivery, 2.359–360, 2.360t
Intracamerainjections
cefuroxime, during cataract surgery, 11.94, 11.162
lidocaine, during cataract surgery, 11.92, 11.137
Intracanalicular plugs, for dry eye, 8.64
Intracanalicular region of optic nerve, 4.241
Intracanalicular plugs, for dry eye, 8.64
Intracanalicular region of optic nerve, 4.241
compressive lesions of, 5.107f, 5.126, 5.126f
5.126–131, 5.127f, 5.128t, 5.129f. See also specific lesion
one-and-a-half syndrome and, 5.191
Intracapsular cataract extraction (ICCE), 3.240, 11.90, 11.199–201, 11.200f. See also Cataract surgery
globe exposure for, 11.199
historical overview/key developments in, 11.90, 11.119, 11.120f, 11.195
incision for, 11.199–200
IOLs for, 11.200
iridectomy/lens delivery in, 11.200, 11.200f
patient preparation for, 11.199
postoperative course for, 11.201
postoperative flat or shallow anterior chamber and,
11.135
retinal detachment and, 11.166
suture-induced astigmatism after, 11.131–132
wound closure and, 11.200–201
in zonular dehiscence with lens subluxation or
dislocation, 11.182
Intracapsular IOL dislocation, 11.144, 11.144f, 11.145
Intracavernous carotid aneurysms, 5.339–340
Intracavernous ocular motor nerve course, 5.43f
Intracerebral hemorrhage, 1.120. See also Intracranial hemorrhage
Intracranial hypertension (increased intracranial pressure/ICP)
description of, 7.80
headache caused by, 5.107, 5.110, 5.112, 5.113, 5.288
idiopathic (IH/Pseudotumor cerebri/PTC), 5.110–113, 5.111f
in children, 5.113
headache and, 5.110, 5.112, 5.113, 5.288
optic nerve/nerve head/disc edema and. See Papilledema
ruptured aneurysms causing, 5.340
symptoms associated with, 5.107, 5.110–111, 5.111f
Intracranial pinealoblastoma, primary, retinoblastoma
and, 4.298, 4.302
Intracranial pressure (ICP), 6.209, 6.370
Intracranial region of optic nerve, 4.241, 5.26–27
meningioma involving, 5.127–129, 5.128f
Intracranial retinoblastoma, ectopic, 4.298
Intracytoplasmic sperm injection (ICSI), 2.239
Intranasal cysts, 6.229
Intramuscular injections, 2.362
Intralenticular foreign bodies, 11.57
Intralenticular fibrosis, 3.241
Intraocular chemotherapys, for lymphoma, 4.312
Intraocular foreign bodies (IOFBs), 13.144
Intraocular fine-needle aspiration biopsy (FNAB), 4.34
Intraocular injections, 2.359–361
conjunctival or corneal (CIN), 2.414, 4.61, 4.63f, 4.96,
8.37, 8.38f, 8.332i, 8.334–335, 8.335f. See also Ocular surface squamous neoplasia
malignant, 4.63f, 4.65, 4.66, 4.67f
corneal, 4.96
Intraocular melanosis, 4.65–68, 4.66f, 4.67f
Intraocular neoplasia
conjunctival or corneal (CIN), 2.414, 4.61, 4.63f, 4.96,
8.37, 8.38f, 8.332i, 8.334–335, 8.335f. See also Ocular surface squamous neoplasia
melanocytic, 4.63f, 4.65, 4.66, 4.67f
corneal, 4.96
Intraocular neovascularization
Intraocular tumors, 5.239
Intraocular inflammation. See Endophthalmitis;
Inflammation (ocular); Uveitis; specific type or structure
Intraocular injections, 2.359–361
Intraocular foreign bodies (IOFBs). See Foreign bodies
Intraocular lenses (IOLs), 11.115–117, 11.118–122.
See also Cataract surgery
accommodating, 3.261, 11.122, 11.122f, 13.8t, 13.154,
13.163–164, 13.164f
complications of, 11.151
acrylic, 3.256
American National Standards Institute standards for,
3.263–264
angle kappa in evaluation of, 8.34
angle-supported, 13.137, 13.138, 13.139f, 13.144
complications of, 13.146–147
anterior chamber, 11.117, 11.119, 11.120f
anterior uveitis caused by, 9.138, 9.138f
after capsular rupture, 11.142–143
closed-loop, pseudophakic bullous keratopathy
and, 11.149
complications of, 11.146
fixed-haptic, 9.138f
flexible-loop, 11.119, 11.120f
history of development of, 11.119, 11.120f
Intraocular melanosis, 4.65–68, 4.66f, 4.67f
Intraocular neoplasia
conjunctival or corneal (CIN), 2.414, 4.61, 4.63f, 4.96,
8.37, 8.38f, 8.332i, 8.334–335, 8.335f. See also Ocular surface squamous neoplasia
melanocytic, 4.63f, 4.65, 4.66, 4.67f
corneal, 4.96
Intraocular neovascularization
Intraocular tumors, 5.239
Intraocular inflammation. See Endophthalmitis;
Inflammation (ocular); Uveitis; specific type or structure
Intraocular injections, 2.359–361
Intraocular foreign bodies (IOFBs). See Foreign bodies
Intraocular lenses (IOLs), 11.115–117, 11.118–122.
See also Cataract surgery
accommodating, 3.261, 11.122, 11.122f, 13.8t, 13.154,
13.163–164, 13.164f
complications of, 11.151
acrylic, 3.256
American National Standards Institute standards for,
3.263–264
angle kappa in evaluation of, 8.33
angle-supported, 13.137, 13.138, 13.139f, 13.144
complications of, 13.146–147
anterior chamber, 11.117, 11.119, 11.120f
anterior uveitis caused by, 9.138, 9.138f
after capsular rupture, 11.142–143
closed-loop, pseudophakic bullous keratopathy
and, 11.149
complications of, 11.146
fixed-haptic, 9.138f
flexible-loop, 11.119, 11.120f
history of development of, 11.119, 11.120f

after ICCE, 11.200
insertion of, 11.117
phakic, 13.8t. See also Phakic intraocular lenses
pictorial representation of, 3.241f
pupillary block and, 10.131–132
anterior chamber (ACIOLs), 11.117, 11.119, 11.120f
anterior uveitis caused by, 9.138, 9.139f
after capsular rupture, 11.142–143
closed-loop, pseudophakic bullous keratopathy and, 11.149
complications of, 11.146
fixed-haptic, 9.139f
flexible-loop, 11.119, 11.120f
history of development of, 11.119, 11.120f
after ICCE, 11.200
insertion of, 11.117
phakic, 13.8t. See also Phakic intraocular lenses
pictorial representation of, 3.241f
pupillary block and, 10.131–132
apodized diffractive, 13.166, 13.166f
biconvex, 3.241f
bifocal
description of, 3.258–259, 3.259f
modulation transfer function with, 3.262
biocompatibility of, 9.138
biometry in power calculation/selection of, 11.82–83, 11.83f, 11.84–85, 11.87f
axial length, 11.82–83, 11.83f, 11.84–85, 11.87f
hypotony affecting, 11.185
unexpected refractive results after surgery and, 11.150
refractive lens exchange and, 13.150
blue-blocking, 11.120
capsular block syndrome and, 10.132, 11.148–149
capsular opacification and, 11.153, 13.156, 13.167
after capsular rupture, 11.142–143
in children, 9.315
closed-loop, pseudophakic bullous keratopathy and, 11.149
complications of, 11.144f, 11.144–152, 11.146f, 11.147f, 11.148f
induced-astigmatism, 11.132
corneal disease and, 11.128f
cystoid macular edema and, 11.165
decentration and dislocation of, 11.127, 11.144f, 11.144–147, 11.146f, 11.147f
angle-supported lenses and, 13.146
bifocal segments, 13.190–191
iris-fixed lenses and, 13.145
laser application during photoablation and, 13.91
laser capsulotomy and, 11.156
multifocal IOLs and, 3.258, 11.144, 11.145, 13.155
prism correction through, 3.197
deformable, 13.170
description of, 6.301
designs of
innovations in, 13.170, 13.170f
modifications of, 11.119–122, 11.120f, 11.121f, 11.122f
diffractive multifocal, 13.166, 13.166f
for drug delivery, 2.364–365
dual-optic, 13.170, 13.170f
dysphotopsias caused by, 3.255
extended-depth-of-focus, 3.262–263, 3.263f
flexible-loop, 11.119, 11.120f
foldable, 11.116, 11.120, 11.120f, 11.121f. See also Foldable intraocular lenses
insertion of, 11.116
posterior chamber phakic, 13.138
glare and, 11.144, 11.150–152
glaucoma and, 10.108
high-power, 3.264
history of, 11.118f, 11.118–119
hyphema after cataract surgery and, 11.159
illusions caused by, 5.174
image magnification, 3.255
in infants and children, 13.187
innovations in, 13.170, 13.170f
insertion of, 11.115–117
anterior chamber, 11.117
after capsular rupture, 11.142–143
complications of, 11.144f, 11.144–152, 11.146f, 11.147f, 11.148f
after ECCE, 11.197
after ICCE, 11.200
posterior chamber, 11.116–117
procedures after, 11.117–118
International Standards Organization standards for, 3.263–264
after ICCE, 11.200
insertion of, 11.116–117, 11.119f
after keratoplasty, 11.176
pseudophakic bullous keratopathy and, 11.149
uveitis and, 11.188
issues associated with, 6.303–304
in juvenile idiopathic arthritis–associated uveitis
in cataracts, 9.315
after keratoplasty, 11.176
with keratoplasty and cataract surgery (triple procedure), 11.175–176
laser capsulotomy affecting, 11.155–156, 11.156
lens dislocation treated with, 6.310
lensectomy with, 6.302–304
light-adjustable, 13.153–154, 13.154f
for manual small-incision cataract surgery, 11.198
materials for, 3.240
megalocornea and, 8.100
meniscus, 3.240, 3.241f
minus-power, 3.240
modulation transfer function, 3.261–263, 3.262–3.263f
monofocal, 3.257, 3.260, 13.151
annular zones, 3.259, 3.259f
best-corrected visual acuity with, 3.260
bifocal, 3.258–259, 3.259f
capsular decentration and, 11.183
clinical results of, 3.260–261
complications of, 11.151
decentration effects on, 3.258
description of, 3.257–258
diffractive, 3.259f, 3.259–260
disadvantages of, 3.258
dry eye therapy before use of, 11.173
extended-depth-of-focus lenses versus, 3.262–263, 3.263f
indications for, 3.258
multiple-zone, 3.259, 3.259f
patient selection for, 3.260
power calculation for, 3.258
for presbyopia, 13.165–167, 13.166f
three-zone, 3.259, 3.259f
types of, 3.258–260
in myopia, 11.184–185
nonspherical optics with, 3.257
after ocular trauma, 11.193
opacification of, 11.151
optical performance standards for, 3.264
overview of, 3.240–241
partial-ridge, 3.240
after penetrating keratoplasty, 8.432, 13.179
with penetrating or endothelial keratoplasty and cataract surgery (triple procedure), 11.175–176
phacoemulsification with, 9.315
phakic (PIOLs), 13.8
piggyback definition of, 3.240
intralenticular fibrosis after placement of, 3.241
power calculations for, 3.251
refractive lens exchange and, 13.150
planoconvex, 3.241f
plus-power, 3.250
posterior capsule opacification and, 3.240
posterior capsulectomy/vitrectomy with, 6.303
posterior chamber (PCIOLs), 11.116–117, 11.118f, 11.119f, 11.119–122, 11.119f, 11.121f, 12.393
anterior chamber depth prediction formula for, 3.249
capsular block syndrome and, 10.132
after capsular rupture, 11.143
decentration/dislocation of, 11.145
dislocated, 12.393
after ECCE, 11.197
history of development of, 11.118–119, 11.119f
image magnification with, 3.255
insertion of, 11.116–117
after keratoplasty, 11.176
light-adjustable, 13.153–154, 13.154f
near-addition power for, 3.259
after ocular trauma, 11.193
pachymetry studies of, 3.249
See also Phakic intraocular lenses complications with, 13.145–146
conical crosslinking with, 13.207–208
sizing, 13.144
pictorial representation of, 3.241f
pupillary capture of, 11.148, 11.148f
in retinal disease, 11.189
scleral/iris-fixated (sutured), 11.116–117, 11.119,
11.119f, 13.8t, 13.137, 13.138, 13.139t,
13.141–142, 13.142f
after ICCE, 11.200
insertion of, 11.116–117, 11.119f
after keratoplasty, 11.176
pseudophakic bullous keratopathy and, 11.149
uveitis and, 11.188
uveitis and, 11.188
posteriorly dislocated, 12.393
power calculation and determination for, 6.303, 11.84–87
axial length, 3.243–248
biometry in, 11.82–83, 11.83f, 11.84–85, 11.87, 13.150. See also Intraocular lenses (IOLs),
bimony in power calculation/selection of hypotony affecting, 11.185
central corneal power, 3.243, 3.248
in children, 3.254–255
contact lens method for, 13.195
in corneal transplant eyes, 3.253–254
double-K method, 3.252
formulas for, 11.84, 11.85–87
biometric, 3.244–250
collimation, 3.244–250
erors in, 3.252
for post–keratorefractive procedure eye, 3.252–253
prediction, 3.243–244
regression formulas, 11.85–87
theoretical, 3.243
geometric optics and, 3.243
historical methods for, 11.86–87, 13.194
improving outcomes of surgery and, 11.87
incorrect, 11.85
multifocal lenses, 3.258
in myopia, 11.184
online post-refractive calculator for (ASCRS), 13.52, 13.195–197, 13.196f
piggyback lenses, 3.251
preventing errors in, 11.87
after radial keratotomy, 13.51, 13.52–53, 13.193
refraction and, 11.76
refractive lens exchange and, 13.150
after refractive surgery, 3.251–253
refractive surgery and, 11.85–87, 11.176, 11.177f,
13.44, 13.193–197, 13.196f
in silicone oil–filled eyes, 3.254
sulcus placement adjustments, 3.250f
topographical method for, after refractive surgery, 13.193, 13.194
triple procedure and, 11.175
unexpected refractive results after surgery and, 11.86, 11.149–150
power labeling of, 3.263–264
for presbyopia, 13.8t, 13.154, 13.163–164, 13.164f,
13.170, 13.170f
pressure on, 3.242f
pseudoaccommodating, 11.122
complications of, 11.151
for pseudophakia, 13.163–164, 13.164f
pseudophakic bullous keratopathy and, 11.149
pupil evaluation and, 11.78
Intraocular lymphoma, 4.135–137
for refractive errors. See also specific type
accommodating, 13.8f, 13.154, 13.163–164, 13.164f
deformable, 13.170
dual-optic, 13.170f
innovations in, 13.170, 13.170f
light-adjustable, 13.153–154, 13.154f
monocular, 13.151
multifocal (MFIOLs), 13.155–156, 13.165–167,
13.166f
complications of, 13.156, 13.167
for presbyopia, 13.165–167, 13.166f
phakic, 13.137, 13.138–147, 13.139f, 13.142f,
13.143f. See also Phakic intraocular lenses
advantages/disadvantages/limitations of, 13.47f,
13.138–140
retinal detachment and, 13.138, 13.145, 13.146
power determination of
refractive lens exchange and, 13.150
refractive surgery and, 13.44, 13.193–197, 13.196f
after radial keratotomy, 13.51, 13.52–53
with refractive lens exchange, 13.8t, 13.150. See also
Refractive lens exchange
piggybacking and, 13.150
with refractive lens exchange, 13.8t, 13.150. See also
Refractive lens exchange
piggybacking and, 13.150
retained fragments of, 9.90
in retinal disease, 11.189
in silicone oil eyes, 11.83, 11.120, 11.190
split bifocal, 3.258, 3.259f
square edge design of, 3.242f
standards for, 3.263–264
sulcus-supported, 13.137, 13.139f
supplemental, power calculations for, 3.251
sutured-in, 3.250
TECNIS Symfony, 3.263
tilt of, 3.250
See also Toric intraocular lenses
astigmatism correction using, 3.257
complications of, 11.151
contraindication for, capsular decentration and,
11.185
corneal crosslinking with, 13.134, 13.207–208
dry eye therapy before use of, 11.173
after penetrating keratoplasty, 8.432, 13.179
traumatic cataract and, 11.193
types of, 3.240, 3.241f
with UV-absorbing chromophores, 11.120
in uveitis, 9.137–139, 9.138f, 11.188
postoperative inflammation and, 11.140
uveitis-glaucoma-hyphaema (UGH) syndrome and,
9.10, 9.137, 10.108–109, 11.149
decentration and, 11.145
vision disturbances related to, 3.255–256, 3.256f
zonal refractive, 13.166, 13.166f
Intraocular lymphoma, 4.135f, 4.135–137, 4.136f,
4.31f, 4.311–313, 4.313f, 5.349, 12.233–234,
12.234f. See also Primary central nervous system/
intraocular/vitreoretinal/retinal lymphoma
Intraocular medications. See specific drug
Intraocular melanomas, 7.146
Intraocular pressure (IOP), 10.3, 10.20f, 10.20–27.
See also Ocular hypertension
age affecting, 10.81–82
in anterior uveitis, 9.80–81, 9.317
applanation tonometry of, 3.293
apraclonidine hydrochloride effects on, 2.385
aqueous humor dynamics and, 10.5, 10.5f, 10.13,
10.14f
β-agonist effects on, 2.390
brimonidine effects on, 2.386
carbachol effects on, 2.377
carbonic anhydrase inhibitors’ effect on, 2.392
in chemical injury, management and, 8.383
in childhood glaucoma, 6.277, 6.279, 6.290–291
circadian/diurnal variation in, 10.3, 10.8, 10.22,
10.80–81, 10.81f, 10.86, 10.87
corneal thickness/rigidity and, 8.41, 10.25, 10.81,
10.82, 10.86–87, 10.90, 13.105, 13.181, 13.200
in infants and children, 10.159
corticosteroids affecting, 10.100, 10.108,
10.109–110
optic nerve damage and, 10.110
after refractive surgery, 13.41, 13.92, 13.201
in uveitis, 10.110
decreased
after cataract surgery, flat anterior chamber and,
11.135
factors causing, 10.21f, 10.22
digital palpation of, 6.10
digital pressure in estimation of, 10.26
distribution in population and, 10.20f, 10.20–21
drugs for lowering, 3.144. See also Antiglaucoma
agents
elevated/increased. See Elevated intraocular
pressure
episcleral venous pressure and, 10.20, 10.102
factors affecting, 10.21f, 10.21–22
flap creation affected by, 13.181
follow-up for, 6.290–291
in glaucoma, 10.3, 10.20–21, 10.46–47, 10.79–81,
10.81f. See also Elevated intraocular pressure;
Glucoma
gluocorticoid-induced elevation of, 2.401–402,
2.402f
Goldmann equation and, 2.271, 2.273
in hyphema, 6.378, 8.394, 8.395, 10.104, 10.105
sickle cell disease and, 8.395, 8.395f, 8.396
surgery and, 8.395, 8.395f, 8.396
increased
diluprednate as cause of, 9.94
pericocular corticosteroids as cause of, 9.96
inhaled corticosteroids’ effect on, 1.130
lens epithelium affected by, 4.120
lowering of, in glaucoma management. See also
Antiglaucoma agents
clinical trials in study of, 10.111–115
normal-tension glaucoma and, 10.87–88
target range for, 10.169, 10.183
maintenance of, 2.271
measurement of, 10.22–27, 10.23f, 10.24f. See also
Tonometry
artifact in, normal-tension glaucoma and, 10.86
in children
description of, 6.10, 6.181
tonometry for, 6.281
in infants and children, 10.158–159
pressure-induced stromal keratopathy after LASIK and, 13.119
before refractive surgery, 13.41
during refractive surgery, suction ring placement and, 13.86
medications for reducing, 6.288, 6.289t
monitoring of, in glaucoma patients using corticosteroids, 1.130
netarsudil effects on, 2.396
normal range for, 6.282, 10.20–21, 10.80, 10.85
in infants and children, 10.159
in orbital compartment, 7.119
pregnancy affecting, 10.185
in rhegmatogenous retinal detachment, 12.320
rimexolone effects on, 2.403
in sickle cell retinopathy, 12.154
statins and, 1.78
swelling pressure and, 8.9
target, in glaucoma treatment, 10.169, 10.183
swelling pressure and, 8.9
in systemic malignancies, 4.197, 4.303–316.
See also retinoblastoma, 4.172–177, 4.253, 4.289–302.
See also metastatic, 4.135–137, 4.136
in uveitis, corticosteroids affecting, 10.110
Intraocular region of optic nerve, 4.241
Intraocular surgery. See Ocular surgery
Intraocular tumors. See also specific type of tumor and structure affected
angiomatous, 4.281–287
glaucoma caused by, 4.105f, 4.106, 10.98–100, 10.99f, 10.138
in children and adolescents, 10.149f
gross dissection in identification of, 4.29f, 4.29–30
leukemia and, 4.315f, 4.315–316, 4.316f
lymphoma, 4.135f, 4.135–137, 4.136f, 4.311f, 4.311–313, 4.313f, 5.349.
See also Primary central nervous system/intraocular/vitreoretinal/retinal lymphoma
melanocytic, 4.255–280
metastatic, 4.197, 4.303–316. See also Metastatic eye disease
molecular pathology in identification/evaluation of, 4.34f, 4.36–42, 4.38–39t, 4.40f, 4.41f
retinoblastoma, 4.172–177, 4.253, 4.289–302. See also Retinoblastoma
in systemic malignancies, 4.197, 4.303–316. See also Metastatic eye disease
direct extension from extraocular tumors and, 4.310
leukemia and, 4.315f, 4.315–316, 4.316f
lymphomatous, 4.135f, 4.135–137, 4.136f, 4.311f, 4.311–314, 4.313f
secondary, 4.303–310
transillumination in identification of, 4.28f, 4.28–29
Intraoperative floppy iris syndrome (IFIS), 2.384, 11.74, 11.136–138, 11.137t
pupil expansion devices for, 11.178
Intraoperative optical coherence tomography (OCT), 8.22
Intraoral trauma/tumor, Horner syndrome caused by, 5.260t
Intraorbital optic nerve, 7.11
Intraorbital region of optic nerve, 4.241, 5.26, 10.42
compressive lesions of, 5.107f, 5.126, 5.126f, 5.126–131, 5.127f, 5.128t, 5.129f. See also specific lesion
Intrapapillary drusen, 6.373f, 6.373–374
Intraretinal hemorrhage, 9.157f
in branch retinal vein occlusion, 12.125, 12.126f
in nonproliferative diabetic retinopathy, 12.100f
in systemic lupus erythematosus, 12.230–231
Intraretinal microvascular abnormalities (IRMAs), 4.153f, 4.154, 4.155f
in diabetic retinopathy, 4.159
in nonproliferative diabetic retinopathy, 12.100f
Intrascleral fixation, 12.393
Intrastromal corneal femtosecond laser treatment, for presbyopia, 13.168
Intrastromal corneal ring segments (ICRS), 13.8t, 13.28, 13.28f, 13.62–65f, 13.62–70, 13.67–69f. See also Corneal ring segments, intrastromal complications of, 13.67–70, 13.68–69f
contraindications for, 13.63
corneal crosslinking with, 13.134, 1.207
corneal transplantation after, 13.198
instrumentation for, 13.63
after LASIK, 13.70
limitations of, 13.47f
number of segments used and, 13.66–67, 13.67f
outcomes of, 13.64–65
removal of, 13.63, 13.65
LASIK after, 13.70
surgical technique for, 13.64, 13.64f
Intrauterine ocular infections. See also specific type corneal anomalies and, 8.107
keratoclasia, 8.107
cytomegalovirus, 6.411, 6.411f
description of, 6.409
herpes simplex virus, 6.412
lymphocytic choriomeningitis, 6.413
rubella, 6.410f, 6.410–411
syphilis, 4.80, 4.81f, 6.412–413, 8.107, 8.308–309, 8.309f
toxoplasmosis, 6.409–410, 6.410f
Zika virus, 6.413
Intravascular ultrasound, in coronary heart disease
in intracranial hemorrhage, 1.120–121.
See also Intracranial hemorrhage
Intravitreal corticosteroids, for uveitis, 9.97–98, 9.102
Intravitreal drug delivery, 2.360t, 2.361
Intravitreal injections for age-related macular degeneration, 4.164
anesthesia for, 12.403
anti-VEGF drugs, 12.404
aseptic technique for, 12.403–404
cataract formation and, 11.56
chemotherapy for retinoblastoma and, 4.299–300
complications of, 12.404
corticosteroids
after cataract surgery, 11.163
for cystoid macular edema, 4.152, 11.165
diabetic macular edema treated with, 12.101
elevated intraocular pressure and, 10.110
proliferative diabetic retinopathy treated with, 12.104
retinopathy of prematurity treated with, 12.187
for endophthalmitis, postoperative, 11.162
endophthalmitis after, 12.404
indications for, 12.403
prevalence of, 12.403
technique for, 12.403, 12.403f
Intravitreal triamcinolone acetonide (IVTA). See Triamcinolone
Intrinsic pathway, of coagulation cascade, 1.138
Intrinsic sympathomimetic activity (ISA), 1.62
Intrinsically photosensitive retinal ganglion cells (ipRGCs), 5.24, 5.28. See also Ganglion cells/ ganglion cell layer (GCL), retinal
Integument
description of, 2.176
excision of, 2.179. See also Splicing
Intrusions, saccadic. See also Inverso-rotational intrusions
Inversion recovery (IR) imaging, 5.75
Inversion recovery (IR) technique for, 12.403, 12.403
prevalence of, 12.403
indications for, 12.403
endophthalmitis after, 12.404
for endophthalmitis, postoperative, 11.162
Iodine-131, for Graves hyperthyroidism, 1.44
Iodine-125 See Iodine, radioactive.
Iodinated contrast agents, 2.457
IOD. See Intraocular lenses
IOP. See Intraocular pressure
IOP-SP. See Imibition pressure
Iopidine. See Apraclonidine
IP. See Incontinentia pigmenti
IPE. See Iris pigment epithelium
Ipilimumab, 7.210
IPL. See Inner plexiform layer; Intense pulsed-light (IPL) therapy
Ipratropium bromide, 1.128
ipRGCs. See Intrinsically photosensitive retinal ganglion cells
Ipsilateral gaze palsy, 5.41, 5.200, 5.200f
IR. See Inferior rectus (IR) muscle
IR (index of refraction). See Refractive index
IR (inversion recovery) imaging, 5.75
IR radiation. See IR (inversion recovery) imaging
IRBP. See Interphotoreceptor retinoid-binding protein
iReST. See International Reading Speed Texts
IRIDI1 gene, 10.11f
Iridectomy
for angle-closure glaucoma, 10.125, 10.220
acute angle closure and, 10.125
for anterior chamber IOL insertion, 11.117, 11.136
in ICCE, 11.200
for phakic IOL insertion, 13.141
in trabeculectomy, 10.202, 10.204f
Irides. See Iris
Iridocorneal adhesions (Peters anomaly), 4.74, 4.75f, 4.98, 8.97f, 8.102–104, 8.103f, 10.150, 10.154, 11.31–32. See also Axenfeld-Rieger syndrome
Axenfeld-Rieger syndrome differentiated from, 10.154f
glaucoma and, 4.74, 10.150, 10.154
pediatric keratoplasty for, 8.450
Iridocorneal endothelial (ICE) syndrome, 4.100–101, 4.101f, 4.259, 6.268, 8.111, 8.126–128, 8.127f, 10.31, 10.136f, 10.136–138, 10.137f
Axenfeld-Rieger syndrome differentiated from, 10.154f
glaucoma and, 4.101, 10.31, 10.136–137f, 10.136–138
posterior polymorphous corneal dystrophy differentiated from, 8.159
Iridocyclitis, 2.380–381, 2.434, 3.176, 6.412. See also Anterior uveitis; Iritis; specific cause
in ankylosing spondylitis, 1.157
in Behcet disease, 1.174
corticosteroids for, 9.127
definition of, 9.70
Fuchs heterochromic (Fuchs heterochromic uveitis [FHU]/uveitis syndrome). See also Fuchs heterochromic uveitis
cataracts/cataract surgery and, 11.64f, 11.64–65
in glaucoma and, 10.101–102, 10.102f
in herpetic, 8.222–224, 8.223f
in reactive arthritis/Reiter syndrome, 8.305–306
in rosacea, 8.70, 8.70f
Iridodialysis, 4.18, 4.20f, 4.103, 5.255, 8.390f, 8.390–391, 8.391f, 10.41f
during cataract surgery, 11.138
cataract surgery in patient with, 11.191
pupil irregularity and, 5.255
repair of, 8.375, 8.390f, 8.390–391, 8.391f, 8.409
Iridodonesis, 6.306, 6.308
for angle-closure glaucoma, 10.124–126, 10.191–193,
for congenital etropion of, 6.267
for cataract extraction after, 10.213
for chronic angle closure, 10.126
for ectopia lentis, 10.129–130
for laser, 10.191–193, 10.192f
for malignant/ciliary block glaucoma (aqueous misdirection), 10.140
for phacomorphic glaucoma, 10.128
for phakic IOL insertion, 13.141
for pigmentary glaucoma, 10.96, 10.96f
for plateau iris, 10.128, 10.191
for primary angle-closure suspect, 10.122, 10.191
for subacute/intermittent angle closure, 10.126
IRIS. See Immune reconstitution inflammatory syndrome
Iris, 4.97–98f, 4.181–182, 4.181–182f. See also Uvea
(uveal tract)
abnormalities of, 6.264–266f, 6.264–267
anisocoria and, 5.256f, 5.262–263
pupil irregularity caused by, 5.255
absence of rudimentary (aniridia), 4.184, 10.150, 10.154–155, 11.33
in cataract and, 11.33, 11.34f
surgery for, 11.184
in glaucoma and (iris-induced angle closure), 10.120, 10.155
in pediatric, 10.150, 10.155
Axenfeld-Rieger syndrome differentiated from, 10.154f
gonioscopic appearance of, 10.159
pupil irregularity and, 5.255
short arm 11 deletion syndrome/PAX6 gene
mutations and, 4.184, 10.150, 10.155, 11.33
Wilms tumor and, 4.184, 10.155, 11.33
anatomy of, 2.48f, 2.69–70f, 4.97f, 4.98f, 4.181–182,
4.181–182f
angle closure and, 10.120
in aniridia, 6.266f, 6.266–267
anterior border of, 4.181, 4.182f
anterior pigmented epithelium of, 2.70–71, 2.71f
atrophy of, 4.100, 4.101f, 8.111, 8.126, 8.127f, 10.136,
10.137f. See also Iridocorneal endothelial (ICE) syndrome
in acute angle closure, 10.123–124
cataract and, 11.68
in herpetic eye disease, 8.226f, 8.227
in Axenfeld-Rieger syndrome, 6.264–265, 6.264–265f
blood vessels of, 2.69
bowing of
with pupillary block, 10.119
with reverse pupillary block, in pigment dispersion syndrome/pigmentary glaucoma, 10.93, 10.96f
Brushfield spots of, 6.272
collarette of, 2.69
coloboma of, 4.184, 6.266, 6.266f
cataract surgery in patient with, 11.180
congenital ectropion of, 6.267
cysts of, 4.259, 4.260f, 6.272f, 6.272–273
development of, 2.157, 2.159–160f, 2.160
dilator muscles of
description of, 2.70–71, 2.160f
phenylephrine hydrochloride effects on, 2.384
evaluation of
before cataract surgery, 11.79
in glaucoma, 10.32, 10.33f, 10.34f
in pupillary examination, 5.254
in familial dysautonomia, 6.270
functions of, 2.269
growth and development of, 6.181
healing/repair of, 4.16
heterochromia of (heterochromia iridis), 6.274,
6.274f, 6.274f
in Fuchs heterochromic uveitis/iridocyclitis, 10.101
in Horner syndrome, 5.258
in siderosis bulbi, 11.58f
hypoplasia of, 6.264–267, 6.264–267f
Axenfeld-Rieger syndrome and. See Axenfeld-Rieger syndrome
incarceration of, after penetrating keratoplasty, 8.424
intramuscular circle of, 2.22
juvenile xanthogranuloma of, 4.187, 4.260, 6.271
laceration of, repair of, 8.406, 8.408f, 8.409
layers of, 2.71f
in leukemia, 4.315
in mammillations of, 6.271–272, 6.272
in juvenile xanthogranuloma, 4.187, 4.260, 6.271
jaw function and, 6.274
in pterygium, 6.274
in juvenile xanthogranuloma, 4.187–188, 6.271
in juvenile xanthogranuloma, 4.187–188, 6.271
in juvenile xanthogranuloma, 4.187–188, 6.271
in juvenile xanthogranuloma, 4.187–188, 6.271
in juvenile xanthogranuloma, 4.187–188, 6.271
neoplastic disorders of, 4.189–190, 4.190f, 4.191f
fine-needle aspiration biopsy in identification/
evaluation of, 4.42
metastatic, 4.260, 4.260f, 4.303, 4.304, 4.305f
neovascularization of (rubeosis iridis), 4.188, 4.189f
in branch retinal vein occlusion, 12.128–129,
12.129f
in central retinal artery occlusion, 12.146
in central retinal vein occlusion, 12.133, 12.135
in diabetes mellitus, 4.159, 4.160f, 12.107
glaucoma and, 4.188, 10.32, 10.39, 10.123f, 10.133f, 10.135f. See also Neovascular glaucoma in children and adolescents, 10.149f
incisional surgery contraindicated in, 10.198
laser iridotomy contraindicated in, 10.191
in radiation retinopathy, 12.170
in retinoblastoma, 4.174, 4.174f, 4.292
nerves of, 2.69
nodules of. See Iris nodules
parasympathetic innervation of, 2.71
persistent pupillary membrane, 6.264, 6.264f, 6.266f
physiology of, 2.269–270
pigment epithelium of. See Iris pigment epithelium
pigmentation of
prostaglandin analogues/latanoprost affecting, 10.175
in pseudoexfoliation syndrome/glaucoma and, 10.39, 10.92
plateau, 10.4f, 10.9, 10.32, 10.120, 10.127f, 10.127–128
laser iridotomy for, 10.128, 10.191
posterior pigmented epithelium of, 2.71–72
prolapse of, after DSEK, 8.439f
prostaglandin analogues effect on, 2.393–394
pupillary abnormalities and, 5.254
sectoral palsy of, 5.254
anisocoria/Adie tonic pupil and, 5.256f, 5.263, 5.263f
smooth muscle in, 4.182
sphincter muscles of
anatomy of, 2.71f, 2.160f
direct-acting cholinergic agonists’ effect on, 2.375
stroma of, 2.68–69, 4.181
structures of, 2.68
sympathetic innervation of, 2.71
systemic conditions that affect, 6.269–270
topography of, 4.181f, 4.181–182, 4.182f
transillumination of, 6.265, 6.406, 6.407f
in albinism, 4.142, 4.142f
in pigment dispersion syndrome, 10.94, 10.94f
traumatic damage to
anisocoria and, 5.256f, 5.262–263
during cataract surgery, 11.138
cataract surgery in patient with, 11.191
iridodialysis, 4.18, 4.20f, 4.103, 8.390f, 8.390–391, 8.391f
cataract surgery and, 11.138, 11.191
repair of, 8.375, 8.390f, 8.390–391, 8.391f, 8.409
laceration, 8.406, 8.408f, 8.409
mydriasis and miosis, 8.388–389, 8.389f
pupil irregularity and, 5.255
repair of, 4.16, 8.406, 8.408f, 8.409
tumors of, 4.189–190, 4.190f, 4.191f, 6.271–273, 6.272f
fine-needle aspiration biopsy in identification/
evaluation of, 4.42
metastatic, 4.260, 4.260f, 4.303, 4.304, 4.305f
ultrasound biomicroscopy of, 2.471–472f
in uveitis. See Iridocyclitis; Iritis
vitreous adhesions to, 12.159
in Waardenburg syndrome, 6.270
Iris bombé
description of, 6.285, 9.81, 9.130, 9.196
after endothelial keratoplasty (DMEK/DSEK), 8.444f, 8.444–445
glaucoma and, 10.32, 10.129f, 10.131f, 10.138, 10.139f
Iris chafing, 9.137
Iris-claw lenses, 6.310
Iris-clip intraocular lenses, pseudophakic bullous keratopathy and, 11.149
Iris dilator. See Dilator muscle (iris)
after ICCE, 11.200
insertion of, 11.116–117, 11.119f
after keratoplasty, 11.176
phakic, 13.8f, 13.137, 13.138, 13.139f, 13.141–142, 13.142f. See also Phakic intraocular lenses
complications of, 13.145
sizing, 13.142, 13.142f
pseudophakic bullous keratopathy and, 11.149
uveitis and, 11.188
Iris fixation, 12.393
Iris freckle, 4.259, 4.260f
Iris granulomas, 9.300f, 9.302
Iris heterochromia, in Ebola virus, 9.271f
Iris hooks
for pupil expansion, 11.177, 11.178f
for zonular incompetence, 11.180
Iris-induced angle closure, 10.120, 10.155
IRIS (Intelligent Research in Sight) Registry, 1.26
Iris nevus syndrome (Cogan-Reese syndrome/variant), 4.100, 4.101f, 4.259, 8.111, 8.127, 10.136. See also Iridocorneal endothelial (ICE) syndrome
Iris nodules, 6.271–272, 6.272f. See also Lisch nodules in anterior uveitis, 9.77–78, 9.80, 9.80f
in leukemia, 4.315
in neurofibromatosis, 5.330f, 5.334f
in ocular tuberculosis, 9.235f
in sarcoidosis, 4.187
Iris pigment epithelium (IPE), 2.71–72, 4.181
cysts of, 4.259, 4.260f, 6.272, 6.272f
in diabetic retinopathy, 4.159, 4.160f
in healing/repair, 4.16
in pigment dispersion syndrome, 10.94, 10.94f
proliferation of, 4.259
Iris plane, phacoemulsification at, 11.112
Iris sphincter. See Sphincter muscle (iris)
Iris stromal atrophy, 9.249f
Iris suture fixation, peripheral, for IOL decentration, 11.145, 11.146f
Iritis, 6.412, 9.70. See also Anterior uveitis; Iridocyclitis; specific cause
CMV, 8.232
herpetic, 8.222–224, 8.223f
after iris-fixed phakic IOL insertion, 13.145
IRMA(s). See Intraretinal microvascular abnormalities
Iron
in aqueous humor, 2.274
colloidal, for tissue staining, 4.31f
corneal deposits of, 8.117, 8.117f, 8.118t
in keratoconus, 4.95f, 4.96t, 8.117, 8.162, 8.163, 8.163f
foreign body of, 8.118t, 8.399
siderosis caused by, 4.120, 11.58f, 11.58–59
in hemosiderosis bulbi, glaucoma and, 4.103
Iron chelation, for thalassemias, 1.134
Iron deficiency anemia, 1.132–133
Iron chelation, for thalassemias, 1.134
Iron deficiency anemia, 1.132–133
Iron lines, 8.117, 8.117f, 8.118t
in keratoconus, 8.117, 8.162, 8.163, 8.163f
in pterygium, 8.113
Irradiance \( (E_i) \), 3.107f, 3.108
Irregular astigmatism, 13.17–19, 13.18f, 13.19f. See also Astigmatism
after arcuate keratotomy, 13.58
after cataract surgery, keratorefractive/refractive surgery and, 13.53
causes of, 3.277–278, 3.278f
conical topology in detection/management of, 8.15, 8.31, 8.32, 13.17–19, 13.18f, 13.19f,
after penetrating keratoplasty, 8.431–432, 8.432f
definition of, 3.124, 3.267
description of, 3.130, 3.139
epithelial basement membrane dystrophy and, 3.277, 3.278f
cataract surgery outcome and, 11.176, 11.177f
after limbal relaxing incisions, 13.58
after penetrating keratoplasty, 8.426, 8.431–432, 8.432f
quantification of, 3.273
retinoscopy in evaluation of, 8.163
wavefront analysis of, 3.273–277, 3.274–276f. See also Wavefront analysis
Irreversible cholinesterase inhibitors, 2.379
Irreversible obstructive lung diseases, 1.124
Irrigating solutions, 2.443
Irrigation/aspiration (IA). See also Aspiration for chemical injuries, 8.381–382
for conjunctival foreign body, 8.397
in ECCE, 11.197
for hyphema, 8.395
in manual small-incision cataract surgery, 11.198
in phacoemulsification, 11.101–102, 11.115
posterior fluid misdirection and, 11.134–135
toxic solutions exposure and, corneal edema caused by, 11.129, 11.133–134
for plant materials, 8.387
Irritated follicular keratosis, 7.188, 7.188f
IRU. See Immune recovery uveitis
IRVAN. See Idiopathic retinal vasculitis, aneurysms, and neuroretinitis
Irvine-Gass syndrome, 11.163–165, 11.164f, 12.157, 12.349. See also Cystoid macular edema
IS. See Inner segments
ISA. See Intrinsic sympathomimetic activity
ISCEV. See International Society for Clinical Electrophysiology of Vision
Ischemia, 1.81. See also Cerebrovascular disease; Stroke; specific territory affected
cardiac. See Ischemic heart disease
carotid territory. See also Carotid occlusive disease
cataracts caused by, 11.68
cerebral. See Stroke
choroidal, 12.196, 12.196f
diplopia caused by, 5.192
fourth nerve (trochlear) palsy and, 5.199
intraocular pressure-induced, in acute angle closure, 10.123–124
macular, 12.98, 12.101, 12.115
MRI in evaluation of, 5.64f, 5.65t, 5.66, 5.67f, 5.75
occipital, transient visual loss caused by, 5.162, 5.172
ocular (ocular ischemic syndrome/OIS), 5.170, 5.171f
posterior circulation. See Vertebrobasilar system, disorders of
retinal, 4.140, 4.150–160. See also Retinal ischemia
stroke and, 5.167, 5.168–169
sixth nerve (abducens) palsy and, 5.200, 5.201
third nerve (oculomotor) palsy and, 5.195, 5.198
time course of vision loss and, 5.77
Ischemic/complete/nonperfused central retinal vein occlusion, 4.156, 4.157–158, 4.158f
Ischemic heart disease (IHD). See also Acute coronary syndromes; Angina pectoris; Coronary artery disease
asymptomatic, 1.86
clinical syndromes associated with, 1.82–86
diabetic retinopathy and, 1.105
diagnosis of
cardiac enzymes, 1.86–87
cardiac enzymes, 1.86–87
computed tomography, 1.88
coronary arteriography, 1.89
coronary computed tomography angiography, 1.88
echocardiography, 1.87
electrocardiography, 1.86
electron beam computed tomography, 1.88
electrocardiography, 1.86
exercise stress testing, 1.88
intravascular ultrasound, 1.89
invasive procedures for, 1.89
magnetic resonance imaging, 1.88
multiple gated acquisition scans, 1.89
myoglobin levels, 1.87
noninvasive procedures for, 1.86–89
positron emission tomography, 1.88
radionuclide scintigraphy and scans, 1.88
serum biomarkers, 1.86–87
single-photon emission computed tomography, 1.88
troponin levels, 1.87
ventriculography, 1.89
hyperlipidemia and, 1.78
management of
antithrombotic agents, 1.89, 1.90–91
  direct oral antithrombotic agents, 1.90f
goals for, 1.89
pathophysiology of, 1.81–82
risk factors for, 1.82
Ischemic optic neuropathy, 5.107t, 5.119–125, 5.120t,
  5.121f, 5.123t
anterior (AION), 5.107t, 5.119–124, 5.120t, 5.121f,
  5.123t
arteritic (AAION), 5.107t, 5.120, 5.120t, 5.120–122,
  5.121f, 5.313
giant cell arteritis and, 5.120, 5.313
nonarteritic (NAION), 5.107t, 5.120, 5.120t, 5.121f,
  5.122–124, 5.123t
OCT in evaluation of, 5.91f
perioperative, 5.124–125
posterior (PION), 5.107t, 5.119, 5.124
Ischemic stroke. See also Cerebral ischemia; Stroke
blood pressure control for prevention of, 1.115
  cardioaortic causes of, 1.118–119
carotid duplex ultrasonography for, 1.113
carotid occlusive disease as cause of, 1.115–119
carotid stenosis, 1.111
cerebral arteriography for, 1.113
clinical manifestations of, 1.110–111
diagnosis of, 1.111–112
helical computed tomography angiography for, 1.113
imaging studies for, 1.112–113
management of, 1.111–112
mechanical thrombectomy for, 1.112–113
multimodal computed tomography for, 1.112
nonarteriosclerotic causes of, 1.111
penumbra, 1.110
prevention of, 1.114–115
recombinant tissue plasminogen activator for, 1.113
reperfusion techniques, 1.114
risk factors for, 1.111
  statins for prevention of, 1.115
  thrombolytic agents, 1.113
treatment of, 1.113–114
Ischemic uveitis, 5.170
Ishihara plates
  for color vision testing, 12.54, 12.55f
  in low vision evaluation, 5.78
  in simultanagnosia, 5.180
Islet cell transplantation, 1.37
ISNT rule, 10.49
ISO. See International Standards Organization (ISO)
Isometropic hyperopia, 3.185f
Isoniazid, 2.233
  for tuberculosis, 1.257, 9.239–240
Isopter, 5.84
Isopto Atropine. See Atropine
Isopto Carbachol. See Carbachol
Isopto Carpine. See Pilocarpine
Isopto Eserine. See Physostigmine
Isopto Homatropine. See Homatropine hydrobromide
Isopto Hyoscine. See Scopolamine hydrobromide
Isotretinoin, 1.308, 12.305
corneal pigmentation caused by, 8.132
refractive surgery in patient taking, 13.37, 13.77–78
ITP. See International Society of Refractive Surgery
Istalol. See Timolol
Ivermectin
  for loiasis, 8.282
  for onchocerciasis, 9.290
IVF. See In vitro fertilization
IVH. See Intraventricular hemorrhage
IVIg. See Intravenous immunoglobulin
IVTA (intravitreal triamcinolone acetonide). See Triamcinolone
J
"Jabs and jolts" syndrome, 5.294
"Jack-in-the-box" phenomenon, 3.191
Jackson cross cylinder
definition of, 3.40, 3.80, 3.147
hand-held, 3.32, 3.32f
minus cylinder phoropter with
cylinder axis refinement using, 3.29, 3.30f
cylinder power refinement using, 3.31, 3.31f
for refraction, 3.163–165, 3.164f
for regular astigmatism, 3.163–165, 3.164f
Jalili syndrome, 12.286
Janus kinase inhibitors
description of, 1.180
rheumatoid disease treated with, 1.153
Jarisch-Herxheimer reaction, 9.226, 9.230
Javal-Schiøtz-style keratometer, 3.287, 8.27
Jaw claudication, in giant cell arteritis, 5.313
Jaw-winking syndrome/ptosis, Marcus Gunn, 5.272,
  5.272f
JC virus, in progressive multifocal leukoencephalopathy,
  5.351
Jennner, Edward, 1.223
Jerk nystagmus, 5.214, 5.233, 5.234, 6.147. See also Nystagmus
  in multiple sclerosis, 5.319
JIA. See Juvenile idiopathic arthritis
JNC7/JNC8. See Joint National Committee on Prevention, Detection, Evaluation, and Treatment of Blood Pressure
JOAG. See Juvenile open-angle glaucoma
Joint National Committee on Prevention, Detection, Evaluation, and Treatment of Blood Pressure (JNC7)
blood pressure classification, 1.52
ehypertension treatment guidelines, 1.57
Jones I test, 7.297
Jones II test, 7.297
Joubert syndrome, 6.144, 6.392, 6.392f, 12.285
Joules, 3.106
Jowling, 7.267
JRA (juvenile rheumatoid arthritis). See Juvenile idiopathic arthritis
Jugular bulb, 5.22
Jugular veins
external, 5.23
internal, 5.22, 5.22f, 5.23
lesions of, Horner syndrome and, 5.260
Junctional nevus, 7.196
of conjunctiva, 4.64
conjunctival/ocular surface, 8.338
of eyelid, 4.219, 4.219f
Junctional scotoma, 2.474
“Junctional scotomas,” 2.474f, 5.146–147, 5.148f, 5.151f
Juvenile ankylosing spondylitis, 6.315
Juvenile chronic arthritis. See Juvenile idiopathic arthritis
Juvenile fibromatosis, 6.222
Juvenile glaucoma. See Glaucoma, pediatric; Juvenile open-angle glaucoma
Juvenile idiopathic arthritis (JIA), 1.157–158, 1.158f, 6.312–315, 6.313–314f, 6.314f, 6.322
of JIA, 6.312–315, 6.313–314
chronic anterior uveitis in, 9.76, 9.141–145
methotrexate for, 9.107
classification of, 9.141–142
differential diagnosis of, 9.142
human leukocyte antigen association with, 9.65f
labotatory tests for, 9.125f
ocular involvement in, 9.141–142, 9.143f
oligoarticular, 9.142
polyarticular, 9.141–142
prognosis for, 9.142
of JIA, 9.141–142
Juvenile macular degeneration (Stargardt disease/ fundus flavimaculatus), 4.168–169f, 4.168–170
ATP-binding cassette (ABC) transporter protein mutations causing, 4.168–169
retinal pigment epithelium in, 4.168–169f, 4.169–170
Juvenile-onset diabetes mellitus. See Diabetes mellitus (DM), type 1
Juvenile-onset myopia, 3.142
Juvenile-onset vitelliform macular dystrophy. See Best disease
Juvenile open-angle glaucoma (JOAG), 6.278, 6.284, 10.4f, 10.147, 10.148f, 10.153. See also Glaucoma, pediatric
genetics of, 10.11t, 10.150
Juvenile ossifying fibroma (fibro-osseous dysplasia)
description of, 6.222
of orbit, 4.239, 4.240f
Juvenile pilocytic astrocytoma, 4.249
Juvenile psoriatic arthritis, 6.315f
Juvenile retinal dystrophy, 6.320f
Juvenile retinoschisis. See Retinoschisis, X-linked
Juvenile rheumatoid arthritis (JRA). See Juvenile idiopathic arthritis (JIA)
Juvenile spondyloarthropathies, 6.315, 6.315f
Juvenile xanthogranuloma (JXG), 6.271, 6.284, 10.4f, 10.147, 10.148f, 10.153. See also Glaucoma, pediatric
glaucoma associated with, 10.30
of iris, 4.187, 4.260
uveal tract/uveitis and, 4.187, 4.188f
Juxtacanalicular meshwork/tissue, 10.17, 10.18f
Juxtacanalicular trabecular meshwork
definition of, 2.64
Schlemm canal and, 2.65f
Juxtafoveal telangiectasia, 12.161
JXG. See Juvenile xanthogranuloma
K
K. See Potassium
K. See Central corneal power
K-Card, 13.194
Km (Michaelis/affinity constant), sorbitol in cataract development and, 2.391, 11.19
K (keratometry) reading. See Keratometry/keratometer
K system (koniocellular system/neurons/bistratified cells), 10.42
Kabuki syndrome, 6.195
KAMRA corneal inlay, 3.175, 3.271, 13.28, 13.61, 13.61f, 13.169
Kanamycin sulfate, 2.418f, 2.425
Kaposi sarcoma, 7.211, 7.211f, 8.239, 8.345f, 8.347f, 8.347–348, 9.333, 9.333f
ocular adnexal, 5.349
Kaposi sarcoma–associated herpesvirus/human herpesvirus (KSHV) 8, 8.239, 8.347
Kartagener syndrome, 1.124
Karyotype, 2.221
Karyotyping, 2.221
Kasabach-Merritt syndrome, 6.220, 7.72
Kawasaki disease, 1.171, 6.316
Kaspar-Fleischer ring, 6.270, 8.118f, 8.173, 8.189, 8.189f, 11.62, 12.362
KC. See Keratoconus
Kcs, 2.391
KCS (keratoconjunctivitis sicca). See Aqueous tear deficiency; Dry eye
Kears-Sayre syndrome, 2.185, 5.329, 6.142, 12.283f, 12.294
Kelman phaco tip, 11.101
Keldos
congenital, 8.107–108, 8.125
refractive surgery in patient with history of, 13.77
Kenalog. See Triamcinolone
Keplerian telescopes, 3.40, 3.83–84, 3.84f
KERA gene, 6.255
in cornea plana, 8.96t, 8.100
  posterior amorphous corneal dystrophy and,
  8.136f, 8.155
Keratan sulfate
antigenic (AgKS), macular corneal dystrophy and,
  8.150–151
  in cornea, 8.9
  cornea plana and, 8.96t, 8.100
mucopolysaccharidoses and, 8.175t
Keratectasia, 8.98t, 8.106–107
Keratectomy, 8.366–367, 8.412t, 13.30f
  for corneal haze after surface ablation, 13.109
  lamellar, for keratophakia, 13.59, 13.60
  mechanical, 8.367
  multizone, 13.30, 13.30f
photorefractive (PRK). See Photorefractive keratectomy
phototherapeutic (PTK). See Phototherapeutic keratectomy
superficial (SK), 8.366–367, 8.412t
  layer-based approach to use of, 8.417t
in trabeculectomy, 10.201–202, 10.204f
Keratic precipitates (KPs), 8.52
in anterior uveitis, 9.77–78, 9.79f
  in CMV infection, 8.232
in Fuchs heterochromic uveitis, 9.248
in Fuchs uveitis syndrome, 9.146f
  in granulomatocytic crisis (Posner-Schlossman syndrome), 10.101
  in inflammatory glaucoma, 10.100
mutton-fat, 9.78, 9.79f, 9.196
in phacoantigentic glaucoma, 10.98
in sarcoidosis, 9.196, 9.196f
in sympathetic ophthalmia, 4.185
in uveitic glaucoma, 10.31
Keratin
in adenoid cystic carcinoma, 4.231
in squamous cell carcinoma, 4.213, 4.214f
Keratin gene mutation, in Meesmann corneal dystrophy, 8.136f
Keratinization (keratinized/degenerated epithelial cells)
in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrosis overlap and toxic epidermal necrosis), 8.297
in superior limbic keratoconjunctivitis, 8.84
in vitamin A deficiency, 8.196
Keratitis, 8.46f, 8.49–53, 8.50f, 8.50t, 8.51f, 8.52f, 8.208t
Acanthamoeba
  contact lens wear and, 4.78–79, 8.276, 8.277
  description of, 4.78–79, 4.79f, 8.208t, 8.252,
  8.276–279, 8.277f, 8.278f
  herpes simplex keratitis differentiated from, 8.278
  isolation techniques for diagnosis of, 4.79, 8.211
  stains and culture media for identification of, 4.79, 8.209,
  8.277
treatment of, 8.277–279
adenovirus caused by, 6.269
bacterial, 4.75–76, 4.76f, 8.208t, 8.267–273,
  8.268f, 8.269f, 8.270t, 8.273f. See also Keratitis, infectious/microbial clinical presentation of, 8.267–268, 8.268f
  contact lens wear and, 8.266–267, 8.268, 8.269,
  8.269f
  for orthokeratology, 13.71
intratine, 8.107
  syphilitic, 4.80, 4.81f, 8.107, 8.308–309, 8.309f
  laboratory evaluation/causes of, 8.268–269, 8.269f
management of, 8.269–272, 8.270f
  pathogenesis of, 8.267
  stains and culture media for identification of,
  8.209t, 8.269
blepharitis and, 8.72, 8.73t, 8.74
Candida causing, 8.208t, 8.251, 8.273, 8.274–275
chlamydial infection and, 8.263
CMV, 8.231–232, 8.232f
  in Cogan syndrome, 8.309–310
congenital syphilis as cause of, 6.269
contact lens wear and, 4.78–79, 8.84, 8.266–267,
  8.273–274
  for orthokeratology, 13.71
  corneal involvement, 6.269
  corneal scarring caused by, 6.245f
  dendritic, 4.76, 4.77f
  herpes simplex virus causing, 4.76, 4.77f, 8.216–219,
  8.218f, 8.226t
  herpes zoster, 8.226, 8.226t, 8.227
  Dieffenbachia, 8.387
  diffuse lamellar (DLK), after LASIK, 13.116f,
  13.116–117, 13.117f
  infectious keratitis differentiated from, 13.117–118,
  13.118f, 13.118t
  pressure-induced stromal keratopathy
differentiated from, 13.119
diffuse superficial, 6.242
disciform (endothelitis), 8.51f
  CMV causing, 8.232, 8.232f
  herpes simplex virus causing, 4.77f, 4.78, 8.220,
  8.221f, 8.222
  persistent bullous keratopathy and, 8.225
Enterobacteriaceae causing, 8.247
epithelial. See also Epithelial keratitis/keratopathy
adenovirus causing, 8.234, 8.235, 8.235f
  CMV causing, 8.232
in epidemic keratoconjunctivitis, 8.235, 8.235f
  herpes simplex virus causing, 8.213, 8.214f, 8.216f,
  8.216–219, 8.217f, 8.218f, 8.223t, 8.226t
  measles virus causing, 8.239
  varicella-zoster virus causing, 8.226, 8.226t
Epstein-Barr virus, 8.230–231, 8.231f
  exposure, 8.79–80
  cataract surgery in patient with, 11.174
Fuchs superficial marginal, 8.123
fungal, 4.78, 4.78f, 8.208t, 8.273–276, 8.274f, 12.239
  plant/vegetable materials and, 4.78, 8.273, 8.387,
  8.399
gonococcal conjunctivitis and, 8.258
  herpes simplex, 4.76–78, 4.77f, 6.412, 8.208t, 8.213,
  8.214f, 8.216f, 8.216–222, 8.217f, 8.218f, 8.220f,
  8.221f, 8.226t, 9.334. See also Herpes simplex
  virus (HSV), keratitis caused by
Acanthamoeba keratitis differentiated from, 8.278
description of, 6.269
microsporidial, 8.280–281
plants causing, 8.387
superior limbic (SLK), 8.83–85, 8.84f
toxic, medications causing, 8.80–81, 8.81f, 8.90t,
8.90–91
vernal (VKC), 6.248–249, 6.248–249f, 8.289–292,
8.290f, 8.291f
apoptotic keratoconjunctivitis differentiated from,
8.292–293, 8.293f
Keratoconjunctivitis sicca. See also Aqueous tear
deficiency; Dry eye
in systemic lupus erythematosus, 1.161
Keratoconjunctivitis sicca-like syndrome, 1.106
Keratoconus (KC), 4.95f, 4.95–96, 8.161f, 8.161–168,
8.162f, 8.163f, 8.164f, 8.165f, 8.167f, 8.170f, 13.175f,
13.175–178, 13.176f, 13.177f
contact lenses for, 3.225–226, 8.166, 8.167f
corneal (collagen) crosslinking for, 8.166, 13.130–131,
corneal opacity caused by, 8.16f
Descemet membrane rupture and, 4.17, 4.18f, 4.95f,
4.96
description of, 6.254, 6.259
ectasia after LASIK and, 13.124, 13.175
intrastromal corneal ring segments for, 13.70,
13.124
Fleischer ring in, 4.95f, 4.96, 8.117, 8.118t, 8.163,
8.164
in floppy eyelid syndrome, 8.79, 8.82
illusions and, 5.174
intrastromal corneal ring segments for, 13.62, 13.65f,
keratopathy in, 8.28, 8.167f
Marfan syndrome and, 8.194
posterior, 4.98, 8.97f, 8.104, 8.105f
refractive lens exchange and, 13.149
refractive surgery contraindicated in, 8.31, 8.166,
13.175f, 13.175–178, 13.176f, 13.177f
corneal topography and, 8.31, 8.166, 13.23, 13.24,
13.25f, 13.44, 13.175, 13.175f, 13.176f, 13.177f
subclinical (forme fruste), 8.166, 13.124
refractive surgery contraindicated in, 13.23,
13.25–26, 13.79, 13.124, 13.175f, 13.175–176,
13.177f
LASIK, 13.79, 13.124, 13.175f, 13.175–176,
13.177f
topography in detection and, 8.31, 8.166, 13.23,
13.25–26, 13.79, 13.175f, 13.175–176, 13.177f
thermokeratoplasty for, 13.127–128
tomography in, 8.35, 8.35f, 8.165f, 8.165–166
topography in, 8.29f, 8.30f, 8.31, 8.32f, 8.32t, 8.165f,
8.165–166, 8.23, 13.24, 13.25f, 13.44, 13.175,
13.175f, 13.176f, 13.177f
Keratoacystic odontogenic tumors, 7.201
Keratocytes, 2.53, 2.259, 2.263, 8.8–9, 8.9f
apotosis of, in Stevens-Johnson syndrome (Stevens-
Johnson syndrome/toxic epidermal necrosis
overlap and toxic epidermal necrosis), 8.295–296
in Fleck corneal dystrophy, 8.153
stromal (fibrocytes), 4.73
conical haze after surface ablation and, 13.33, 13.109
wound healing and, 4.14–15, 4.15f, 4.16, 13.33
Keratoderm blennorrhagicum, 1.155, 1.155f, 9.133,
9.134f
Keratoectasias, corneal, 4.95f, 4.95–96
Keratoepithelin gene, in corneal dystrophies, 8.88,
8.133, 8.134, 8.136t. See also TGFβI dystrophies
Reis-Bücklers, 8.142
Thiel-Behnke, 8.143
Keratoglobus, 4.95, 6.254, 8.169–171, 8.170f
in Ehlers-Danlos syndrome, 8.171, 8.191t, 8.193
Keratolenticular adhesions (Peters anomaly), 4.74,
4.75f, 4.98, 8.97f, 8.102–104, 8.103f, 10.150, 10.154,
11.31–32. See also Axenfeld-Rieger syndrome
Axenfeld-Rieger syndrome differentiated from, 10.154f
glaucoma and, 4.74, 10.150, 10.154
pediatric keratoplasty for, 8.450
Keratolimbal allograft, 8.362–365. See also Limbal
transplantation
Keratolyis (corneal melting), 9.25
catact surgery and, 11.132
in patient with dry eye, 11.132
management of, 8.369f, 8.369–370
neurotrophic keratopathy/persistent corneal epithelial
defects and, 8.81, 8.82
peripheral ulcerative keratitis and, 8.311, 8.312
refractive surgery and, 13.94
topical medication toxicity and, 4.80–81
Keratomaiclia, in vitamin A deficiency, 8.197
Keratometry/keratometer, 3.282, 3.286–288, 3.287f,
3.307, 8.26–27, 8.27f, 13.7–9
astigmatism after penetrating keratoplasty and, 8.431
in IOL power determination/selection, 11.84, 11.174
corneal irregularities and, 11.174
refractive surgery and, 11.86, 13.193
unexpected refractive results after surgery and,
11.150
in keratoconus, 8.164–165
refractive surgery and, 13.44, 13.45
IOL power calculation and, 11.86, 13.193
postoperative, 13.193
radial keratotomy, 13.50–51, 13.52
toric IOLs, 13.152
Keratomileusis, 13.27, 13.76. See also LASEK; LASIK
Keratoneuritis/perineuritis, radial, in Acanthamoeba
keratitis, 4.79, 8.277
Keratopathy
actinic (Labrador/climatic droplet/spheroidal
degeneration), 4.83, 4.83f, 8.115–117, 8.116f
annular, traumatic, 8.388
band/calcific band, 4.81–83, 4.82f, 8.111, 8.117–120,
8.119f, 8.201
“actinic,” 4.83
in aqueous tear deficiency, 8.56
gelatinous droplike corneal dystrophy and, 8.141,
8.141f
in gout, 8.119, 8.188
parathyroid disorders and, 8.201
boullous, 4.83–84, 4.84f, 4.85f
after cataract surgery, 4.83–84, 4.84f, 11.129,
11.129f
IOL design and, 11.149
disciform keratitis and, 8.225
DMET for, 8.449
in Fuchs endothelial corneal dystrophy, 4.92, 8.156
central toxic, after photoablation, 13.105f, 13.105–106
climatic droplet. See Spheroideal degeneration
diabetic, refractive surgery in patient with, 13.190
exposure, 8.79–80
tarsorrhaphy for, 8.80
filamentary, 8.56, 8.56f
in graft-vs-host disease, 8.304
Treatment of, 8.63
infectious crystalline/pseudocrystalline, 4.79–80,
4.80f, 8.268, 8.268f
corneal deposits and, 8.182t
after penetrating keratoplasty, 4.79, 8.427, 8.427f
Labrador (actinic/climatic droplet/spheroideal
degeneration), 4.83, 4.83f, 8.115–117, 8.116f
lipid, 8.125–126, 8.126f
corneal crystal deposition and, 8.182t
in herpes zoster, 8.125, 8.228, 8.228f
measles, 8.239, 8.240t
medications causing, 8.80–81, 8.81f, 8.90f, 8.90–91
neurotrophic, 8.42, 8.80–82, 8.81t, 8.82f
diabetic neuropathy and, 8.81, 8.81f, 8.199
esthesiometry in evaluation of, 8.42
herpetic/postherpetic eye disease and, 4.77f, 4.78,
8.80, 8.81t, 8.217–218, 8.224, 8.225, 8.227
after penetrating/deep anterior lamellar
keratoplasty, 8.80
pressure-induced stromal (PISK), after LASIK,
13.119, 13.120f
punctate epithelial, 8.46t, 8.50, 8.50f, 8.50t
adenoviruses causing, 8.234
blepharitis/blepharoconjunctivitis and, 8.72, 8.73t,
8.74
exposure causing, 8.80
herpes simplex causing, 8.216, 8.216f
in herpes zoster, 8.227
microsporidial, 8.280, 8.280f
superficial Thygeson (SPK), 8.306–307, 8.307f
topical anesthetic abuse causing, 8.89
otoxic
central, after photoablation, 13.105f, 13.105–106
ulcerative, 8.80–81, 8.81t. See also
Keratoconjunctivitis, toxic
urate, 8.119, 8.188
vortex (hurricane/cornea verticillata), 8.90, 8.129f,
8.130, 8.130f, 8.176, 8.177f
in chloroquine/hydroxychloroquine toxicity,
8.130
in Fabry disease, 6.270, 8.176, 8.177f
Keratoahkia, 13.27, 13.59–62, 13.61f
Keratoplasty, 8.411–412, 8.412t, 8.412–413t
cataract formation after, 11.176
cataract surgery and IOL implantation combined
with (triple procedure), 11.175–176
in children, 8.450–451
conductive (CK), 13.8t, 13.28, 13.28f, 13.128f,
13.128–129, 13.129f, 13.165
conical transplantation after, 13.198
for presbyopia, 13.128, 13.128f, 13.165
for corneal disorders, 6.262–263
for corneal edema after cataract surgery, 11.129
donor cornea contraindications and, 8.414, 8.415t,
8.416f
endothelial (EK), 8.411, 8.412, 8.412t, 8.436f,
8.436–450, 8.437f, 8.439f, 8.441f, 8.442f, 8.443f,
8.444f, 8.445f, 8.446f, 8.447f
advantages of, 8.421–422t, 8.438, 8.439f
cataract surgery and, 8.446–447
in Fabry disease, 6.270, 8.176, 8.177f
complications of, 8.437t
intraoperative, 8.420–421t, 8.440
postoperative, 8.421t, 8.440–449
disadvantages of, 8.422t, 8.438–440
endothelial cell loss after, 8.448–449
for Fuchs endothelial corneal dystrophy, 4.92,
4.93f
graft dislocation/decentration after, 8.442f,
8.442–443, 8.443f
hemif, 8.449–450
indications for, 8.420t
primary graft failure and, 8.447
pupillary block after, 8.444f, 8.444–445
rejection and, 8.437t, 8.438
results of, 8.437f
visual acuity after, 8.438–440
Descemet stripping/Descemet stripping automated
(DSEK/DSAEK), 8.412, 8.412t, 8.436, 8.436f,
8.437t
advantages of, 8.421–422t, 8.438, 8.439f
cataract surgery and, 8.446–447
complications of, 8.437t
intraoperative, 8.420–421t, 8.440, 8.441f
postoperative, 8.421t, 8.440–449
disadvantages of, 8.422t, 8.438–440
endothelial cell loss after, 8.448–449
epithelial ingrowth after, 8.445, 8.445f
graft dislocation/decentration after, 8.441, 8.442f
graft failure and, 4.85f
indications for, 8.420t
primary graft failure and, 8.447
pupillary block after, 8.444f, 8.444–445
rejection and, 8.437t, 8.447f, 8.447f
results of, 8.437f
visual acuity after, 8.438–440
advantages of, 8.422t, 8.438–440
donor cornea contraindications and, 8.415t
endothelial cell loss after, 8.448–449
epithelial ingrowth after, 8.445, 8.445f
for Fuchs endothelial corneal dystrophy, 8.157
graft dislocation/decentration after, 8.440–444,
8.441f, 8.442f, 8.443f
graft rejection and, 8.48, 8.48f
indications for, 8.412–413t, 8.420t, 8.436
layer-based approach to use of, 8.417t
preoperative evaluation/preparation and, 8.418
primary graft failure and, 8.447
pupillary block after, 8.444f, 8.444–445
rejection and, 8.437t, 8.447f, 8.447–448
short-term results of, 8.437t
in triple procedure, 11.175–176
visual acuity after, 8.438–440
eye banking and, 8.413–417, 8.415t, 8.416f, 8.416t
indications for, 8.412–413t
lamellar (LK), 8.411, 8.433f, 8.433–436, 8.435f
for Acanthamoeba keratitis, 8.279
anterior (ALK), 8.412, 8.412t, 8.433, 8.433f
advantages of, 8.421–422t, 8.433
complications of, 8.435
intraoperative, 8.420t
postoperative, 8.421t
disadvantages of, 8.422t, 8.433
donor cornea contraindications and, 8.415t
femtosecond/femtosecond laser-assisted (FALK/FLAK), 8.412t, 8.431, 8.434
indications for, 8.412–413t, 8.420t, 8.433
layer-based approach to use of, 8.417t
preoperative evaluation/preparation and, 8.418
therapeutic (ALTK), 8.412t
complications of, 8.420t, 8.421t, 8.435–436
conjunctival flap removal and, 8.360
for corneoscleral lacerations, 8.406
depth anterior (DALK), 8.411, 8.412, 8.412t, 8.433,
8.434–435
advantages of, 8.421–422t
in children, 8.451
complications of, 8.435
intraoperative, 8.420t
postoperative, 8.421t
for corneal changes in mucopolysaccharidoses,
8.174–176
advantages of, 8.422t
for herpetic eye disease, 8.225
indications for, 8.420t, 8.434
for keratoconus, 8.167
layer-based approach to use of, 8.417t
neurotrophic cornea after, 8.80
preoperative evaluation/preparation and, 8.418
rejection and, 8.418
deep (DLEK), 8.412t, 8.436, 8.437t
graft rejection and, 8.48
rejection and, 8.411, 8.435, 8.435f
wound healing/repair and, 13.32–33
patient selection and, 8.418
penetrating (PK/PKP), 8.411, 8.412, 8.419–432,
8.437t
for Acanthamoeba keratitis, 8.279
advantages of, 8.421t
arcuate keratotomy and, 13.56–57, 13.58
astigmatism after
control of, 8.431–432, 8.432f
refractive surgery for, 13.178–180
suture removal/adjustment and, 8.419f, 8.431–432, 8.432f
conical keratotomy and, 8.28
conical topography and, 8.32, 8.431–432, 8.432f
for bacterial keratitis, 8.272
bacterial keratitis after, 8.83–84, 8.84, 8.84f, 8.85f
cataract/cataract surgery and, 11.56, 11.175, 11.176
for chemical injuries, 8.379–380
in children, 8.450–451
CMV recurrence after, 8.232
complications of, 8.437t
intraoperative, 8.419, 8.420–421t
postoperative, 8.421t, 8.423–430
conjunctival flap removal and, 8.360
for corneal changes in mucopolysaccharidoses,
8.174–176
for corneal edema after cataract surgery, 11.129
for corneal topography after, 13.179–180
advantages of, 8.422t
disease recurrence in graft and, 8.225, 8.232, 8.425,
8.425f
for donor cornea contraindications and, 8.415t
donor corneal disease recurrence in graft and, 8.425
endophthalmitis after, 8.424
for Fuchs endothelial dystrophy, 8.157
for fungal keratitis, 8.276
glaucoma after, 8.424–425, 10.109
graft rejection and, 4.84, 4.85f, 8.316–318, 8.428–431, 8.437t. See also Rejection
graft rejection and, 8.423–430
treatment of, 8.429–430
for herpetic eye disease, 8.225
recurrence of, in graft, 8.225
indications for, 8.412–413t, 8.419, 8.420t
infectious/microbial keratitis after, 8.427
infectious pseudocrystalline/crystalline keratitis after, 4.79
for keratoconus, 8.167
for keratoconus, 8.171
layer-based approach to use of, 8.417t
for microsporidial stromal thinning, 8.281
for mucous membrane pemphigoid, 8.303
neurotrophic cornea after, 8.80
for peripheral ulcerative keratitis, 8.313
postoperative care and, 8.423–430
preoperative evaluation/preparation and, 8.418
refractive error after, control of, 8.431–432, 8.432f
after refractive surgery, 13.197–198
results of, 8.423–429, 8.437t
in rosacea patients, 8.71
in Stevens-Johnson syndrome (Stevens-Johnson
syndrome/toxic epidermal necrolysis overlap
and toxic epidermal necrolysis), 8.298
sutures for, 8.419f
corneoscleral laceration repair and, 8.406,
8.407f, 8.408f
postoperative problems and, 8.426f, 8.426–427,
8.431–432, 8.432f
removal/adjustment and, for astigmatism
control, 8.419f, 8.431–432, 8.432f
tectonic
for herpetic eye disease, 8.225
keratoglobus, 8.171
for peripheral ulcerative keratitis, 8.313
in triple procedure, 11.175
preoperative evaluation/preparation and, 8.418–419
Keratoprosthesis, 8.452f, 8.452–453, 8.453f
for chemical injuries, 8.380, 8.384
complications of, 8.452–453, 8.453f
for graft-vs-host disease, 8.304
for herpetic eye disease, 8.225
for limbal stem cell deficiency, 8.94
Keratorefractive surgery (KRS), 13.7, 13.8
refractive surgery; specific procedure

toric IOLs and, 13.151–152
refractive lens exchange and, 13.149

discussion of findings/informed consent and, 13.196

herpes simplex virus infection and, 13.173–174
higher-order aberrations from, 3.276–277
in HIV infection/AIDS, 13.188–190
incisional, 13.8f, 13.26–27, 13.27f, 13.49–58
for astigmatism, 13.53–58, 13.54f, 13.55f, 13.56f,
13.57f
corneal effects of, 13.26–27, 13.27f
for myopia, 13.49–53, 13.50f, 13.51f
informed consent for, 13.36f, 13.46–48, 13.47t
inlays/onlays, 13.59–71, 13.169
with intraocular refractive surgery (bioptics), 13.137, 13.157
IOL power calculations after, 13.44, 13.193–197, 13.196f
iron lines associated with, 8.117
See also Keratoconus
keratometric power measurements affected by, 13.193
in large-pupil patients, 3.272
laser biophysics and, 13.29–32, 13.30f
laser-tissue interactions and, 13.29
limitations of, 13.47f
medical history and, 13.36f, 13.37
monovision and, 13.39, 13.164–165
myopia treated with, 3.275
night vision problems after, 3.272
nonlaser lamellar, 13.8f
in ocular and systemic disease, 13.171–191. See also specific disorder
ocular history and, 13.36f, 13.37–38
optical considerations/principles and, 13.9–13, 13.10f, 13.11f, 13.12f, 13.13f
overview of, 3.268
overview of procedures used in, 13.7, 13.8t
patient age and, 13.38–39
patient evaluation for, 13.35–48, 13.36f. See also Keratorefractive surgery (KRS), preoperative evaluation for
after penetrating keratoplasty, 8.432, 13.37, 13.178–180
penetrating keratoplasty after, 13.197–198
photoablation, 13.29–32, 13.30f, 13.73–74, 13.74–75f, 13.101–126. See also Photoablation
postoperative considerations and, 13.193–201
contact lens use and, 13.198–200, 13.199f
corneal imaging and, 13.23f, 13.24–23, 13.24f
corneal transplantation and, 13.197–198
glaucoma and, 13.200–201
IOL power calculations and, 13.193–197, 13.196f
retinal detachment repair and, 13.197
preoperative evaluation for, 13.35–48, 13.36f
corneal imaging/ancillary tests and, 13.14–26, 13.44–46, 13.45f, 13.79–80. See also Cornea, topography of; specific type
discussion of findings/informed consent and, 13.36f, 13.46–48, 13.47t
history and, 13.35–39, 13.36t
ocular examination and, 13.36f, 13.39–44, 13.42f, 13.43f
patient expectations/motivations and, 13.35–36, 13.36f, 13.47
in presbyopia, 13.38–39, 13.159–170
pupil size and, 3.272–273
after radial keratotomy, 13.52
retinal disease/detachment and, 13.44, 13.183–185, 13.197
social/occupational history and, 13.36f, 13.36–37
spherical aberrations in, 3.272
strabismus and, 13.41, 13.185–187
techniques used in, 3.268
topography-guided, 13.32, 13.77, 13.97
wavefront aberrations/analysis and, 13.9–13, 13.10f, 13.11f, 13.12f, 13.13f, 13.46, 13.102–103, 13.103f
wavefront-guided/wavefront-optimized, 13.31–32, 13.76–77, 13.97. See also Wavefront-guided (custom) laser ablation; Wavefront-optimized laser ablation
Keratotomy
arcuate (AK), 13.8t, 13.53–58
complications of, 13.58
instrumentation for, 13.55
ocular surgery after, 13.58
outcomes of, 13.57
refractive lens exchange and, 13.149
surgical technique for, 13.55–57
astigmatic (AK), 13.8t
cataract surgery and, 11.123
wound healing/repair and, 13.32
hexagonal (Hex K), 13.8t
incisional, 13.49. See also Radial keratotomy
radial (RK). See Radial keratotomy
transverse (tangential/straight), 13.53–54, 13.54f
Keratouveitis, 9.70, 9.220, 9.247
varicella, 8.226, 8.229
Kerlone. See Betaxolol
Kestenbaum-Anderson procedure, for nystagmus, 5.236, 5.237f
Kestenbaum procedure, for nystagmus, 6.155, 6.156f, 6.156f
Kestenbaum rule, 3.320
Ketoconazole, 1.277, 2.429, 2.430t
for fungal keratitis, 8.275
Ketoprofen, 2.409t
Ketorolac, 1.289–290
for cystoid macular edema, after cataract surgery, 11.165
description of, 2.400t, 2.409t, 2.410
for intraoperative floppy iris syndrome, 11.138
Ketotifen fumarate, 2.412t, 2.413
Khodadoust line of endothelial rejection, 8.429, 8.430f, 9.54, 9.54f
Ki-67
in orbital solitary fibrous tumors, 4.236
in pinguecula/pterygia, 4.57
Kidney cancer, metastatic eye disease and, 4.304t
Kidneys. See under Renal
Killer cells, 9.48
natural, in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis), 8.296
Killer immunoglobulin-like receptors, 9.46
Kinase inhibitors, 1.177, 1.180
Kinetin energy, 3.106
Kinetic perimetry, 5.84, 5.85f, 10.59. See also Visual field testing
in nonorganic disorder evaluation, 5.308, 5.308f
Kinetic red target test, in confrontation testing, 5.83
"Kissing nevus," 4.218, 4.218f
Klebsiella spp
description of, 2.419, 8.247
Klebsiella pneumoniae
description of, 2.419, 8.247
Klebsiella pneumoniae
description of, 2.419, 8.247
Kleeblattschädel, 6.205
Klippeł-Trénaunay syndrome (KTS), 6.406
Klippeł-Trénaunay-Weber syndrome (KTWS)
description of, 6.199, 6.251, 6.394, 6.406
glaucoma associated with, 10.30
Km (Michaelis/affinity constant), sorbitol in cataract development and, 2.391, 11.19
Knapp procedure, 6.127
inverse, 6.128
Knobloch syndrome, 6.346f, 6.346–347
Knoop's hypothesis, retinoblastoma and, 2.227
Kooppe lens/Koeppe-type lenses, for gonioscopy/ funduscopy, 10.33
in children and adolescents, 6.282, 6.282f, 10.159
Koeppe nodules
in anterior uveitis, 9.78
in sarcoidosis, 4.187, 9.196, 9.196f
Koganei, clump cells of, 4.181
KOH. See under Potassium hydroxide
KOH. See Potassium hydroxide
Kohn shell, 3.246f
Koilocytosis, in human papillomavirus infection, 4.205, 4.205f
Koniocellular (K) system/neurons/bistratified cells, 10.42
KPro. See Keratoconus
KPro
See Keratoconus
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro. See Keratoconus
KPro
KPro.
L

L, See Radiance

L, See Luminance

Lacrimal drainage system, 2.32, 2.42

Lacrimal crest, 2.9

Lacrimal canaliculi. See, 7.8

Lacrimal bone, 2.9, 5.7, 7.7

Labyrinth, 5.38, 5.39

Labrador (actinic/climatic droplet) keratopathy

LA 3.0 (photopic single-flash) electroretinogram, in "La belle indifference," 5.299

Labellar floppiness of iris syndrome and, 11.137, 11.137f

Lad (actinic/climatic droplet) keratopathy

Labrador (actinic/climatic droplet) keratopathy (spheroidal degeneration), 4.83, 4.83f, 8.115–117, 8.116f

Labyrinth, 5.38, 5.39f, 6.40

in vestibular-ocular reflex, 5.214

Labyrinthine segment, of cranial nerve VII (facial), 5.52

Lacerations. See also Trauma

congenital, 4.20

corneal, 12.359

corneoscleral, 6.377, 8.388. See also Anterior segment, trauma to; Penetrating and perforating ocular trauma; Trauma

repair of, 8.404f, 8.404–409, 8.405f, 8.407f, 8.408f

eyelid
description of, 6.378, 7.214–216f

repair of. See Eyelid(s), surgery/reconstruction of
globe, 12.358

iris, repair of, 8.406, 8.408f, 8.409

medial rectus muscle, 6.146

scleral, 12.359

Lacquer cracks, 12.211, 12.211f

Lacrimal artery (LA), 2.23f, 2.25f, 2.40, 5.13f, 5.14, 5.14f, 5.15f, 6.23, 7.12f

Lacrimal bone, 2.9f, 5.7f, 5.8, 5.9f, 7.7f, 7.8f

Lacrimal canaliculi. See Canaliculi

Lacrimal cysts, 2.9f, 5.9f, 7.282

Lacrimal drainage system, 2.32f, 2.40f, 2.42f, 2.42–43.

See also Nasolacrimal duct; specific structure

abnormalities of

genoanatomical, 6.226–230

congenital lacrimal fistula, 6.228, 6.229f

dacryocystocoele, 6.213, 6.225, 6.228–230, 6.229f, 7.289, 7.290f

developmental, 7.285–287

duplication, 7.286

lacrimal puncta or canaliculi atresia, 6.227–228, 6.228f

obstruction. See Nasolacrimal duct obstruction

acquired obstruction of
canalicular obstruction, 7.298, 7.299f
diagnostic tests for, 7.297–300, 7.298–300f
evaluation of, 7.294–300

history-taking for, 7.294

nasolacrimal duct, 7.305–310

physical examination for, 7.295–296

probing for, 7.298, 7.300

pseudoepiphora, 7.296

anatomy of, 7.162f, 7.281f, 7.281–282

congenital obstruction of

balloon dacryoplasty for, 7.294

canalicular agenesis and dysgenesis, 7.288

dacryocystocoele, 7.289, 7.290f

dacryocystorhinostomy for, 7.295

evaluation, 7.287–288

lacrimal intubation stents for, 7.292–294, 7.293–294f

nasolacrimal duct. See Nasolacrimal duct obstruction

probing and irrigation for, 7.291–292, 292f

canalicular agenesis and dysgenesis, 7.288

defects of, 7.226

development of

abnormalities of, 7.285–287

normal, 7.283

diagnostic tests of, 7.297–300, 7.298–300f

disorders of. See Tearing/epiphora
dye disappearance test of, 7.297, 7.298f

excretory apparatus of. See Lacrimal drainage system

healing/repair of, 4.17


neoplasm of, 7.316–317

obstruction of. See Tearing/epiphora

outflow examination, 7.296, 7.297f

secretory apparatus/function of. See Lacrimal gland

therapeutic closure of, 7.310–311

Lacrimal ducts. See also Lacrimal drainage system

cyst arising from, 4.208

Lacrimal fistula, congenital, 6.228, 6.229f

Lacrimal fossa/lacrimal gland fossa, 5.7

Lacrimal gland, 4.202, 4.223, 5.1f, 8.5, 8.6f

accessory, 2.41, 2.253, 4.202. See also specific gland

agenesis of, 7.285

anatomy of, 2.39–41, 7.279–281, 7.280f

canalicular of. See Canaliculi, lacrimal
cells of, 2.40

characteristics of, 2.30f

congenital abnormalities of, 7.285

cyst arising from duct of, 4.208

development of, 2.163

drainage system of. See Lacrimal drainage system

dysfunction of, 2.255f

in Sjögren syndrome, 8.57

tests of, 8.38–41, 8.40f

ectopic, 6.226

Epstein-Barr virus infection and, 8.230–231

in external eye defense, 8.11

fossa of, 7.285

hypoplasia of, 7.285

infection of, 7.312–315. See also Dacryoadenitis

innervation of, 2.251, 5.52, 5.55, 5.276–277f, 8.5, 8.5f

ionizing radiation damaging, 8.386

lobule of, 2.41f

magnetic resonance imaging of, 2.459f
Large colloid drusen, 12.274
Large-vessel vasculitis, 1.169f, 1.170
Larval migrans. See *Toxocara* (toxocariasis) ocular, 8.253
visceral, 8.253
Laryngotracheobronchial disease, in relapsing polychondritis, 1.168
LASIK (laser subepithelial keratomileusis), 2.263, 13.8t, 13.73. See also Keratorefractive surgery; Photorefractive keratectomy; Surface ablation
in children, 13.187
corneal preparation/epithelial preservation for, 13.84
glaucoma/ocular hypertension and, 13.182
immediate postablation measures for, 13.92–93
Laser(s), 13.73–74. See also Laser therapy; specific type
active medium used by, 3.111–112, 3.112f
biophysics of, 13.29–32, 13.30f
coagulation uses of, 3.115
continuous-wave, 3.112
definition of, 3.92
description of, 3.110
excimer, 13.8t, 13.29, 13.73–77, 13.74–75f
fundamentals of, 3.110–112
green, 12.373
infrared, 12.374
light produced by, 3.111
Nd:YAG, 3.112, 3.115
Q-switching, 3.112
red, 12.374
stimulated emission, 3.111, 3.111f
tissue interactions and, 13.29
topography-guided, 13.32, 13.77
transpupillary thermotherapy using, 12.380
ultrashort laser pulses, 3.117–118
vaporization caused by, 12.374–375
See also Wavefront-guided (custom)
laser ablation; Wavefront-optimized laser ablation programming, 13.31, 13.81
wavelength of
description of, 3.115
for photocoagulation, 12.373–375
yellow, 12.374
Laser capsulotomy (Nd:YAG), 11.154f, 11.154–157, 11.156f
for anterior capsule fibrosis and phimosis, 11.154, 11.154f, 11.154–157, 11.156f
for capsular block syndrome, 11.149
multifocal IOLs and, 13.156, 13.167
complications of, 11.156–157
contraindications for, 11.155
indications for, 11.154–155
lens particle glaucoma and, 11.67
procedure for, 11.155–156, 11.156f
retinal detachment and, 11.157, 11.166
Laser gonioplasty, 10.193–194
Laser in situ keratomileusis. See LASIK
Laser iridotomy, 3.115. See also Iridotomy
for acute angle closure, 10.124, 10.125, 10.191–193, 10.192f
for angle-closure glaucoma, 10.124, 10.125, 10.126, 10.191–193, 10.192f
cataract extraction after, 10.213
for angle-closure suspect, 10.122, 10.191
diabetic retinopathy treated with, 12.104–107
for diabetic retinopathy, 4.276
for diabetic retinopathy, 4.160, 4.161f
for glaucoma, 10.188–196. See also specific procedure
malignant/ciliary block glaucoma (aqueous misdirection), 10.140
misdirection) and, 10.139
for malignant/ciliary block glaucoma (aqueous misdirection), 10.140
for open-angle glaucoma, 10.188–191
for pigmentary glaucoma, 10.96, 10.96f
lensextraction, 10.190, 10.190f
for pseudophakic glaucoma, 10.93
selective (SLT), 10.188, 10.189, 10.190, 10.190f
Laser iridotomy, 3.115. See also Iridotomy
for angle closure, 10.124, 10.125, 10.191–193, 10.192f
for angle-closure glaucoma, 10.124, 10.125, 10.126, 10.191–193, 10.192f
for angle-closure suspect, 10.122, 10.191
for cataract extraction after, 10.213
for pigmentary glaucoma, 10.96, 10.96f
Laser photocoagulation, for intermediate uveitis, 9.150
Laser photolysis, 11.125
Laser-puncture injury, 12.369
Laser pupilloplasty
for cataracts, 11.71–72
for IOL decentration/dislocation, 11.145
Laser retinopexy, 12.376–377
Laser scanning confocal microscope, 8.24. See also Confocal microscopy
Laser skin resurfacing, 7.268–269
Laser subepithelial keratomileusis. See LASIK
Laser surgery
adverse effects of, 12.114
branch retinal vein occlusion treated with, 12.128
central retinal vein occlusion treated with, 12.135
diabetic macular edema treated with, 12.114–115
proliferative diabetic retinopathy treated with, 12.104–107
retinopathy of prematurity treated with, 12.185–186
Laser suture lysis (LSL), scleral flap closure/management and, 10.202–203, 10.207–208
Laser therapy. See also Laser surgery; Photocoagulation; Photodynamic therapy; specific procedure
for choroidal hemangioma, 4.283
for choroidal melanoma/ciliary body melanoma, 4.276
for diabetic retinopathy, 4.160, 4.161f
for glaucoma, 10.188–196. See also specific procedure
malignant/ciliary block glaucoma (aqueous misdirection), 10.139
for open-angle glaucoma, 10.188–191, 10.190f
for retinoblastoma, 4.300
light–tissue interactions and, 13.29
Laser thermokeratoplasty (LTK). See also Thermokeratoplasty
corneal transplantation after, 13.198
description of, 13.8t, 13.127–128
hyperopia treated with, 3.115
Laser trabeculoplasty (LTP), 3.115, 10.113–115, 10.188–191, 10.190f
for normal-tension glaucoma, 10.88
for open-angle glaucoma, 10.113–115, 10.188–191
for pigmentary glaucoma, 10.96, 10.96f
for pseudophakic glaucoma, 10.93
selective (SLT), 10.188, 10.189, 10.190, 10.190f
LASIK (laser in situ keratomileusis), 13.162
Lashes. See Eyelashes
Laser–tissue interactions
application of laser treatment and, 13.30, 13.91
for amblyopia/anisometropic amblyopia, 13.186, 13.187
aberrations after, 13.11, 13.12, 13.102–103, 13.103f
for accommodating esotropia, 13.188
for amblyopia/anisometropic amblyopia, 13.186, 13.187
application of laser treatment and, 13.30, 13.91f, 13.91–93
arcuate keratotomy and, 13.54, 13.58
in astigmatism, 13.97
after penetrating keratoplasty, 8.432, 13.179, 13.180
bandage contact lenses after, 13.93, 13.111, 13.200
for epithelial ingrowth, 13.122
for epithelial sloughing/defects, 13.112
for microkeratome complications, 13.111
for striae, 13.113
biopics with, 13.157
 calibration of excimer laser for, 13.80
cataract surgery after, 11.177
 IOL power calculation and, 11.86
central toxic keratopathy after, 13.105f, 13.105–106
in children, 13.187
complications/adverse effects of, 13.110–124. See also specific type
in diabetes mellitus, 13.190
rare, 13.125–126
in connective tissue/autoimmune diseases, 13.191
contact lens use after, 13.199, 13.200
contraindications/relative contraindications to, 13.78–80
forme fruste/keratoconus and, 13.79, 13.124, 13.175f, 13.175–176, 13.177f
ocular and systemic disease and, 13.171
“pellucid suspect” pattern and, 13.176, 13.176f
residual stromal bed thickness and, 13.30, 13.45–46, 13.79–80. See also LASIK (laser in situ keratomileusis), residual stromal bed thickness and
corneal biomechanics affected by, 13.14
corneal perforation and, 13.111
corneal preparation for, 13.84–90, 13.85f, 13.86f, 13.87f, 13.88f, 13.89f
corneal thickness and, 13.45–46, 13.79–80
corneal transplantation after, 13.198
corneal wound healing/repair and, 13.33
corticosteroids after, 13.93, 13.94
complications associated with, 13.105
in diabetes mellitus, 13.190
diffuse lamellar keratitis after, 13.116f, 13.116–117, 13.117f
infectious keratitis differentiated from, 13.117–118, 13.118f, 13.118f
pressure-induced stromal keratopathy differentiated from, 13.119
drugs affecting success of, 13.37
dry eye after, 13.78–79, 13.172
in dry eye disorders, 13.78–79, 13.172–173
ectasia/keratoconus and, 13.124–125, 13.175–177f, 178
corneal crosslinking and, 13.124, 13.130–131, 13.176
intrastromal corneal ring segment placement and, 13.70
eccentric disorders after, 8.166
epipolis. See Epipolislaser in situ keratomileusis
epithelial ingrowth after, 13.120–122, 13.121f
epithelial sloughing/defects after, 13.112
filtering surgery and, 13.182
flap creation for, 13.30, 13.73, 13.75f, 13.79, 13.82, 13.84–90
aberrations and, 13.102–103, 13.103f
corneal inlay insertion and, 13.60, 13.169
femtosecond, 13.8f, 13.89f, 13.89f
aberrations and, 13.102–103
advantages/disadvantages/complications of, 13.88, 13.90t, 13.122–124, 13.123f
re-treatment/enhancements and, 13.98
steep or flat corneas and, 13.44–45, 13.79
glaucoma/elevated intraocular pressure and, 13.181, 13.201
infection and, 13.107, 13.107f, 13.117–119
diffuse lamellar keratitis differentiated from, 13.117–118, 13.118f, 13.118f
microkeratome, 13.84–87, 13.85f, 13.86f, 13.87f
aberrations and, 13.102
complications associated with, 13.110f, 13.110–112, 13.111f
re-treatment/enhancements and, 13.98
after penetrating keratoplasty, 13.180
retinal detachment surgery and, 13.185, 13.197
steep or flat corneas and, 13.44–45, 13.79, 13.80
flap dislocation and, 13.113, 13.115–116
striae and, 13.113
traumatic, 13.115–116
flap folds and, 13.112–115, 13.114t, 13.115f
glaucoma/ocular hypertension and, 13.105, 13.181, 13.182, 13.200–201
haze formation and, 13.33
herpes simplex virus keratitis and, 13.174
herpes zoster ophthalmicus and, 13.174
in HIV infection/AIDS, 13.189
for hyperopia, 13.96, 13.97
hyperopia correction using, 3.271, 3.271f
diffuse lamellar keratitis differentiated from, 13.117–118, 13.118f, 13.118f
interface complications and, 13.116–122
interface debris after, 13.122, 13.123f
intraocular pressure elevation/measurement after, 10.25, 13.105, 13.119, 13.181, 13.200–201
after intrastromal corneal ring segment removal, 13.70
keratitis after
atypical mycobacteria causing, 8.272–273, 8.273f, 13.106, 13.119
infectious keratitis differentiated from, 13.117–118, 13.118f, 13.118f
pressure-induced stromal keratopathy differentiated from, 13.119
herpes simplex, 13.174
diffuse lamellar keratitis differentiated from, 13.117–118, 13.118f, 13.118f
keratopathy after
central toxic, 13.105f, 13.105–106
pressure-induced stromal, 13.119, 13.120f
limbal relaxing incisions and, 13.54, 13.58
limitations of, 13.47f
microkeratome for, 13.84–87, 13.85f, 13.86f, 13.87f
aberrations and, 13.102
complications associated with, 13.110f, 13.110–112, 13.111f
re-treatment/enhancements and, 13.98
for mixed astigmatism, 13.97
for myopia, 13.95, 13.97
intraocular pressure measurements and, 13.181, 13.182f
spherical aberrations after, 13.11, 13.12, 13.102
OCT in evaluation and, 8.22
outcomes of, 13.95
for hyperopia correction, 13.96, 13.97
for myopia correction, 13.95, 13.97
small-incision lenticule extraction compared with, 13.204, 13.205
for wavefront-guided/wavefront-optimized/topography-guided treatment, 13.31–32, 13.97
overcorrection and, 13.101–102
conductive keratoplasty for, 13.129
patient selection and, 13.78–80
after penetrating keratoplasty, 13.179, 13.180
postoperative care for, 13.94–95
immediate postablation measures and, 13.93
preoperative care for
patient preparation and, 13.81–82
patient selection/relative contraindications and, 13.78–80
planning/laser programming and, 13.81
pressure-induced stromal keratopathy after, 13.119, 13.120f
after radial keratotomy, 13.52
re-treatment/enhancements and, 13.97–100, 13.99f
for refractive errors after penetrating keratoplasty, 8.432
refractive lens exchange and, 13.149
residual myopia after, intrastromal corneal ring segments for, 13.70
residual stromal bed thickness and, 13.30, 13.45–46, 13.79–80
calculation of, 13.46, 13.79

corneal perforation and, 13.111
ectasia and, 13.79
retinal detachment/retinal detachment repair and, 13.183, 13.184, 13.185, 13.197
small-incision lenticule extraction compared with, 13.205, 13.206
striae and, 13.112–115, 13.114f, 13.115f
stromal bed preparation for, 13.84–90. See also LASIK (laser in situ keratomileusis), flap creation for surface ablation for enhancement of, 13.98–99
surgical technique for, 13.80–95
tracking/centration/ablation and, 13.91f, 13.91–92
undercorrection and, 13.102
wavefront aberrations after, 13.11, 13.12, 13.102–103, 13.103f
wavefront analysis before, 13.80
wavefront-guided. See Wavefront-guided (custom) laser ablation
LASIK-interface complications, 13.116–122
epithelial ingrowth, 13.120–122, 13.121f
infectious keratitis, 13.117–119, 13.118f, 13.118f
interface debris, 13.122, 13.123f
pressure-induced stromal keratopathy, 13.119, 13.120f
LASIK line, 8.118f
Llastaft. See Alcaftadine
Latanoprost, 2.363, 2.368, 2.393, 2.394f, 10.170–176, 10.171f
in combination preparations, 10.174f
Latanoprost/timolol maleate, 2.394f, 2.397f
Latanoprostene bunod (LBN), 2.394f, 2.397f
Latanoprost, 2.363, 2.368, 2.393, 2.394f, 10.170–176, 10.171f
in combination preparations, 10.174f
Alcaftadine
Latanoprost, 2.363, 2.368, 2.393, 2.394f, 10.170–176, 10.171f
in combination preparations, 10.174f
Alcaftadine
LASIK (laser in situ keratomileusis), flap creation for surface ablation for enhancement of, 13.98–99
surgical technique for, 13.80–95
tracking/centration/ablation and, 13.91f, 13.91–92
undercorrection and, 13.102
wavefront aberrations after, 13.11, 13.12, 13.102–103, 13.103f
wavefront analysis before, 13.80
wavefront-guided. See Wavefront-guided (custom) laser ablation
LASIK-interface complications, 13.116–122
epithelial ingrowth, 13.120–122, 13.121f
infectious keratitis, 13.117–119, 13.118f, 13.118f
interface debris, 13.122, 13.123f
pressure-induced stromal keratopathy, 13.119, 13.120f
LASIK line, 8.118f
Llastaft. See Alcaftadine
Latanoprost, 2.363, 2.368, 2.393, 2.394f, 10.170–176, 10.171f
in combination preparations, 10.174f
Latanoprost/timolol maleate, 2.394f, 2.397f
Latanoprostene bunod (LBN), 2.394f, 2.395, 10.170
Late-diagnosed primary congenital glaucoma, 10.147, 10.148f. See also Glaucoma, pediatric
Late non-immune-mediated endothelial failure, 8.427–428
Late-onset corneal haze, 13.109
Latency (saccadic), 5.219, 5.221, 5.222
Latency (viral), herpesvirus/recurrent infection and, 8.205, 8.207, 8.212, 8.213, 8.215–224, 8.216f, 8.217f, 8.218f, 8.220f, 8.221f, 8.223f, 8.226f
Latency (visual evoked potential), 5.95
Latent autoimmune diabetes in adults (LADA), 1.34
Latent exodeviations, 6.99
Latent strabismus, 6.15
Latent sympathetic, 1.522
Latent transforming growth factor beta-binding protein (LTBP2), 6.306
Lateral canthal tendon
defects of, eyelid reconstruction for, 7.225, 7.226–227f
description of, 7.169
trauma to, 7.214–215
Lateral canthotomy, 7.119, 7.223f
Lateral canthus, 2.27f
Lateral geniculate body/nucleus (LGB/LGN)anatomy of, 2.116–117f, 2.124f
blood supply of, 2.122f
description of, 5.18, 5.18f, 5.24f, 5.28–29, 5.55f, 5.154, 6.43
lesions of, 5.154, 5.154f
neurons of, 6.44
Lateral lenticulostriate artery, 5.16f
Lateral long posterior ciliary arteries, 5.15
Lateral magnification, 3.62. See also Transverse magnification
Lateral medullary syndrome of Wallenberg (Wallenberg syndrome), 5.20, 5.180, 5.217, 5.337
Horner syndrome and, 5.260f, 5.337
MRI in, 5.64f
Lateral orbital tubercle of Whitnall, 7.6, 7.7–8f
Lateral orbital wall, 2.10, 2.10f, 5.9f
Lateral orbitotomy. See Orbitotomy
Lateral palpebral artery, 2.38f
Lateral rectus (LR) muscle, 5.8f, 5.45, 5.46f, 7.12, 7.12f
abduction of, 6.35f
action of, 6.34f, 6.35f
anatomy of, 2.34f, 2.107f, 5.8f, 5.45, 5.46f
anomalous innervation of, 6.109
blood supply to, 2.21
characteristics of, 2.19f, 6.21f
computed tomography of, 2.456f
contracture of, 6.109
field of action, 6.33
horizontal gaze and, 5.37f, 5.38
innervation of, 2.21, 5.38, 6.19
lost, 6.95
magnetic resonance imaging of, 2.460f
origin of, 6.20, 6.21f
recession/resection of
for Duane retraction syndrome, 6.134
for exodeviations, 6.160
for high myopia, 6.143
for intermittent exotropia, 6.102
for third nerve palsy, 6.139
for X-pattern strabismus, 6.113
slipped, 6.95
superior transposition of, 6.113
Lateral rectus tendon, 6.19f
Lateral (transverse) sinus thrombosis, 5.69f, 5.345–346
Lateral subnucleus
of cranial nerve III (oculomotor), 5.44, 5.44f
of cranial nerve VII (facial), 5.49
Lateral tarsal strip procedure, 7.231, 7.232f
Lateral transverse B-scan, 2.466f, 2.466–467
Lateral wall of orbit
anatomy of, 7.6
decompression of, 7.130, 7.131f
Lateropulsion/ocular lateropulsion, in Wallenberg syndrome, 5.217
Latex allergies, 1.288
Lattice corneal dystrophy (LCD), classic
(LCD1/type 1), 4.88–90, 4.89f, 4.91f, 8.135f
classic (LCD1/type 1), 4.88–90, 4.89f, 4.91f, 8.135f, 8.136f, 8.145f, 8.145–147, 8.146f, 8.147f
recurrence of, after corneal transplantation, 8.425
variant, 8.135f, 8.146–147, 8.147f
Lattice degeneration, 4.148–150, 4.149f
prophylactic treatment of, 12.319
radial perivascular, 4.150
retinal detachment and, 12.309–311, 12.310–12.311f, 12.316f, 12.319
Lattice lines, 8.145, 8.146, 8.146f, 8.147f
in amyloidosis, 8.187–188, 8.188f
LAV (lymphadenopathy-associated virus). See HIV (human immunodeficiency virus)
Law of equal innervation/motor correspondence,
Hering’s eyelid retraction and, 5.274
horizontal gaze and, 5.36f
nystagmus and, 5.247
ptosis enhancement and, 5.270f, 5.310
Law of reflection
definition of, 3.40
description of, 3.80–81
vergence equation for mirrors derived from, 3.88–89, 3.89f
Law of refraction (Snell’s law), 8.26
Law of specular reflection, 3.80
Layered hyphema, 8.392, 8.393f
LBD. See Lewy body dementia
LBN. See Latanoprostene bunod
LCA. See Leber congenital amaurosis
LCAT deficiency. See Lecithin-cholesterol acyltransferase (LCAT) deficiency
LCD. See Lattice corneal dystrophy
LCD1. See Lattice corneal dystrophy (LCD), classic
(LCD1/type 1)
LCH. See Langerhans cell histiocytosis
LCMV. See Lymphocytic choriomeningitis virus
LCPUFAs. See Long-chain polyunsaturated fatty acids
LCs. See Langerhans cells
LD. See Lyme disease
LDL-C. See Low-density-lipoprotein cholesterol
LDL cholesterol (LDL-C). See Low-density-lipoprotein cholesterol
Le Fort fractures, 7.109, 7.110f
LEA Grating Acuity Test, 6.8
LEA symbols, 3.23, 3.133f, 3.134, 6.6, 6.7f
Lead ingestion, optic neuropathy caused by, 5.137
Leakage, hyperfluorescence and, 12.35
Lean techniques, 1.31–32
Learning effect, in automated perimetry, 10.71
Leber congenital amaurosis (LCA), 6.335–336, 6.337f, 9.58
characteristics of, 12.265–266
genes and loci associated with, 2.213f, 12.256f
genetic heterogeneity of, 2.212, 2.213f
infantile nystagmus syndrome and, 5.236
retinal degeneration associated with, 12.281
RPE65 mutations as cause of, 2.196, 2.333
Leber (epithelioid) cells. See also Macrophage(s)
in choroidal/ciliary body melanoma, 4.192, 4.193f, 4.194, 4.195
Leber hereditary optic neuropathy (LHON), 5.133–135, 5.134f, 6.368
description of, 2.185–186
family history of, 5.220
mitochondrial DNA mutations and, 5.133
optic neuritis and, 5.115, 5.133
Leber idiopathic stellate maculopathy, 9.241
Leber stellate neuroretinitis, 12.242
LECD. See Lisch epithelial corneal dystrophy
Lecithin-cholesterol acyltransferase (LCAT) deficiency, 8.180f, 8.180–181
Lecithin retinol acyltransferase, 2.326, 2.327f
LED bulb, 3.108
Lens (crystalline), 4.114, 4.115–124, 4.116

Legionnaires' disease, 2.427

Legal blindness, 3.310–311, 3.329

Left ventricular hypertrophy, hypertension and, 1.66

Left jerk nystagmus, 6.148, 6.150

Ledipasvir/sofosbuvir, 1.261

Ectopia lentis
See also diabetes mellitus affecting, 11.60–61.
development/embryology of, 11.25–42
degenerations/degenerative ocular disorders and,
definition of, 2.79, 4.115–117, 4.116

colsedentimal, 11.10f, 11.11f, 11.12f
altered, cataract surgery and, 11.179–184, 11.181f,
11.182f, 11.183f

eye conceptions of, 11.3, 11.3f, 11.4f
biochemistry and metabolism of, 11.11, 11.14–23
bow zone/bow region of, 2.283
capsule of. See Lens capsule
carbohydrate metabolism in, 11.17–19, 11.18f
changing shape of. See Accommodation
chemical composition of, 2.284–286
chemical injuries affecting, 11.59
colobomas of, 11.30–31, 11.31f
coloration change in, 4.121–122, 11.44f
congenital anomalies and abnormalities of, 4.117–118,
4.118f, 11.30–39, 11.30–39f

cortex of, 2.283, 4.116f, 4.117, 11.10f, 11.12f,
11.13
degenerations of, 4.121–122, 4.122f, 4.123f
topography of, 4.116f, 4.117

Crystallins in, 2.281, 2.284–285, 11.15f, 11.15–16.
See also Crystallins
cytoskeletal proteins in, 2.285
definition of, 2.79, 2.281
degenerations/degenerative ocular disorders and,
4.120f, 4.120–124, 4.121f, 4.122f, 4.123f, 4.124f,
11.68. See also Cataract
development/embryology of, 11.25–42
cataract development and. See Cataract, congenital
congenital anomalies and abnormalities and,
developmental defects and, 11.39–42, 11.40f

normal, 11.25–29, 11.26–29f

diabetes mellitus affecting, 11.60f, 11.60–61. See also
Cataract, diabetic
dislocation of, 11.39–40. See also Ectopia lentis
cataract surgery in patient with, 11.181–183,
11.182–183f

conditions associated with, 6.306t
description of, 6.306
ectopia lentis et pupillae, 6.267–268, 6.307, 6.307f
in homocystinuria, 6.308–309
illustration of, 6.306f
inborn errors of metabolism and, 6.306
iridodonesis with, 6.306
isolated/simple ectopia lentis, 6.307
in Marfan syndrome, 6.307–308, 6.308f
refractive error caused by, 6.310
in sulfite oxidase deficiency, 6.310
traumatic, 11.40, 11.54f, 11.54–55
treatment of, 6.310
in Weill-Marchesani syndrome, 6.309

disorders of, 4.115–124, 11.43–68. See also Cataract;
specific disorder
coloboma, 6.305f, 6.305–306
congenital aphakia, 6.305
illusions caused by, 5.174
spherophakia, 6.305
systemic disorders and, 4.124

drug-induced changes in, 11.51–53, 11.52f
tropic. See Ectopia lentis
electrical injury to, 11.59, 11.59f

embryologic development of, 2.153–155, 2.154f

epithelium of, 2.80, 2.82, 4.116f, 4.117, 11.10f,
11.12–13

active transport and, 11.21
degenerations of, 4.120f, 4.120–121, 4.121f, 4.122f
development of, 2.154f, 11.27, 11.27f
opacification of (capsular cataract), 11.38
structure of, 2.282–283
topography of, 4.116f, 4.117
evaluation of
before cataract surgery, 11.79–80
in glaucoma, 10.32. See also Lens-induced
glaucoma; Lens particle glaucoma
before refractive surgery, 13.43–44
focal opacifications and, 4.121, 4.122, 4.122f, 4.123f
foreign body in, 11.57
formation of, 2.153–155, 2.154f
free radicals affecting, 11.19–20
generalized discoloration with loss of transparency
and, 4.121–122
generative zone of, 2.82
glaucoma and. See Lens-induced glaucoma; Lens
particle glaucoma
glucose metabolism in, 2.290

healing/repair of, 4.17
in homocystinuria, 11.41
hyperbaric oxygen therapy associated with changes
in, 11.20, 11.65
in hyperlysinemia, 11.41
infection/inflammation of, 4.118–119, 4.119f. See also
Lens (crystalline), uveitis and
interdigitations, 2.286, 2.287f
iris-claw, 6.310
ischemic damage to, 11.68
luxed/luxated, 6.268, 6.306, 6.390f, 11.40. See also
Ectopia lentis
cataract surgery in patient with, 11.181–183,
11.182f, 11.183f
traumatic, 11.40, 11.54f, 11.54–55
magnetic resonance imaging of, 2.459t, 2.460f
major intrinsic protein expression by, 2.283, 2.285
in Marfan syndrome, 8.193, 8.193f, 8.194, 11.40f, 11.40–41
in megalocornea, 8.100
metabolic diseases affecting, 11.60f, 11.60–62, 11.61f, 11.62f
metabolism in, 2.289–291
microscopic appearance of, 2.80f
molecular biology of, 11.15f, 11.15–17
nucleus of, 2.283, 4.116f, 4.117, 11.10f, 11.12f, 11.13
congenital cataract of, 11.38, 11.39f
degenerations of, 4.123, 4.123f, 4.124f
embryonic, 11.13, 11.27f
opacification of (congenital nuclear cataract), 11.38, 11.39f
emulsification of. See Phacoemulsification
fetal, removal/disassembly of, 11.111, 11.112–114,
See also opacification of.
In ECCE, 11.196–197
in ECCE, 11.200f, 11.200–201
in manual small-incision cataract surgery, 11.198, 11.199f
in phacoemulsification, 11.111, 11.112–114, 11.113f
chopping techniques for, 11.114
phaco fracture for, 11.112–114, 11.113f
rotation of, in phacoemulsification, 11.111
topography of, 4.116f, 4.117
nutritional diseases affecting, 11.63–64
opacification of. See Cataract
organization of, 2.81f
oxidative damage to, 2.339–340, 11.19–20
perforating and penetrating injury of, 11.55, 11.55f, 11.56f
glaucoma and, 11.67
physiology of, 2.286, 11.20–23
plasma membranes of, 2.284
potassium in, 2.287
proteins of
description of, 2.284–285
posttranslational modifications to, 2.286
pseudoxefoliation/exfoliation syndrome and, 11.65f,
11.65–66
pump–leak hypothesis of solute movement in, 2.288f
radiation affecting, 11.57–58
radiation sensitivity of, 1.238–239
refractive index of, 2.281
removal of. See Cataract surgery; Lensectomy;
Phacoemulsification; Refractive lens exchange
retained, cataract surgery and, 11.140–141
ruptured, removal of, 8.408–409
in schematic eye, 3.127t
size of, 11.11
smoking/tobacco use and, 11.63–64
sodium in, 2.287
sorbitol accumulation in, 2.291
structure of, 2.281–283, 2.282f
subluxed/subluxated, 11.39–40, 11.40f. See also Ectopia lentis
angle closure/pupillary block and, 10.119, 10.129–130, 10.130f, 10.130t
cataract surgery in patient with, 11.181–183, 11.182f, 11.183f
description of, 6.268, 6.306
in homocystinuria, 6.309
in Marfan syndrome, 6.308f
surgery for, 6.310
traumatic, 11.40, 11.54f, 11.54–55
sutures of, 2.82, 11.13
development of, 11.27f, 11.28–29
opacification of (sutural/stellate cataract), 11.37, 11.37f
topography of, 4.115f, 4.115–117, 4.116f
transparency of, 2.286
topography of, 4.117, 11.9, 11.10f, 11.12
traumatic damage to, 11.53–59, 11.54f, 11.55f, 11.56f,
11.58f, 11.59f
glaucoma and, 10.98
phacoantigenic uveitis and, 4.118–119, 4.119f, 11.66, 11.191
surgery and, 11.190–193, 11.192f
uveitis associated with, 4.103, 4.103f, 4.118–119,
4.119f, 4.122, 11.64f, 11.64–65, 11.66. See also Phacoantigenic (lens-associated) uveitis;
Phacolytic glaucoma
hypopyon in, 9.6
types of, 9.136f, 9.136–137
water and cation balance in, maintenance of, 11.21, 11.22f
zonular fibers/zonules of, 2.82–83, 2.83f, 2.228, 4.115,
4.117, 11.9, 11.10f, 11.12
absent/abnormal
cataract surgery and, 11.179–184
iris coloboma/corectopia and, 11.180
nucleus rotation and, 11.111
in glaucoma, 10.33f, 10.119
degenerations of, 4.124
development of, 11.29
evaluation of
before cataract surgery, 11.80
in glaucoma, 10.33f
pigment deposits on, in pigment dispersion syndrome, 10.94, 10.95f
in pseudoxefoliation/exfoliation syndrome, 10.92,
10.93, 10.130, 10.131f, 11.65–66, 11.181, 11.182f, 11.184
as tertiary vitreous, 4.125
topography of, 4.115, 4.117
Lens block, 10.119
Lens capsule, 2.79–80, 2.80f, 4.115, 4.116f, 11.10–12f,
11.11. See also Capsulorrhexis; Capsulotomy
anatomy of, 2.281–282, 2.282f, 4.115, 4.116f
degenerations of, 4.120
development of, 11.27, 11.27f
exfoliation of, infrared radiation/heat causing,
11.57
formation of, 2.154, 2.154f
healing/repair of, 4.17
pigment deposits in, in pigment dispersion syndrome,
10.94, 10.95f
Lense- extraction procedures. See also Cataract, traumatic cataract surgery and, 11.142–143 staining, in cataract surgery, 11.178–179, 11.179f structure of, 2.281–282, 2.282f topography of, 4.115, 4.116f ultrasound biomicroscopy of, 2.471f

Lens equator, 2.283, 11.15–17

Lens fibers, 4.117
accommodation and, 11.22
development of, 11.12f, 11.12–13
primary fibers, 11.26–27, 11.27f
secondary fibers, 11.27f, 11.27–28
microspherophakia and, 11.33
opacities of, 4.122, 4.122f
zonular (zonules of Zinn), 4.115, 4.117, 11.9, 11.10f, 11.12
topography of, 4.115, 4.117

Lens gradient method, for accommodative convergence measurement, 5.226–227

Lens-induced glaucoma, 4.103, 4.103f, 4.122, 10.96–98, 10.97f, 10.119, 11.67–68, 11.68f angle-closure glaucoma and, 10.96, 10.119, 10.128–132 in children and adolescents, 10.149f open-angle glaucoma and, 10.96–98, 10.97f

Lens-induced granulomatous (phacoanaphylactic) endophthalmitis (phacoantigenic uveitis), 4.103, 4.103f, 4.118–119, 4.119f, 4.122, 11.66. See also Phacolytic glaucoma

Lens-iris diaphragm retropulsion syndrome (LIDRS), 11.138, 11.184

Lens-iris interface, angle closure/angle-closure glaucoma and, 10.118–119

Lens particle glaucoma, 10.98, 11.67

Lens pit, 2.153, 11.25, 11.26f

Lens plaque, 2.153, 11.25, 11.26f

Lens power, bifocal segment decentration and, 3.191

Lens proteins, 11.15f, 11.15–17. See also specific type aging affecting, 11.17 crystallins, 11.15f, 11.15–16. See also Crystallins

Lens- water-soluble, 11.15, 11.15f. See also Crystallins
conversion of to water-insoluble, 11.17

Lens rim artifact, in perimetry, 10.60, 10.66, 10.66f

Lens vesicle, 2.153–154, 2.154f

Lenses. See also Cataract surgery for acute angle closure, 10.125 for chronic angle closure, 10.126 for ectopia lentes, 10.130 in Marfan syndrome, 11.41 for plateau iris, 10.128 for subacute/intermittent angle closure, 10.126

Intraocular lenses
Trivex, 3.196
standard plastic, 3.195
high-index, 3.196
polycarbonate, 3.195–196
Trivex, 3.196

Multifocal. See Multifocal lenses
photochromic, 3.193, 3.193f balance, 3.198
combining of, 3.9, 3.11 contact. See Contact lenses
cylindrical. See Cylindrical lenses
effectivity of, 3.40, 3.60
high-plus-power, 12.375
intraocular. See Intraocular lenses
materials used in glass, 3.195
high-index, 3.196
polycarbonate, 3.195–196
standard plastic, 3.195
Trivex, 3.196

Lensmaker’s equation (LME)
definition of, 3.41
derivation of, from Snell's law, 3.85–86
description of, 3.51–52
power comparisons using, 3.52
thin-lens approximation and, 3.54

Lensmeter, 3.169
automatic, 3.285
cylinder power measurements, 3.284, 3.284f
definition of, 3.282
cylindrical, 3.283–3.284f, 3.283–285
for photocoagulation, 12.375, 12.376f
spectacle. See Spectacle lenses
multifocal. See Multifocal lenses
ultraviolet-absorbing, 3.193–194

Lensometers. See Lensmeter
Lenticonus/lentiglobus, 6.296, 11.30, 11.30f anterior, 4.118, 11.30
posterior, 4.118, 4.118f, 11.30, 11.30f
Lenticular astigmatism. See also Astigmatism
description of, 3.19
refractive surgery and, 13.45, 13.149
toric IOLs and, 13.152
as “residual” astigmatism, 3.211
Lenticular irregularities, decreased vision and, 5.99
Lenticular myopia (myopic shift), 11.43, 11.70
Lenticular optics, 3.8f
Lenticular refractive procedures. See Intraocular lenses
(IOLs), for refractive errors
Lenticules, 13.59
in epikeratoplasty, 13.62
femtosecond extraction of (FLEx), 13.8t, 13.27–28, 13.203
graft failure and, 4.84, 4.85f
in keratoplasty, 13.59, 13.60
refractive extraction of (ReLEx), 13.8t, 13.27, 13.203–206
complications of, 13.205
indications and preoperative evaluation for, 13.204
LASIK compared with, 13.206
outcomes of, 13.205
re-treatment and, 13.206
surgical technique for, 13.204–205
small-incision extraction of (SMILE), 13.8t, 13.28,
13.203–206. See also Lenticules, refractive
extraction of
Lenticulostriate artery, lateral, 5.16f
Lentiglobus. See Lenticonus/lentiglobus
Lentigo, 7.200
Lentigo maligna, 7.200
Lentigo maligna melanoma, 4.220, 4.221f, 7.209, 7.209f
Lentigo simplex, 7.197
"Lentigo spots," 4.306, 4.308f
Leptin, 7.197
Leptospirosis, 9.232–233
Leser-Trelat sign, 4.209
Lesser (minor) arterial circle, 5.15
Lesser wing of sphenoid bone, 2.6–7f, 2.11
Lesser hooks, for pupil expansion, 11.177
Letter chart visual acuity. See Visual acuity
Letter tests, of contrast sensitivity, 5.88
Leukemia, 4.10, 4.10f, 4.11f, 6.218, 6.413–414
essential thrombocythemia transformation into, 1.143
neoplastic masquerade syndromes secondary to, 9.308f
ocular involvement in, 4.315f, 4.315–316, 4.316f
choroid, 4.315
iris, 4.315
optic nerve/nerve head/disc, 4.316, 4.316f
orbit, 4.316
retina, 4.315, 4.315f
uvea, 4.315
vitreous, 4.315
Leukemic retinopathy, 4.315, 4.315f
Leukocoria, 6.299, 6.351, 6.351f, 6.351t, 12.342. See also specific cause
in Coats disease, 4.143f
in retinoblastoma, 4.291, 4.291f
Leukocytes (white blood cells). See also specific cell
classification of, 9.2
cytokine effects on, 9.25
dendritic cells, 9.4–5
eosinophils, 9.2
Fc receptor expression by, 9.47
immunophenotyping of, flow cytometry for, 4.36
in inflammation, 4.7, 4.8f
Langerhans cells, 9.4–5
lymphocytes, 9.5
macrophages, 9.3–4
mast cells, 9.2–3
monocytes, 9.3–4
neutrophils, 9.2
oxygen metabolism by, 9.16
platelet-activating factor activation of, 9.21
Leukocyte common antigen, in immunohistochemistry,
4.34
Leukocystolic vasculitis, 9.125f
Leukoencephalopathy
with cerebral autosomal dominant arteriopathy and
subcortical infarcts (CADASIL), 5.295
migrainelike headache in, 5.295
progressive multifocal (PML), 5.351f, 5.351–352
natalizumab causing, 5.318, 5.351
Leukomas, in Peters anomaly, 10.154, 11.31
Leukotrienes, for lung disease, 1.128
Leukotriene inhibitors, for lung disease, 1.128
Leukotrienes, 2.408f
in inflammation, 9.20
Leuprolide, 1.309f
Levator palpebrae muscle, 8.3, 8.4
Levator aponeurosis, 2.28, 2.33–35, 2.34f, 7.165, 7.165–166, 8.4f
ptosis and, 5.273, 5.273t
Levator muscle (levator palpebrae superioris/LPS),
4.202, 5.8f, 5.52, 7.12, 7.166
action of, 6.34f, 8.3
anatomy of, 2.17f, 2.20f, 2.28f, 2.33–35, 2.34f, 2.107f,
5.8f, 6.19f, 6.26f, 8.4f, 8.8
characteristics of, 2.19t, 6.21t, 6.22
computed tomography of, 2.456f
congenital ptosis caused by dystrophic development
of, 5.272
innervation of, 2.21, 2.124, 5.44, 5.44f, 6.19
magnetic resonance imaging of, 2.460f
origin of, 6.21t, 6.22
origins of, 2.18
superior rectus muscle attachment to, 6.29
Levator palpebrae muscle, 8.3, 8.4f
Levobunolol, 10.171, 10.176–177
in children, 10.165
description of, 2.389f, 2.390
Levocastine hydrochloride, 2.412, 2.412f
Levothyroxine, for hypothyroidism, 1.45
Levoversion, 6.37
Leukocyte, for hypothyroidism, 1.45
Levothyroxine, for hypothyroidism, 1.45
Levoversion, 6.37
Lewy body dementia (LBD), 1.210
LFU. See Lacrimal functional unit
LGB. See Lateral geniculate body/nucleus
LGN. See Lateral geniculate body/nucleus
Lhermitte sign, in multiple sclerosis, 5.317
LHON. See Leber hereditary optic neuropathy
simple epithelial (SLET), 8.365
for chemical injury, 8.384
for pterygium, 8.355
Limbal vernal keratoconjunctivitis, 6.248, 6.249f.
Limbal zone, corneal, 8.25, 8.25f.
Limbus, 8.10–11, 8.11f, 8.25, 8.25f. See also Limbal
alkali burns affecting, 8.379, 8.379f, 8.380f
anatomy of, 2.55–56, 2.56f
definition of, 2.49
marginal corneal infiltrates and, 8.310–311
blepharoconjunctivitis and, 8.74, 8.74f
squamous cell carcinoma of, 8.336, 8.336f
Limbus-based conjunctival flap, for trabeculectomy, 10.200, 10.202f
closure of, 10.204, 10.206f
in elderly patients, 10.221
Lime, ocular injury caused by, 8.376t
Limiting membranes
external (ELM), 4.140f, 4.141f
anatomy of, 12.15
histology of, 12.11, 12.12f
internal (ILM), 4.140f
amacrine cells in, 12.15
anatomy of, 12.15
epiretinal membranes, 12.332
hemorrhagic detachment of, 12.171
histology of, 12.11, 12.12f
nonproliferative sickle cell retinopathy findings, 12.150
peeling of, 12.209
in retinal healing/repair, 4.17
vitreous detachment and, 4.129
vitreous remnants on, 12.332
middle
anatomy of, 12.15
definition of, 12.16
histology of, 12.11, 12.12f
Lincoff rules, 12.320, 12.322f
Linear deposits, basal, in age-related macular degeneration, 4.160, 4.162
Linear IgA dermatosis, 8.301
Linear incisions, for keratorefractive surgery, 13.27
Linear magnification, 3.62. See also Transverse
magnification
Linear nevus sebaceous syndrome, 4.47, 4.48
Linearly polarized light, 3.95f, 3.98
LINEs. See Long interspersed elements
Lingua plicata, in Melkersson-Rosenthal syndrome, 5.280
Lingual nerve, 5.276–277f
Linkage disequilibrium, 2.175, 9.64
Lipid keratoathy, 8.125–126, 8.126f
corneal crystal deposition in, 8.182f
in herpes zoster, 8.125, 8.228, 8.228f
Lipid layer of tear film, 2.249–250, 2.250f, 8.5, 8.6f
interferometry in evaluation of, 8.40, 8.40f
Lipid-lowering therapy. See also specific agent
agents used in, 1.75f, 1.76–77
atherosclerotic lesions reduced with, 1.89
low-density-lipoprotein cholesterol reductions using, 1.74, 1.75f
statins for, 1.75f, 1.76–77
Lipid management, coronary heart disease risk modification using, 1.73f
Lipid peroxidation, 2.336–338
in lens opacification, 11.19
Lipid solubility, 2.357
Lipid strip, 2.249
Lipidoses, 6.388. See also Lipids, metabolism and storage of
Lipids
disorders of, xanthelasma associated with, 4.206
in Fleck corneal dystrophy, 8.153
metabolism and storage of, disorders of (lipidoses), 8.179–181, 8.180f
corneal changes in, 8.179–181, 8.180f
arcus and, 8.120, 8.121, 8.179
in Schnyder corneal dystrophy, 8.151, 8.179
mucolipidoses and, 8.178
as ocular hypotensive agents. See Prostaglandin (PG) analogues
in retinal pigment epithelium, 2.324
in tear film. See Lipid layer of tear film
Lipodermoids (dermolipomas), 7.41, 7.42f
description of, 4.47–48, 4.48f, 6.210, 6.256–257
Goldenhar syndrome and, 4.48
Lipofuscin, 2.98, 2.328, 6.340, 9.89
accumulation of, in cornea farinata, 8.122
fundus autofluorescence and, 5.89–90
in lysosomes, 12.31
in retinal pigment epithelium, 4.141, 12.32
Lipofuscin-like material/lipoprotein, in pre-Descemet corneal dystrophy, 8.155
Lipomas, of orbit, 4.238
Lipopolysaccharide (LPS)
animal models of, 9.8
bacterial, 8.244. See also Endotoxin
definition of, 1.72
drugs affecting metabolism of. See Lipid-lowering therapy
Liposarcomas, 7.91
of orbit, 4.238
Liposomes, for drug delivery, 2.366
Liposuction, neck, 7.274–275, 7.275f
Lipoxin, 9.20
5-Lipoxygenase
in arachidonic acid oxidation, 9.19
derivatives of, 9.20
Lisch epithelial corneal dystrophy (LECD), 8.135t, 8.136f, 8.140, 8.140f
Lissajous figures, 3.98
Lissamine green, 8.37, 8.38f
in tear film/dry eye evaluation, 8.37, 8.56
Listeria monocytogenes, invasive capability of, 8.207
Listing's plane, 6.31
Listing's law, 6.31
 Local anesthesia/anesthetics. See also Local administration, of drugs, 2.439–440, 2.441–442
t, 2.442
retrobulbar injection of, 1.304
peribulbar anesthesia, 2.442
peribulbar injection of, 1.304
for phakic IOL insertion, 13.141
for photoblation, 13.82
 regional anesthetics, 2.438f
retrobulbar anesthesia, 2.442
retrobulbar injection of, 1.290–291, 1.304
topical, 2.439f, 2.439–440, 2.441–442
toxic manifestations of, 2.439
 types of, 2.440–441
Localized (circumscribed) choroidal hemangioma, 4.197, 4.198f, 4.281, 4.282f
Lockwood ligament, 2.34f, 2.35, 6.28, 7.165
Locus vacuus, 11.3, 11.3f
Low-frequency ultrasound, 2.462
Low-molecular-weight heparin (LMWH). See also Heparin
coronary heart disease treated with, 1.91t
description of, 1.149
Low-order Zernike polynomials, 3.73, 3.73f
Low-Pressure Glaucoma Treatment Study (LoGTS), 10.88
Low-tension glaucoma, 1.66–67, 10.3, 10.4t, 10.85f, 10.85–88, 10.86t. See also Glaucoma, normal-tension
Low vision, 3.311–325. See also Blindness; Vision loss/impairment; Vision rehabilitation
assessment of, 5.77–97
adjuvant testing in, 5.88–97
Amsler grid testing in, 5.84
associated symptoms and, 5.78
color vision and, 5.78–79
confrontation testing in, 5.83–84
contrast sensitivity and, 5.88
electrophysiologic testing in, 5.95–97, 5.96f
fluorescein angiography in, 5.89, 5.89f
fundus examination in, 5.81–82, 5.82f
history in, 5.78–79
neuroimaging in, 5.71
nonorganic disorders and, 5.301–311, 5.302f, 5.303f, 5.304f, 5.305f, 5.307f, 5.308f, 5.309f
OCT in, 5.90–94, 5.91f, 5.92f, 5.93f, 5.93–94f
perimetry in, 5.84–88, 5.85f, 5.87f
photostress recovery testing in, 5.88
potential acuity meter testing in, 5.88–89
pupillary testing in, 5.79f, 5.79–81
refraction in, 5.78
time course and, 5.77–78
ultrasonography in, 5.95
visual acuity testing in, 5.78
visual evoked potential testing in, 5.95
visual field testing in, 5.83–88, 5.85f, 5.87f. See also Visual field testing
central visual field and, 5.85, 5.85f
bilateral/binocular, 5.77
nonorganic disorders and, 5.306–308, 5.307f, 5.308f, 5.309f
central visual field and, 5.85, 5.85f
chiasmal lesions causing, 5.146–152. See also specific disorder
in children, 3.327–328
classification of, 5.99–159. See also specific causative factor
communication with patients with, 3.326f, 3.326–327
definition of, 3.310
evaluation of
central visual field, 3.315, 3.317
Charles Bonnet syndrome, 3.312
contrast sensitivity, 3.314–315, 3.316f
elements of, 3.311–312
fixation, 3.313, 3.314f
glare assessments, 3.318
history-taking in, 3.312
ocular history, 3.312
ophthalmic evaluation versus, 3.311–312
peripheral visual field, 3.318
refraction, 3.314, 3.315f
visual function assessments, 3.313–318f, 3.313–318
visual task performance, 3.318–319
fundus autofluorescence in, 5.89–90, 5.90f
in infants, 3.327–328
information sources on, 6.189t
interventions for
electronic devices, 3.323, 3.324f
higher adds, 3.320
magnifiers, 3.320–322, 3.321f
nonoptical aids, 3.323
telescopes, 3.322f, 3.322r, 3.322–323
video magnifiers, 3.323, 3.324f
management of, 5.99–159. See also Low vision aids;
Vision rehabilitation; specific causative factor
nonorganic disorders causing, 5.299f, 5.299–312
afferent visual pathways and, 5.301–305, 5.302f, 5.303f, 5.304f, 5.305t
clinical profile of patient with, 5.300
examination techniques in, 5.301–311, 5.302f, 5.303f, 5.304f, 5.305t, 5.307f, 5.308f, 5.309f
eyelid position/function and, 5.310–311
malingering and, 5.299
management of, 5.311
ocular motility/alignment and, 5.309–310
organic disorders misdiagnosed as, 5.299, 5.299t
pupils/accommodation and, 5.310
optic neuropathy causing, 5.103–146. See also Optic neuropathy
overview of, 3.311
rehabilitation for, 6.188–189, 6.189f, 12.86, 12.260
retrochiasmal lesions causing, 5.152–158
therapies for, 12.86
unilateral/macular, 5.77
nonorganic disorders and, 5.302–305, 5.303f, 5.304f, 5.305t
Low vision aids. See also Vision rehabilitation
for cataract, 11.71
Lowe disease/syndrome (oculocerebrorenal syndrome)
congenital corneal keloids in, 8.107, 8.125
description of, 2.232t, 4.118, 6.391
Lower eyelids. See also Eyelid(s); specific disorders
anatomy of, 2.26, 7.160f
arterial arcade of, 7.171
blepharoplasty of
infraclival incision for, 7.262
laser skin resurfacing with, 7.268
midface rejuvenation with, 7.271–272, 7.272f
orbital fat redraping with, 7.272f
technique for, 7.261–262, 7.262f
transconjunctival incision for, 7.261, 7.262f
vision loss secondary to, 7.262
bicartilaginous entropion of, 7.237f
defects involving, reconstruction of, 7.222–225, 7.223–224f
development of, 2.163
treatment of, 7.234
epiblepharon of, 7.178f
hyaluronic acid filler application to, 7.270f
inferior rectus muscle attachment to, 6.30f
laceration of, 7.217f
milia of, 7.189, 7.189f
muscles of, 2.35
orbital septum, 7.163
punctum of, 2.42
retractors of
  anatomy of, 7.167, 7.167f
  surgical repair of, 7.232, 7.236f
sebaceous hyperplasia of, 7.191f
squamous cell carcinoma of, 7.206f
tightening surgery for, 7.231, 7.232f
transcutaneous incision of, 7.126f
xanthelasmas of, 7.190, 7.190f
Lower face rejuvenation, 7.272–273
Lower-order aberrations, 13.11, 13.11f
LOXL1 (lysyl oxidase–like) gene
description of, 2.183
in pseudoexfoliation/exfoliation syndrome, 4.102, 10.91f
LPS.
  See Lipopolysaccharide
LPS (levator palpebrae superioris).  See also Levator muscle
LR.
  See Lateral rectus (LR) muscle
LRAT.
  See Lecithin retinol acyltransferase
LRIs.
  See Limbal relaxing incisions
LRP5 gene, 12.345f
LSL.
  See Laser suture lysis
LTBP2.
  See Latent transforming growth factor beta-binding protein 2
LTBP2 gene, 6.277f
in glaucoma, 10.150f
LTK.
  See Laser thermokeratoplasty
LTP.
  See Laser trabeculoplasty
Lubricants.
  See also Artificial tears
for chemical injuries, 8.383
for conjunctivochalasis, 8.86f
for dellen, 8.79, 8.92
for graft-vs-host disease, 8.304f
for neurotrophic keratopathy/persistent corneal epithelial defects, 8.81, 8.224, 8.230f
for peripheral ulcerative keratitis, 8.312–313
for recurrent corneal erosions, 8.87f
for Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis), 8.297, 8.298f
for thermal injuries, 8.385f
Lucentis.
  See Ranibizumab
Luetic keratitis/interstitial keratitis, 4.80, 4.81f, 8.107, 8.308–309, 8.309f. See also Syphilis
LUM (lumican) gene
in cornea plana, 8.100
in posterior amorphous corneal dystrophy, 8.136f
Lumbar puncture, in aneurysm evaluation, 5.195, 5.340–341f
Lumbar peritoneal shunting, for idiopathic intracranial hypertension, 5.112, 5.113
Lumen (lm), 3.108
Lumican, 8.9
  mutation in gene for
  in cornea plana, 8.100
  in posterior amorphous corneal dystrophy, 8.136f
Lumigan. See Bimatoprost/timolol maleate
Luminance (L)
description of, 3.109, 3.109f
perimetry results affected by, 10.60
Luminous exitance, 3.108
Luminous flux, 3.108
Luminous intensity, 3.108
Lung cancer
cancer-associated retinopathy and, 5.102f
eye involvement and, 4.197, 4.198f, 4.304, 4.304f, 4.308–309, 4.309f
mortality rates for, 1.220f
paraneoplastic-induced saccadic intrusions and, 5.249
screening for, 1.216f, 1.220f
Lung diseases. See also Pulmonary diseases
asthma, 1.123–124, 1.128–130, 1.129f
evaluation of, 1.125–126
obstructive, 1.123–125
chronic obstructive pulmonary disease, 1.124, 1.128
  description of, 1.123
  irreversible, 1.124
  reversible, 1.123–124
pathologic processes, 1.123
perioperative management for ocular surgery in patients with, 1.284
restrictive, 1.125f
symptoms of, 1.124
Lupus choroidopathy, 9.154, 9.155f
Lupus erythematosus.
  See Systemic lupus erythematosus (SLE)
Lupus retinopathy, 9.154, 9.155f
Lupus vasculitis, 12.230–231, 12.231f
Lutein, 2.94
  age-related macular degeneration managed with, 12.70f
  cataract risk affected by, 11.7f
description of, 12.367f
Luxed/luxated lens, 11.40f
  See also Ectopia lentis
cataract surgery in patient with, 11.181–183, 11.182f, 11.183f
traumatic, 11.40, 11.54f, 11.54–55
Lye, ocular injury caused by, 8.376f
Lyme disease (LD)/Lyme borreliosis, 5.352–353, 5.353f, 8.249, 12.245–246
  antibiotics for, 9.230, 9.231f
clinical features of, 9.227–229, 9.228f
corticosteroids for, 9.230
  definition of, 9.227
diagnosis of, 9.230
epidemiology of, 9.227
  etiology of, 9.227
  mortality rates for, 1.220
erythema chronicum migrans associated with, 9.227–228, 9.228f
facial palsy and, 5.279–280
uveal, 4.199, 4.199f, 4.313–314, 12.234, 12.235f
of vitreous, 4.135f, 4.135–137, 4.136f
Lymphoproliferative disorders. See also Lymphoid hyperplasia; Lymphomas; specific type
biopsy of, 7.94
of choroid, 4.199, 4.199f, 4.313–314
clinical presentation of, 7.93, 7.93f
diagnosis of, 7.93
histiocytic disorders, 7.95–97, 7.96f
management of, 7.94–95
non-Hodgkin lymphoma. See Non–Hodgkin lymphoma
of orbit, 4.231–232, 4.233f
lymphoid hyperplasia/lymphomas, 4.231–232, 4.233f
plasma cell tumors, 7.95
salmon–patch subconjunctival lesion, 7.94f
uveal, 4.199, 4.199f, 4.313–314
xanthogranuloma, 7.97f
Lyonization, 2.180, 2.230–231, 2.231f
Lysosomal acid hydrolase, in mucolipidoses, 8.178f
Lysosomal metabolic diseases, 12.291–292, 12.292f
Lysosomal storage disorders, 8.174–179. See also Mucopolysaccharidoses
corneal changes in, 8.174–179, 8.175t, 8.176f, 8.177f
lysosomes
in eosinophils, 9.2
lipofuscin in, 12.31
in neutrophils, 9.2
outer segment digestion by, 12.17
Lysozyme, 7.34
serum levels of, in sarcoidosis, 5.327f
Lysyl oxidase–like (LOXL1) gene
description of, 2.183f
in pseudoexfoliation/exfoliation syndrome, 4.102, 10.11t, 10.91f
MacArthur Competence Assessment Tool for Treatment
MacCAT-T, 1.211
MacCAT-T. See MacArthur Competence Assessment Tool for Treatment
Mackay-Marg type tonometer/tonometry, 10.25
MACRA. See Medicare Access and CHIP Reauthorization Act
Macrogliovla, 2.317
Macroglobulinemia, Waldenström, crystalline corneal deposits in, 8.198, 8.199f
Macrolides. See also specific agent
for blepharitis, 6.245
description of, 1.274–275, 2.427
for Lyme disease, 9.231f
Macrophase(s), 4.7, 4.13
activation of, 9.13–16, 9.15f, 9.21
as antigen-presenting cells, 9.14
characteristics of, 9.3–4
epithelioid cell activation of, 9.4
functions of, 9.3
giant cell activation of, 9.4
interferon-gamma activation of, 9.42
major histocompatibility class II molecule expression by, 9.30
mediators synthesized by, 9.15
primed, 9.14, 9.15f
recruitment of, 9.13–16
reparative, 9.16
resting, 9.13, 9.15f
scavenging, 9.13
stimulated, 9.14–16, 9.15f
tuberculosis response by, 9.28
in wound healing/repair, 4.13
Macrophage–activating factor, 9.42
Macrophage chemotactic protein-1, 9.23f
Macrophage colony-stimulating factor, in mucous membrane pemphigoid, 8.299f
Macropsia, 5.175
migraine and, 5.177
Macrosaccadic oscillations, 5.248, 5.248f
in multiple sclerosis, 5.319f
Macrosquare-wave jerks, 5.248f
Macrostriae, in LASIK flaps, 13.113, 13.114t, 13.115f. See also Striae
Macugen. See Pegaptanib
Macula acoustica, 5.38, 5.39f
Macula/macula lutea, 2.93, 4.140, 4.141f. See also specific Macular entries
adaptive optics scanning laser ophthalmoscope of, 12.13f
age-related changes in. See Age-related macular degeneration/maculopathy
aminoglycoside effects on, 12.300
anatomy of, 2.83, 2.93–94, 12.9
antioxidant localization in, 2.344f
atrophy of
in cone dystrophies, 5.102
description of, 12.265, 12.265f
B-scan ultrasonography of, 2.469f
carcinoid syndrome of, 12.10f
detachment of. See Macular detachment
diseases of, 5.99–103, 5.100t. See also Retinopathy; specific type
fingolimod and, 5.320, 5.322f
illusions and, 5.174–175
transient visual loss and, 5.164
evaluation of function of. See Macular function tests
fibers of, 2.111
fovea of. See Fovea
in glaucoma, imaging in evaluation of, 10.54
Macular choroiditis, 9.274
Macula-sparing homonymous hemianopia, 5.157
Macular dystrophies
See also Macular degeneration.
Macular cube optical coherence tomography (OCT),
See Macular dystrophies.
Macular colobomas, 12.266
Macular edema, 4.140, 4.152–153, 4.153–154
Macular dystrophies, 4.168–169, 4.168–170, 4.171
Macular dragging, in retinopathy of prematurity, 6.334, 6.334
Macular degeneration. See also Macular dystrophies
age-related. See Age-related macular degeneration/
macularopathy
cataract surgery in patient with, 11.80
disciform, 2.471f
exudative, 12.68
fall risks associated with, 1.191
genes and loci associated with, 12.256f
juvenile (Stargardt disease/fundus flavimaculatus),
4.168–169f, 170
ATP-binding cassette (ABC) transporter protein
mutation causing, 4.168–169
retinal pigment epithelium in, 4.168–169f, 4.169–170
pinhole vision in patients with, 3.24
ultrasonographic findings in, 2.470f
vitelliform. See Macular dystrophies, vitelliform
Macular detachment
optic nerve pit with, 12.329f
optic pits and, 5.145
vitelliform exudative, 12.272, 12.274–275f
Macular dragging, in retinopathy of prematurity, 6.334, 6.334f
See also specific type
adult-onset vitelliform lesions, 12.272, 12.273f
atypical, 12.277
Best disease, 6.340–342, 6.342f, 12.51, 12.271, 12.272f
coneval (MCD), 4.91, 4.91t, 4.92f, 8.135f, 8.136t,
8.145t, 8.149–151, 8.150f
electroretinography findings in, 12.46, 12.47f
hereditary. See specific type
North Carolina, 12.277, 12.278f
occult, 12.277
pattern, 4.170, 4.171f, 12.276f, 12.276–277
Sorsby, 12.275f, 12.275–276
vitelliform, adult-onset, 4.170, 4.171f
Macular edema, 4.140, 4.152–153, 4.153–154f
after cataract surgery, 6.304–305
cystoid (CME). See also Cystoid macular edema
angiographic, after cataract surgery, 11.163–164,
11.164f
birdshot uveitis in, 12.224
after cataract surgery as cause of, 12.157, 12.159, 12.260
central retinal vein occlusion as cause of, 12.136f
characteristics of, 12.156–157
corticosteroids for, 12.159, 12.393
after cataract surgery, 11.165
in cytomegalovirus retinitis, 12.235
differential diagnosis of, 12.157
drugs that cause, 12.301
edema sources in, 12.156–157
etiologies of, 12.157
fingolimod as cause of, 12.302
fluorescein angiography of, 12.36f,
12.157
incidence of, 12.157, 12.159
in Irvine-Gass syndrome, 12.157
nicotinic acid as cause of, 12.301
optical coherence tomography of, 12.132f, 12.157,
12.158f
petaloid, 12.157
postoperative, cataract surgery and, 11.163–165,
11.164f, 11.187
in glaucoma, 11.164, 11.187
after Nd:YAG laser capsulotomy, 11.157
vitreous prolapse and, 11.143–144
predisposing factors for, 12.157, 12.159
pseudophakic
definition of, 12.157
imaging of, 12.394f
optical coherence tomography of, 12.158f
pars plana vitrectomy for, 12.394f
in retinal dystrophies, 12.260, 12.260f
retinal vein occlusion as cause of, 12.135. See also
Retinal vein occlusion (RVO)
retinitis pigmentosa and, 12.260
spontaneous resolution of, 12.159
subretinal diseases that cause, 12.157
taxanes as cause of, 12.301
treatment of, 12.159
vision loss caused by, 12.225
vitrectomy for, 12.159, 12.393, 12.394f
diabetic (DME)
cataract surgery and, 11.80, 11.189, 12.116
center-involved, 12.92, 12.109, 12.110f
classification of, 12.109–110, 12.110f
clinically significant, 12.92, 12.110, 12.114
contrast sensitivity issues in, 12.56
definition of, 12.92
focal, 12.110
mechanism of, 12.108, 12.109f
non–center-involved, 12.109, 12.111f
optical coherence tomography of, 12.111f
spectral-domain optical coherence tomography of,
12.109f, 12.125
treatment of
afibercept, 12.113
anti-VEGF therapy, 12.101, 12.110, 12.111–113
bevacizumab, 12.113
corticosteroids, 12.113–114
Diabetic Retinopathy Clinical Research Network
findings, 12.112f, 12.113
intravitreal steroids, 12.101
laser surgery, 12.114–115, 12.376
overview of, 12.110–111
pars plana vitrectomy, 12.115
ranibizumab, 12.111–112, 12.112f
surgery, 12.114–115, 12.388
vitrectomy, 12.388
vision loss caused by, 12.94
diffuse, 12.110, 12.111f

drugs that cause, 12.301–302, 12.302f

Early Treatment Diabetic Retinopathy Study findings for, 12.99–100

focal, 12.110, 12.111f

in gyrate atrophy, 12.268

in intermediate uveitis, 9.70

nonsteroidal anti-inflammatory drugs for, 9.113

panretinal photocoagulation effects on, 12.106, 12.379

in pars planitis, 9.147

in tubulointerstitial nephritis and uveitis syndrome, 9.134

uveitic

description of, 9.19

fluorescein angiography of, 9.88, 9.89f

optical coherence tomography of, 9.85, 9.88f

in phacoemulsification, 9.316

postoperative, 9.316

smoking as risk factor for, 9.321

treatment of, 9.322

Macular epiretinal membranes. See Epiretinal membranes

Macular exudates, 12.124f

Macular function tests

before cataract surgery, 11.82

retinal disease and, 11.189

before multifocal IOL implantation, 13.155, 13.166–167

Macular granuloma, 6.317f

Macular halo, 12.292f

Macular holes, 2.300, 4.131–132, 4.132f, 9.323

formation of, 12.339, 12.340f

idiopathic

description of, 12.337–339, 12.338f

vitrectomy for, 12.384–385, 12.385f

International Vitreomacular Traction Study Classification System for, 12.336f

lamellar, 12.28f

management of, 12.339–340

optical coherence tomography of, 12.27f

in pathologic myopia, 12.209

posttraumatic, 12.355–357, 12.356f

rhegmatogenous retinal detachment caused by, 12.330, 12.330f

spontaneous resolution of, 12.340

stage 0, 12.339

stage 1, 12.339–340

stage 2, 12.339

stage 3, 12.339

stage 4, 12.339

surgical management of, 12.339–340

Macular laser surgery. See Photocoagulation

Macular line scans, 5.92, 5.93f

Macular microperimetry, 3.310, 3.317, 3.317f

Macular neuroretinopathy, acute (AMN)
	fundus autofluorescence in identification of, 5.90

OCT in identification of, 5.92, 5.93f

Macular pits, 12.356

Macular pucker, 2.300

Macular star

in neuroretinitis, 5.118, 5.118f, 5.119

in toxoplasmic optic neuritis, 5.352

Macular telangiectasia

early, 12.277

type 1, 12.161

type 2, 12.161–164, 12.162–164f

type 3, 12.164–165

volume rendering of, 12.31

Macular translocation surgery, 12.85

Macule

of eyelid, 8.45f

hypopigmented (ash-leaf spot), in tuberous sclerosis, 5.331f, 5.334f, 10.30

Maculopathies, 5.99–103, 5.100t. See also Retinopathy; specific type

acute exudative polymorphous vitelliform, 12.287

acute idiopathic (AIM), 12.228–229

adult-onset vitelliform

fluorescein angiography of, 12.68

spectral-domain optical coherence tomography of, 12.67–68, 12.68f

age-related. See Age-related macular degeneration/maculopathy

bull’s-eye

chloroquine toxicity as cause of, 12.295, 12.296f

clofazimine as cause of, 12.298

in cone dystrophies, 5.102

in neuronal ceroid lipofuscinoses, 12.289

in cellophane, 12.335

color vision testing in, 5.78–79, 5.99

hypotony, 10.210, 12.201

antifibrotic use and, 10.205

optic neuropathy differentiated from, 5.78–79, 5.99–100, 5.100t

optic pit, 12.328–329, 12.329f

paracentral acute middle (PAMM), 12.143

MAD. See Minimum deviation position

"Mad cow" disease (bovine spongiform encephalopathy), 5.357

Madarosis, 7.187, 7.202, 7.202f

in staphylococcal blepharitis, 8.74

Maddox rod/Maddox rod test, 3.75, 3.75f, 5.184, 5.184f

double, 5.184–185, 5.185f, 6.69, 6.69f, 6.120

in fourth nerve (trochlear) palsy, 5.198

in fourth nerve (trochlear) palsy, 5.198

in myasthenia gravis, 5.325

ocular alignment assessments using, 6.68–69, 6.69f

Magnesium hydroxide (Mg(OH)2), ocular injury caused by, 8.376f

Magnetic resonance angiography (MRA), 2.455f, 2.458, 5.58, 5.68–69, 5.69f, 5.72f

advantages/disadvantages of/contraindications for, 5.61f

in aneurysm detection/evaluation, 5.194, 5.340, 5.341f

in carotid artery evaluation, 5.167, 5.167f

carotid stenosis diagnosis using, 1.116

description of, 7.32, 7.79

in reversible cerebral vasoconstriction syndrome, 5.347

stroke evaluations, 1.112–113

in vertebrobasilar insufficiency, 5.338
Magnetic resonance imaging (MRI), 5.58–59f, 5.60–67, 5.61f, 5.62f, 5.63f, 5.63tf, 5.64f, 5.65f, 5.65rf, 5.66f, 5.67f, 5.72f
advantages/disadvantages of/contraindications for, 5.61f
in aneurysm detection/evaluation, 5.194–195, 5.340, 5.341f
in arterial dissections, 5.342
in arteriovenous malformations, 5.292
in aneurysm detection/evaluation, 5.194–195, 5.340, 5.341f
in cerebral ischemia detection/evaluation, 5.167, 5.167f
carotid-cavernous fistulas on, 7.78f
in carotid artery evaluation, 5.167, 5.167f, 5.343–344, 5.344f, 7.77f
carotid-cavernous fistulas on, 7.78f
in cerebral ischemia detection/evaluation, 5.167, 5.168
in choroidal melanoma/ciliary body melanoma, 4.267
computed tomography versus, 2.455f, 2.457, 7.29t, 2.460
concerns regarding, 2.458, 2.460
contraindications for, 7.30
in coronary heart disease diagnosis, 1.88
description of, 2.453
diffusion-weighted, 2.458, 2.461f
disadvantages of, 2.458
echo time, 2.457
epilepsy diagnosis using, 1.207
Erdheim-Chester disease on, 7.98f
ethmoid sinus squamous cell carcinoma on, 7.103f
fibrous dysplasia on, 7.89
functional (MRI), 5.70, 5.75
gadolinium-enhanced T1-weighted, 7.28f
gray matter on, 2.458, 2.459f, 2.460f
in idiopathic intracranial hypertension, 5.111
indications for, 2.457, 2.473–476f, 7.300
infantile hemangiomas on, 7.72
in infiltrative optic neuropathy, 5.132
intraocular foreign body evaluations, 12.353
Langerhans cell histiocytosis on, 7.96f
metallic foreign bodies and, 2.458
metastatic breast carcinoma on, 7.106f
metastatic neuroblastoma on, 7.105f
microphthalmia with orbital cysts on, 7.37f
in multiple sclerosis, 5.65, 5.114f, 5.316f, 5.319f
in NAION, 5.123, 5.123f
ocular anatomy on, 2.459t, 2.460f
in optic atrophy, 5.146
optic nerve glioma on, 7.80–81, 7.81f
optic nerve on, 6.363f
optic nerve sheath meningioma on, 7.85f
in optic neuritis/neuromyelitis optica, 5.66f, 5.115, 5.116f, 5.123t, 5.322–323
orbital cellulitis on, 7.47f
orbital disorders on, 7.27–31, 7.28f, 7.29t, 7.30f
in orbital evaluation, 5.58–59f, 5.60–67, 5.61f, 5.62f, 5.63f, 5.63tf, 5.64f, 5.65f, 5.65rf, 5.66f, 5.67f, 5.72f
perfusion-weighted imaging, 1.113
pituitary tumor evaluations using, 1.48
primary vitreoretinal lymphoma evaluations, 12.234
principles of, 2.457, 7.27–28
in progressive multifocal leukoencephalopathy, 5.351, 5.351f
repetition time, 2.457
in retinoblastoma, 4.293
in reversible cerebral vasoconstriction syndrome, 5.347f
rhabdomyosarcoma on, 7.87, 7.87f
in sarcoidosis, 5.327
solitary fibrous tumor on, 7.89, 7.90f
sphenoid wing meningioma on, 7.84f
stroke evaluations, 1.112–113
Sturge-Weber syndrome findings, 6.402f
T1-weighted, 2.457, 2.460f, 5.58f, 5.62f, 5.63f, 7.28f, 7.30f
T2-weighted, 2.457–458, 2.460f, 5.58f, 5.62f, 5.63f, 5.63ff, 7.30f
zygomycosis on, 7.51f
Magnetic resonance spectroscopy (MRS), 5.70
Magnetic resonance venography (MRV), 5.58, 5.69, 5.69f, 5.72t, 5.75
advantages/disadvantages of/contraindications for, 5.61f
in cerebral venous thrombosis, 5.69, 5.69f, 5.346
description of, 2.455f
in idiopathic intracranial hypertension, 5.111
Magnification
angular, 3.84
axial (longitudinal), 3.39, 3.63–64
devices for, 3.319–320
in indirect ophthalmoscope/ophtalmoscopy, 12.21
meridional (meridional aniseikonia). See Aniseikonia; Distortion
trade, 3.321–322
transverse, 3.42, 3.62, 3.300
video magnifiers for, 3.323, 3.324f
Magnifiers, 3.320–322, 3.321f. See also Vision rehabilitation
Magnocellular neurons (M cells/system), 5.28, 5.32, 10.42
smooth-pursuit system and, 5.224
Magnocellular nevus. See Melanocytoma
MAHA. See Microangiopathic hemolytic anemia
MAI (Mycobacterium avium-intracellulare complex) infections, neuro-ophthalmic signs of, 5.350
main sensory nucleus, 2.129–130
of cranial nerve V (trigeminal), 5.47, 5.47f
Main sequence, 5.219
Maintained fixation, 6.6
Major amblyoscope, 6.70, 6.70f
Major arterial circle, 2.24
Major histocompatibility class II molecules
Major histocompatibility class I molecules
CD8+ T cells and, 9.30
definition of, 9.63
Major histocompatibility class II molecules
Definition of, 9.30
definition of, 9.63
expression of, 9.4
Langerhans cell expression of, 9.30
retinal pigment epithelium expression of, 9.57
Major histocompatibility complex (MHC). See Human leukocyte antigens
Major intrinsic protein (MIP/aquaporin), 2.283, 2.285
Main sensory nucleus, 2.129–130
Main sequence, 5.219
Maintained fixation, 6.6
Major amblyoscope, 6.70, 6.70f
Major arterial circle, 2.24f, 2.72, 5.15
Major depressive disorder, 1.189, 1.195, 1.202. See also Depression
Malabsorption, folate deficiency caused by, 1.134

MALABSORPTION, FOLATE DEFICIENCY CAUSED BY
Maxwell, James Clerk
electromagnetism theory by, 3.94

equations created by, 3.94, 3.96
Maze procedure, 1.103
Mazzocco foldable intraocular lens, 11.120, 11.120f
MCA. See Middle cerebral artery
McCanlent sutures/technique
for IOL decentration, 11.145
for iris laceration/iridodialysis repair, 8.406, 8.408f
McCary-Kaufman (MK) medium, for donor corneas, 8.414
MCD. See Macular dystrophies, corneal
McDonald criteria, for multiple sclerosis, 5.319
MCIs. See Mass casualty incidents
MCL. See Multifocal choroiditis and panuveitis syndrome
MCP-1. See Macrophage chemotactic protein-1
MCV. See Mean corpuscular volume
MD index. See Mean Deviation (MD) index
MDRTB. See Multidrug-resistant tuberculosis
M. See Multifocal choroiditis and panuveitis syndrome
Mean curvature/mean curvature map, 8.28, 8.30f.
Mean Deviation (MD) index, 10.65.
Mean corpuscular volume (MCV), 1.132
equations created by, 3.94, 3.96
electromagnetism theory by, 3.94
for iris laceration/iridodialysis repair, 8.406, 8.408f
for IOL decentration, 11.145
for rostral interstitial nucleus of (riMLF), 5.33, 5.35, 6.144
dissociated nystagmus caused by lesions of, 5.247
diplopia caused by disruption of, 5.189–191, 5.190f
horizontal gaze and, 5.37, 5.38
rostral interstitial nucleus of (riMLF), 5.33, 5.35, 5.35f, 5.220
saccadic eye movements and, 5.220
vertical gaze and, 5.36, 5.36f
vertical gaze and, 5.36, 5.36f
Medial margin, of orbit, 2.8
Medial orbital fractures, 7.112–114
Medial orbital wall, 2.8, 2.9f, 5.7, 5.9f
Medial orbitotomy. See also Orbitotomy
description of, 7.113, 7.127
transcaruncular incision for, 7.128–129f
transconjunctival incisions for, 7.128
transcutaneous incisions for, 7.128
Medial palpebral artery, 2.23f
Medial rectus (MR) muscle, 5.8f, 5.45–46, 5.46f,
7.12–13f
action of, 6.31, 6.34f, 6.35f
adduction of, 6.35f
anatomy of, 2.17f, 2.107f, 5.8f, 5.45, 5.46, 5.46f
botulinum toxin injection of, 6.97
characteristics of, 2.19f, 6.21f
computed tomography of, 2.456f
in convergence-retraction nystagmus, 5.250
placement of, for A-pattern strabismus, 6.110, 6.111f
excision of, 6.146
field of action, 6.33
horizontal gaze and, 5.37f, 5.38
inadvertent excision of, 6.146
innervation of, 5.38, 5.44, 5.44f
computed tomography of, 2.456f
laceration of, 6.146
magnetic resonance imaging of, 2.460f
origin of, 6.20, 6.21f
recession/resection of
for convergence insufficiency, 6.103
for Duane retraction syndrome, 6.133
for esotropia from nystagmus blockage syndrome, 6.155
for infantile esotropia, 6.89
for internuclear ophthalmoplegia, 6.144
for Möbius syndrome, 6.136
restriction of, 6.97
slipped, 6.169, 6.169f
surgery considerations for, 6.29
Medial rectus tendon, 6.19f
Medial spindle procedure, 7.231, 7.232f
Medial superior temporal (MST) area, 5.32f
Medial temporal (MT) area, 5.30f, 5.32f, 5.33, 5.34f,
5.224
Medial temporal (MT) area, 5.30f, 5.32f, 5.33, 5.34f,
5.224
Median perforators, of basilar artery, 5.224
Mediators. See also Specific type
hay fever conjunctivitis and, 8.288
reactive nitrogen products, 9.16
reactive oxygen intermediates, 9.16
Medical emergencies
anaphylaxis, 1.302–303
cardiopulmonary arrest, 1.296–299, 1.297f
shock. See Shock
status epilepticus, 1.303–304
syncope, 1.299
Medical history. See also History
cataract surgery evaluation and, 11.72, 11.170–171
glaucoma evaluation and, 10.29
refractive surgery evaluation and, 13.36f, 13.37
Medical therapy, 2.370–371
Medicare, 3.325
Medicare Access and CHIP Reauthorization Act (MACRA), 1.32
Medication adherence, 2.373
Medication compliance, 2.373
Medications. See Drugs: specific medication
Medium. See Optical (ocular) medium/media
Medium-sized–vessel vasculitis, 1.169f, 1.170–171
Medium–width vessel-sensitive conical. See M cones
Medroxyprogesterone, for chemical injuries, 8.383
Meiosis, 2.174–175, 2.215f, 2.216f
nondisjunction during. See Nondisjunction
MEK inhibitors, 12.299, 12.299f
Melan-A (MART-1), in immunohistochemistry, 4.34
melanoma diagnosis and, 4.67f, 4.68
Melanin, 12.32–33, 12.367, 12.373, 12.374f
corneal deposits of/pigmentation caused by, 8.118t, 8.128
magnetic resonance imaging of, 2.457
in retinal pigment epithelium, 2.331
albinism and, 4.142
hypertrophy and, 4.144, 4.145f
Melanin-like pigment, corneal deposits of/pigmentation caused by, 8.118t, 8.131f, 8.131–132
Melanocytes
description of, 2.78, 2.161, 2.393, 7.195
tumors arising from, 8.338f, 8.338–345, 8.339f. See also Melanocytic tumors; Pigmented (melanocytic) lesions
Melanocytic nevus
of anterior chamber/trabecular meshwork, 4.106
genital, 4.218, 4.218f
conjunctival, 4.61–64, 4.64f, 4.65f
malignant transformation of, 4.64, 4.68
of eyelid, 4.218f, 4.218–220, 4.219f
glaucoma and, 4.106
malignant transformation/melanoma risk and, 4.64, 4.68, 4.218, 4.263, 4.267–268
Melanocytic tumors, 4.255–280, 6.392, 6.395f. See also Nevus; specific type
of anterior chamber/trabecular meshwork, 4.106, 4.106f
benign
blue nevi, 7.198
dermal melanocytosis, 7.198, 7.198f
ephelis, 7.197
lentigo simplex, 7.197
nevi, 7.195–197, 7.196–197f
solar lentigo, 7.197–198, 7.198f, 7.200
sources of, 7.194–195
classification of, 7.195t
conjunctival/ocular surface, 4.61–69, 4.63t, 4.64f, 4.65f, 4.66f, 4.67f, 4.68f, 4.69f, 8.338t, 8.338–345
benign, 8.338t, 8.338–341, 8.339f, 8.339t, 8.340f, 8.341f
malignant, 8.338t, 8.339t, 8.343–345, 8.344f
preinvasive, 8.338t, 8.339t, 8.342f, 8.342–343
of eyelid
benign, 4.218f, 4.218–220, 4.219f, 4.221f
malignant (melanoma), 4.220, 4.221f
melanoma risk and, 4.262, 4.268
of ocular surface, 4.61–69, 4.63t, 4.64f, 4.65f, 4.66f, 4.67f, 4.68f, 4.69f
premalignant, 7.200
Melanocytoma
glaucoma and, 4.106, 4.258, 10.99, 10.99f
of iris/ciliary body/choroid, 4.192, 4.258, 4.268
melanoma differentiated from, 4.268
ocular surface, 8.338f
of optic nerve/nerve head/disc, 4.248, 4.248f, 4.257f, 4.258, 4.268, 6.367, 6.367f
Melanocytosis
dermal/dermal orbital/oculodermal (nevus of Ota), 4.63t, 4.64, 8.339
Melanoma

Melanoma associated with, 10.30
of iris, 4.259
ocular (melanosisis oculi), 4.63f, 4.64, 4.65f, 6.250–251, 6.251f, 8.338, 8.338–340, 8.339f, 8.339f
treatment of, 4.221f, 7.208–211, 7.209f
glaucoma and, 4.105f, 4.106, 4.194, 10.99, 10.99f, 10.138
enucleation for, 4.196, 4.274–275
exeneteration for, 4.277, 8.344
eyelid, 4.220, 4.221f, 7.208–211, 7.209f
melanoma and, 4.105f, 4.106, 4.194, 10.99, 10.99f, 10.138
immunotherapy for, 4.277
of iris, 4.106, 4.190, 4.191f, 4.258–261, 4.259f, 4.260f, 4.261f
melanoma-ocular extension of, 4.310
melanomatous glaucoma caused by, 4.106, 4.194
leptinoma maligna, 4.220, 4.221f, 7.209, 7.209f
nevi and, 4.64, 4.68, 4.218, 4.262, 4.263, 4.267–268
nodular, 4.220, 4.221f, 7.209–210
oncotic virus treatment for, 1.242
retinoblastoma and, 4.302, 4.302f
retinopathy and, 5.102–103
HERG in identification of, 5.96, 5.102–103
ring, 4.193, 4.194f, 4.262, 4.263f
screening for, 1.220–221
superficial spreading, 4.220, 4.221f
treatment of, 7.210–211
uveol, 4.106, 4.106f, 4.192–196f, 4.192–197, 4.253, 4.262–279, 7.136, 9.308. See also Melanoma, choroidal/ciliary body
Melanoma-associated retinopathy (MAR), 5.102–103, 9.192–193, 12.286
HERG in identification of, 5.96, 5.102–103
Melanomalytic glaucoma, 4.105f, 4.106, 4.194, 10.99, 10.99f
Melanosin, in intrinsically photosensitive retinal ganglion cells, 5.24
Melanosis, 8.338
acquired
primary (PAM), 8.327, 8.338f, 8.339f, 8.342f, 8.342–343
melanoma and, 8.327, 8.342, 8.343
secondary, 8.342
complexion-associated (CAM/racial melanosis/
primary conjunctival/hypermelanosis), 4.63f, 4.65, 4.66, 4.66f, 8.338, 8.339, 8.341, 8.341f
conjunctival, 4.65–68, 4.66f, 4.67f
ocular (ocular melanocytosis/melanosis oculi), 4.63f, 4.64, 4.65f, 6.250–251, 8.338f, 8.338–340, 8.339f, 8.339f
choroidal nevus resembling, 4.257, 4.275f
of iris, 4.259, 4.260f
primary acquired (PAM), 4.63f, 4.65, 4.66–68, 4.67f
secondary acquired, 4.65–66
Melanoses, 2.98, 2.393
MELAS (mitochondrial myopathy and
encephalomyopathy, lactic acidosis, and stroke-like
episodes), 5.294–295
migraine-like headache and, 5.294–295
Melasma, 7.195
Melkerson-Rosenthal syndrome, 5.280
Melles technique, 8.434
Meloxicam, 2.409f
Melphalan, 6.357
for retinoblastoma, 4.300
Memantine, 1.210
for nystagmus, 5.236, 5.245, 5.246
Membrane(s). See also specific type
Bowman, 4.73, 4.74f. See also Bowman layer/membrane
Bruch. See Bruch membrane
conjunctival, 8.46f, 8.47f
in epidemic keratoconjunctivitis, 8.234, 8.234f, 8.235
in gonococcal conjunctivitis, 8.245
in ligneous conjunctivitis, 8.294
Descemet, 4.73, 4.74f. See also Descemet membrane/layer
limiting
external (ELM/XLM), 4.140f, 4.141f
internal (ILM), 4.140f
in retinal healing/repair, 4.17vitreous detachment and, 4.129
neovascular. See also Choroidal neovascularization;
Neovascularization
in age-related macular degeneration, 4.165f, 4.165–166
retrocorneal fibrous (RCFM/posterior collagenous layer), 4.84, 4.85f
Membrane proteins, in lens, 2.285
Membrane-spanning mucins, 2.253
Membrane-structural (urea-insoluble) lens proteins, 11.15f, 11.16–17
Membrane-type frizzled protein (MFRP) gene
in glaucoma, 10.11f
in nanophthalmos, 10.11f
Membranous cataract, 11.39f
Membranous conjunctivitis, 6.251
Memory cells, 9.37
MEMS. See Microelectromechanical systems
MEN. See Multiple endocrine neoplasia
Mendel, Gregor, 2.202
Mendelian diseases, 2.218
Mendelian Inheritance in Man, Online (OMIM), for corneal dystrophies, 8.191–192f
Ménétre disease, 5.242
Meningeal artery
middle (MMA), 5.12, 5.14f, 5.15f
recurrent, 5.14, 5.14f, 5.15f
Meningeal nerve, middle, 5.49
Meningeal sheaths, 2.114f, 2.114–115
Meninges
neuroimaging in evaluation of, 5.72f
optic nerve, 4.241, 4.242f
Meningiomas, 2.105
cerebellopontine angle
Bruns nystagmus and, 5.243
seventh nerve (facial) palsies and, 5.279
intracranial, 5.127f, 5.127–129, 5.128f
MRI of, 5.65f, 5.66f, 5.127f
optic nerve sheath (ONSM), 4.250, 4.250f, 5.65f, 5.66f, 5.126, 5.127–128f, 5.127–129
orbital, 4.250, 5.127, 6.223
transient visual loss and, 5.164
parasellar, 5.147, 5.150
Meningitis
cryptococcal, 1.277, 5.356
facial palsies and, 5.279
headache and, 5.288
in HIV infection/AIDS, 5.348
meningococcal, 1.250
tuberculous, 5.350
neuro-ophthalmic signs of, 5.350
Meningocele, 6.225, 7.38
Meningococcus (Neisseria meningitidis), 8.207, 8.245
conjunctivitis caused by, 8.257f
invasive capability of, 8.207
meningitis caused by, 1.250
vaccinations for, 1.231
Meningoencephalitis, in HIV infection/AIDS, 5.348
Meningoencephalocele, 7.39
Meningohypophyseal trunk, 5.12–14
Meningeal sheaths, 2.114f, 2.114–115
Meninges
neuroimaging in evaluation of, 5.72f
optic nerve, 4.241, 4.242f
Mesenchymal tumors
chondrosarcoma, 7.91
of eyelid and conjunctiva, 8.345f, 8.345–348
fibrosarcoma, 7.91
fibrous dysplasia, 7.89, 7.90f
fibrous histiocytoma, 7.89
liposarcoma, 7.91
malignant, 7.91
miscellaneous, 7.89–91, 7.90–91f
osteomas, 7.89, 7.91, 7.91f
osteosarcoma, 7.91
rhabdomyosarcoma, 7.87f, 7.87–89
solitary fibrous tumor, 7.89, 7.90f
Metaderm
derivatives of, 2.149t
description of, 2.143, 2.145f
in embryologic development, 2.150
description of, 2.143, 2.145f
yellow artery arising from, 2.158
in embryologic development, 2.143, 2.145f
derivatives of, 2.149, 2.149f
Metabolism, 1.4
See also Metabolic disorders.
Metabolic acidosis, 2.392
Amino acid/nucleic acid/protein/mineral metabolism and, 8.181–190
lipoprotein metabolism and, 8.179–181, 8.180f
treatment of, 9.107
Metabolism and, 8.181
optic neuropathy caused by, 5.137
prognosis for, 4.309–310
Metabolic acidosis, 1.4
primary sites and, 4.303, 4.304f
prognosis for, 4.309–310
treatment of, 4.310
of choroid, 4.197, 4.198f, 4.303, 4.304t, 4.306f, 4.307f, 4.308f, 4.308t
melanoma differentiated from, 4.270f, 4.271, 4.306
of conjunctival/orcular surface, 8.350
of iris, 4.260, 4.260f, 4.303, 4.304, 4.305f
of optic nerve/nerve head/disc, 4.303, 4.307–308
of orbit, 4.228, 4.240
in adults, 7.105–107
from breast carcinoma, 7.106, 7.106f
from bronchogenic carcinoma, 7.106
in children, 7.104–105
leukemia, 7.104
management of, 7.107
neuroblastoma, 6.415f
in children, 7.227, 7.104, 7.105f
description of, 6.414
for uveitis, 6.322
for scleritis, 8.324
rheumatoid disease treated with, 1.168
for primary vitreoretinal lymphoma, 12.234
for polymyalgia rheumatica, 1.168
for dermatomyositis treated with, 1.168
description of, 1.178
dosing of, 1.178
for intraocular (primary central nervous system) lymphoma, 4.312
for polymyalgia rheumatica, 1.168
for polymyositis, 1.168
for primary vitreoretinal lymphoma, 12.234
rheumatoid disease treated with, 1.153
for scleritis, 8.324
for uveitis, 6.322
adverse effects of, 9.107
dosing of, 9.107
treatment studies involving, 9.100f
Methicillin-resistant *Staphylococcus aureus* (MRSA), 1.246, 2.359, 2.426, 6.213, 6.240, 8.244, 8.271
dacryoadenitis caused by, 7.313
keratitis caused by, after photoblation, 13.106
orbital cellulitis caused by, 7.48
preseptal cellulitis caused by, 7.45
Methicillin sodium, 2.418f
Methimazole (MZM), 2.391
Methanol
as tissue fixative, 4.26t
toxicity of, 12.301
optic neuropathy caused by, 5.137
Methazolamide (MZM), 2.391
Methionine, in homocystinuria, 11.41
Metformin, 1.38
Methotrexate (MTX), 2.404
Methylation, 4.307
Metastatic melanoma, 9.309
Metastatic eye disease, 4.197, 4.303–310, 9.309.
See also specific type and structure affected
carcinoma, 4.303–310
clinical features of, 4.304–306, 4.305f, 4.306f, 4.307f, 4.308f, 4.308t
diagnostic factors in, 4.308–309
direct intraocular extension and, 4.310
Methoxyflurane, 12.303
Methylazione, 2.180
Methylcellulose
hydroxypropyl (HPMC), as viscoelastic, 11.95
Methydopa, 1.63
Methylenetetrahydrofolate reductase gene, 1.148
Methylmalonic acid, 1.133
Methyprindolone, 2.399
acute allergic reaction treated with, 1.302
for corneal graft rejection, 8.430
for giant cell arteritis/AAION, 5.121, 5.314
for neuromyelitis optica, 5.323
for optic neuritis, 5.116
potency of, 1.175
for scleritis, 9.126–127
for uveitis, 9.95, 9.96f, 9.102–103
Metipranolol, 2.389
Methylprednisolone, 2.399
Methylmalonic acid, 1.133
Methylenetetrahydrofolate reductase gene, 1.148
Methyldopa, 1.63
Methylcellulose
Methylation, 2.180
Methoxyflurane, 12.303
Mg(OH)2. See MGDA.
Microangiopathic hemolytic anemia (MAHA), 1.142
Candida
fungal postoperative endophthalmitis, 4.44–45
Microarray
clinical use of, 4.41–42
SNP oligonucleotide (SOMA), 4.39t
tissue (TMAs), 4.40, 4.41f
Microautophagy, 2.283
Microbial keratitis. See Infectious/microbial keratitis
Microbiology, 1.245–246, 8.207–211, 8.209f, 8.209t,
8.211f. See also Infection; Infectious diseases; specific
organism
cardiomyopathy, 8.208f, 8.243–249, 8.244t
diagnostic laboratory techniques in, 8.208–211,
8.209t, 8.211f
cytology (fungal infection), 8.208t, 8.249–251
parasitology, 8.208t, 8.252–253
prions, 8.254
virology, 8.208t, 8.211–241
Micrococcas, as normal flora, 8.206t
Microcornea, 6.254, 6.254f, 8.95–99, 8.96t
cornea plana and, 8.95, 8.96, 8.100
e in Ehlers-Danlos syndrome, 1.141
Microcystic, 7.73
Microcystic dystrophy
band-shaped and whorled. See Lisch epithelial
corneal dystrophy
Cogan (epithelial basement membrane). See
Basement membrane dystrophy
Microcystic epitheliopathy, 3.323
Microcysts
in bullous keratopathy, 4.84
in Lisch epithelial corneal dystrophy, 8.140,
8.140f
Microcystic anemia, 1.132
Microelectromechanical systems (MEMS)
description of, 2.367
in swept-source optical coherence tomography,
12.25–26
Microenvironments, immunologic. See Immunologic
microenvironment
Microexplosions, 12.375
Microfilariae
Loa loa, 8.282
onchocercal, 8.253
Microglia/microglial cells
description of, 2.317, 9.3
optic nerve, 4.241, 4.242f/
retinal, ischemia and, 4.152
β-2-Microglobulin, 9.31f
Micrographic surgery, Mohs, for eyelid tumors, 4.44f,
4.44–45
basal cell carcinoma, 4.213
sebaceous adenocarcinoma, 4.218
squamous cell carcinoma, 4.213
Microhemagglutination assay for T pallidunm antibodies
(MHA-TP), 9.224, 12.241
Microinvasive glaucoma surgery (MIGS)
cataract surgery and, 11.186
Schlemm canal in, 2.6464
Microkeratomes, for LASIK, 13.84–87, 13.85f, 13.86f,
13.87f
aberrations and, 13.102
complications associated with, 13.110f, 13.110–112,
13.111f
re-treatment/enhancements and, 13.98
Micronutrients. See also specific type for age-related macular degeneration, 12.69–71
Micropannus. See Pannus/micropannus
Microphthalmia, anophthalmia, coloboma (MAC), 6.263
Microphthalmia/microphthalmos, 4.109, 7.36–38, 7.136 with cyst, 6.224, 6.225f
description of, 6.209
persistent fetal vasculature associated with, 4.126
Micropinocytotic vesicles, 2.64
Micropsia, 5.175
Micropinocytotic vesicles, 2.64
Microsaccadic refixation movements, 5.213
Micropinocytotic vesicles, 2.64
Photophotophobia and, 5.177
Migraine and, 5.177
Persistent fetal vasculature associated with, 4.126
Migration inhibitory factor, in mucous membrane pemphigoid, 8.299
Milk-alkali syndrome, corneal changes in, 8.201
Miliary disease, 9.234
Milia, 7.189, 7.189
Mikulicz syndrome, 1.166
MIGS. See Microinvasive glaucoma surgery
Migration inhibitory factor, in mucous membrane pemphigoid, 8.299
Migratory dendritic cells, 9.4
MIGS. See Microinvasive glaucoma surgery
Mikulicz syndrome, 1.166
Milia, 7.189, 7.189f
Miliary disease, 9.234
Millard-Gubler syndrome, 5.192
Millard-Gubler syndrome, 5.192
Midbrain corectopia, 5.255
MIDD. See Maternally inherited diabetes and deafness
Middle cerebral artery (MCA), 5.16f, 5.18f, 5.18–19, 5.27f
anatomy of, 2.106f, 2.139f
aneurysm of, 1.122, 5.339f
cranial nerve relationship and, 5.27f
Middle cerebral ganglion, 5.54
Mid brain
Midbrain corectopia, 5.255
Midbrain corectopia, 5.255
Midbrain, 5.27f, 5.30
lesions of
corectopia caused by, 5.227
corectopia caused by, 5.255
Midbrain
Midbrain corectopia, 5.255
Midbrain corectopia, 5.255
Midbrain
Midbrain corectopia, 5.255
Midbrain
Midbrain, 5.27f, 5.30
lesions of
convergence insufficiency caused by, 5.227
corectopia caused by, 5.255
Midbrain
Midbrain corectopia, 5.255
Midbrain
Microvascular abnormalities, intraretinal (IRMAs), 4.153f, 4.154, 4.155f
in diabetic retinopathy, 4.159
Microvascular decompression surgery, for hemifacial spasm, 5.284
Microvascular abnormalities, intraretinal (IRMAs), 4.153f, 4.154, 4.155f
in diabetic retinopathy, 4.159
Microvascular decompression surgery, for hemifacial spasm, 5.284
Midazolam, 1.290
Midbrain, 5.27f, 5.30
lesions of
convergence insufficiency caused by, 5.227
corectopia caused by, 5.255
Midbrain
Midbrain corectopia, 5.255
Midbrain
MICD
Millard-Gubler syndrome, 5.192
Miller Fisher syndrome, 5.273, 5.273f, 5.280
Midbrain
Midbrain corectopia, 5.255
Midbrain
Microvascular decompression surgery, for hemifacial spasm caused by, 5.228–229
light-near dissociation and, 5.229, 5.230f, 5.266f, 5.266–267
vertical eye movements and, 5.36, 5.36f, 5.36–37
Midbrain
Micronutrients. See also specific type
Milligray (mGy)
description of, 2.456
radiation dose measurement, 5.60, 5.75
Millisievert (mSv), 2.456
Mimecan
See Miostat.
See Minors.
See mirror(s).
See Mires.
See Mitochondria.
See Mitochondrial DNA (mtDNA).
See Mitochondrial diseases.
See Mitochondrial myopathy.
See Mitomycin/mitomycin C (MMC).
See Miotics.
Minos.
Minitrackers.
Minor (lesser) arterial circle, 5.15
Minus cylinder lens
description of, 3.148–149
for against movement, 3.155
plus cylinder conversion to, 3.149
Minus cylinder phoropter
advantages of, 3.148
astigmatism detection using, 3.29
cylinder axis refinement using, 3.29–30, 3.30f
with Jackson cross cylinder, 3.29, 3.30–3.31f
Minus lenses. See Concave lenses
Miochol. See Acetylcholine
Miosis/mitotic agents
for acute angle closure, 10.124
angle closure caused by, 10.124, 10.182
contrast sensitivity affected by, 3.136
for glaucoma, 10.173f, 10.181–182
anterior uveitis and, 10.100
cataract/cataract surgery and, 11.52
in children, 10.166
in Horner syndrome, 5.328–329, 5.329f
in keratometry, 8.157f
in keratotomy, 8.27, 8.27f
in keratometry, 8.27, 8.28, 8.28f
in topography, 8.28, 13.14, 13.16, 13.25f
Mismatch repair, 2.181
“Missing half” field defect, in nonorganic disorder, 5.307, 5.307f
Mitochondria, 2.176
Mitochondrial diseases, 12.293–294
causes of, 2.184–185
chronic progressive external ophthalmoplegia, 2.185
Leber hereditary optic neuropathy, 2.185–186
maternally inherited diabetes and deafness, 2.185
mitochondrial encephalomyopathy, lactic acidosis,
and stroke-like episodes, 2.185
neuropathy, ataxia, and retinitis pigmentosa, 2.186
phenotype of, 2.184
severity of, 2.184
Mitochondrial DNA (mtDNA)
acquisition of, 2.176
diseases associated with deletions/mutations of
chronic progressive external ophthalmoplegia,
5.328–329, 5.329f
Leber hereditary optic neuropathy, 5.133
replicative segregation of, 2.184
ribosomal RNA encoded by, 2.184
spontaneous deletions and mutations of, 2.184
Mitochondrial myopathy
description of, 12.293f, 12.293–294
with encephalopathy, lactic acidosis, and stroke-like episodes (MELAS), 2.185, 5.294–295, 12.283f,
12.294
migrainelike headache and, 5.294–295
neuro-ophthalmic signs of, 5.328–330, 5.329f
Mitomycin/mitomycin C (MMC), 2.371, 2.413–414,
9.319
for ocular surface tumors, 8.327, 8.330, 8.330f, 8.331
in phototherapeutic keratotomy, 8.367
in pterygium surgery, 8.355
recurrence rate and, 8.353f, 8.355
after radial keratotomy, 13.52
in surface ablation, 13.92
neural repair prevention/corneal wound healing and, 13.33, 13.92, 13.109
for undercorrection, 13.102
toxic reactions to, 8.91
in trabeculectomy, 10.205, 10.207
bleb-associated endophthalmitis and, 10.163,
10.209
in children, 10.163
scleral flap closure and, 10.203, 10.205f
Mitophagy, 2.283
Mitosis
- description of, 2.173, 2.215
- nondisjunction during. See Nondisjunction
Mitotic inhibitors, 1.240f
Mitotic nondisjunction, 2.224
Mitten deformity, 6.206, 6.207f
Mittendorf dot, 4.126, 6.298, 11.29, 11.31, 11.32f, 12.340
Mixed astigmatism, 3.138, 3.138f
Mixed cell type melanoma, 4.194, 4.195
Mixed macrocystic/microcystic lymphatic malformations, 7.73
Mixed tumor, benign (pleomorphic adenoma)
Mixed- cell type melanoma, 4.194, 4.195
Mixed astigmatism, 3.138, 3.138f
Mizuo-Nakamura phenomenon, 12.253, 12.253f
Mitotic nondisjunction, 12.253
Mixed tumor, benign (pleomorphic adenoma)
Mixed macrocystic/microcystic lymphatic malformations, 7.73
Mixed tumor, benign (pleomorphic adenoma)
Mixed- cell type melanoma, 4.194, 4.195
Mixed astigmatism, 3.138, 3.138f
Mizesu-Nakamura phenomenon, 12.253, 12.253f
MK medium. See McCarey-Kaufman (MK) medium
ML I. See Dysmorphic sialodisosis
ML II. See Inclusion-cell disease
ML III. See Pseudo–Hurler polydystrophy
ML IV, 8.178
M.L.C. See Minimal lethal concentration
MLF. See Medial longitudinal fasciculus
MLM. See Middle limiting membrane
MLN. See Manifest latent nystagmus; Mean of the ten largest melanoma cell nuclei
MLPA. See Multiple ligation-dependent probe amplification
MLs. See Mucolipidoses
MMA. See Middle meningeal artery
MMC. See Mitomycin/mitomycin C
MMCR. See Müller muscle-conjunctival resection
MMP. See Mucous membrane (ocular cicatricial) pemphigoid
MMPs. See Matrix metalloproteinases
MNREAD. See Minnesota Low-Vision Reading Test
MnSOD. See Manganese superoxide dismutase
MOABs. See Monoclonal antibodies
Möbius syndrome/sequence, 5.228, 5.278, 6.97, 6.135–136, 6.136f
Mode-locking, 3.112
Modified Hughes flaps, 7.223–224f, 7.224
Modified (mini-) monovision, 13.39, 13.164–165
accommodating IOLs and, 13.164–165
accommodating IOLs and, 13.154
Modulation transfer function (MTF)
definition of, 3.124, 3.239, 3.261
description of, 3.135
intraocular lenses, 3.261–263, 3.262–3.263f
Moebius syndrome. See Möbius syndrome/sequence
MOGAs. See Malignant optic gliomas of adulthood
Mols micrographic surgery, 7.204–207, 7.228
for eyelid tumors, 4.44f, 4.44–45
basal cell carcinoma, 4.213
sebaceous adenocarcinoma, 4.218
squamous cell carcinoma, 4.213
Moisture-retaining eyewear (moisture chambers/shields), 8.61f, 8.63–64
“Molar tooth” sign, 6.392f
Molds, 5.353, 8.249, 8.249f, 8.251
Molecular genetics
cell cycle, 2.173–176, 2.174f
dNA damage and repair, 2.181–182
gene structure, 2.176–177
gene therapy. See Gene therapy
gene transcription and translation. See Gene transcription and translation
mitochondrial diseases. See Mitochondrial diseases
mutations
disease and, 2.182–183
screening for, 2.189–194, 2.190–193f
noncoding DNA, 2.177–178
Molecular pathology, 4.34f, 4.36–42, 4.38–39t, 4.40f, 4.41f
Moles. See Nevi/nevus
Moll, glands of, 4.201, 8.4, 8.4f
Molluscum contagiosum/molluscum nodule, 6.199, 6.243, 6.244, 7.190, 8.208f, 8.236–237, 8.237f, 8.238f, 9.334
doof eyelid, 4.204, 4.205f, 8.236–237, 8.237f, 8.238f
Molteno implant, 10.214, 10.214f
Molybdenum cofactor deficiency. See Sulfite oxidase deficiency
Mondino and Brown staging system, for mucous membrane pemphigoid, 8.302, 8.302f
Monitoring system, for clinical practice, 1.25–27
Monoamine oxidase (MAO) inhibitors
α1-adrenergic agonist interactions with, 2.386
drug interactions and, apraclonidine/brimonidine interactions, 10.179
Parkinson disease treated with, 1.205
types of, 1.203f
Monobactams, 1.272–273
Monocanalicular stents, 6.234
Monoclonal antibodies, 1.144, 1.238, 1.242, 6.322
Monoclonal antibodies (mAbs/MAOBs), 1.144, 1.238, 1.242, 6.322
description of, 9.41
recombinant, 9.41
Monoclonal gammapathy, benign, crystalline corneal deposits in, 8.198
Monocular aphakia, 3.191
Monocular cover–uncover test, 6.64, 6.65f
Monocular diplopia, 5.174, 5.185.
Monocular eye movements, 5.184. See also Ductions;
Forced duction test; specific type
ductions, 6.33
field of action, 6.33–34
gaze position effects on extracocular muscle action, 6.34–37, 6.35–37f
primary action, 6.34
secondary action, 6.34
ternary action associated with, 6.33
Monocular fixation, 6.16
Monocular elevation deficiency, 6.125–127, 6.126f, 7.245
Monocular distortion. See Distortion
Monocanalicular stents, 6.234
Monocular cover–uncover test, 6.64, 6.65f
Monocular diplopia, 5.174, 5.185
Monocular eye movements, 5.184. See also Ductions;
Forced duction test; specific type
ductions, 6.33
field of action, 6.33–34
gaze position effects on extracocular muscle action, 6.34–37, 6.35–37f
primary action, 6.34
secondary action, 6.34
ternary action associated with, 6.33
Monocular fixation, 6.16
<table>
<thead>
<tr>
<th>Term</th>
<th>Page References</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monocular nystagmus</td>
<td>6.152</td>
<td></td>
</tr>
<tr>
<td>in Heimann-Bielschowsky phenomenon</td>
<td>5.238–239</td>
<td></td>
</tr>
<tr>
<td>seizures and, 1.208</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monocular transient visual loss (transient monocular visual loss/TMVL)</td>
<td>5.161, 5.163t, 5.163–171. See also Monocular transient visual loss</td>
<td></td>
</tr>
<tr>
<td>carotid artery disease and, 5.162, 5.165–166, 5.167, 5.167f, 5.168</td>
<td></td>
<td></td>
</tr>
<tr>
<td>carotid stenosis as cause of, 1.118</td>
<td></td>
<td></td>
</tr>
<tr>
<td>embolic causes of, 5.161, 5.162, 5.163t, 5.165, 5.165f, 5.165–169, 5.166f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>clinical/laboratory evaluation in, 5.166–168</td>
<td></td>
<td></td>
</tr>
<tr>
<td>prognosis/treatment and, 5.168–169</td>
<td></td>
<td></td>
</tr>
<tr>
<td>giant cell arteritis presenting as, 1.119</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hyperperfusion causing, 5.161, 5.162, 5.170, 5.171f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ocular causes of, 5.163t, 5.163–164</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ocular ischemic syndrome causing, 5.170, 5.171f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>optic nerve disorders causing, 5.161, 5.164</td>
<td></td>
<td></td>
</tr>
<tr>
<td>orbital causes of, 5.164</td>
<td></td>
<td></td>
</tr>
<tr>
<td>postural changes causing, 5.161, 5.164, 5.170</td>
<td></td>
<td></td>
</tr>
<tr>
<td>systemic causes of, 5.169–171, 5.171f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vascular disease causing, 5.163t, 5.164–171</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vasoispasm/hyperviscosity/hypercoagulability causing, 5.161, 5.162, 5.171</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monocular vision</td>
<td></td>
<td></td>
</tr>
<tr>
<td>no light perception, testing, 5.302–305, 5.303f, 5.304f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>reduced, 5.161, 5.163t, 5.163–171. See also Monocular transient visual loss; Unilateral vision loss in low vision evaluation, 5.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>in nonorganic disorders, 5.305, 5.305f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monocular visual deprivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>binocularly affected by, 6.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>description of, 6.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>visual cortex affected by, 6.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monocytes, 4.7, 4.8f, See also Macrophage(s) as antigen-presenting cells, 9.3 characteristics of, 9.3–4 lipopolysaccharide effects on, 9.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monofixation syndrome</td>
<td></td>
<td></td>
</tr>
<tr>
<td>amblyopia and, 6.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>definition of, 6.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>diagnosis of, 6.51–52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>management of, 6.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worth 4-dot test for, 6.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monofocal intraocular lenses, 13.151</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monogenic diseases, 2.218</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mononeuritis multiplex, 1.171, 9.158</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mononucleosis, infectious (IM), ocular involvement in, 8.230–231, 8.231f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monosomy, 2.223</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monosomy 3, in choroidal/ciliary body melanoma, 4.197, 4.253, 4.268, 4.278</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monosomy X, 6.386f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood disorders, 1.195–196. See also Depression Mood stabilizers, 1.203–204 Moore, lightning streaks of, 5.175 Moore ulcer, 8.313–316, 8.315f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moraxella</td>
<td></td>
<td></td>
</tr>
<tr>
<td>blepharitis/blepharoconjunctivitis caused by, 8.74, 8.208f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>catarrhalis, 7.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>conjunctivitis caused by, 8.208f, 8.257f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>keratitis caused by, 8.208f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lactuana, 8.257f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>as normal flora, 8.206f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morgagnian cataract, 4.122, 4.123f, 11.46, 11.50f phacolytic glaucoma and, 10.97f, 10.97–98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morgagnian glauobules, 4.122, 4.122f, 4.123f, 4.124f, 11.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morning glory disc anomaly (MGDA), 6.362–363, 6.364f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morning glory optic nerve head anomaly, 5.145</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morphoeaform (sclerosing) basal cell carcinoma, 4.212–213, 4.213f, 7.202, 7.202f. See also Basal cell carcinoma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morphogenic gradients, 2.164–166</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morphogens, 2.165</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morquio syndrome (MPS IV), 6.270, 8.175f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mosaic degeneration (anterior crocodile shagreen), 8.121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mosaicism, 2.224–225</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mosaics, 2.224</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mosquito-borne diseases, 12.246–247</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mossy fiber input, 5.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motility, ocular. See Ocular motility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motility disorders. See Ocular motility, disorders of Motility examination. See Ocular motility, assessment of Motion artifacts, in optical coherence tomography angiography, 12.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motion contrast, 12.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor apraxia, ocular. See Ocular motor apraxia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor correspondence, Hering’s law of (Hering’s law of equal innervation), 6.38, 6.115–116, 6.121 eyelid retraction and, 5.274 horizontal gaze and, 5.36f nystagmus and, 5.247 ptosis enhancement and, 5.270f, 5.310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor fusion, 6.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor nucleus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of cranial nerve V (trigeminal), 5.47–48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of cranial nerve VI (abducens), 5.51f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of cranial nerve VII (facial), 5.49, 5.50f, 5.51f, 5.276–277f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor pathways, facial, 5.49–52, 5.50–51f. See also Cranial nerve VII Motor physiology eye movements. See Eye movements gaze positions, 6.31 ocular rotations, 6.31 principles of, 6.31–32 terminology associated with, 6.31–32 Motor system disorders. See Parkinson disease/parkinsonism Motor tracking systems, ocular, 5.212t, 5.212–213 Motor units description of, 6.32–33 recruitment of, during fixation or following movement, 6.33 Mouth-to-mouth ventilation, 1.298 Moxeza. See Moxifloxacin Moxifloxacin, 1.308f, 9.139 for bacterial keratitis, 8.269, 8.270f description of, 2.360f, 2.421t after penetrating and perforating trauma repair, 8.409</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Multifocal lenses. See also Bifocal lenses

bifocal
accommodative amplitude for, 3.178–179
add power of, 3.178–180
fused, 3.180
image displacement, 3.184, 3.186f
image jump, 3.184–186, 3.187f
induced anisophoria, compensating for, 3.186–190, 3.187f
types of, 3.180, 3.181f
definition of, 3.178
adverse effects of/complications/patient dissatisfaction and, 11.151, 13.156, 13.167
annular zones, 3.259, 3.259f
apodized diffractive, 13.166, 13.166f
best-corrected visual acuity with, 3.260
bifocal, 3.258–259, 3.259f
bilateral implantation of, 13.155
capsular decentration and, 11.183
clinical results of, 3.260–261
decentration effects on, 3.258
description of, 3.257–258
diffractive, 3.259f, 3.259–260, 13.166, 13.166f
disadvantages of, 3.258
dry eye therapy before use of, 11.173
extended-depth-of-focus lenses versus, 3.262–263, 3.263f
indications for, 3.258
multiple-zone, 3.259, 3.259f
outcomes of, 13.155–156
power calculation for, 3.258
for presbyopia, 13.165–167, 13.166f
refractive, 13.166, 13.166f
surgical technique for insertion of, 13.155
three-zone, 3.259, 3.259f
types of, 3.258–260
zonal refractive, 13.166, 13.166f
progressive addition, 3.262–263, 3.263f
trifocal, 3.180–182
Multifocal serpiginous choroiditis, 9.177
Multifocal stromal infiltrates, 8.50
Multimodal computed tomography, stroke evaluations, 1.112
Multinucleated giant cells, 4.7, 4.9f
in focal posttraumatic choroidal granulomatous inflammation, 4.22f
in granulomatous conjunctivitis, 4.52, 4.52f
in sarcoidosis, 4.187, 4.187f
Multiple sclerosis (MS), 5.315–320, 5.316
Multiple myeloma, 7.95
Multiple gated acquisition (MUGA) scans, in coronary heart disease diagnosis, 1.89
Multiple myeloma, 7.95
Multicentric basal cell carcinoma, 7.203. See also Basal cell carcinoma
Multidrug-resistant tuberculosis (MDRTB), 1.257, 9.239
Multifocal choroiditis and panuveitis syndrome (MCP), 12.226f
Multifocal choroiditis (MFC), 6.319, 12.220f, 12.225–226, 12.226f
in AIDS patients, 9.332
in systemic lupus erythematosus, 9.155f
tubercular, 9.236f
Multifocal choroiditis and panuveitis syndrome (MCP), 12.226f
characteristics of, 9.162–164f, 9.177–178
definition of, 9.178
diagnosis of, 9.181
fluorescein angiography findings in, 9.163f, 9.179, 9.179f
fundus autofluorescence findings in, 9.163f, 9.179, 9.180f
lesions in, 9.178, 9.178f
optical coherence tomography findings in, 9.164f, 9.179, 9.180f
prognosis for, 9.181
treatment of, 9.181
Multifocal electroretinogram/electroretinography (mfERG), 5.96f, 5.96–97, 12.45, 12.48–12.49f
in melanoma-associated retinopathy, 5.101, 5.101f
in multiple evanescent white dot syndrome, 5.101
Multifocal colposomal granuloma, 6.219
Multifocal lenses. See also Bifocal lenses
decentration effects on, 3.258
description of, 3.257–258
diffractive, 3.259f, 3.259–260, 13.166, 13.166f
disadvantages of, 3.258
dry eye therapy before use of, 11.173
extended-depth-of-focus lenses versus, 3.262–263, 3.263f
indications for, 3.258
multiple-zone, 3.259, 3.259f
outcomes of, 13.155–156
power calculation for, 3.258
for presbyopia, 13.165–167, 13.166f
refractive, 13.166, 13.166f
surgical technique for insertion of, 13.155
three-zone, 3.259, 3.259f
types of, 3.258–260
zonal refractive, 13.166, 13.166f
progressive addition, 3.182–184, 3.183f
trifocal, 3.180–182
Multifocal serpiginous choroiditis, 9.177
Multifocal stromal infiltrates, 8.50
Multimodal computed tomography, stroke evaluations, 1.112
Multinucleated giant cells, 4.7, 4.9f
in focal posttraumatic choroidal granulomatous inflammation, 4.22f
in granulomatous conjunctivitis, 4.52, 4.52f
in sarcoidosis, 4.187, 4.187f
Multiplanar incisions, clear corneal, 11.106
Multiple endocrine neoplasia (MEN), 8.200
congenital neurogenic/smooth muscle tumors in, 8.345
corneal nerve enlargement in, 8.200, 8.200f
MEN1, 1.49–50, 1.236
MEN2, 1.49–50, 1.236
ophthalmologic findings in, 1.49f
Multiple evanescent white dot syndrome (MEWDS), 5.101, 12.220f, 12.223–224, 12.224f
acute macular neuroretinopathy and, 9.189
characteristics of, 9.162–164f
definition of, 9.185
description of, 9.161
diseases associated with, 9.189
early receptor potential amplitudes in, 9.187
fluorescein angiography findings in, 9.163f, 9.185, 9.186–187f
fundus autofluorescence findings in, 9.50, 9.163f, 9.186–187f
indocyanine green angiography findings in, 9.163f, 9.188f
manifestations of, 9.185–188, 188f
medical management of, 9.93
OCT in identification of, 5.92, 5.92f
prognosis for, 9.188
Multiple gated acquisition (MUGA) scans, in coronary heart disease diagnosis, 1.89
Multiple myeloma, 7.95
crystalline corneal deposits and, 8.198, 8.198f
Multiple sclerosis (MS), 5.315–320, 5.316f
chiasmal/retrochiasmal abnormalities in, 5.318
course and prognosis of, 5.315
diagnosis of, 5.319
epidemiology and genetics of, 5.315
Multifocal stromal infiltrates, 8.50
funduscopic abnormalities in, 5.318
HLA association in, 5.315
human leukocyte antigen association with, 9.65f
intermediate uveitis associated with, 9.151–152, 12.231
laboratory evaluation of, 5.319
neuro-ophthalmic signs of, 5.315–320, 5.316f
neuroimaging in, 5.65, 5.72f, 5.92, 5.316f, 5.319
ocular symptoms of, 5.317
ocular motility disturbances in, 5.246, 5.248, 5.249, 5.318–319
optic nerve conduction delay in, 12.52
optic nerve involvement and, 5.107f, 5.114, 5.114f, 5.115, 5.116, 5.317–318
pathology in, 5.315–316, 5.316f
presentation of, 5.316–317
progressive, 5.315
relapsing-remitting course of, 5.315
treatment of, 5.319–320, 5.321f
uveitis in, 5.318
Multiple sulfatase deficiency, 8.177
Multiple-zone multifocal intraocular lens, 3.259, 3.259f
Multiplex ligation-dependent probe amplification (MLPA), 4.39f
Multipurpose solutions, for contact lens, 3.229f
Muscarinic receptors
Muscarinic drugs
Muro 128. See Sodium chloride
Muscarinic drugs
adverse effects of, 2.378
agonists
adverse effects of, 2.378
direct-acting, 2.375–379, 2.376–377f
indirect-acting, 2.379
antagonists, 2.380–381
Muscarinic receptors
description of, 2.374, 2.374f, 2.375f
drugs affecting. See Muscarinic drugs
Muscle cone, 6.26, 6.26f
Muscle of Riolan, 2.29, 2.30f, 2.32f, 7.163, 7.163f, 7.170
Muscle relaxants and sedatives, for benign essential blepharospasm, 7.258
Muscle-specific kinase (MuSK) antibodies, in myasthenia gravis, 5.325–326
Muscle-weakening procedures. See Weakening procedures
Muscles. See Extraocular muscles; specific muscle
Muscular arteries, inferior/superior, 5.14–15, 5.15f
MuSK antibodies. See Muscle-specific kinase (MuSK) antibodies
Mustardé flap, 7.224, 7.225f
Mutagens, 2.217
Mutamycin. See Mitomycin/mitomycin C
Mycotic (fungal) keratitis, 4.78, 4.78f, 8.208t, 8.273–276, 8.274f
after photodablation, 13.106–107
plant/vegetable materials and, 4.78, 8.273, 8.387, 8.399
Mydfrin. See Phenylephrine
Mydral. See Tropicamide
Mydriacyl. See Tropicamide
Mydriasis/mydriatics, 2.380, 2.380t
angle closure caused by, 10.122, 10.123
benign episodic, 5.267
after cataract surgery, 11.138
congenital, 6.268
in Horner syndrome, 5.259
multifocal IOLs and, 13.156
pharmacologic, 5.263
seizures and, 1.208
traumatic, 5.262, 8.388, 8.389f
for uveitis, 9.113
Myectomy, 6.164f
for benign essential blepharospasm, 5.283
surgical, 7.257–258
Myelin sheaths, 6.44
Myelinated retinal nerve fiber layer, 6.365, 6.365f
Myelinated retinal nerve fibers, 2.62, 4.143
Myelination
of nerve fiber layer, optic nerve/nerve head/disc edema differentiated from, 5.107–109, 5.108f
of optic nerve, 5.26
Myelitis, with optic neuritis (neuromyelitis optica/NMO/Devic disease), 5.107t, 5.116–118, 5.117t, 5.320–323. See also Neuromyelitis optica
Myelodysplastic syndrome, 1.137
Myeloid stem cells, 1.131
Myeloma, crystalline corneal deposits and, 8.198, 8.198f
Myeloperoxidase, 9.158, 9.160
Myeloperoxidase-antineutrophil cytoplasmic autoantibody (MPO-ANCA), 7.64
Myeloproliferative disorders, 1.142, 1.148
MYOC (TIGR/myocilin [TIGR/MYOC]) gene, 10.10, 10.11t, 10.150
in pediatric glaucoma, 8.108
Myocardial infarction (MI). See also Acute coronary syndromes; Ischemic heart disease
aspirin prophylaxis in, 1.89
complications of, 1.85
glaucoma and, 10.9, 10.29, 10.82, 10.87, 10.122
historical treatments for, 12.208
in diabetes mellitus, 1.40
juvenile-onset, 3.142
consecutive, 13.101–102
catable surgery in patient with, 11.184–185
in children, 3.142, 3.174
precipitating factors, 1.85
retinal detachment and, 11.166
in adolescents, 3.142
in adults, 3.143
developmental, 3.142–143, 3.174
conductive keratoplasty for, 13.129
instrument, 3.282, 3.286
Myopia
accommodative demand, 3.208
in adolescents, 3.142
adult-onset, 3.143
cataract causing, 11.43, 11.70, 11.70t
contact lenses for, orthokeratology and, 13.70–71
myopia, 4.78, 4.78f, 8.208t, 8.273–276, 8.274f
for benign essential blepharospasm, 5.283
surgical, 7.257–258
Myogenesis/mydriatics, 2.380, 2.380t
angle closure caused by, 10.122, 10.123
benign episodic, 5.267
after cataract surgery, 11.138
congenital, 6.268
in Horner syndrome, 5.259
multifocal IOLs and, 13.156
pharmacologic, 5.263
seizures and, 1.208
traumatic, 5.262, 8.388, 8.389f
for uveitis, 9.113
Myectomy, 6.164f
for benign essential blepharospasm, 5.283
surgical, 7.257–258
Myelin sheaths, 6.44
Myelinated retinal nerve fiber layer, 6.365, 6.365f
Myelinated retinal nerve fibers, 2.62, 4.143
Myelination
of nerve fiber layer, optic nerve/nerve head/disc edema differentiated from, 5.107–109, 5.108f
of optic nerve, 5.26
Myelitis, with optic neuritis (neuromyelitis optica/NMO/Devic disease), 5.107t, 5.116–118, 5.117t, 5.320–323. See also Neuromyelitis optica
Myelodysplastic syndrome, 1.137
Myeloid stem cells, 1.131
Myeloma, crystalline corneal deposits and, 8.198, 8.198f
Myeloperoxidase, 9.158, 9.160
Myeloperoxidase-antineutrophil cytoplasmic autoantibody (MPO-ANCA), 7.64
Myeloproliferative disorders, 1.142, 1.148
MYOC (TIGR/myocilin [TIGR/MYOC]) gene, 10.10, 10.11t, 10.150
in pediatric glaucoma, 8.108
Myocardial ischemia, 1.83
Myocardial oxygen demand, 1.81
Myocilin gene (TIGR/myocilin [TIGR/MYOC]) gene, 10.10, 10.11t, 10.150
in pediatric glaucoma, 8.108
Myoclonus
oculopalatal, pendular nystagmus and, 5.246–247
opsoclonus and, 5.249
voluntary nystagmus and, 5.250
Myoid, 12.12
Myoid zone, 4.141f
Myokymia
eyelid, 5.282t, 5.284
facial, 5.282t, 5.284
superior oblique (SOM), 5.250–251, 6.145
Myopathies
diplopia caused by, 5.206–209, 5.207f
extraocular
inherited conditions causing, 5.328–330, 5.329f
in thyroid eye disease, 4.226, 4.227f, 5.206
mitochondrial, with encephalopathy, lactic acidosis, and stroke-like episodes (MELAS), 5.294–295
migrainelike headache and, 5.294–295
Myopia
accommodative demand, 3.208
in adolescents, 3.142
adult-onset, 3.143
cataract causing, 11.43, 11.70, 11.70t
cataract surgery in patient with, 11.184–185
in children, 3.142, 3.174
congenital, 3.174
consecutive, 13.101–102
contact lenses for, orthokeratology and, 13.70–71
definition of, 3.4, 3.124
description of, 3.12–13, 3.137
developmental, 3.142–143, 3.174
diverging lens for, 3.170, 3.170f
dispensing lens for, 3.170, 3.170f
educational achievement and, 3.143
etiology of, 3.143
genetic factors, 3.143
glaucoma and, 10.9, 10.29, 10.82, 10.87, 10.122
high. See High (pathologic) myopia
historical treatments for, 12.208
hyperopia overcorrection and, 13.101–102
in pediatric glaucoma, 8.108
Myopia
accommodative demand, 3.208
in adolescents, 3.142
adult-onset, 3.143
cataract causing, 11.43, 11.70, 11.70t
cataract surgery in patient with, 11.184–185
in children, 3.142, 3.174
congenital, 3.174
consecutive, 13.101–102
contact lenses for, orthokeratology and, 13.70–71
definition of, 3.4, 3.124
description of, 3.12–13, 3.137
developmental, 3.142–143, 3.174
diverging lens for, 3.170, 3.170f
educational achievement and, 3.143
etiology of, 3.143
genetic factors, 3.143
glaucoma and, 10.9, 10.29, 10.82, 10.87, 10.122
high. See High (pathologic) myopia
historical treatments for, 12.208
hyperopia overcorrection and, 13.101–102
conductive keratoplasty for, 13.129
instrument, 3.282, 3.286
juvenile-onset, 3.142
keratorefractive surgery for, 3.275
lenticular (myopic shift), 11.43, 11.70
glaucomatous and, 8.100
model of, 3.12–13, 3.13f
night, spherical abnormalities and, 13.12, 13.102
orthokeratology for correction of, 13.70–71
pathologic. See High (pathologic) myopia
photorefractive keratectomy for, 3.271, 3.271f
pictorial representation of, 3.137f
positive defocus caused by, 3.276
prevalence of, 6.180
prismatic effects of bifocal lenses in, 3.185
progression of, methods for reducing, 3.144
retinal reflex in, 3.152, 3.152f
retinal detachment and, 13.44, 13.183–184, 13.184, 13.197
surgical correction of, 13.30, 13.30f. See also specific
procedure
aberrations after, 13.11, 13.12
bioptics for, 13.137, 13.157
keratorefractive surgery for, 13.8
lenticular (myopic shift), 11.43, 11.70
photorefractive keratectomy for, 3.271, 3.271f
phakic IOLs for, 13.137, 13.138, 13.140
overcorrection and, 13.101–102
phakic IOLs for, 13.137, 13.138, 13.140
photorefractive keratectomy for, 3.139, 13.95
radial keratotomy for, 13.49–53, 13.50f, 13.51f
intraocular pressure measurement and, 13.181, 13.182f
LASIK for, 13.95, 13.97. See also LASIK
light-adjustable IOLs for, 13.153–154, 13.154f
monovision for, 13.164, 13.165
monolaser, 13.8f
overcorrection and, 13.101–102
phakic IOLs for, 13.137, 13.138, 13.140
photorefractive keratectomy for, 3.139, 13.95
radial keratotomy for, 13.49–53, 13.50f, 13.51f.
See also Radial keratotomy
refractive lens exchange for, 13.148, 13.150
retinal detachment/retinal detachment repair and, 13.44, 13.183–184, 13.184, 13.197
small-incision lenticule extraction for, 13.204
wavefront-optimized/wavefront-guided laser ablation for, 13.31
outcomes of, 13.31–32, 13.97
topiramate as cause of, 12.305
vitreous affected by, 2.301
wavefront aberration produced by (positive defocus), 13.11, 13.11f
wavefronts in, 3.73, 3.73f
Myopic keratomeileusis, 13.8f. See also LASIK
Myopic macular schisis, 12.209, 12.210f
Myopic shift, in cataracts (lenticular myopia), 11.43, 11.70
Myorhythmia, oculomasticatory, 5.251
Myosin VIIA, 2.313f
Myositis, 2.470f, 7.68, 7.69f
orbital, 4.224, 4.225f, 5.207f, 5.207–208
non-specific orbital inflammation and, 4.225, 4.225f
Myotonia, 6.164
Myotonic dystrophy, 2.218, 5.329–330, 12.282f
lens disorders/cataracts in, 11.62, 11.62f
ptosis in, 5.273, 5.273f, 5.329, 5.330
Myxedema, 1.44
MZM. See Methazolamide
Naproxen, 1.308f, 2.409f
Narcolepsy, in neuromyelitis optica spectrum disorder, 5.117f
NARP. See Neurogenic muscle weakness, ataxia, and retinitis pigmentosa; Neuropathy, ataxia, and retinitis pigmentosa
Narrow-band interference filters, 3.103, 3.104f
Narrow-complex tachycardias, 1.102
Nasal bone, 7.7f
Nasal cavity, 7.19
Nasal endoscopy, for nasolacrimal duct obstruction, 6.235
Nasal/nasal radiating fibers, 5.25, 5.25f, 5.103, 5.104f, visual field defects and, 5.103, 5.106f
Nasal retina, 5.24f, 5.25, 5.27f
Nasal step, 5.103, 5.106f
in glaucoma, 10.68, 10.69f
Nasal vein, 2.26f
Naso-orbital-ethmoidal (NOE) fractures, 7.112, 7.113f
Naso-orbital fractures, 7.306
Nasociliary nerve, 2.12f, 2.132, 2.132f, 5.8f, 5.43f, 5.48, 5.48f, 5.54, 7.12–13f
lacrimal functional unit innervated by, 8.5f
Nasofrontal vein, 2.26f
Nasolabial folds, 7.270f
Nasolacrimal canal, 2.8, 7.11, 7.20
Nasolacrimal duct (NLD), 2.42, 5.9f, 5.11. See also Lacrimal drainage system
anatomy of, 2.9f, 3.11, 7.19, 7.281–282
canalization of, 7.283
description of, 2.8
development of, 7.283
imperforate, 7.288
occlusion of, ocular medication absorption and, 10.184–185
in children, 10.165
physiology of, 7.283
probing of, 7.292
traumatic injuries to, 7.312
Nasolacrimal duct obstruction (NLDO). See also Tearing/epiphora
complete, 7.298
genetic
antibiotics for, 6.231–232, 6.234
balloon dacryoplasty for, 6.234–235, 6.235f, 7.294
bilateral, 6.232f
canicular obstruction, 7.298, 7.300f
causes of, 7.283, 7.287–288
clinical features of, 6.230, 6.232f
complex, 6.230, 6.233–234
dacryocystitis associated with, 7.289
description of, 6.227, 6.230
diagnosis of, 7.300
evaluation, 7.287–288
examination of, 6.230
infantile glaucoma versus, 6.230
intubation for, 6.234–235
lacrimal intubation stents for, 7.292–294, 7.294f
lacrimal sac palpation in examination for, 7.296
management of, 7.288–289
massage for, 6.231–232
nasolacrimal probing for, 6.232–235, 6.233f
nonsurgical management of, 6.231–232
prevalence of, 6.230
probing for, 7.289, 7.291f, 7.291–292, 7.298, 7.300
recurrence of, 6.234
simple, 6.230, 6.231f
spontaneous resolution of, 6.231
stents for, 6.234–235
surround the management of, 6.232–233
tearing caused by, 6.230
treatment of, 7.287
turbinate infracture for, 7.294
valve of Hasner in, 7.288–289
dacryocystitis associated with, 7.313–315, 7.315f
dacryocystorhinoscopy for, 6.236, 7.307–310, 7.308–309f
dacryolith as cause of, 7.305f, 7.305–306
description of, 7.300
diagnosis of, 7.305
dacryocystorhinostomy for, 6.236, 7.307–310
endoscopic lacrimal duct recanalization for, 7.310
etiologic causes of, 7.305–307
granulomatosis with polyangiitis as cause of, 7.306, 7.306f
inflammatory diseases as cause of, 7.306
intubation and stenting for, 7.292–294, 7.294f, 7.307
involutional stenosis as cause of, 7.305
lacrymal plugs as cause of, 7.306
lacrimal–cutaneous fistula and, 7.286
management of, 7.307–310
nasal disease as cause of, 7.306
nasal endoscopy for, 6.235
neoplasms as cause of, 7.307
in older children, 6.235
primary congenital glaucoma differentiated from, 10.152, 10.152f
radioactive iodine as cause of, 7.307
recurrent, 6.234
sinus disease as cause of, 7.306
traumatic causes of, 7.306
Nasolacrimal probing, for congenital nasolacrimal duct obstruction, 6.232–235, 6.233f
Natacyn. See Natamycin
Natalizumab, for multiple sclerosis, 5.318, 5.321f
progressive multifocal leukoencephalopathy caused by, 5.318, 5.351
Natamycin, 2.429, 2.430f
for fungal keratitis, 8.275
National Cholesterol Education Program (NCEP)
Adult Treatment Panel, 1.71, 1.74
blood cholesterol guidelines, 1.71
National Elder Abuse Incidence Study, 1.185
National Eye Institute (NEI) classification of eye movement abnormalities, 6.147
National Eye Institute Visual Function Questionnaire (NEI-VFQ), 11.71
National Health and Nutrition Examination Surveys (NHANES), 1.52
National Institutes of Health Stroke Scale (NIHSS), 1.111
National Institutes of Health vitreous haze grading system, 9.82
National Registry of Drug-Induced Ocular Side Effects, 1.309
Natowicz syndrome (MPS IX), 8.175f
Near response, in pupillary examination, 5.254
light-near dissociation and, 5.254, 5.266f, 5.266–267
Near synkinesis, 2.126, 6.39
Near triad, 2.126, 6.39
Near vision
distance vision versus, in amblyopia, 3.25
multifocal intraocular lenses for, 3.258
refraction at, 3.36–38
Near visual acuity. See also Visual acuity
age-related loss of, 11.23. See also Presbyopia
testing
indications for, 3.24
in low vision, 5.78
before refractive surgery, 13.39
Neck rejuvenation
cervicoplasty, 7.276f
liposuction, 7.274–275, 7.275f
platysmaplasty, 7.276, 7.276f
Necrobiotic granuloma
in episcleritis, 4.109
in scleritis, 4.110, 4.110f
Necrobiotic granulomatous inflammatory infiltrate, in
episcleritis, 4.109
Necrobiotic xanthogranuloma (NBX), 7.97, 8.347
Necrotizing fasciitis, 7.48–50, 7.49f
Necrotizing herpetic retinitis, 4.145, 9.330, 9.330f,
12.236–12.237, 12.237f
Necrotizing retinopathy
acetretinal necrosis, 9.250, 9.251–252f
cytomegalovirus-related anterior uveitis, 9.248–249
definition of, 9.250
progressive outer retinal necrosis, 9.250–254
Necrotizing scleritis, 4.110, 4.110f, 8.46f, 8.320f,
8.320–322, 8.321f, 8.322f, 8.325f
anterior, 9.118f
clinical presentation of, 9.118f, 9.119–122
delayed hypersensitivity response in, 9.116
description of, 9.115
diagnosis of, 9.124
granulomatous, 9.120f, 9.120–121
with inflammation, 8.320f, 8.320–321, 8.321f,
9.120–121, 121f
laboratory tests for, 9.124
mortality rates for, 9.119
pathophysiology of, 9.116
postoperative (SINS), 9.121, 9.121f
surgically induced (SINS), 8.282
vaso-occlusive, 9.120, 9.121f
vision loss risks, 9.128
without inflammation (scleromalacia perforans),
4.110, 8.320f, 8.321–322, 8.322f, 9.121–122, 9.122f
Necrotizing stromal keratitis, 8.52
herpes simplex causing, 8.219, 8.220–221, 8.221f,
8.222, 8.223f
Nedocromil sodium, 2.412f
Needle perforation/penetration injuries, of globe,
12.358, 12.395f, 12.395–396
Negative angle kappa, 6.67, 6.68f
Negative defocus, 3.276, 13.11
Negative dysphotopsias, 3.255–256
IOLs and, 5.174, 11.150–151
Negative lenses. See Concave lenses
Negative likelihood ratio, 1.19
Negative numbers, in vergence equation, 3.10
Negative predictive value (NPV)
of diagnostic and screening test, 1.15–16
pretest probability effects on, 1.20t
Negative staining (fluorescein), 8.36
NEI classification of eye movement abnormalities, 6.147
NEI-VFQ (National Eye Institute Visual Function
Questionnaire), 11.71
Neisseria, 8.244f, 8.245
description of, 1.250–251, 1.276, 2.419
gonorrhoeae (gonococcus), 6.238f, 6.238–239, 8.207,
8.208t, 8.245, 8.246f
conjunctivitis/ hyperacute conjunctivitis caused by,
8.208t, 8.245, 8.257t, 8.258–260, 8.259f, 8.260t
in neonates, 8.257t, 8.258, 8.264
invasive capability of, 8.207
I infections, 1.250–251
resistant strains of, 8.259, 8.264
meningitidis (meningococcus), 6.238, 8.207, 8.245
conjunctivitis caused by, 8.257t
invasive capability of, 8.207
NEMO gene. See IKBKAP gene
Neo-Synephrine. See Phenylephrine
Neoadjuvant chemotherapy, 1.239
Nd:YAG laser
Neofrin. See Phenylephrine
Neomycin sulfate/polymyxin B sulfate/prednisolone
acetate, 2.422
Neonatal adrenoleukodystrophy, 12.283
Neonatal inclusion conjunctivitis, 6.238
Neonatal ophthalmia. See Ophthalmia neonatorum
Neonates. See also Infant(s)
chlamydial conjunctivitis in, 1.244
conjunctivitis in, 8.257t, 8.263–265
corneal transplantation in, 8.450–451
herpes simplex infection in, 1.260, 8.213
normal ocular flora in, 8.205
ocular deviations in, 5.230–231
ocular infections in, 8.257t, 8.263–265. See also
specific type
ophthalmia neonatorum. See Ophthalmia
neonatorum
Neoplasm. See Neoplasm(s)
Nemoy, 1.239
Neonates. See also Infant(s)
chlamydial conjunctivitis in, 1.244
conjunctivitis in, 8.257t, 8.263–265
corneal transplantation in, 8.450–451
herpes simplex infection in, 1.260, 8.213
normal ocular flora in, 8.205
ocular deviations in, 5.230–231
ocular infections in, 8.257t, 8.263–265. See also
specific type
ophthalmia neonatorum. See Ophthalmia
neonatorum
Neoplasia, 4.10, 4.10t, 4.11f, 4.12t. See also Cancer;
Intraocular tumors; Tumor(s); specific type or
structure
classification of, 4.10t, 4.11f
diopla caused by, 5.208
facial pain associated with, 5.298
neuroimaging in evaluation of, 5.64f, 5.65f, 5.72t
ocular flutter/oposconus caused by, 5.249
ocular surface. See Ocular surface, tumors of
Neoplasms. See also Tumor(s)
benign, 6.219–223
canalicular obstruction caused by, 7.303
differential diagnosis of, 6.216–217
eyelid, 6.199–200. See also Eyelid(s), tumors of
hemangiomas, 6.219–221
hematopoietic, 6.218–219
histiocytic, 6.218–219
lacrimal drainage system, 7.316–317
lacral sac, 7.295f
Langerhans cell histiocytosis, 6.218–219
leukemia, 6.218
lymphoma, 6.218
lymphoproliferative, 6.218–219
metastatic, 6.218, 7.316
nasolacrimal duct obstruction caused by, 7.307
neuroblastoma, 6.218
primary malignant, 6.217–218
rhabdomyosarcoma, 6.217f, 6.217–218
sarcomas, 6.218
vascular, 6.219–221, 6.220–221f
Neosporin. See Polymyxin B sulfate/neomycin sulfate/
gramicidin
Neostigmine
description of, 2.381
in myasthenia gravis, 5.325, 5.326
Neovascular glaucoma, 4.188, 10.38f, 10.38–39, 10.132f,
10.132–135, 10.133f, 10.134f, 10.135f
iris examination in, 10.32, 10.39, 10.135f
tube shunt implantation for, 10.215
Neovascular membrane. See also Choroidal
neovascularization; Neovascularization
in age-related macular degeneration, 4.165f, 4.165–166
Neovascular proliferation, in proliferative diabetic
retinopathy, 12.102
Neovascular ("wet") age-related macular degeneration,
2.449, 4.154f, 4.164–166, 4.165f
afibercept for, 12.82–83
Amsler grid testing of, 12.71
antiangiogenic therapies for, 12.79–80
bevacizumab for, 12.83–85, 12.84f
choroidal neovascularization associated with,
12.71–79. See also Choroidal neovascularization
combination treatment for, 12.85
differential diagnosis of, 12.76, 12.79
intravitreal injections, 12.85
laser photocoagulation for, 12.79
low vision therapies for, 12.86
macular translocation surgery for, 12.85
management of, 12.79–86, 12.81f, 12.82t, 12.84t
p Pegaptanib for, 12.80
photodynamic therapy for, 12.79
polypoidal choroidal vasculopathy, 12.75
prevalence of, 12.61
ranibizumab for, 12.80–82, 12.82t
signs and symptoms of, 12.71
submacular hemorrhage in, 12.85, 12.385
surgical treatment for, 12.85–86
treatment effect modifiers, 12.85
verteporfin for, 12.79
Neovascularization
of anterior chamber angle, in glaucoma, 10.32, 10.38f,
10.38–39, 10.132f, 10.132–135, 10.133f, 10.134f,
10.135f. See also Neovascular glaucoma
in branch retinal vein occlusion, 4.159, 12.125,
12.128, 12.129f
in central retinal vein occlusion, 4.158, 12.125
in central serous chorioretinopathy, 12.194
choroidal. See Choroidal neovascularization
conceal
in atopic keratoconjunctivitis, 8.292, 8.293f
corneal transplantation and, 8.317
pediatric, 8.451
inflammation and, 8.52
after lamellar keratoplasty, 8.435
in rosacea, 8.70, 8.70f
stem cell deficiency and, 8.92, 8.93
in vernal keratoconjunctivitis, 8.290
in diabetes mellitus, 4.159, 4.160f. See also Diabetic retinopathy, proliferative
in glaucoma, 4.188, 10.38f, 10.38–39, 10.132f, 10.132–135, 10.133f, 10.134f, 10.135f. See also Neovascular glaucoma
incisional surgery contraindicated in, 10.198
laser iridotomy contraindicated in, 10.191
tube shunt implantation and, 10.215
of Henle (HFL), 2.84, 2.92, 2.94f, 4.140, 4.141f, 5.24
histology of, 12.11, 12.12f
imaging in evaluation of, 10.53–59, 10.55f, 10.56f, 10.57f, 10.58f
infarction of, 12.140. See also Cotton-wool spots
measurement of, 12.26
in multiple sclerosis, 5.318
myelination of, optic nerve/nerve head/disc edema differentiated from, 5.107–109, 5.108f
OCT in assessment of, 5.91, 5.91f, 5.92, 5.92f, 5.94, 5.94f
OCT measurement of, 12.218
optic nerve/nerve head/disc, 10.42–43, 10.43f, 10.45f
edema and, 5.82, 5.82f, 5.83f, 5.105
pallor of, 5.82, 5.82f, 5.91f
Nerve fibers, 4.140. See also Nerve fiber layer
distribution of, 10.42–43, 10.43f
myelinated, 4.143
Nerve head sign of sickling, 12.154
Nerve loop (Axenfeld loop), 4.108, 4.108f
Nerve (neural) sheath tumors
conjunctival/ocular surface, 8.345
of orbit, 4.237–238, 4.238f, 4.239f
of uveal tract, 4.199, 4.200f
Nervus intermedius, 5.49, 5.51f, 5.55–56, 5.276–277f
Netarsudil, 2.396
Nettelship-Falls ocular albinism, 2.230, 6.407
Neural crest cells
definition of, 2.143
ectomesenchymal cells derived from, 2.162f
migration of, 2.146–147f, 2.161f
types of, 2.144
Neural integrator/integration, 5.36, 5.37f, 5.38, 5.220
in gaze-evoked nystagmus, 5.38, 5.240
in saccadic eye movement, 5.220, 5.220f, 5.222
Neural network, brainstem, 5.33, 5.34
Neural retina
anatomy of, 2.48f
development of, 2.155, 2.155f
lamination of, 2.155
Neural (neuroretinal) rim, 10.48
changes in, in glaucoma, 10.48–50, 10.49f, 10.50f
Neural sheath tumors, 6.223. See also specific type conjunctival/ocular surface, 8.345
meningomas, 7.84–85f, 7.84–86
neurofibroma, 7.83f, 7.83–84
optic nerve glioma. See Optic nerve glioma
of orbit, 4.237–238, 4.238f, 4.239f
swannoma, 7.86–87
of uveal tract, 4.199, 4.200f
Neuralgia
occipital, 5.296, 5.297
postherpetic (PHN), 5.280, 5.298, 8.226f, 8.227, 8.229, 8.230
trigeminal (tic douloureux), 5.289f, 5.297
Neurilemoma (neurinoma/schwannoma)
conjunctival/ocular surface, 8.345
description of, 7.86
of orbit, 4.238, 4.239f
of uveal tract, 4.199
vestibular, Bruns nystagmus and, 5.243
Neuritis
chiasmal, 5.151–152f
optic. See Optic neuritis
Neuro-oculocutaneous syndromes. See also Phakoma/
phakomatoses
ataxia-telangiectasia, 6.393f, 6.403f, 6.403t, 6.404–404
characteristics of, 6.392
clinical features of, 6.393–394t
incontinencia pigmenti, 6.393f, 6.404t, 6.404–405, 6.404–405f
Klippel–Trénaunay syndrome (KTS), 6.406
neurofibromatosis type 1. See Neurofibromatosis 1
(NF1/von Recklinghausen)
neurofibromatosis type 2, 6.393t, 6.397
tuberculous sclerosis, 6.393f, 6.397–399, 6.398f, 6.398t
von Hippel–Lindau syndrome, 6.393t, 6.399–401, 6.400f, 6.400t
Wyburn–Mason syndrome, 6.222, 6.394t, 6.405t, 6.405–406
Neuro-ophthalmology
anatomy in, 5.5–56
afferent visual pathways, 5.23–31, 5.24f
autonomic pathways, 5.52–56
bony anatomy, 5.5–11
efferent visual system (ocular motor pathways), 5.31–46, 5.211
sensory and facial motor pathways, 5.47–52
vascular anatomy, 5.11–23
neuroimaging in, 5.57–76, 5.72t. See also
Neuroimaging
pregnancy and, 5.333–335
radiation therapy complications and, 5.357–358, 5.358f
systemic conditions and, 5.313–358
cerebrovascular disorders, 5.335–348
immunologic disorders, 5.313–318
infectious disorders, 5.348–357
inherited disorders, 5.328–333, 5.334t
Neuroblastoma, 6.218, 6.414–415, 6.415f
Horner syndrome and, 5.261–262
metastatic, 7.22f, 7.104, 7.105f
paraneoplastic-induced saccadic intrusions caused by, 5.249
Neurocognitive/neurodevelopmental disorders, cataract
surgery in patient with, 11.169–170
Neurocristopathy, 4.98–99, 4.99f, 4.100f. See also
Anterior segment, dysgenesis of; Axenfeld–Rieger syndrome
Peters anomaly and, 11.31–32
Neurocutaneous syndromes (phakomatoses), 5.330–333, 5.330–334f. See also Neurofibromatosis; specific type
Neuroectoderm, 2.149f, 2.150f, 2.160
tumors arising in, 8.338t, 8.338–345, 8.339f
Neuroectodermal cells, 2.157
Neuroectodermal tumor, primitive (PNET), retinoblastoma associated with, 4.298, 4.302, 4.302t
Neuroendocrine proteins, in aqueous humor, 2.276
Neurofibromas. See also Neurofibromatosis
acoustic, 5.330, 5.334t, 10.156
seventh nerve (facial) palsy and, 5.279, 5.279f
cutaneous, 5.330f
description of, 7.83f, 7.83–84
eyelid involvement/palsy and, 5.269, 5.269f, 5.271
ocular surface, 8.338t, 8.345
of orbit, 4.237–238, 4.238f
plexiform, 10.30, 10.156
eyelid involvement/palsies and, 5.269f
glaucoma and, 10.30, 10.156
of orbit, 4.238, 4.238f
of uveal tract, 4.199, 4.200f
Neurofibromatosis (NF), See also Neurofibromas;
Neurofibromatosis 1 (NF1/von Recklinghausen);
Neurofibromatosis 2 (NF2/bilateral acoustic/central)
conjointural neurofibroma and, 8.345
description of, 7.80
eyelid abnormalities/palsies caused by, 5.269f
Neurofibromatosis 1 (NF1/von Recklinghausen), 5.330, 5.330f, 5.334t, 7.83–84, 10.156
clinical features of, 6.393t
expressivity in, 2.220
eyelid involvement/palysies and, 5.269f
genetics of, 2.227–228
glaucoma and, 10.30, 10.156
Lisch nodules associated with, 4.259, 4.260f
manifestations of, 6.396–397
melanocytic lesions in, 6.392, 6.395f
neuroglial lesions in, 6.395f, 6.395–396
optic nerve meningiomas and, 4.250
optic pathway/optic nerve gliomas and, 4.249, 5.130, 5.334f
orbital involvement and, 4.238, 4.238f
plexiform neurofibromas in, 5.334t, 6.395f, 6.395–396, 10.30, 10.156
eyelid involvement/palysies and, 5.269f
sphenoid dysplasia associated with, 6.397
uveal/choroidal involvement and, 4.199, 4.200f
Neurofibromatosis 2 (NF2/bilateral acoustic/central)
description of, 5.330, 5.334t, 6.393t, 6.397, 10.156
seventh nerve (facial) palsies and, 5.279, 5.279f
Neurofibromin/neurofibromin 1, 5.334f
Neurofibromin 2 (merlin), 5.334f
Neurofibrovascular bundle, 6.29
Neurogenic muscle weakness, ataxia, and retinitis pigmentosa (NARP), 12.294
Neurogenic ptosis, 5.273, 5.273t
acquired, 7.246–248
congenital, 5.272–273, 7.246
myasthenia gravis as cause of, 7.247–248
temporary, 7.247
Neurogenic/neural tumors. See also specific type
conjointural/ocular surface, 8.345
Neurogenic vision loss, 7.119
Neuroglial lesions, 6.395f, 6.395–396
Neuroimaging, 5.57–76, 5.72t. See also specific modality
in aneurysm detection/evaluation, 5.69–70, 5.194f, 5.194–195, 5.340, 5.341f
in arteriovenous malformations, 5.292
in cerebral venous thrombosis, 5.69, 5.69f, 5.72t, 5.346
cerebral visual impairment evaluations, 6.188
clinical principles and, 5.57–59, 5.71–73, 5.72f
how to order studies and, 5.73
interpretable errors and, 5.57
modality selection and, 5.57, 5.71–73, 5.72f
prescriptive errors and, 5.57
what studies to order and, 5.57, 5.71–73, 5.72t
when to order studies and, 5.57, 5.71
in cranial nerve palsies, 5.70
Neuromyotonia, 5.202, 5.358
Neuronal ceroid lipofuscinoses (NCLs), 6.389t, 12.283t, 12.289, 12.290f
Neuronal nitric oxide synthase (nNOS), 2.394
Neuritis, vestibular, peripheral vestibular dysfunction and, 5.242
Neurons, retinal, 2.315–317, 2.328
neuritis/neuromyelitis optica, 5.66f, 5.72t, 5.115, 5.322–323
in papilledema, 5.109
in retinoblastoma, 4.292–293
in reversible cerebral vasocostriction syndrome, 5.347, 5.347f
in sarcoidosis, 5.327
superior oblique muscle palsy evaluations, 6.119
termiology used in, 5.75–76
in traumatic optic neuropathy, 5.139f, 5.140f
in vertebrobasilar insufficiency, 5.337f, 5.72t, 5.67–71, 5.68f
in sarcoidosis, 5.327–328.
Neurosensory retina, 4.139–140, 4.140f, 4.141f. See also Retina
Neurosyphilis
Neurotrophic keratopathy/persistent corneal defects and, 8.81, 8.81t, 8.199
hereditary sensory and autonomic. See Familial dysautonomia
optic. See Optic neuropathy
Neurotoxin Y (NPY), 2.249
Neurotoxins, 9.24t
Neuropathic pain, 1.40
Neuropathology
in Alzheimer disease, 1.209–210
behavioral changes caused by, 1.194
cataract surgery in patient with, 11.169–170
decision-making capacity assessments in, 1.211
epilepsy. See Epilepsy
hallucinations/illusions caused by, 5.174t
informed consent in patients with, 1.211–212
Lewy body dementia, 1.210
Parkinson disease, 1.204–205
in primary central nervous system/intraocular/vitreoretinal/retinal lymphoma, 4.312
prion-associated, 1.211
stroke. See Stroke
in syphilis. See Neurosyphilis
vascular dementia, 1.210
Neurotomography
Acoustic, 5.330, 5.334f, 10.156
seventh nerve (facial) palsy and, 5.279f, 5.279f
conjunctival/ocular surface, 8.345
Neuromuscular blocking agents, 2.383t, 6.174
Neuromuscular disorders. See also specific type
retinal degeneration associated with, 12.285
Neuromuscular junction disease
diplopia in, 5.206
ptosis in, 5.206, 5.273t
Neuromyelitis optica (NMO)/Devic disease), 5.107t, 5.116–118, 5.117f, 5.320–323
clinical presentation of, 5.320–322
diagnosis of, 5.322–323
treatment of, 5.323
Neuromyelitis optica (NMO)-IgG (AQP4-IgG)
antibody, 5.115, 5.117t, 5.118, 5.320, 5.322
Neuromyelitis optica spectrum disorder (NMOSD), 5.115, 5.116–118, 5.117t, 5.322, 5.323
Neurooogyric crisis caused by, 5.231
tardive dyskinesia caused by blepharospasm and, 5.281
facial movements and, 5.285
Neurologic disorders. See also specific type
Alzheimer disease, 1.209–210
behavioral changes caused by, 1.194
cataract surgery in patient with, 11.169–170
decision-making capacity assessments in, 1.211
epilepsy. See Epilepsy
hallucinations/illusions caused by, 5.174t
informed consent in patients with, 1.211–212
Lewy body dementia, 1.210
Parkinson disease, 1.204–205
in primary central nervous system/intraocular/vitreoretinal/retinal lymphoma, 4.312
prion-associated, 1.211
stroke. See Stroke
in syphilis. See Neurosyphilis
vascular dementia, 1.210
Neurotoxic optic neuropathy
in optic atrophy, 5.146
in optic nerve glioma, 5.128t
in optic nerve head/disc drusen, 5.89, 5.90f, 5.130f
in papilledema, 5.109
in retinoblastoma, 4.292–293
in reversible cerebral vasocostriction syndrome, 5.347, 5.347f
in sarcoidosis, 5.327
superior oblique muscle palsy evaluations, 6.119
termiology used in, 5.75–76
in traumatic optic neuropathy, 5.139f, 5.140f
in vertebrobasilar insufficiency, 5.337f, 5.338
Neuroleptic malignant syndrome (NMS), 1.204–205
Neuroleptics (antipsychotic drugs)
Neuromas.
Neurofibromas See also specific type
Neuromyelitis optica (NMO)-IgG (AQP4-IgG)
antibody, 5.115, 5.117t, 5.118, 5.320, 5.322
Neuromyelitis optica spectrum disorder (NMOSD), 5.115, 5.116–118, 5.117t, 5.322, 5.323
Neurooogyric crisis caused by, 5.231
Neuropathy
diabetic, 1.39–40
neurotrophic keratopathy/persistent corneal defects and, 8.81, 8.81t, 8.199
hereditary sensory and autonomic. See Familial dysautonomia
optic. See Optic neuropathy
Neuropoetide Y (NPY), 2.249
Neuropoetides, 9.24t
Neuroretinal disorder, HIV-associated (HIV-RND), 5.348
Neuroretinal (neural) rim, 10.48
Neuroretinitis, 5.118
f
f
layers of, 2.85f
Neuroretinopathy, acute macular (AMN)
Fundus autofluorescence in identification of, 5.90
OCT in identification of, 5.92, 5.93f
Neurosacrococnosis, 5.327–328.
Neurosyphilis
Neurosensory retina, 4.139–140, 4.140f, 4.141f. See also Retina
anatomy of, 4.139–140, 4.140f, 4.141f
cells of, 2.305
definition of, 2.84
description of, 2.83
external limiting membrane of, 2.91
ganglion cell layer of, 2.92
glial elements of, 2.88
inner nuclear layer of, 2.92
inner plexiform layer of, 2.92
internal limiting membrane of, 2.92
layers of, 2.84, 2.85f
malignoma invading, 4.194, 4.195f
middle limiting membrane of, 2.92
nerv fiber layer of, 2.92
neuronal elements of, 2.84–88, 2.86f
ischemia affecting, 4.151f, 4.151–152, 4.152f
outer nuclear layer of, 2.91–92
outer plexiform layer of, 2.91–92
retinal pigment epithelium and, 2.91
stratification of, 2.91–93, 2.93f
vascular elements of, 2.88–90, 2.90–91f. See also Retina, blood vessels of...
Neurotrophic proteins, in aqueous humor, 2.276
Neurotrophic keratopathy/ulcers, 8.42, 8.80–82, 8.81t, 8.82f
diabetic neuropathy and, 8.81, 8.81t, 8.199
Neurovectorism in evaluation of, 8.42
herpetic/postherpetic eye disease and, 4.77f, 4.78, 8.80, 8.81, 8.217–218, 8.224, 8.225, 8.227
after penetrating/deep anterior lamellar keratoplasty, 8.80
Neurotrophins, 4.7
activation of, 9.10, 9.11f, 9.12
adhesion of, 9.11f, 9.12
characteristics of, 9.2
in chemical injuries, 8.383
in external eye defense, 8.13
granule products of, 9.25
in inflammation, 4.7
in innate immune response, 9.10–12
lipopolysaccharide effects on, 9.7
in innate immune response, 9.10–12
recruitment and activation of, 9.10–12, 9.11f
resting, 9.10
transmigration of, 9.11f, 9.12
in wound healing/repair, 4.14, 4.15f
Neutrophil rolling, 9.10, 9.11f
Nevanac. See Nepafenac
Nevi/nevus, 7.195–197, 7.196f
anterocular chamber/trabecular meshwork affected by, 4.106
blue, 4.64
of choroid, 4.191, 4.192f, 4.256–258, 4.257f,
4.267–268
melanoma differentiated from, 4.267–268
goingenital body, 4.191, 4.256
compound, 8.338t
of conjunctiva, 4.64
of eyelid, 4.219, 4.219f
congenital, 4.218, 4.218f
conjunctival/orificial surface, 4.61–64, 4.63t,
4.64f, 4.65f, 6.250, 6.250f, 8.338–339t, 8.340f,
8.340–341
malignant transformation of, 4.64, 8.338–339t, 8.340f,
8.340–341
malignant transformation and, 4.64, 4.68
melanoma and, 4.64, 8.340, 8.341, 8.343
dermal (intradermal), 4.219, 4.220f
dysplastic, melanoma arising from, 4.220, 4.262
of eyelid, 4.218f, 4.218–220, 4.219f, 6.200–201,
6.201f
flammeus (port-wine nevus/stain/PWS)
description of, 8.345f, 8.346
increased episcleral venous pressure and, 10.30
in Sturge-Weber syndrome, 5.332f, 5.334t, 8.346,
10.30, 10.155
intradermal (dermal), 4.219, 4.220f
intraepithelial (junctional), 8.338t, 8.340
iris, 4.106, 4.189–190, 4.190f, 4.255, 4.256f, 4.259
junctional
of conjunctiva, 4.64
of eyelid, 4.219, 4.219f
"kissing," 4.218, 4.218f
magnocellular. See Melanocytoma
melanocytic
of anterior chamber/trabecular meshwork, 4.106
congenital, 4.218, 4.218f
conjunctival, 4.61–64, 4.63t, 4.64f, 4.65f
malignant transformation of, 4.64, 4.68
of eyelid, 4.218f, 4.218–220, 4.219f
glaucoma and, 4.106
malignant transformation/melanoma risk and,
4.64, 4.68, 4.218, 4.263, 4.267–268
of Ota (dermal/oculodermal melanocytosis), 4.63t,
4.64, 6.251, 7.198, 7.198t, 8.339, 8.339t
glaucoma associated with, 10.30
of iris, 4.259
port-wine. See Nevus, flammeus
stomal, 4.64, 8.340
subepithelial, 4.64, 8.338t, 8.340
uveal tract, 4.191, 4.192f
Nevus cells, 4.218, 4.219f, 4.219–220, 4.220f, 7.195
tumors arising from, 4.218, 8.338t, 8.338–345,
8.339t. See also Melanocytic tumors; Nevi/nevus;
Pixelated (melanocytic) lesions
Newborn primary congenital glaucoma, 10.147, 10.148t,
10.151. See also Glaucoma, pediatric; Primary
congenital glaucoma
Newborns. See also Infant(s)
conjunctivitis in, 8.257, 8.263–265
corneal transplantation in, 8.450–451
dysconjugate eye movements in, 6.185
extraocular muscles in, 6.182
glaucoma in, 10.147, 10.148t, 10.151. See also
Glucoma, pediatric; Primary congenital glaucoma
herpes simplex infection in, 8.213
maternal antiglaucoma agents affecting, 10.185–186
normal ocular flora in, 8.205
ocular deviations in, 5.230–231
ocular infections in, 8.257, 8.263–265. See also
specific type
ophthalmia neonatorum in, 8.257, 8.263–265
pupils in, 6.10
skew deviation in, 6.185
sunsetting in, 6.185
visual acuity of, 6.44
visual development in, 6.185
Newcastle Control Score for Intermittent Exotropia, 6.100
Newcastle disease, 8.240t
Newton, Isaac
description of, 3.94
third law of motion, 3.293
Next-generation sequencing (NGS/massively parallel
DNA sequencing), 4.39f, 6.301
NF. See Neurofibromatosis
NF1. See Neurofibromatosis 1 (NF1/von
Recklinghausen)
NF1 gene, 5.334t
NF2. See Neurofibromatosis 2 (NF2/bilateral acoustic/
central)
NF2 gene, 5.334t
NF-kB. See Nuclear factor kB
NFL. See Nerve fiber layer
NGS. See Next-generation sequencing
NH3. See Ammonia
NHANES. See National Health and Nutrition
Examination Surveys
244

d

Master Index

OCT in evaluation of, 5.91f
visual evoked potentials in, 12.52
posterior (PION), 5.107t, 5.124
Noncaseating granulomas, 4.8f, 7.65
in granulomatous conjunctivitis, 4.52, 4.52f
in sarcoidosis, 4.187, 4.187f
Noncoding DNA, 2.177–178
Noncomitant deviations. See Incomitant (noncomitant)
deviations
Noncompliance, 2.373, 2.373t
Noncontact specular microscopy, 8.23
Noncontact (air-­puff) tonometers, 10.26
Noncycloplegic (manifest) refraction. See also
Refraction, clinical
IOL power calculation and, 13.194, 13.195
­after penetrating keratoplasty, 8.431–432, 8.432f
before refractive surgery, 13.39, 13.40
­laser programming and, 13.40, 13.81
Noncycloplegic refraction, 3.168–169
Nondepolarizing agents, 2.382
Nondihydropyridine calcium channel blockers, 1.61
Nondisjunction
meiotic, 2.223
mitotic, 2.224
Nonenveloped viruses, 8.212
Nonexperimental studies, 1.8
Nonexudative/“dry” age-­related macular degeneration.
See Nonneovascular (“dry”/nonexudative) age-­
related macular degeneration
Nongranulomatous inflammation, 4.7
Non–­Hodgkin lymphoma of the central ner­vous system.
See Primary vitreoret­i­nal lymphoma
Nonhomologous chromosomes, 2.216
Noninfectious ocular inflammatory diseases. See also
specific type and specific cause
conjunctivitis, 4.52–55, 4.54f
sarcoidosis and, 4.52, 4.52f
keratitis, 4.80–81
optic nerve involvement and, 4.244f, 4.244–245,
4.245f
orbital, 4.224–226, 4.225f
uveitis/autoimmune uveitis, 4.127, 4.128f. See also
specific cause
vitreous infiltrate in, 4.127, 4.128f
Noninvasive prenatal screening, 2.239
Noninvasive pressure support ventilation, 1.126–127
Nonketotic hyperglycemic hyperosmolar coma,
1.38–39
Nonlaser lamellar keratorefractive surgery, 13.8t
Nonnecrotizing herpetic retinitis, 9.250–254
Nonnecrotizing herpetic retinopathy, 9.250
Nonnecrotizing scleritis, 4.110, 8.46t, 8.320t, 8.320–322,
8.321–322f
Nonnecrotizing stromal keratitis, 8.51f
herpes simplex causing, 8.219, 8.220f, 8.221f, 8.223t
Nonneovascular (“dry”/nonexudative) age-­related
macular degeneration, 4.164, 4.164f
Amsler grid testing for, 12.68–69
contrast sensitivity issues in, 12.56
differential diagnosis of, 12.67–68
disproven treatment approaches for, 12.71
drusen in, 4.160–163, 4.161–163f
education regarding, 12.68

focal atrophy in, 12.66
follow-up for, 12.68
geographic atrophy in, 12.64, 12.66, 12.67f, 12.68
hydrochloroquine toxicity versus, 12.68
hyperacuity testing for, 12.69
lifestyle changes for, 12.71
management of, 12.68–71
micronutrients for, 12.69–71
preferential hyperacuity perimetry for, 12.69
prevalence of, 12.61
ret­i­nal pigment epithelium abnormalities in, 4.164,
4.164f, 12.66–67
shape-­discrimination hyperacuity for, 12.69
Nonnephropathic cystinosis, 8.181, 8.181f
Nonorganic (functional/nonphysiologic) ophthalmic
disorders, 5.299t, 5.299–312
afferent visual pathways and, 5.301–305, 5.302f,
5.303f, 5.304f, 5.305t
clinical profile of patient with, 5.300
examination techniques in, 5.301–311, 5.302f, 5.303f,
5.304f, 5.305t, 5.307f, 5.308f, 5.309f
eyelid position/function and, 5.310–311
malingering and, 5.299
management of, 5.311
ocular motility/alignment and, 5.309–310
organic disorders misdiagnosed as, 5.299, 5.299t
pupils/accommodation and, 5.310
Nonorganic overlay, 5.299, 5.311
Nonparaneoplastic autoimmune retinopathy (NpAIR),
5.103
Nonparaneoplastic autoimmune retinopathy (NpAIR)-­
associated antibody, 5.103
Nonpenetrance, 2.219
Nonpenetrating glaucoma surgery, 10.217–219
Nonperfused/complete/ischemic central ret­i­nal vein
occlusion, 4.156, 4.157–158, 4.158f
Nonphysiologic ophthalmic disorders. See Nonorganic
(functional/nonphysiologic) ophthalmic disorders
Nonpigmented epithelium (NPE)
definition of, 2.270
tight junctions of, 2.270, 2.275
Nonproliferative diabetic retinopathy (NPDR)
anti-­VEGF therapy for, 12.101–102
clinical findings in, 12.99
definition of, 12.91
intraret­i­nal hemorrhages associated with, 12.100f
intraret­i­nal microvascular abnormalities in, 12.100f
microaneurysms associated with, 12.100f
optical coherence tomography angiography of, 12.94f
panret­i­nal photocoagulation for, 12.101
posterior vitreous detachment creation for, 12.102
progression of, to proliferative diabetic retinopathy,
12.101
ranibizumab for, 12.102
scatter photocoagulation for, 12.116
severity of, 12.95t, 12.99
treatment of, 12.101–102
venous beading associated with, 12.100f
vision loss in, 12.101
Nonproliferative sickle cell retinopathy (NPSR). See also
Sickle cell retinopathy
branch ret­i­nal artery occlusions in, 12.152f
characteristics of, 12.149–150


imaging of, 12.150–12.152f
retinal arteriolar occlusions in, 12.151f
salmon–patch hemorrhage in, 12.150f
Nonrefractive accommodative esotropia, 6.90
Nonhematogenous retinal detachment. See Retinal detachment
Nonsense mutations, 2.183
Nonseptate filamentous fungi, 8.249, 8.251. See also Filamentous fungi: Fungi
Nonspecific orbital inflammation (NSOI/orbital pseudotumor/idioptic orbital inflammation/orbital inflammatory syndrome [OIS])
corticosteroids for, 7.69–70
diagnosis of, 7.68–70
orbital lymphoma differentiated from, 4.225
pain in, 5.295
pathogenesis of, 7.67
sclerosing, 7.70
symptoms of, 7.68
treatment of, 7.70
Nonspherical optics, 3.257
Non–ST-segment elevation myocardial infarction (NSTEMI). See Acute coronary syndrome
Nonsteroidal anti-inflammatory drugs (NSAIDs).
See also specific drugs
for ankylosing spondylitis, 1.155, 9.132
for corneal abrasion, 8.398–399
corneal complications of, 2.411
corneal melting after cataract surgery associated with, 11.132, 11.173
corticosteroids and, concomitant use of, 9.103
cyclooxygenase inhibition by, 2.409
for cystoid macular edema, 2.410
after cataract surgery, 11.165
derivatives of, 2.407–409
after LASIK, 13.93
for diffuse lamellar keratitis, 13.117
macular edema treated with, 9.322
ocular adverse effects of, 1.308f
for ocular allergies
description of, 6.247f
hay fever conjunctivitis, 8.289
platelet function inhibition using, 1.143
rheumatic disorders treated with, 1.176
rheumatoid arthritis treated with, 1.153
for scleritis, 8.324, 8.325f, 9.126
after surface ablation, 13.92, 13.93–94, 13.108
delayed re-epithelialization and, 13.93–94, 13.108
sterile infiltrates and, 13.108
types of, 2.400f, 2.409f, 2.409–411
uveitis treated with, 9.113, 9.315
Nonsyndromic panretinal dystrophies, 12.258–259
Non tuberculous (atypical) mycobacteria, 7.50, 7.50f, 8.248, 8.272–273, 8.273f
neuro-ophtalmic signs of infection with, 5.350
Nonulcerative stromal interstitial keratitis, 9.220, 9.221f
Nonvalved tube shunts, 10.214, 10.214f
Norflex. See Norfloxacin
Norfloxacin, 2.421f
Normal distribution, 1.6
Normal flora, ocular, 8.205–206, 8.206f
Normal retinal correspondence (NRC)
afterimage test for, 6.79f
in intermittent exotropia, 6.100
strabismus and, 6.48, 6.49f
testing for, 6.51
Normal-tension glaucoma (NTG), 10.3, 10.4f, 10.85f, 10.85–88, 10.86f. See also Glaucoma, normal-tension
Normocytic anemia, 1.132
Norrie disease, 2.212, 6.347
North Carolina macular dystrophy, 12.277, 12.278f
NOS. See Nitric oxide synthetase
Nose. See also specific Nasal entries
anatomy of, 7.19, 7.282f
bony projections of, 7.19
inferior meatus of, 5.11
physical examination of, 7.296
Nosema, 8.252
stromal keratitis caused by, 8.280
NOTCH3 gene mutation, in cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy, 5.295
Nothnagel syndrome, 5.191
Novocain. See Procaine penicillin
Nozik technique, for uveitis, 9.95–96, 9.97f
NpAIR. See Nonparaneoplastic autoimmune retinopathy
NPC. See Near point of convergence
NPDR. See Nonproliferative diabetic retinopathy
NPE. See Nonpigmented epithelium
NPH. See Nucleus prepositus hypoglossi
NPS gene, 10.11f
NPSR. See Nonproliferative sickle cell retinopathy
NPV. See Negative predictive value
NPY. See Neuropeptide Y
NRC. See Normal retinal correspondence
NRF2. See Nuclear factor erythroid 2–related factor
Nrl, 2.155
NRTIs. See Nucleoside reverse transcriptase inhibitors
NSAIDs. See Nonsteroidal anti-inflammatory drugs
NSF. See Nephrogenic systemic fibrosis
NSOI. See Nonspecific orbital inflammation
NSSDE. See Non–Sjögren syndrome dry eye
NSTEMI. See Non–ST-segment elevation myocardial infarction
NTG. See Normal-tension glaucoma
nTreg cells. See Natural regulatory T (nTreg) cells
NTRK1 gene, in congenital insensitivity to pain with anhidrosis, 8.108
Nuclear cataracts, 4.123, 4.124f, 11.43–45, 11.45f
characteristics and effects of, 11.43, 11.44, 11.70, 11.70t
in children/congenital, 11.38, 11.39f
genetic contributions to, 11.42
hyperbaric oxygen therapy and, 11.20, 11.65
infantile, 6.295, 6.296f
after posterior chamber phakic IOL insertion, 13.146
race and, 11.6
in rubella, 6.410
sclerotic, 12.402
vitrectomy and, 11.55, 11.190

Nuclear factor erythroid 2–related factor (Nrf2), 2.338

Nuclear facial palsy, 5.276

Nuclear disassembly/removal, 11.111, 11.112–114, 11.113f

Nummular keratitis, 6.243

Numbness, facial pain and, 5.298

Number needed to treat (NNT), 1.22

Null point/zone, 5.234

Null mutations, 2.183

Nucleotides, 2.176. See also Nucleic acids

Nucleus (lens). See Lens (crystalline), nucleus of Nucleus prepositus hypoglossi (NPH), 5.35, 5.35f, 5.220 horizontal gaze and, 5.37f, 5.38 NuLens accommodating intraocular lens, 13.170

Null allele, 2.194

Null-cell adenomas, 1.48

Null hypothesis
definition of, 1.5 rejection of, 1.5

Null mutations, 2.183

Null point/zone, 5.234

in congenital motor nystagmus, 6.148, 6.156 in jerk nystagmus, 6.147 surgical adjustment of for nystagmus, 5.236, 5.237f

Number needed to treat (NNT), 1.22

Numbness, facial pain and, 5.298

Nummular keratitis, 6.243 herpes zoster, 8.228, 8.228f

Nursing (breastfeeding) glaucoma medication use during, 10.185–186 refractive surgery contraindicated during, 13.37

Nutritional deficiency anemia caused by, 1.132–134 cataract formation and, 11.7, 11.63–64 cornal changes in, 8.196–197, 8.197f optic neurpathy and, 5.107f, 5.137–139, 5.138f

Nutritional supplements. See also specific type for dry eye, 8.61f, 8.64, 8.68

NVD. See Neovascularization, optic nerve/nerve head/ disc

optokinetic (OKN/optokinetic system), 5.212, 5.212f, 5.218–219, 6.40
dysfunction of, 5.218–219
in congenital nystagmus, 5.235
parietal lobe lesions and, 5.156, 5.219
nonorganic disorders and, 5.301–302
pendular, 5.214, 5.233, 5.234f, 5.246–247, 6.147
acquired, 5.246–247
in multiple sclerosis, 5.246, 5.319
periodic alternating (PAN), 5.243t, 5.245–246, 6.149
prevalence of, 6.147
prisms for, 6.155
pupil responses in, 6.154
rebound, 5.240–241
retinal dystrophy and, 6.391f
saccadic intrusions, 5.233, 5.247–250, 5.248f
see-saw (vision loss), 5.243
vertical, 6.152
vestibular, 5.215, 5.234f, 5.241t, 5.241–246, 5.243t, 5.245f
central, 5.216, 5.243t, 5.243–246, 5.245f
peripheral, 5.216, 5.241t, 5.241–243
visual evoked potentials in, 12.53
visual acuity assessments in, 6.8, 6.153–154
visual evoked potentials in, 12.53
voluntary, 5.249–250, 5.309
wandering, 12.266
Nystagmus blockage syndrome, 6.95, 6.148, 6.155
Nystagmus-like disorders, 6.152–153
Nystatin, 1.277

O

OA. See Ocular albinism
OA1 (albinism). See Ocular albinism
OAT gene, 12.269
OAVS. See Oculoauriculovertebral syndrome
Obesity
in children, 1.68
floppy eyelids and, 8.82
hypertension risks associated with, 1.66, 1.68
in idiopathic intracranial hypertension, 5.111, 5.112
Object agnosia, 5.179
Object distance, 3.4, 3.10
Object vergence, 3.51
Objective refraction. See Retinoscope/retinoscopy
OBL. See Opaque bubble layer
Oblate, 3.267
Oblate cornea, 13.14, 13.26
Q value and, 13.14
after radial keratotomy, 13.50
Oblique astigmatism, 3.139, 3.147
Oblique muscles, 5.8f, 5.45–46, 5.46f. See also Inferior oblique (IO) muscle; Superior oblique (SO) muscle
anatomy of, 5.8f, 5.45, 5.46, 5.46f, 6.20–22, 6.21t
innervation of, 5.40, 5.44, 5.44f
myokymia affecting, 5.250–251
overactions of, 6.17, 6.117
pseudo-overactions, 6.116
tightening procedures for, 6.164f, 6.166–167
weakening procedures. See Weakening procedures
O’Brien nerve block, for cataract surgery, 11.92, 11.93f
Observation
in management of choroidal/ciliary body melanoma, 4.274
in management of medulloepithelioma, 4.296
in management of ocular surface tumor, 8.328–329
Observational studies, 1.8
Obstructive lung diseases
chronic obstructive pulmonary disease, 1.124
description of, 1.123
irreversible, 1.124
reversible, 1.123–124
Obstructive shock, 1.300. See also Shock
Obstructive sleep apnea (OSA)
characteristics of, 1.124–125
continuous positive airway pressure for, 1.127
ocular conditions associated with, 1.127
Obstructive sleep apnea syndrome (OSAS)
floppy eyelids and, 8.79, 8.82
hypertension and, 1.66
nonarteritic anterior ischemic optic neuropathy associated with, 1.67
retinal findings secondary to, 1.67
OCA. See Albinism
Occliptoral artery, 5.12
Occliptoral bone, 5.5
Occliptoral ischemia, transient visual loss and, 5.162, 5.172
Occliptoral lobe, 5.24f
lesions of, 5.147f, 5.156–158, 5.157f, 5.158f, 5.159f.
See also Occliptal (primary visual/calcarine/ striate) cortex, disorders of
hallucinations and, 5.158, 5.177
transient visual loss/seizures and, 5.161, 5.162,
5.172
Occliptoral nerves, facial pain and, 5.296
Occliptoral neuralgia, 5.296, 5.297
Occliptal (primary visual/calcarine/striate) cortex, 5.24f,
5.29f, 5.29–31, 5.30f, 5.32f, 5.34f
hallucinations and, 5.158, 5.176–178
illusions and, 5.175
recognition disorders and, 5.178t, 5.179, 5.180f
vision/visual deficit awareness disorders and, 5.178t, 5.180–181
visual-spatial relationship disorders and, 5.178t,
5.180
ocular motor control and, 5.32f, 5.32–33, 5.34f
vascular supply of
arterial supply, 5.20, 5.20f
venous drainage, 5.22f, 5.22–23, 5.23f
Occliptal seizures, transient visual loss and, 5.161, 5.162,
5.172
Occliptoparietal pathway, 5.30f
Occliptoparotemporal pathway, 5.30f
Oclusion, in phacoemulsification, 11.92, 11.93f
Oclusion therapy. See also Patching
adherence to, 6.60
amblyopia treated with, 6.58, 6.96, 6.102
basic acquired nonaccommodative esotropia secondary to, 6.93
full-time, 6.58, 6.60
intermittent esotropia treated with, 6.102
part-time, 6.58
reverse amblyopia caused by, 6.60

Occlusive arterial disease
branch retinal artery emboli that cause, 12.141, 12.142f
hypertensive retinopathy and, 12.122
imaging of, 12.141f
management of, 12.142
multiple, 12.152f
in nonproliferative sickle cell retinopathy, 12.152f
retinal infarction caused by, 12.141
in Susac syndrome, 12.156
branch retinal vein aflibercept for, 12.135
at arteriovenous crossing, 12.126
bevacizumab for, 12.135
clinical findings in, 12.125–127, 12.126f
corticosteroids for, 12.137–138
diabetes mellitus and, 12.128
fluorescein angiography of, 12.129f
glaucoma as risk factor for, 12.125
hypertensive retinopathy and, 12.122
intraretinal hemorrhages associated with, 12.125, 12.126f
macular laser surgery for, 12.128
neovascularization in, 12.125, 12.128, 12.129f
pars plana vitrectomy for, 12.130
pharmacologic management of, 12.135–138
prognosis for, 12.128
ranibizumab for, 12.135
risk factors for, 12.127–128
scatter photocoagulation for, 12.128–130
spontaneous resolution of, 12.128
surgical management of, 12.128–130
triamcinolone for, 12.137
vision loss caused by, 12.128
central retinal artery anti-VEGF therapy for, 12.146
causes of, 12.144
ciliary artery occlusion with, 12.144, 12.145f
electroretinography findings in, 12.50
emboli as cause of, 12.144
neovascularization as cause of, 12.145
illustration of, 12.16f, 12.144f
iris neovascularization in, 12.146
management of, 12.146
retinal infarction caused by, 12.143
spectral-domain optical coherence tomography of, 12.144f
symptoms and signs of, 12.143
vision loss caused by, 12.143–144
central retinal vein occlusion. See Central retinal vein occlusion

Occlusive retinal disease
arterial. See also Retinal artery occlusion
branch retinal artery occlusion, 4.156
central retinal artery occlusion, 4.156, 4.157f
venous. See also Retinal vein occlusion
branch retinal vein occlusion, 4.158–159
central retinal vein occlusion, 4.156–158, 4.158f
angle-closure glaucoma and, 10.143–144
neovascularization and, 10.134–135
open-angle glaucoma and, 10.84

Occlusive retinopathy, 12.300–301
Occlud choroidal neovascularization, 12.72–73
Occlud giant cell arteritis, 5.120, 5.170
Occlud macular dystrophies, 12.227
Occupation, refractive surgery selection and, 13.36–37
Occupational therapists, 3.325
Ochronosis, 8.118, 8.184, 8.185f
Ocriplasmin, 2.304, 12.337, 12.340
OCRL1 gene, in oculocerebrorenal (Lowe) syndrome, 4.118, 6.391
OCT. See Orbital compartment syndrome
OCTA. See Optical coherence tomographic angiography
Octopus perimeters, 10.61
visual field progression evaluation with, 10.74
Ocu-Dex. See Dexamethasone sodium phosphate
Ocufen. See Flurbiprofen sodium
Oculofx. See Ofloxacin
Ocular adnexa. See also specific structure
abnormalities of, in craniostenosis, 6.209
anatomy of, 2.5–15, 2.6–15f
in cryptophthalmos, 6.191
description of, 6.181
development of, 2.163, 2.164f
in external eye defense, 8.11
extraocular muscles. See Extraocular muscles
glands of, 2.30f
in glaucoma evaluation, 10.29–30
Kaposi sarcoma of, 5.349, 9.333, 9.333f
lesions of, 7.190–194, 7.191–192f
lymphoma/lymphoproliferative lesions of, 4.231, 4.232, 4.233f. See also Lymphomas
lymphoproliferative lesions of, 7.91
orbit. See Orbit
Ocular albinism (OA), 6.406–407. See also Albinism
characteristics of, 12.288
description of, 2.78, 4.142, 4.142f
pattern–appearance visual evoked potentials in, 12.53
X-linked, 2.230

Ocular alignment assessment of
alternate cover test, 6.65–66, 6.66f
corneal light reflex tests, 6.67–68, 6.68f
cover tests, 6.64–67, 6.65–66f
diagnostic positions of gaze, 6.64
Lancaster red-green test for, 6.69
Maddox rod test, 6.68–69, 6.69f
major amlyoscope for, 6.70, 6.70f
monocular cover test, 6.64, 6.65f
prism alternate cover test, 6.65–66, 6.66f
red reflex tests, 6.67–68
simultaneous prism and cover test, 6.66–67
subjective tests for, 6.68–70
disorders of/unsatisfactory, 5.184–185. See also Diplopia
nonorganic, 5.309–310
after extracocular muscle surgery, 6.168
in infantile esotropia, 6.88–89
refractive surgery and, 13.41
tests of, 5.184f, 5.184–185, 5.185f. See also specific type
See also Allergic reactions/allergies
Ocular argyrosis/argyria/argyriasis, 12.306
silver causing, 4.120
Ocular autonomic pathways, 5.52–56
parasympathetic, 5.52, 5.54–56, 5.55f
sympathetic, 5.52–54, 5.53f
Ocular biometrics. See Biometry/biometrics
Ocular bobbing, 5.228
Ocular cicatricial pemphigoid. See Mucous membrane (ocular cicatricial) pemphigoid
Ocular cysticercosis. See Cysticercosis
Ocular cytology. See Cytology
Ocular decongestants, 2.416–417
Ocular deviation. See also Eye, development of
adnexa, 2.163, 2.164f
anterior chamber, 2.161, 2.161f
choroid, 2.160–161
ciliary body, 2.157, 2.159f, 2.160
cornea, 2.161–162f
diffusible ligands in, 2.165–166
embryogenesis in, 2.143–144, 2.144–146f, 2.148f
extraocular muscles, 2.162–163
genes, 2.164–166
growth factors in, 2.165
homeobox genes, 2.164–165
iris, 2.157, 2.159–160f, 2.160
lacrimal gland, 2.163
lens, 2.153–155, 2.154f
morphogenetic gradients, 2.164–166
morphogens in, 2.165
neural crest cell migration in, 2.146–147f, 2.161f
optic nerve, 2.156f, 2.157
orbit, 2.164
retina, 2.155, 2.155f
retinal pigment epithelium, 2.157
sclera, 2.162
timeline of, 2.148, 2.150–151f, 2.152t
uvea, 2.157
vitreous, 2.157, 2.158f
Ocular deviations. See Deviations
Ocular dominance, determining, 13.39
Ocular drug design, 2.363–365
Ocular emollients, 2.415
Ocular examination. See Examination
Ocular expansion, pathologic myopia as cause of, 12.216
Ocular fixation system, 5.212, 5.212t, 5.213–214.
See also Fixation
dysfunction of, 5.214
Ocular history. See also History
in cataract, 11.69–71, 11.70t
evaluation for surgery and, 11.75–76
diabetes mellitus and, 10.83
f
Ocular hemangiendothelioma, 11.79–80, 11.79–80
in low vision evaluation, 3.312
refractive surgery evaluation and, 13.36t, 13.37–38
Ocular hypertension (OHT), 10.4
in low vision evaluation, 3.312
refractive surgery evaluation and, 13.36t, 13.37–38
Ocular hypertension (OHT), 10.4t, 10.89–90, 10.112.
See also Elevated intraocular pressure; Intraocular pressure
age/aging and, 10.81
coneval and, 10.25, 10.90, 10.112
corticosteroid-induced, 9.317, 9.319
f
Ocular hypotony, 2.470
See Ocular hypotension.
Ocular hypotelorism, 6.191
Ocular immune privilege antigens, 9.56
definition of, 9.51
regulators involved in, 9.57
Ocular immunology. See Immune response; Immune response arc
Ocular infection. See Infection; Infectious diseases
Ocular inflammation. See Endophthalmitis;
Inflammation (ocular); Uveitis; specific organ or structure affected
Ocular injury. See Penetrating and perforating ocular trauma; Trauma
Ocular inserts, 2.363–364
Ocular instability of infancy, 6.87
Ocular ischemic syndrome (OIS), 5.170, 5.171f, 9.310
central retinal vein occlusion versus, 12.134
course of, 12.139
definition of, 12.138
etiology of, 12.139
ischemic cardiovascular disease associated with, 12.139
retinopathy caused by, 12.138
stroke rate in, 12.139
symptoms and signs of, 12.138–139
treatment of, 12.140
Ocular larval migrans, 8.253. See also Toxocara
(toxocariasis)
Ocular lateropulsion, in Wallenberg syndrome, 5.217
Ocular melanocytosis (melanosis oculi), 4.63f, 4.64,
4.65f, 6.250–251, 6.251f, 8.338t, 8.338–340, 8.339f,
8.339t
choroidal nevus resembling, 4.257, 4.257f
congenital, 8.338–340, 8.339f
of iris, 4.259, 4.260f
Ocular microbiology. See Microbiology
Ocular motility. See also specific type of eye movement abnormal, 5.183–209. See also Ocular motility, disorders of assessment of, 5.233–235, 5.234f
before cataract surgery, 11.77–78
in nonorganic disorders, 5.309–310
before refractive surgery, 13.41
binocular eye movements and. See also specific type conjugate (versions), 5.34–35, 5.35f
in diplopia, 5.184
disconjugate (vergence), 5.212, 5.212f, 5.226–228.
See also Vergences/vergence system contact lens trial before refractive surgery and, 13.199
control of, 5.31–46, 5.211, 5.212f
Ocular motor pathways
brainstem in, 5.34–40, 5.35f, 5.36f, 5.37f, 5.39f
cerebellum in, 5.39–40
cortical/supranuclear pathways in, 5.32f, 5.32–33, 5.34f. See also Supranuclear (cortical) pathways disorders of, 5.188, 5.188f, 5.211–231
cranial nerves/infranuclear pathways in, 5.40f, 5.40–45, 5.41f, 5.42–43f, 5.44f, 5.211
disorders of, 5.191–206, 5.193f, 5.194f, 5.198f, 5.199f, 5.200f, 5.204f. See also Diplopia extraocular muscles in, 5.45–46, 5.46f
ocular fixation system in, 5.212, 5.212f, 5.219–223, 5.220f
saccades/saccadic system in, 5.32–33, 5.38, 5.212, 5.212f, 5.212f, 5.212–213, 5.220f
smooth-pursuit system in, 5.32, 5.33, 5.34f, 5.212, 5.212f
subcortical structures in, 5.33–34
vergence system in, 5.212, 5.212f, 5.226–228
vestibular-ocular system in, 5.38–39, 5.39f, 5.212f, 5.212f
disorders of, 5.183–209, 5.211–231. See also specific disorder chronic progressive external ophthalmoplegia (CPEO), 6.141–142, 6.143f
diplopia, 5.183–209. See also Diplopia esotropia and hypotropia associated with high myopia, 6.143–144
gaze palsy/preference and, 5.228–230, 5.229f,
5.230f
inunuclear, 5.191–206, 5.193f, 5.194f, 5.198f, 5.199f, 5.200f, 5.204f
internuclear ophthalmoplegia, 6.144
localization of lesions causing, 5.187f, 5.187–188
in multiple sclerosis, 5.245, 5.246, 5.249, 5.318–319
myasthenia gravis, 6.142f, 6.142–143, 6.143f
nonorganic, 5.309–310
nystagmus/spontaneous, 5.233–251, 5.234f.
See also Nystagmus oculart fixation system dysfunction and, 5.214
ocular motor apraxia, 6.144–145
optokinetic nystagmus dysfunction and, 5.218–219
saccadic dysfunction and, 5.221–223, 5.233, 5.247–250, 5.248f
intrusions, 5.233, 5.247–250, 5.248f
ocular motor apraxia and, 5.221, 5.222–223
seizure activity and, 5.230
smooth-pursuit system dysfunction and, 5.224,
5.225–226
superior oblique myokymia, 6.145
supranuclear, 5.188, 5.188f, 5.211–231
thyroid eye disease, 6.140–141, 6.141f, 6.143f, 6.215
in thyroid eye disease, 4.226
tonic deviations and, 5.230–231
vergence dysfunction and, 5.227–228
in vertebrobasilar insufficiency, 5.337, 5.337f
vestibular/vestibular-ocular dysfunction and, 5.216f, 5.216–218, 5.234f, 5.241t, 5.241–246,
5.243f, 5.245f
ductions and, 5.184
efferent visual system and, 5.31–46, 5.211. See also Ocular motility, control of; Ocular motor pathways fundamental principles of, 5.212f, 5.212–213
vergences and, 5.212, 5.212f, 5.226–228. See also Vergences/vergence system versions and, 5.34–35, 5.35f
in diplopia, 5.184
Ocular motor apraxia, 5.221, 5.222–223, 6.144–145 acquired, 5.223
congenital, 5.223
Ocular motor pathways, 5.31–46, 5.211, 5.212f, 5.212–213. See also Ocular motility; specific nerve brainstem and, 5.34–40, 5.35f, 5.36f, 5.37f, 5.39f
cerebellum and, 5.39–40
cortical input and, 5.32f, 5.32–33, 5.34f
cranial nerves and, 5.40f, 5.40–45, 5.41f, 5.42–43f, 5.44f. See also specific nerve diplopia and, 5.187f, 5.187–206
extraocular muscles and, 5.45–46, 5.46f
ocular fixation system and, 5.212f, 5.213–214
optokinetic system/nystagmus and, 5.212, 5.212f, 5.218–219
smooth-pursuit system in, 5.32, 5.33, 5.34f, 5.212, 5.212f
subcortical structures in, 5.33–34
vergence system in, 5.212, 5.212f, 5.226–228
vestibular-ocular system in, 5.38–39, 5.39f, 5.212f, 5.212f
ocular motor tracking systems, 5.212f, 5.212–213.
See also Ocular motility; specific nerve brainstem and, 5.34–40, 5.35f, 5.36f, 5.37f, 5.39f
cerebellum and, 5.39–40
cortical input and, 5.32f, 5.32–33, 5.34f
cranial nerves and, 5.40f, 5.40–45, 5.41f, 5.42–43f, 5.44f. See also specific nerve diplopia and, 5.187f, 5.187–206
extraocular muscles and, 5.45–46, 5.46f
ocular fixation system and, 5.212f, 5.213–214
optokinetic system/nystagmus and, 5.212, 5.212f, 5.218–219
smooth-pursuit system in, 5.32, 5.33, 5.34f, 5.212, 5.212f
subcortical structures in, 5.33–34
supranuclear, 5.212f, 5.213–231
vergence system and, 5.212, 5.212f, 5.226–228
vestibular-ocular system and, 5.38–39, 5.39f, 5.212f, 5.212f
Ocular motor tracking systems, 5.212f, 5.212–213.
Ocular neuromyotonia, 5.202, 5.358
Ocular nocardiosis. See Nocardia/Nocardia asteroides (nocardiosis)
Ocular (optical) media abnormalities of, 5.99
diplopia and, 5.185
fundus examination in evaluation of, 5.81
perimetry affected by, 5.86
transient visual loss and, 5.164
opaque. See Cataract; Opacities refractive index of. See Refractive index Ocular pain, 5.295–296. See also Pain in ocular ischemic syndrome, 5.170
Ocular perfusion pressure (OPP), glaucoma and, 10.83
Ocular pharmacology. See Drugs; specific agent
Ocular pharmacotherapeutics. See
Pharmacotherapeutics
Ocular prostheses
for graft-vs-host disease, 8.304
for Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrosis overlap and toxic epidermal necrosis), 8.298
Ocular Response Analyzer (ORA), 10.26
Ocular-retinal developmental disease, genes and loci
Ocular surface.
Conjunctiva; Cornea;
See also
“Ocular splits,” 6.133
Ocular sensory pathways, 5.47
for graft-vs-host disease, 8.327–350
for Stevens-Johnson syndrome (Stevens-Johnson disorders of.
Infection
specific agent
Drugs;
See also
Ocular pharmacology.
vertical, 6.31
tube shunt effects on, 6.146
torsional, 6.31
definition of, 6.31
for graft-vs-host disease, 8.327–350
for Stevens-Johnson syndrome (Stevens-Johnson disorders of.
Pharmacotherapeutics
factitious, 8.88–90, 8.89f
immune-mediated, 8.285–326. See also Immune response (immunity), ocular, disorders of limbal stem cell deficiency and, 8.94–97, 8.95f, 8.96f
invasive, 8.338–345
noninvasive, 8.338–345, 8.339f. See also Squamous cell carcinoma
management of, 8.339f, 8.345–348, 8.346f, 8.347f
Ocular surface. See also Conjunctiva; Cornea;
Epithelium
disorders of. See also specific structure affected and specific type
clinical approach to, 8.45–77. See also specific structure and disorder
common clinical findings and, 8.45–46, 8.45–53
contact lens wear and, 8.84, 8.266–267, 8.273–274, 8.276, 8.277
conical transplantation success and, 8.418
dry eye, 8.45, 8.53–69. See also Dry eye
aqueous tear deficiency, 8.45, 8.53, 8.54f, 8.55f, 8.55–58, 8.61f, 8.61–65, 8.62f, 8.65f
evaporative, 8.45, 8.53–54, 8.54f, 8.55f, 8.58–60, 8.59f, 8.60f, 8.66f, 8.66–67f, 8.66–69
eyelid disease associated with, 8.69–77
factitious, 8.88–90, 8.89f
immune-mediated, 8.285–326. See also Immune response (immunity), ocular, disorders of limbal stem cell deficiency and, 8.94–97, 8.95f, 8.96f
invasive, 8.338–345
noninvasive, 8.338–345, 8.339f. See also Squamous cell carcinoma
management of, 8.339f, 8.345–348, 8.346f, 8.347f
Ocular surface prosthesis
for graft-vs-host disease, 8.304
for Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrosis overlap and toxic epidermal necrosis), 8.298
Ocular surface squamous neoplasia (OSSN), 4.60–61, 4.62f, 4.63f, 8.334–337, 8.335f, 8.336f. See also under Squamous invasive, 8.336, 8.336f. See also Squamous cell carcinoma
management of, 8.330f, 8.336–337
noninvasive, 8.334–335, 8.335f. See also Conjunctival or corneal intraepithelial neoplasia
Ocular surgery. See also Cataract surgery; specific procedure
in ambulatory surgical center, 1.281
American Society of Anesthesiologists Physical Status, 1.282
anesthetics in, 2.441–442
after arcuate keratotomy, 13.58
bulloidal keratopathy after, 4.83–84, 4.84, 4.84f, 4.85f
cataract and, 11.55–57
for choroidal/ciliary body melanoma, 4.275f, 4.277
with corneal surgery (biopics), 13.137, 13.157
after corneal transplantation, 8.432
after corneoscleral laceration repair, 8.407–408
diplopia after, 5.207
endophthalmitis after. See also Postoperative endophthalmitis
Propionibacterium acnes causing, 4.119, 4.119f, 8.246, 11.140, 11.162
epithelial and fibrous ingrowth after, 10.141–142, 10.142f
fasting before, 1.287–288
informed consent before, 1.282
intraoperative considerations
general anesthesia, 1.289–290
local anesthesia, 1.290–291
malignant hyperthermia, 1.291–292, 1.293f
lens particle glaucoma and, 11.67
after limbal relaxing incisions, 13.58
malignant/ciliary block glaucoma (aqueous misdirection) and, 10.139
ocular surface, 8.351f
for ocular surface tumors, 8.329–330, 8.330f
perioperative management in
in adolescents, 1.283
anticoagulants, 1.286
antiplatelet agents, 1.286
atrial fibrillation, 1.284
cardiovascular disease, 1.283–284
in children, 1.283
complications prevention as focus of, 1.282
diabetes mellitus, 1.284, 1.286–287
fasting, 1.287–288
hypertension, 1.284
implantable cardioverter-defibrillator, 1.282
latex allergies, 1.288
medications, 1.285–287
operative assessment, 1.281–283
pulmonary medications, 1.287
respiratory diseases, 1.284–285
risk status assessments, 1.281
Universal Protocol, 1.288–289
after radial keratotomy, 13.52–53
refractive, 13.7, 13.8t, 13.137–157. See also Keratorefractive surgery; Refractive surgery; specific procedure
accommodating IOLs, 13.8t, 13.154, 13.163–164, 13.164f
biotics, 13.137, 13.157
light-adjustable IOLs, 13.153–154, 13.154f
limitations of, 13.47f
monofoveal IOLs, 13.151
multifocal IOLs, 13.8t, 13.155–156, 13.165–167, 13.166f
phakic/phakic IOLs, 13.8t, 13.137, 13.138–147, 13.139f, 13.142f, 13.143f. See also specific procedure
pseudophakic, 13.8t. See also specific procedure
refractive lens exchange, 13.8t, 13.137, 13.147–151
toric IOLs, 13.8t, 13.137, 13.148–149, 13.151–153
suprachoroidal hemorrhage and, 11.159–160, 11.171
sympathetic ophthalmia and, 4.185, 12.233. See also Surgery
Ocular tics, 6.201–202
Ocular tilt reaction, 5.216f, 5.216–217
torsional nystagmus in, 5.245
Ocular torsion, 6.107
Ocular torticollis, 6.82–84, 6.83f
Ocular toxocariasis (OT). See Toxocara (toxocariasis)
Ocular toxoplasmosis. See Toxoplasma (toxoplasmosis)
Ocular trauma. See Trauma
Ocular Trauma Score, 12.364, 12.364f
Ocular tumors. See Intraocular tumors; Tumor(s)
Oculouairculovertebral syndrome (OAVS/Goldenhar-Gorlin syndrome), 6.210, 8.191f, 8.195f, 8.195–196
Oculocardiac reflex, 2.130, 6.174
Oculocerebrorenal syndrome (Lowe disease/syndrome), 4.118, 6.391
congenital corneal keloids in, 8.107, 8.125
Oculocutaneous albinism (OCA). See Albinism
Oculodento-osseous dysplasia, 8.192f
Oculodentodigital dysplasia
Axenfeld-Rieger syndrome differentiated from, 10.154f
description of, 12.282f
Oculodermal/dermal/orbital melanocytosis (nevus of Ota), 4.63f, 4.64, 8.339
glaucoma associated with, 10.30
of iris, 4.259
Oculodermal melanocytosis (nevus of Ota), 6.251, 7.198, 7.199f, 8.339f, 8.339f
Oculodigital reflex, 6.185, 12.266
Oculoglandular syndrome, Parinaud, 4.51, 8.265–266. See also Cat-scratch disease
Oculogyric crisis, 5.231
Oculomandibulodyscraphy (Hallerman-Streiff-François syndrome), 8.191f
Oculomasticatory myoclonus/tremor, pendular nystagmus
Oculomaxillary dysplasia (François syndrome), 8.191f, 8.195, 8.195f
Oculomotor foramen, 2.20, 7.13
Oculomotor nerve. See Cranial nerve III
Oculomotor nerve palsy. See Third nerve (oculomotor) palsy
Oculomotor neuropathy, recurrent painful, 5.197
Oculomycosis, 8.249–251. See also Fungi trauma and, 8.251
Oculopalatal myoclonus/tremor, pendular nystagmus and, 5.246–247
Oculopharyngeal dystrophy, 5.329
ptosis in, 5.273, 5.273f, 5.329
Ocmeter, 2.389f
Ocupress. See Carteolol; Carteolol hydrochloride
Ocuset delivery system. See Pilocarpine
ODAd. See Overdose in addition
ODD. See Optic disc (optic nerve head/ONH), drusen of
Odds ratio, 1.22–23
Odontogenic cysts, 7.202f
Odontogenic infections, 7.48
OEAAd. See Overelevation in adduction
Off-axis object point, 3.72
Off-bipolar cells, 2.315
Off-label drug use
for conductive keratoplasty, 13.129
description of, 2.370–371, 2.371f
refractive surgery in ocular and systemic disease and, 13.171
"Off-pump bypass surgery," 1.92
Ofloxacin, 2.421f, 2.422
for bacterial keratitis, 8.269, 8.270f
for gonococcal conjunctivitis, 8.259
OGTT. See Oral glucose tolerance test
Oguchi disease, 2.229, 12.253
"Ohno" sign, 12.233
OHS. See Ocular histoplasmosis syndrome
OHT. See Ocular hypertension
OHTS (Ocular Hypertension Treatment Study), 1.22–23, 10.65, 10.81, 10.82, 10.83, 10.89–90, 10.112
Oil droplet appearance/cataract, 11.44
in galactosemia, 11.61, 11.61f
in lenticonus/lentiglobus, 11.30
Oil glands, of eyelid. See specific Sebaceous entries
Ointments
description of, 2.358–359
ocular. See Lubricants
OIS.
See Ocular ischemic syndrome
OIS (orbital inflammatory syndrome). See Nonspecific orbital inflammation
OKN. See Optokinetic system/nystagmus
Olanzapine, 1.200
Older adults. See also Age/aging
abuse of, 1.185–187
antihypertensive therapy in, 1.67
cataracts in, 1.184
confusion in, 1.187
depression in, 1.188–190, 1.195
diabetic retinopathy in, 1.184
falls in, 1.191–192
financial abuse of, 1.186
functional assessment of, 1.187
hip fractures in, 1.190
hypertension in, 1.67
informed consent in, 1.187
instrumental activities of daily living assessment in, 1.187
losses experienced by, 1.188
maltreatment of, 1.185
office environment for, 1.184–185
orthostatic hypotension in, 1.67
osteoporosis in, 1.190
peroperative considerations in, 1.187–188
pharmacologic principles in, 2.351–352
physical abuse of, 1.186
physiologic aging in, 1.183–184
population growth, 1.183
preoperative discussions with, 1.188
psychological abuse of, 1.186
sensory systems in, 1.184
suicide rates in, 1.185
vaccina-zoster virus in, 1.228
vision loss in, 1.184
ONH. See Optic nerve (cranial nerve II), hypoplasia of; Optic nerve head
ONL. See Outer nuclear layer
Onlays, corneal, 13.59–71. See also Inlays, corneal
Online Mendelian Inheritance in Man (OMIM), 2.187–188, 6.294, 12.255
for corneal dystrophies, 8.191–192f
OMIM (Online Mendelian Inheritance in Man), 2.187–188, 6.294, 12.255
for corneal dystrophies, 8.191–192f
Ommipause cells/neurons, 5.38, 5.219, 5.220f
saccadic intrusions and, 5.248, 5.249
saccadic system and, 5.219, 5.220f
Ommipred. See Prednisolone
On- bipolar cells, 2.315–317
“On-label” prescribing, 2.370
OnabotulinumtoxinA, 5.281. See also Botulinum toxin as tarsorrhapy alternative, 8.373
Onchocerca/Onchocerca volvulus (onchocerciasis), 8.252–253, 9.289
Onchocerciasis, 8.252–253, 9.289f, 9.289–290
Onccytoma, 4.71–72, 4.72f, 8.337
Onco genes, 1.235, 2.183
Oncologist, ophthalmic, 4.42
Oncolytic virus therapy, for melanoma, 7.210
One-and-a-half syndrome, 5.191, 5.191f
100-hue test (Farnsworth-Munsell), in low vision evaluation, 5.79
1-piece foldable intraocular lens, insertion of, 11.116
1 toy, 1 look rule, for pediatric eye examination, 6.3, 6.4f
ONH. See Optic nerve (cranial nerve II), hypoplasia of; Optic nerve head
Opaque bubble layer (OBL), femtosecond laser flap creation and, 13.88, 13.122–123
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open-angle glaucoma, pediatric</td>
<td>10.3–5, 10.4t, 10.6t, 10.79–115. <strong>See also</strong> Glaucoma</td>
</tr>
<tr>
<td>angle-closure glaucoma differentiated from</td>
<td>10.3, 10.5f</td>
</tr>
<tr>
<td>Fuchs heterochromic iridocyclitis/uveitis and</td>
<td>10.82, 10.86–87, 10.90</td>
</tr>
<tr>
<td>corticosteroids causing</td>
<td>10.109–110</td>
</tr>
<tr>
<td>corneal thickness and</td>
<td>10.81, 10.82, 10.86–87, 10.90</td>
</tr>
<tr>
<td>cornea plana and</td>
<td>8.101</td>
</tr>
<tr>
<td>classification of</td>
<td>10.3–5, 10.4, 10.6f</td>
</tr>
<tr>
<td>central retinal vein occlusion and</td>
<td>10.84, 12.133</td>
</tr>
<tr>
<td>in central retinal vein occlusion</td>
<td>12.315–316</td>
</tr>
<tr>
<td>angle-closure glaucoma differentiated from</td>
<td>10.3, 10.5f</td>
</tr>
<tr>
<td>age and</td>
<td>10.7</td>
</tr>
<tr>
<td>episcleral venous pressure elevation and</td>
<td>10.102, 10.103, 10.103f</td>
</tr>
<tr>
<td>family history and</td>
<td>10.82</td>
</tr>
<tr>
<td>genetic/hereditary factors in</td>
<td>10.10, 10.11t</td>
</tr>
<tr>
<td>glaucoma suspect and</td>
<td>10.4t, 10.89</td>
</tr>
<tr>
<td>glaucomatocyclical crisis (Posner-Schlossman syndrome) and</td>
<td>10.100–101, 10.102, 10.102f</td>
</tr>
<tr>
<td>hemorrhage/hyphema and</td>
<td>10.85f, 10.85–86</td>
</tr>
<tr>
<td>intraocular pressure in</td>
<td>10.79, 10.80–81, 10.81t</td>
</tr>
<tr>
<td>intraocular tumors and</td>
<td>10.98–100, 10.99f</td>
</tr>
<tr>
<td>juvenile, 6.278, 6.284</td>
<td></td>
</tr>
<tr>
<td>lens-induced, 10.96–98, 10.97f</td>
<td></td>
</tr>
<tr>
<td>management of</td>
<td>10.111–115</td>
</tr>
<tr>
<td>medical, 10.183–184. <strong>See also</strong> Antiglaucoma agents; Specific drug</td>
<td></td>
</tr>
<tr>
<td>surgical, 10.187. <strong>See also</strong> Glaucoma surgery; Specific procedure</td>
<td></td>
</tr>
<tr>
<td>incisonal, 10.113–115. <strong>See also</strong> Filtering procedures</td>
<td></td>
</tr>
<tr>
<td>laser trabeculoplasty, 10.113–115, 10.188–191, 10.190f</td>
<td></td>
</tr>
<tr>
<td>minimally invasive procedures/microshunts, 10.219–220</td>
<td></td>
</tr>
<tr>
<td>nonpenetrating procedures and, 10.217–219</td>
<td></td>
</tr>
<tr>
<td>microcornea and</td>
<td>8.95–99</td>
</tr>
<tr>
<td>myopia and, 10.82, 10.87</td>
<td></td>
</tr>
<tr>
<td>normal-tension (NTG). <strong>See Glaucoma, normal-tension</strong></td>
<td></td>
</tr>
<tr>
<td>ocular hypertension and</td>
<td>10.89–90, 10.112</td>
</tr>
<tr>
<td>ocular inflammation and</td>
<td>10.100–102, 10.102f</td>
</tr>
<tr>
<td>optic nerve/nerve head/disc appearance in</td>
<td>5.136, 5.137f, 10.79–80</td>
</tr>
<tr>
<td>outflow obstruction mechanisms in</td>
<td>10.5, 10.6t</td>
</tr>
<tr>
<td>pediatric (childhood/congenital/infantile/juvenile), 10.4f, 10.147, 10.148f</td>
<td></td>
</tr>
<tr>
<td>genetics of</td>
<td>10.11f, 10.150</td>
</tr>
<tr>
<td>primary congenital, 4.98, 4.99f, 10.4f, 10.147, 10.148f, 10.151–152f, 10.151–153, 10.152f. <strong>See also</strong> Primary congenital glaucoma</td>
<td></td>
</tr>
<tr>
<td>genetics of</td>
<td>10.11f, 10.150</td>
</tr>
<tr>
<td>juvenile, 10.4f, 10.148f, 10.153</td>
<td></td>
</tr>
<tr>
<td>Glaucoma surgery</td>
<td>10.183–184. <strong>See also</strong> Specific drug</td>
</tr>
<tr>
<td>trauma causing, 4.103–104, 4.104f, 10.39–40, 10.40f, 10.41f, 10.106–108, 10.107f</td>
<td></td>
</tr>
<tr>
<td>traumatic, 4.103–104, 4.104f, 10.39–40, 10.40f, 10.41f, 10.106–108, 10.107f</td>
<td></td>
</tr>
<tr>
<td>visual field loss in</td>
<td>10.79–80</td>
</tr>
<tr>
<td>vitrectomy as risk factor for, 12.402</td>
<td></td>
</tr>
<tr>
<td>without elevated intraocular pressure</td>
<td>10.91–93</td>
</tr>
<tr>
<td>without elevated intraocular pressure, 10.3, 10.4t, 10.85f, 10.85–88, 10.86f. <strong>See also</strong> Glaucoma, normal-tension</td>
<td></td>
</tr>
<tr>
<td>pseudoxifoliation/exfoliation syndrome and</td>
<td>10.91–92f, 10.91–93</td>
</tr>
<tr>
<td>race and</td>
<td>10.7–8, 10.81, 10.82</td>
</tr>
<tr>
<td>with elevated intraocular pressure</td>
<td>10.3, 10.4t, 10.85f, 10.85–88, 10.86f. <strong>See also</strong> Glaucoma, normal-tension</td>
</tr>
<tr>
<td>Open-loop specular, for globe exposure, in cataract surgery, 11.105f</td>
<td></td>
</tr>
<tr>
<td>Open-loop trackers, 13.91</td>
<td></td>
</tr>
<tr>
<td>Open reading frame (ORF), 2.176</td>
<td></td>
</tr>
<tr>
<td>Open reduction and fixation, for zygomatic fractures, 7.111</td>
<td></td>
</tr>
<tr>
<td>Operating/surgical microscope</td>
<td>for manual small-incision cataract surgery, 11.198</td>
</tr>
<tr>
<td>phototoxicity and</td>
<td>11.166</td>
</tr>
<tr>
<td>Oculopituitary holes, 12.315–316</td>
<td></td>
</tr>
<tr>
<td>OPGs. <strong>See</strong> Optic nerve (optic pathway/chiasm) gliomas</td>
<td></td>
</tr>
<tr>
<td>OphA. <strong>See</strong> Ophthalmic artery</td>
<td></td>
</tr>
<tr>
<td>Ophthacet. <strong>See</strong> Sulfacetamide</td>
<td></td>
</tr>
<tr>
<td>Ophthalmia, sympathetic (SO), 4.185, 4.186f</td>
<td></td>
</tr>
<tr>
<td>Ophthalmia, sympathetic (SO), 4.185, 4.186f</td>
<td></td>
</tr>
<tr>
<td>enucleation in prevention of, 8.404</td>
<td></td>
</tr>
<tr>
<td>glaucoma/glaucoma surgery and</td>
<td>10.195, 10.196, 10.198</td>
</tr>
<tr>
<td>histologic/histopathologic features of</td>
<td>4.185, 4.186f</td>
</tr>
<tr>
<td>surgical procedures/injuries leading to</td>
<td>4.185</td>
</tr>
</tbody>
</table>
Ophthalmic examination. See also Examination, ophtalmic
in children
- anterior segment examination, 6.10
- Brückner test, 6.9
- communication during, 6.4
- cycloplegic refraction, 6.10–12
- difficult child, 6.5
- distance fixation targets, 6.3, 6.4f
- dynamic retinoscopy, 6.9
- fundus, 6.12
- general considerations and strategies for, 6.3–5
- intraocular pressure measurement, 6.10
- 1 toy, 1 look rule, 6.3, 6.4f
- in outpatient setting, 6.3, 6.4f
- practitioner positioning during, 6.4
- pupil testing, 6.10
- red reflex, 6.9
- “safe” environment for, 6.4
- slit-lamp examination, 6.4–5
- tonometry, 6.10
- visual acuity assessment. See Children, visual acuity assessment
- visual field testing, 6.10
- vocabulary during, 6.4
- description of, 3.23
- diabetes mellitus–related, 12.93–94, 12.95t

Ophthalmic instrumentation. See also specific instrument; specific type
- errors in, after refractive surgery, 3.251–252
- phototoxicity from
- cataract surgery and, 11.166
- description of, 12.368–369
- polarized light applications in, 3.99

Ophthalmic irrigants. See Irrigation/aspiration
Ophthalmic lenses. See Lenses; specific type
Ophthalmic oncologist, 4.42
Ophthalmic pathology. See also specific structure and specific disorder
- of anterior chamber/trabecular meshwork, 4.97–106
- checklist for requesting, 4.25, 4.33, 4.34f
- communication among health care team members and, 4.25–26
- congenital anomalies and, 4.6, 4.7f, 4.12f
- of conjunctiva, 4.47–72
- of cornea, 4.73–96
- cytology for, 4.34f
- degeneration and dystrophy and, 4.9–10, 4.12f
- diagnosis/differential diagnosis and, 4.11–12, 4.12f
- electron microscopy in, 4.34f, 4.42
- of eyelids, 4.201–221
- fine-needle aspiration biopsy in, 4.34f, 4.42–43, 4.43f
- flow cytometry in, 4.34f, 4.36, 4.37f
- frozen section for, 4.34f, 4.43–45, 4.44f
- immunohistochemistry in, 4.33–35, 4.35f
- inflammation and, 4.6–9, 4.8f, 4.9f, 4.12f
- of lens, 4.115–124
- molecular pathology in, 4.34f, 4.36–42, 4.38–39f, 4.40f, 4.41f
- neoplasia and, 4.10, 4.10f, 4.11f, 4.12f
- of optic nerve, 4.241–250
- of orbit, 4.223–240
- organizational paradigm for, 4.5–12, 4.12f
- of retina/retinal pigment epithelium, 4.139–180
- of sclera, 4.107–112, 4.113f
- special procedures in, 4.33–45
- specimen collection/handling for, 4.25–30, 4.31f
- topography and, 4.6, 4.12f
- of uveal tract, 4.115–124
- of vitreous, 4.125–137
- wound repair and, 4.13–23, 4.14f

Ophthalmic prisms. See Prism(s)
Ophthalmic surgery. See Ocular (intraocular) surgery
Ophthalmic ultrasonography. See Ultrasonography/ultrasound (echography)

Ophthalmic vein, 5.8
- superior, 5.8, 5.23
- inferior, 5.8, 5.21f, 5.22f, 5.23f

Ophthalmic viscosurgical devices (OVDs/viscoelastic agents)
for cataract surgery, 11.95–97
- advanced cataract and, 11.180
- aniridia and, 11.184
- capsular block syndrome and, 11.148
- capsular rupture during surgery and, 11.142–143
- ECCE, 11.197
- high hyperopia and, 11.185
- ICCE, 11.200
- inflamed eye and, 11.191
- intumescent cataract and, 11.179–180
- IOL implantation and, 11.116, 11.117–118
- in keratoconjunctivitis sicca, dry eye therapy before use of, 11.173
- posterior polar cataract and, 11.181
pupil expansion and, 11.178
selection of, 11.97
traumatic cataract and, 11.191, 11.192
uveitis and, 11.191
zonular dehiscence with lens subluxation or dislocation and, 11.182
in corneoscleral laceration repair, 8.405f, 8.406
description of, 2.360f, 2.445
elevated intraocular pressure and, 10.108, 10.113
for goniotomy and trabeculotomy, in children, 10.162–163
phakic IOL implantation and, 13.141
posterior chamber lenses, 13.143
physical properties of, 11.96
toric IOL implantation and, 13.152
Ophthalmic wound healing/repair. See Wound(s), healing/repair of
Ophthalmometry/ophthalmometer. See Keratometry/keratometer
Ophthalmopathy, thyroid (Graves/dysthyroid). See
Keratometry/ophthalmometer.
Ophthalmoplegia
cavernous sinuses lesion causing, 5.202–206, 5.204f, 5.205f
in gaze palsy, 5.228
herpes infection and, 5.350
internuclear (INO), 5.38, 5.189–190, 5.190f
in optic tract syndrome, 5.153
in optic atrophy, 5.135, 5.136f
Behr, 6.368
bow-tie, 5.25f, 5.153
causes of, 6.367, 6.367t
cavernous, of Schnabel, 4.246, 4.247f
descending, 4.246
in DIDMOAD syndrome, 2.220
dominant, 5.135, 5.136f
Descemet membrane opacity, 6.368
in optic tract syndrome, 5.153
recessive, 6.368
traumatic hyphema and, 8.393, 8.394, 8.395t
Optic ataxia, 5.223
Optic atrophy, 4.245f, 4.245–246, 4.246f, 4.247f, 5.81–82,
5.82f, 5.145–146, 9.269, 9.270f
ascending, 4.245–246
autosomal dominant (ADOA), 5.135, 5.136f
in AIDS patients, 9.328
CMV retinitis, 4.145, 4.146f
during cyclophosphamide treatment, 9.109
in HIV infection/AIDS. See HIV infection/AIDS
Opsins, rod.
Ophthalmoplegic migraine. See also Migraine headache
Ophthalmoscopic/ophthalmoscope
before cataract surgery, 11.80–81
confocal scanning laser, 3.302, 3.302f
definition of, 3.296
limitations of, 12.21
in low vision evaluation, 5.81
in optic nerve/nerve head/disc evaluation, 10.48, 10.56
retinal disease evaluations using, 12.21
fundus camera, 3.301
in glaucoma evaluation, 10.48, 10.49f, 10.56
in infants and children, 10.160
indirect, 3.281, 3.298–300f, 3.298–301, 3.307
in choroidal/ciliary body melanoma, 4.265
illumination in, 12.21
in optic nerve/nerve head/disc evaluation, 10.48
posterior vitreous detachment diagnosed using,
12.309, 12.331
retinal disease evaluations using, 12.21–22
laser, in optic nerve/nerve head/disc evaluation,
10.56
retinal disease evaluations using, 12.21–22
scanning laser. See Scanning laser ophthalmoscopy/ophthalmoscope
Ophthetic. See Proparacaine
Opioid crisis, 1.306–307
OPL. See Outer plexiform layer
OPP. See Ocular perfusion pressure
Opportunistic infections, 1.269, 12.235–236. See also
Immunocompromised host; specific type
in AIDS patients, 9.328
CMV retinitis, 4.145, 4.146f
during cyclophosphamide treatment, 9.109
in HIV infection/AIDS. See HIV infection/AIDS
Optic axon, 5.31
Optic canal, 5.5, 5.6f
Optic disc
formation of, 4.245
in optic axon, 5.31
in AAION/NAION, 5.120, 5.121f
in ADAION, 4.245, 4.246
in DIDMOAD syndrome, 2.220
dominant, 5.135, 5.136f
intrychitis, 6.367–368, 6.368f
genes and loci associated with, 12.256f
Leber hereditary optic neuropathy, 6.368
in optic tract syndrome, 5.153
recessive, 6.368
traumatic hyphema and, 8.393, 8.394, 8.395t
Optic axis, 3.31
Optic cup, 2.111, 2.113
Optic cup margin, 2.159
Optic disc
formation of, 4.245
in optic axon, 5.31
in AAION/NAION, 5.120, 5.121f
anatomy of, 4.245
computed tomography of, 2.11
computed tomography of, 2.15
in anterior segment disease, 2.10, 7.7f
computed tomography of, 2.11f, 2.456f
computation of, for traumatic vision loss, 5.140
medial wall of, 7.7
Optic cup (apical zone), 8.25
Optic chiasm. See Chiasm
Optic cup, 2.111, 10.48
in AAION/NAION, 5.120, 5.121f, 5.122
anatomy of, 2.159f
asymmetry of, 10.48–49, 10.49f
description of, 6.282, 6.283f
development of, 11.25
enlargement of, 10.47f, 10.48, 10.49f, 10.49f. See also
Cupping of optic nerve/nerve head/disc formation of, 2.305
invagination of, 2.153
ratio of, to optic disc (cup-disc ratio), in glaucoma
evaluation, 10.48, 10.53
in infants and children, 10.160
vertical elongation of, 10.49, 10.50f
Optic cup margin, 2.159f
evaluation of
before cataract surgery, 11.81
electrophysiologic testing in, 5.95–97, 5.96f
in glaucoma, 10.41–46, 10.43f, 10.44f, 10.45f
in infants and children, 10.160
normal-tension glaucoma and, 10.86
before refractive surgery, 13.44
external (dural) sheath of, 2.114, 2.114f
in glaucoma, 10.3, 10.46–59, 10.47f, 10.49f, 10.50f,
10.51f, 10.55f, 10.56f, 10.57f, 10.58f. See also Optic
neuropathy
examination of, 10.41–46, 10.43f, 10.44f, 10.45f
in infants and children, 10.160
normal-tension glaucoma and, 10.86
glioma of. See Optic nerve (optic pathway/chiasm)
glioma
in granulomatosis with polyangiitis (Wegener
granulomatosis), 5.115
hypoplasia of, 5.143f, 5.143–144, 6.154, 6.361–362,
6.362f
nystagmus in, 5.236
infection of, 4.243f, 4.243–244, 4.244f
infiltrative lesions of, 5.126f, 5.126–127, 5.131–133
inflammation of, 4.243f, 4.243–245, 4.244f, 4.245f,
5.113–118, 5.114f, 5.117f. See also Optic neuritis
intraanularicular region of, 2.115, 4.241
compressive lesions of, 5.107f, 5.126, 5.126f,
5.126–131, 5.127f, 5.128f, 5.129f
transient visual loss and, 5.164
intracranial region of, 2.115, 4.241
intracranial region of, 2.115–113, 2.111–113f, 4.241
intraorbital portion of, 7.11
intraorbital region of, 2.113–115, 2.121f, 4.241, 5.26,
10.42
compressive lesions of, 5.107f, 5.126, 5.126f,
5.126–131, 5.127f, 5.128f, 5.129f
lamina area of, 10.42, 10.43, 10.46
lateral geniculate nucleus of, 2.116–117f
in leukemia, 4.316, 4.316f
leukemic infiltration of, 6.414, 6.414f
magnetic resonance imaging of, 2.459f, 6.363f
meningeal sheaths of, 2.114f, 2.114–115
meninges of, 2.115
meningiomas of, 5.65f, 5.66f, 5.126, 5.127f, 5.127–129,
5.128f
morning glory disc anomaly of, 6.362–363, 6.364f
myelination of, 6.365, 6.365f
in pathologic myopia, 12.217–218, 12.218f
peripapillary intrachoroidal cavitations, 12.215,
12.215f
posterior, 10.42
premalignant of, 10.42, 10.43, 10.45f, 10.45–46.
See also Optic nerve head
in primary congenital glaucoma, 6.282–283, 6.283f
regional differences in, 2.110t
retinal ganglion cells in, 10.41–42
degeneration of, in glaucomatous optic neuropathy,
10.46–47
retinoblastoma involving, 4.176f, 4.176–177, 4.177f,
4.293
retrolaminar area of, 10.42, 10.43, 10.45f, 10.46
sarcoïdosis involving, 5.115, 5.126f, 5.327
in thyroid eye disease, 4.226, 5.131, 5.132f
topography of, 2.109, 4.241, 4.242f
trauma to, 5.139f, 5.139–140
tumors of, 4.248–250, 250f. See also specific type
meningioma, 5.127–129, 5.128f
metastatic, 4.303, 4.307–308
vascular supply of, 2.121f
Optic nerve drusen, 2.473f
Optic nerve glioblastomas (malignant optic gliomas of
adulthood/MOGAs), 4.249, 5.130–131
Optic nerve glioma
chemotherapy for, 7.82–83
clinical features of, 7.80
diagnosis of, 7.80–82
malignant, 7.82
management of, 7.82–83
surgical excision of, 7.82
Optic nerve head (ONH/optic disc), 2.94, 5.17f,
5.24–25, 5.25f. See also Optic nerve
anatomy of, 5.17f, 5.24–25, 5.25f
angiomatous lesion of, 12.242
atrophy of. See Optic atrophy
avulsion of, 7.80, 12.365, 12.365f
blood supply of, 5.17f
coloboma of, 4.242, 4.243f
congenital/developmental abnormalities of, 4.241–242,
4.243f, 5.143f, 5.143–145, 5.144f
transient visual loss and, 5.164
cupping of. See Cupping of optic nerve/disc
description of, 2.109
drusen of (ODD), 4.247, 4.247f, 5.108f, 5.140–143,
5.141f, 12.260
astrocytic hamartoma differentiated from, 5.108f,
5.143
autofluorescence in identification of, 5.89, 5.90f,
5.141f, 5.142
papilledema/pseudopapilledema and, 4.247, 5.107,
5.108f, 5.141f, 5.142–143
transient visual loss and, 5.141, 5.161, 5.164
ultrasonography in identification of, 5.95, 5.141f,
5.142
dysplastic, 5.145
edema of, 5.82, 5.83f, 5.105–113, 5.107f, 5.108f,
5.109f, 5.110f, 5.111f, 12.234, 12.349. See also
Papilledema; Pseudopapilledema
in anterior optic neuropathy, 5.104
AAION, 5.120, 5.120t, 5.121f
NAION, 5.120, 5.120f, 5.121f
in diabetic papillopathy, 5.125, 5.125f
fluorescein angiography in evaluation of, 5.89
neuroimaging in evaluation of, 5.71, 5.109
in neuroretinitis, 5.118, 5.118f, 5.118–119
in optic atrophy, 4.245, 4.245f
in papillitis, 5.113
in papillophlebitis, 5.125, 5.126f
examination of
in glaucoma evaluation, 10.32, 10.48–59. See also
Optic nerve head (ONH/optic disc), in
glaucoma
in low vision evaluation, 5.81–82, 5.82f, 5.83f
excavation of, 5.137f
congenital, 5.145
in glaucoma, 5.136, 5.137f
in Foster-Kennedy/pseudo-Foster-Kennedy syndrome, 5.122
in glaucoma, 5.136, 5.137f, 10.3, 10.48
evaluation of, 10.32, 10.48–59, 10.49f, 10.49–51f, 10.55–58f
imaging and, 10.53–59, 10.55f, 10.56f, 10.57f, 10.58f
normal-tension glaucoma and, 10.86
perimetry changes correlated with, 10.74–75
recording findings and, 10.53
hemorrhage of, 10.50, 10.51f, 10.85f, 10.85–86
open-angle glaucoma and, 10.79–80
visual field changes and, 10.74–75
hemangioblastoma of, 4.284, 4.284f, 4.285
hyperemia of, 12.232
hypoplasia of, 5.143f, 5.143–144
imaging in evaluation of, 10.53–59, 10.55f, 10.56f, 10.57f, 10.58f
laminar area of, 2.113
in Leber hereditary optic neuropathy, 5.133, 5.134f
melanocytoma (magnocellular nevus) of, 4.248, 4.248f, 4.257f, 4.258, 4.268
melanoma differentiated from, 4.268
morning glory, 5.145
neovascularization of (NVD), 12.128, 12.129f, 12.170
in diabetic retinopathy, papillopathy and, 5.125
nerve fibers entering, 10.42–43, 10.43f, 10.45f
neuroimaging in evaluation of, 5.71
pallor of, 5.81–82, 5.82f. See also Optic atrophy
OCT in evaluation of, 5.91f
in pathologic myopia, 12.217–218, 12.218f
prelaminar area of, 2.111
retrolaminar area of, 2.113
sarcoid granuloma involving, 5.126f, 5.327
schematic representation of, 2.112f
size of, 2.110
spontaneous venous pulsation of, 2.114
subretinal hemorrhage, 12.355f
superficial nerve fiber layer of, 2.111, 2.113f
tilted, 5.144, 5.144f
topography of, 10.53
tumors of, 4.248f, 4.248–250, 4.249f, 4.250f
metastatic, 4.303, 4.307–308
Optic nerve (optic pathway/chiasm) gliomas (OPGs/ pilocytic astrocytomas), 4.249, 4.249f, 4.295, 5.126, 5.128f, 5.129f, 5.129–131
in children (juvenile), 4.249
malignant (malignant optic glioma of adulthood/ MOGA/glioblastoma), 4.249, 5.130–131
in neurofibromatosis, 5.130, 5.334f
Optic nerve pits. See Optic pits
Optic nerve sheath, 2.459f, 5.8f
fenestration of (ONSF), for idiopathic intracranial hypertension, 5.112
inflammation of, 5.119. See also Optic perineuritis
Optic nerve sheath meningioma (ONSM), 4.250, 4.250f, 5.65f, 5.66f, 5.126, 5.127f, 5.127–129, 5.128f, 7.85f, 7.86
Optic neuritis, 2.474f, 5.107f, 5.113–118, 5.114f, 5.117t, 5.317–318, 6.369, 6.369f, 9.223
CMV infection causing, 5.349, 5.349f
color vision affected in, 5.78, 5.114
contrast sensitivity affected by, 5.136
corticosteroids for, 5.116
cryptococcal, 5.356
hallucinations and, 5.176
herpes infection and, 5.350
illusions and, 5.175
isolated, 5.113–115, 5.114f
NAION differentiated from, 5.123, 5.123f
neuroimaging in evaluation of, 5.66f, 5.72f, 5.114f, 5.115
in neuroinflammatory optic, 5.117f, 5.116–118, 5.117t, 5.320–323
retrobulbar, 5.113, 5.114
in cryptococcosis, 5.356
tests in diagnosis of, 5.115
toxoplasmic, 5.352
treatment of, 5.116
Optic neuropathy, 2.474f, 5.103–146
amiodarone, 1.106, 5.137
anterional, 5.104
ischemic, 5.107f, 5.119–124, 5.120f, 5.121f, 5.123f
autosomal dominant optic atrophy and, 5.135, 5.136f
causes of, 5.104–146. See also specific disorder
in giant cell arteritis, 5.120, 5.313
cerebral aneurysms causing, 5.339
corticosteroids for, 5.116
CMV infection causing, 5.349, 5.349f
cocaine use as cause of, 1.199
cerebral angiography in, 5.140
compressive or infiltrative, 5.107f, 5.126, 5.126f,
5.126–131, 5.127f, 5.128f, 5.129f, 5.131–133.
See also specific cause
congenital disc and nerve anomalies and, 5.107f, 5.143f, 5.143–145, 5.144f
cerebral aneurysms causing, 5.135, 5.136f
diabetic papillopathy and, 5.125, 5.125f
druse and, 5.107f, 5.108f, 5.140–143, 5.141f. See also Druse
excavated optic nerve/nerve head/disc anomalies and, 5.145
in giant cell arteritis, 5.120, 5.313
in glaucoma, 5.107f, 5.136, 5.137f, 5.143f, 5.143–59, 10.47f, 10.49f, 10.50f, 10.51f, 10.53–58f
indications for surgery and, 10.197
optic nerve evaluation and, 10.41–46, 10.43–45f
optic nerve/nerve head/disc evaluation/cup changes and imaging and, 10.53–59, 10.55–58f
normal-tension glaucoma and, 10.86
perimetry changes correlated with, 10.74–75
recording findings and, 10.53
patterns of nerve loss and, 10.67–69, 10.68f, 10.69f, 10.70f
phacoantigenic glaucoma and, 10.98
hallucinations and, 5.176
hereditary, 5.107f, 5.133–135, 5.134f, 5.136f
autosomal dominant optic atrophy and, 5.135, 5.136f
Leber (LHON), 5.133–135, 5.134, 6.368
description of, 2.185–186
family history of, 2.200
mitochondrial DNA mutations and, 5.133
optic neuritis and, 5.115, 5.133
herpes infection and, 5.350
hypertensive, 12.123, 12.125
idiopathic intracranial hypertension and, 5.110–113, 5.111t
of increased intracranial pressure, 5.105–113, 5.107f, 5.108f, 5.109f, 5.110f, 5.111t. See also Papilledema
infiltrative, 5.107f, 5.126–127, 5.131–133
inflammatory, 5.113–118, 5.114f, 5.117t. See also
Optic neuritis
chronic relapsing inflammatory, 5.116
pain in, 5.295–296
intraorbital/intracanalicular lesions and, 5.107t, 5.126, 5.126f, 5.126–131, 5.127f, 5.128f, 5.129f
ischemic, 5.107t, 5.119–125, 5.120t, 5.121f, 5.123t
anterior (AION), 5.107t, 5.119–124, 5.120t, 5.121f, 5.123f
arteritic (AAION), 5.107t, 5.120, 5.120t, 5.120–122, 5.121f, 5.313
nonarteritic (NAION), 5.107t, 5.120, 5.120t, 5.121f, 5.122–124, 5.123t
OCT in evaluation of, 5.91f
perioperative, 5.124–125
posterior (PION), 5.107t, 5.119, 5.124
Leber hereditary. See Leber hereditary optic neuropathy
light-near dissociation caused by, 5.266, 5.266t
maculopathy differentiated from, 5.78–79, 5.99–100, 5.100f
mechanisms of, 5.104, 5.107t
neuromaging in evaluation of, 5.66f, 5.72t, 5.114f, 5.115f
neuromyelitis optica/neuromyelitis optic spectrum disorder (NMO/Devic disease/NMOSD) and, 5.107t, 5.116–118, 5.117t, 5.320–323
neuroretinitis and, 5.118f, 5.118–119
nutritional, 5.107f, 5.137–139, 5.138f
nystagmus and
childhood/infantile nystagmus syndrome, 5.236
pendular, 5.246
OCT in evaluation of, 5.91, 5.91f, 5.92
optic atrophy and, 5.135, 5.136f, 5.145–146
optic nerve hypoplasia and, 5.143f, 5.143–144
optic nerve/nerve head/disc edema and, 5.104
optic nerve/pathway glioma and, 5.126, 5.128f, 5.129f, 5.129–131
optic nerve sheath meningioma and, 5.126, 5.127f, 5.127–129, 5.128f
optic neuritis and, 5.107t, 5.113–118, 5.114f, 5.117t
optic perineuritis and, 5.119
orbital lesions and, 5.126f, 5.126–131, 5.127f, 5.129f
papililitis and, 5.113
papillophlebitis and, 5.125–126, 5.126f
perimetric findings in, 5.86
posterior, 5.104

 ischemic (PION), 5.107t, 5.119, 5.124
radiation (RON), 1.239, 5.358, 5.358f
retrobulbar optic neuritis and, 5.113, 5.114
in sarcoidosis, 5.115, 5.116, 5.327
thyroid eye disease and, 5.131, 5.132f
toxic, 1.199, 5.107t, 5.137–139
traumatic, 5.107t, 5.139f, 5.139–140, 6.381
visual field patterns in
description of, 5.103, 5.104–106f, 5.105f, 5.106f
versus maculopathy, 5.99, 5.100, 5.100t
Optic (optical) axis, 11.9, 11.10f
Optic pathway glioma, 6.223, 6.396, 6.396f
Optic perineuritis, 5.119
radial (radial keratoneuritis), in Acanthamoeba keratitis, 4.79
in sarcoidosis, 5.327
Optic pits (optic nerve/disc pits, optic holes, optic pit maculopathy), 5.145, 6.364–365, 6.365f
acquired, 10.49–50
description of, 2.148, 12.328–329, 12.329f
Optic radiations (geniculocalcarine pathways)
description of, 2.116, 2.118f, 2.122t, 5.18f, 5.19, 5.24f, 5.29, 5.30
lesions of, 5.153, 5.155
in multiple sclerosis, 5.318
Optic stalk, 2.150f, 2.157, 2.165f
Optic strut, 5.7
Optic perineuritis, 5.119
Optic pathway glioma, 6.223, 6.396, 6.396f
Optic perineuritis, 5.119
radial (radial keratoneuritis), in Acanthamoeba keratitis, 4.79
in sarcoidosis, 5.327
Optic pits (optic nerve/disc pits, optic holes, optic pit maculopathy), 5.145, 6.364–365, 6.365f
acquired, 10.49–50
description of, 2.148, 12.328–329, 12.329f
Optic radiations (geniculocalcarine pathways)
description of, 2.116, 2.118f, 2.122t, 5.18f, 5.19, 5.24f, 5.29, 5.30
lesions of, 5.153, 5.155
in multiple sclerosis, 5.318
Optic stalk, 2.150f, 2.157, 2.165f
Optic strut, 5.7f, 5.16f, 5.26, 7.7f
Optic tract, 5.23f, 5.28–29, 5.55f
anatomy of, 5.116
blood supply of, 2.122t
lesions of, 5.147f, 5.153
in multiple sclerosis, 5.318
visual pathways in, 2.115
Optic tract syndrome, 5.18, 5.153
Optic vesicles
description of, 2.148, 2.165f
lens development and, 11.25, 11.26f
Optic zone (corneal). See Optical zone, corneal
Optical aberrations.
Optic zone (corneal).
See Optical zone, corneal
Optical coherence tomographic angiography (OCTA)
artifacts in, 12.29, 12.30f
choroidal circulation abnormalities, 12.198
choroidal neovascularization on, 12.75–76, 12.76–12.78f, 12.192
depth resolution using, 12.29
diabetic retinopathy on, 12.93, 12.94f
fluorescein angiography versus, 12.29
macular telangiectasia type 2 on, 12.163, 12.164f
motion artifacts in, 12.29
projection artifacts in, 12.29, 12.30f
pseudoxanthoma elasticum on, 12.199f
retinal capillary layers on, 12.16
retinal disease evaluations using, 12.28–29
retinal vasculature on, 12.29, 12.30f
severity of, 12.93, 12.94f
in uveitis, 9.87
Optical coherence tomography (OCT), 5.90–94, 5.91–94f, 8.21–22, 8.22f, 8.35t, 13.20f
in acute idiopathic blind-spot enlargement and multiple evanescent white dot syndrome, 5.92, 5.101
acute idiopathic maculopathy on, 12.228
acute macular neuroretinopathy on, 12.228
in acute posterior multifocal placoid pigment epitheliopathy, 9.164t, 9.171, 9.172f, 12.221f, 12.222
in acute retinal pigment epitheliitis, 9.189
in acute zonal occult outer retinopathy, 5.92, 9.164t, 9.191, 9.191f, 12.227, 12.227f
anterior segment, 8.21–22, 8.22f
in glaucoma, 10.77
indications for, 9.85
in keratoconus, 8.165–166
in uveitis evaluations, 9.85
in Behçet disease, 9.216, 9.217f
in birdshot chorioretinopathy, 9.164f, 9.168, 9.168f
cancer-associated retinopathy on, 12.287f
before cataract surgery, 11.82
central serous chorioretinopathy evaluations, 12.32
in choroidal hemangioma, 4.281, 4.282f
nomenclature terminology for, 12.26–27
in choroidal melanoma/ciliary body melanoma, 4.265, 4.268f
in choroidal neovascularization on, 12.192, 12.194f
in choroidal nevus, 4.258
coherence length and, 3.101–102
coherence time and, 3.101–102
in corneal biomechanics evaluation, 8.43
before corneal transplantation, 8.41f
cystoid macular edema on, 12.132f, 12.157, 12.158f
definition of, 3.282, 3.303, 12.25f
in Dengue fever, 9.267, 9.267f
diabetic macular edema on, 12.111f
drusen on, 12.65–66
enhanced depth imaging, 12.25
in posterior scleritis, 9.124f
in uveitis, 9.85, 9.88f
epiiretinal membranes on, 12.335, 12.383f
eye movement tracking with, 12.27
Fourier-domain, 3.304–305
frequency-domain, 3.304
in glaucoma, 10.77
in idiopathic intracranial hypertension, 5.111–112
in idiopathic macular hole, 4.131–132, 4.132f
intraoperative, 8.22
in IOL power determination, 8.22, 11.82, 11.84–85, 11.87
in iris melanoma, 4.260, 4.261f
in keratoconus, 8.165–166
in low coherence light in, 12.25
in low vision assessment, 5.99–94, 5.91f, 5.92f, 5.93f, 5.93–94f
in macular edema, uveitic, 9.85, 9.88f, 9.321
macular hole on, 12.27f
in metastatic eye disease, 4.307
in multifocal choroiditis and panuveitis syndrome, 9.164f, 9.179, 9.180f
in multiple evanescent white dot syndrome, 9.164f
myopic macular schisis on, 12.210f
nerve fiber layer measurement using, 12.218
nomenclature terminology for, 12.26–27
in optic nerve/nerve head/disc drusen, 5.142, 6.373f
in optic nerve/nerve head/disc retinal nerve fiber layer evaluation, 10.53–56, 10.55f, 10.56f, 10.57f, 10.58f
peripapillary intrachoroidal cavitations on, 12.215, 12.215f
pigment epithelial detachment on, 12.74f
in posterior scleritis, 9.123f
posterior vitreous detachment on, 12.309, 12.332
in primary congenital glaucoma evaluations, 6.283
in punctate inner choroiditis, 9.164f, 9.182, 9.183f
before refractive lens exchange, 13.149–150
retinal disease evaluations using, 12.25–27, 12.27f
in serpiginous chorioiditis, 9.164f, 9.175, 9.176f
solar retinopathy on, 12.368f
spectral-domain, 3.304
adult-onset vitelliform maculopathy on, 12.67–68, 12.68f
alkyl nitrite findings, 12.300, 12.300f
choroidal neovascularization uses of, 12.297f
choroidal neovascularization on, 12.73–75, 12.75f
diabetic macular edema on, 12.109f, 12.125
drusen on, 12.64f, 12.65
epiretinal membranes on, 12.335f
Gaucher disease on, 12.291f
pathologic myopia on, 12.90f
for posterior scleritis, 9.124–125
reticular pseudodrusen on, 12.65f
retinal layers on, 12.10–11, 12.11, 12.12f
retinitis pigmentosa findings, 12.263f
sensitivity of, 12.26
swpt-source optical coherence tomography versus, 12.25–26
in subretinal fibrosis and uveitis syndrome, 9.164f, 9.184f
swpt-source
pathologic myopia findings, 12.209f
sensitivity of, 12.26
spectral-domain optical coherence tomography versus, 12.25–26
sympathetic ophthalmia findings in, 9.201–202, 9.202f
time-domain, 3.303–304, 12.25
uveitis evaluations, 9.85, 9.88f
vitreoretinal traction syndrome on, 12.337, 12.337f
volume rendering, 12.27, 12.28f
X-linked retinoschisis on, 12.278, 12.278f
Optical conjugacy. See Conjugacy
Optical infinity, 3.3
Optical instruments. See specific instrument
Optical (ocular) medium/media
abnormalities of, 5.99
dioptria and, 5.185
fundus examination in evaluation of, 5.81
perimetry affected by, 5.86
transient visual loss and, 5.164
boundaries between. See Optical interfaces opaque. See Cataract; Opacities
refractive index of. See Refractive index
Optical (optic) axis, 11.9, 11.10f
Optical pachymetry/pachymeter, 8.41. See also
Pachymetry/pachymeter
Optical pumping, 3.111
Optical systems
aberrations of. See Aberrations
afocal. See Optics, of human eye
reduced, 3.67–68, 3.68–3.69f
Optical zone, corneal, 8.25
arcuate keratotomy and, 13.54–55, 13.56
in photoablation, 13.74f
preoperative laser programming and, 13.81
pupil size and, 13.40
radial keratotomy and, 13.50, 13.50f, 13.51
IOL power calculations affected by, 13.193
Optically empty vitreous, hereditary
  hyaloideoretinopathies with, 12.342–343, 12.343f
Opticin, 2.298
Opticin. See Cromolyn
Optics
  challenges for, 3.7
  definition of, 3.4
  Gaussian, 3.40, 3.60
  geometric. See Geometric optics
of human eye
  accommodation, 3.140–141
  axes, 3.128–129, 3.129f
  binocular states, 3.139–140
  contrast sensitivity, 3.134–136, 3.135–136f
  contrast sensitivity function, 3.134–136
  developmental hyperopia, 3.143
  developmental myopia, 3.142–143
  illusions and, 5.174
  mathematical models of, 3.125, 3.126f
  pupil size effects on visual resolution, 3.129–131
  refractive errors, 3.141–142
  refractive states and, 3.136–139, 3.137–138f, 13.7–9. See also under Refractive
  schematic eye and, 3.125–128, 3.126f, 3.127f, 3.128f. See also Schematic eye
  visual acuity, 3.131–134, 3.132–133f
  waveform analysis and, 13.9–13, 13.10–13f
  lenticular, 3.8f
  nonspherical, 3.257
  physical. See Physical optics
OptiPranolol. See Metipranolol
Optisol GS, for donor cornea preservation, 8.414, 8.416f
Optivar. See Azelastine
OPTN gene, 10.11f
Opcociliary shunt vessels (retinociliary/retinociliary
  venous collaterals), 5.22
in optic nerve sheath meningioma, 5.127f, 5.128
in papilledema, 5.109
Optokinetic nystagmus (OKN) drum, 5.218–219
congenital motor nystagmus and, 6.148–149
convergence-retraction nystagmus and, 5.250
reflexive saccades and, 5.221
smooth-pursuit system and, 5.224–225, 5.225
Optokinetic nystagmus (OKN), 5.212, 5.212f, 5.218–219
description of, 6.40
dysfunction of, 5.218–219
  in congenital nystagmus, 5.235
  parietal lobe lesions and, 5.156, 5.219
nonorganic disorders and, 5.301–302
Optotypes, 3.23, 3.124, 3.133f
  age-appropriate, 6.8
  contour interaction bars around, 6.7f, 6.8, 6.54
  crowding phenomenon for, 6.54
LEA symbols, 6.6, 6.7f
in nonorganic disorder evaluation, 5.306
for potential acuity meter testing, 5.88–89
for visual acuity assessment in children, 6.6t, 6.6–8, 6.7f
OR. See Odds ratio
ORA. See Ocular Response Analyzer
Ora bays
definition of, 12.10
illustration of, 12.11f
retinal tears near, 12.312
Ora serrata
anatomy of, 2.48f, 2.97, 2.100f, 12.7, 12.7f, 12.11f
binocular indirect opthalmoscopy of, 12.22
definition of, 12.10
description of, 2.83
Oral contraceptives
  central retinal vein occlusion risks, 12.134
  disseminated intravascular coagulation and, 1.148
  hypertension and, 1.67
  ocular adverse effects of, 1.309f
Oral facial dyskinesias, 5.285
Oral glucose tolerance test (OGTT), diabetes mellitus
diagnosis using, 1.34
Oral hypoglycemic agents. See specific agent
Orbicularis oculi muscle, 4.201, 4.201f, 4.202, 5.52, 8.3, 8.4f
anatomy of, 2.28f, 2.29, 2.31f, 7.153, 7.154f, 7.157f
blepharospasm and, 5.281
in facial myokymia, 5.284
hemifacial spasm and, 5.283
innervation of, 5.289
orbital, 7.163
palpebral, 2.29
preseptal, 7.163
pretarsal, 2.34f, 7.161
segments of, 7.161–163, 7.162f
spastic paretic facial contracture and, 5.284
tarsal, 2.42
weakness of, in myasthenia gravis, 5.324
Orbit, 4.223–240. See also under Orbital
  adipose tissue in, 6.25
  amyloid deposits in, 4.228
  anatomy of, 2.5–15, 2.6–15f, 4.223, 5.6–11, 5.7–8f, 5.9f, 5.10f
  assessment of, before refractive surgery, 13.41
  sensory and motor components, 5.47–52, 5.48f
  vascular
    arterial supply, 5.12–14, 5.13–14f
    venous drainage, 5.21, 5.21f
  arteries of, 2.23f, 2.25f
  bacterial infections of, 7.43
  biopsy of
    fine-needle aspiration, 4.43
    in lymphoproliferative lesions, 4.232
  blood supply to, 7.14, 7.15–16f
  bony/bones of, 4.223–224
  congenital clefts in, 7.38
  canals in, 2.6f, 2.11, 5.11
  cavernous hemangioma of, 4.6, 4.233, 4.234f
  cellulitis affecting. See Orbital cellulitis
  compressive lesions. See Orbital decompression
  computed tomography of, 2.11f, 5.58, 5.58f, 5.60, 5.61f, 5.72f, 5.73f, 7.26f
  congenital/developmental disorders of, 4.223–224, 4.224f
  connective tissues of, 2.45f
  cysts of, 4.223–224, 4.224f
dermoid, 4.223, 4.224f
epidermoid/simple epithelial, 4.223–224
microphthalmia with, 7.37f
degenerations of, 4.228
depth of, 2.5
in dermal melanocytosis, 4.64
development of, 2.164, 6.181
dimensions of, 2.5, 7.5, 7.6t
diplopia caused by disorders of, 5.206–209, 5.207f
disorders of. See Orbital disorders
emphysema of, 7.115
entrance to, 2.5
extranodal disease of, 7.92
extracocular muscles in, 2.20, 6.25–28, 6.26–27f
fascia of, 6.27
fibrous dysplasia of, 4.239, 4.240
fibrous dysplasia of, 4.239, 4.240f
tissues in. See Orbital tissues
floor of, 5.9f
foramina of, 2.10–11
healing/repair of, 4.17
infection/inflammation of, 4.225f, 4.225–228, 4.227f, 4.228f
in aspergillosis, 4.227–228, 4.228f
idioptic. See Nonspecific orbital inflammation
imaging studies for, 2.476t
nonspecific. See Nonspecific orbital inflammation
nonsteroidal anti-inflammatory drugs for, 2.410f
nonsteroidal anti-inflammatory drugs for, 2.476
imaging studies in, 5.71–73, 5.72
of lateral wall, 7.130, 7.131f
description of, 2.476t
t
anomaly of, 7.9, 7.10f
fractures of, 7.112
Orbital apex syndrome, 5.203, 7.51
Orbital cellulitis
description of, 2.476f, 6.170, 6.170f, 6.213–215, 6.214f, 7.46t, 7.46–48, 7.47f, 9.158
pain associated with, 5.295
Orbital compartment syndrome (OCS), 7.118–119, 7.120f, 7.133
Orbital decompression
definition of, 7.130
description of, 7.61–62
of lateral wall, 7.130, 7.131f
orbital compartment syndrome treated with, 7.119
techniques for, 7.130–131
thyroid eye disease treated with, 7.130, 7.131f
Orbital diseases, 2.476f
Orbital disorders, 4.223–240. See also specific type
arthiography of, 7.32
cell-marker studies for, 7.33–34
in children
congenital/developmental anomalies, 4.223–224, 4.224f
neoplasms, 4.228, 4.229
compressive lesions, 5.107f, 5.126f, 5.126, 5.126f, 5.126t, 5.127f, 5.127f, 5.128f, 5.129f
computed tomography angiography of, 7.32
computed tomography of, 7.26f, 7.26–27
congenital, 4.223–224, 4.224f
anophthalmia. See Anophthalmia/anophthalmos
microphthalia, 7.36–38
overview of, 7.35
syndromic craniosynostosis, 7.39, 7.39f
tumors, 7.40–42
craniosynostosis. See Craniosynostosis
dermoid cysts, 6.223–224, 6.223–224f
ectopic lacrimal gland, 6.226
tissue masses, 6.223–225f, 6.223–226
ependymal, 6.225
evaluation of
biopsy in. See Orbit, biopsy of
imaging studies in, 5.71–73, 5.72t, 5.73f
CT, 5.58, 5.58f, 5.60, 5.614, 5.72t, 5.73f
MRI, 5.44t, 5.58–59f, 5.60–67, 5.611, 5.62f, 5.63t, 5.63f, 5.64f, 5.65f, 5.66f, 5.67f, 5.72t
ultrasoundography, 5.70–71, 5.72t
lobe displacement associated with, 7.23–24
history-taking for, 7.21–22
Orbital fractures
- apex, 7.112
- blowout. See Blowout (indirect) fractures, orbital diplopia after, 5.206
- floor. See Orbital floor, fractures
- Le Fort, 7.109, 7.110f
- medial, 7.112–114
- midfacial, 7.109, 7.110f
- naso-orbito-ethmoidal fractures, 7.112, 7.113f
- roof, 7.112
- surgical management of, 7.117
- zygomatic, 7.109, 7.111, 7.111f
- Orbital groove, inferior, 5.9f
- Orbital hemorrhage, 7.80, 7.80f, 7.262
Orbital implants
- description of, 7.117, 7.139f, 7.139–141
- exposure and extrusion of, 7.142f, 7.142–143
- osseointegrated magnetic, 7.147f
- Orbital inflammation, 4.224–226, 4.225f, 4.225–228, 4.227–228f, 6.215–216. See also Orbit, infection/inflammation of; specific type or cause
differential diagnosis of, 7.44t
- imaging studies for, 2.476t
- infectious causes of
- aspergillosis, 7.52
- cellulitis. See Cellulitis
- mycobacterial infection, 7.50, 7.50f
- necrotizing fasciitis, 7.48–50, 7.49f
- zygomycosis, 7.51–52
- noninfectious causes of
- giant cell arteritis, 7.62–63
- granulomatosis with polyangiitis, 7.63–64, 7.64f
- immunoglobulin G4–related disease, 7.66f, 7.66–67
- polyarteritis nodosa, 7.65
- sarcoidosis, 7.65f, 7.65–66
- thyroid eye disease. See Thyroid eye disease
- vasculitis, 7.62–66, 7.64–65f
- nonspecific. See Nonspecific orbital inflammation
- nonsteroidal anti-inflammatory drugs for, 2.410
- pain in, 5.295
- parasitic causes of, 7.53
Orbital inflammatory syndrome (OIS). See Nonspecific orbital inflammation
Orbital layer, of extraocular muscles, 6.24
Orbital lesions, 7.26, 7.26f
Orbital malformations
- arteriovenous malformations, 7.77f, 7.77–78
- cavernous venous malformations, 7.75–77, 7.76f
- distensible venous malformations, 7.74–75, 7.75f
- lymphatic malformation, 7.73f, 7.73–74
- Orbital mass, 7.25
- Orbital fractures
- apex, 7.112
- blowout. See Blowout (indirect) fractures, orbital diplopia after, 5.206
- floor. See Orbital floor, fractures
- Le Fort, 7.109, 7.110f
- medial, 7.112–114
- midfacial, 7.109, 7.110f
- naso-orbito-ethmoidal fractures, 7.112, 7.113f
- roof, 7.112
- surgical management of, 7.117
- zygomatic, 7.109, 7.111, 7.111f
- Orbital groove, inferior, 5.9f
- Orbital hemorrhage, 7.80, 7.80f, 7.262
Orbital implants
- description of, 7.117, 7.139f, 7.139–141
- exposure and extrusion of, 7.142f, 7.142–143
- osseointegrated magnetic, 7.147f
- Orbital inflammation, 4.224–226, 4.225f, 4.225–228, 4.227–228f, 6.215–216. See also Orbit, infection/inflammation of; specific type or cause
differential diagnosis of, 7.44t
- imaging studies for, 2.476t
- infectious causes of
- aspergillosis, 7.52
- cellulitis. See Cellulitis
- mycobacterial infection, 7.50, 7.50f
- necrotizing fasciitis, 7.48–50, 7.49f
- zygomycosis, 7.51–52
- noninfectious causes of
- giant cell arteritis, 7.62–63
- granulomatosis with polyangiitis, 7.63–64, 7.64f
- immunoglobulin G4–related disease, 7.66f, 7.66–67
- polyarteritis nodosa, 7.65
- sarcoidosis, 7.65f, 7.65–66
- thyroid eye disease. See Thyroid eye disease
- vasculitis, 7.62–66, 7.64–65f
- nonspecific. See Nonspecific orbital inflammation
- nonsteroidal anti-inflammatory drugs for, 2.410
- pain in, 5.295
- parasitic causes of, 7.53
Orbital inflammatory syndrome (OIS). See Nonspecific orbital inflammation
Orbital layer, of extraocular muscles, 6.24
Orbital lesions, 7.26, 7.26f
Orbital malformations
- arteriovenous malformations, 7.77f, 7.77–78
- cavernous venous malformations, 7.75–77, 7.76f
- distensible venous malformations, 7.74–75, 7.75f
- lymphatic malformation, 7.73f, 7.73–74
- Orbital mass, 7.25
Orbital melanocytosis, dermal, 4.64. See also Dermal/dermal orbital/oculodermal (nevus of Ota)melanocytosis
Orbital metastases
in adults, 7.105–107
from breast carcinoma, 7.106, 7.106f
from bronchogenic carcinoma, 7.106
in children, 7.104–105
description of, 4.228, 4.240
leukemia, 7.104
management of, 7.107
neuroblastoma, in children, 7.104, 7.105f
Orbital myositis, 6.216. See also Orbit, myositis affecting
Orbital pseudotumor, 2.470f, 9.158. See also Nonspecificorbital inflammation
Orbital rim, 5.7–8
Orbital roof fractures, 6.380, 6.380f
Orbital septum, 2.28f, 2.29, 2.31
Orbital surgery. See also Surgery; specific procedurecomplications of, 7.133
decompression. See Orbital decompression
entry sites for, 7.124f
fine-needle aspiration biopsy, 7.132, 7.132f
orbitotomy. See Orbitotomy
postoperative care for, 7.131
spaces of, 7.123f, 7.123–124
special techniques in orbit, 7.132f, 7.132–133
Orbital trauma
battlefield-related, 7.122
cerebrospinal fluid leakage after, 7.184
foreign bodies, 7.117–118, 7.118f
fractures. See Orbital fractures
mass casualty incidents, 7.122
vision loss with clear media, 7.119, 7.121
Orbital tuberculosis, 7.50
Orbital tumors, 2.476t, 4.228–240. See also specific typeadipose, 4.238
bony, 4.239, 4.240f, 6.222
in children, 4.228, 4.229
choristomas, 7.40
genital, 7.40–42, 7.42f
connective tissue origin, 6.222
dermoid cyst, 7.40–41
dermolipoma, 7.41, 7.42f
diplopia and, 5.208
with fibrous differentiation, 4.235f, 4.235–236
hamartomas, 7.40
infantile (capillary) hemangioma, 7.71f, 7.71–73
lacrimal sac/gland involvement and, 4.229–231, 4.230f, 4.231f
lymphoproliferative, 4.231–232, 4.233f
mesenchymal. See Mesenchymal tumors
metastases. See Orbital metastases
MRI of, 5.64f, 5.65f
with muscle differentiation, 4.236–237, 4.237f
nerve sheath, 4.237–238, 4.238f, 4.239f
neural origin, 6.223
pain caused by, 5.296
secondary, 4.228, 4.240, 7.101–104
soft tissue, 4.233
teratoma, 7.42
vascular (vascular malformations/fistulas), 4.233, 4.234f
Orbital varices, 7.74
glaucoma associated with, 10.30
Orbital veins, 6.23
Orbititis, sclerosing. See Nonspecific orbital inflammation
Orbitopathy
neuroimaging in, 5.72f
thyroid/thyroid-associated/Graves. See Thyroid eye disease
Orbitotomy
hemostasis after, 7.130
inferior approach
transconjunctival incisions for, 7.126–127, 7.127f
transcutaneous incisions for, 7.126, 7.126f
lateral approach, 7.128–130, 7.129f
medial approach
description of, 7.127
retrocaruncular incision for, 7.128–129f
transconjunctival incisions for, 7.128
transcutaneous incisions for, 7.128
superior approach
transconjunctival incisions for, 7.125
transcutaneous incisions for, 7.124–125, 7.125f
transcutaneous incisions for, 7.124–125, 7.125f
vertical eyelid splitting, 7.125–126
ORF. See Open reading frame
Organ culture storage techniques, for donor cornea, 8.416
Organ transplantation. See Transplantation
Organic anions, in aqueous humor, 2.274
Ornithine aminotransferase, 2.314t
Orthokeratology, 3.228, 13.70–71
Orthomyxoviruses, 8.240t
Orthophoria
abbreviation for, 6.17
definition of, 6.15
Orthoptics
convergence insufficiency treated with, 6.103
fusional vergence affected by, 6.72
for suppression, 6.50
Orthostatic hypotension, 1.67
Orthotropia
definition of, 6.15
treatment of, 6.58
OS. See Outer segments
OSA. See Obstructive sleep apnea
OSAS. See Obstructive sleep apnea syndrome
Oscillatory potentials, 12.43f, 12.43–44
Oscillations. See Saccadic intrusions/oscillations
Oscillopsia, 5.233
in superior oblique myokymia, 5.250, 5.251
vestibular nystagmus and, 5.241, 5.243
Oseltamivir, 1.279
Osmirol. See Mannitol
Osmoglyn. See Glycerin
Osmolarity, tear film, 8.39
Osmotic/hyperosmotic agents, 10.174t
Osmotic drugs, 2.397–398, 2.398t
Osmotic force, transendothelial, 8.9
Osseous choristoma, 4.48, 4.49f
Ossifying fibroma, juvenile, of orbit, 4.239, 4.240f
OSSN. See Ocular surface squamous neoplasia
Osteo-odontokeratoprosthesis, 8.452
Osteodystrophy, Albright hereditary, 8.191t
Osteogenesis imperfecta, 1.140, 8.192r, 8.194
blue sclera in, 8.194, 8.194f

Osteogenic sarcoma (osteosarcoma), retinoblastoma associated with, 4.302, 4.302f

Osteoma
choroidal, 4.198–199, 4.270f, 4.271
melanoma differentiated from, 4.270f, 4.271
description of, 7.89, 7.91, 7.91f
orbital, 4.239

Osteoporosis
bisphosphonates for, 1.190
corticosteroid-induced, 1.175, 9.103
in Cushing syndrome, 1.48
definition of, 1.190
fractures secondary to, 1.190
incidence of, 1.190

Osteosarcoma (osteogenic sarcoma)
description of, 7.91
retinoblastoma associated with, 4.302, 4.302

OT (ocular toxocariasis). See Toxocara (toxocariasis)

Ota, nevus of. See Nevus/nevus, of Ota

Otoconia, in benign paroxysmal positional vertigo, 5.242–243

Otoliths/otolithic organs, 5.38, 6.40
vestibular-ocular reflex and, 5.214, 5.215
peripheral vestibular nystagmus and, 5.215, 5.216, 5.241, 5.242
skew deviation and, 5.216–217

Otosclerosis, 1.140

Oxalate, 12.303

Oxaprozin, 2.409

Oxcarbazepine, 1.207

Oxidative lens damage, 11.19–20
Oxidative stress
in age-related macular degeneration, 2.345
causes of, 2.335
diliary body and, 2.269
in diabetic retinopathy, 2.345
in glaucoma, 2.345
in vision-threatening ophthalmic diseases, 2.343–346
after vitrectomy, 2.302

Oxitropium bromide, 1.128

Oxy radicals. See Free radicals

Oxybuprocaine. See Benoxinate

Oxygen
in aqueous humor, 2.278
hyalocyte consumption of, 12.7
leukocyte metabolism of, 9.16
retinal supply of, 12.16–17
supplementation of, retinopathy of prematurity and, 12.184
in vitreous, 2.302, 2.303f

Oxytocin, 1.47

P

P50, 12.45, 12.47f
p53, 1.242, 2.181

p53 gene
in adenoid cystic carcinoma, 4.231
mutations of, 7.209
in ocular surface squamous neoplasia, 4.60
in orbital solitary fibrous tumors, 4.236
in pingueculae/pterygia, 4.57

p63 gene, in pingueculae/pterygia, 4.57

P cells (parvocellular neurons/system), 5.28, 5.32, 10.42
P-Selectin, 9.11–12

P value, 1.7
PABPN1 gene mutation, in oculopharyngeal dystrophy, 5.329
PAC. See Primary angle closure
Pacchionian granulations, 5.22
PACD. See Posterior amorphous corneal dystrophy
Pacemakers, laser surgery in patient with, 13.37
PACG. See Primary angle-closure glaucoma
Pachychoroid, 12.76
Pachychoroid/pachymeter, 8.41–42, 10.159, 13.21f, 13.45–46
before cataract surgery, 11.84
in children, 10.159
forme fruste keratoconus and, 13.176, 13.177f
in Fuchs endothelial dystrophy, 8.158f
for intrastromal corneal ring segment placement, 13.64
before LASIK, 13.79, 13.125, 13.176, 13.177f
corneal perforation and, 13.111
Paco, 12.301
PACS. See Primary angle-closure suspect
PACs. See Platelet-activating factors
Pagetoid spread
of melanoma, 4.220
in primary acquired melanosis, 4.66–68
of sebaceous carcinoma, 4.216, 4.217f
in primary acquired melanosis, 4.66–68
of melanoma, 4.220
in Moebius syndrome, 6.135
slants of, 6.196
Palpebral lacrimal gland, 2.39
Palpebral muscles, 5.52
Palpebral vernal keratoconjunctivitis, 6.248, 6.248f
Palpebral veins, inferior/superior, 5.21f
Palpebral conjunctiva, 2.26, 2.27f, 2.36, 2.37f, 2.64, 4.47, 4.48f, 4.201f, 4.202–202, 8.6. See also Conjunctiva
Palpebral fissure, 2.26, 2.27f, 2.36f
in blepharophimosis–ptosis–epicanthus inversus syndrome (BPES), 6.198
in Brown syndrome, 6.137
in cryptophthalmos, 6.191
dermolipomas of, 6.257
downward-sloping
description of, 6.196
pattern strabismus and, 6.107, 6.108f
syndromes with, 6.196
growth and development of, 6.181
inferior rectus muscle alteration effect on, 6.29, 6.30f
in Moebius syndrome, 6.135
Palinopsia, 5.176f
Pancreas
β cells of, 1.33
transplantation of, 1.37–38
Pancuronium, 2.382
Panel D-15 (Farnsworth) test, 12.55f, 12.55–56
in low vision evaluation, 5.79
Panencephalitis, subacute sclerosing (SSPE), 8.239
Pancuronium, 2.382
Panipenem, 1.273
Panischemia, 1.198
Pancreas
β cells of, 1.33
transplantation of, 1.37–38
Pancuronium, 2.382
Panel D-15 (Farnsworth) test, 12.55f, 12.55–56
in low vision evaluation, 5.79
Panencephalitis, subacute sclerosing (SSPE), 8.239
Panic disorder, 1.198
Panipenem, 1.273
Pannus/micropannus, 4.83, 4.84f, 8.52, 8.52f
in band keratopathy, 8.119
cataract surgery in patient with, 11.79
in Terrien marginal degeneration, 8.123, 8.123f
in trachoma/chlamydial conjunctivitis, 8.262, 8.262f
in vernal keratoconjunctivitis, 8.290
in recurrent corneal erosion, 5.295, 8.86, 8.87
in scleritis, 5.295, 8.319, 8.320, 8.322
in Tolosa-Hunt syndrome, 5.203
in trochlear headache/trochleitis, 5.296
with vision loss, assessment and, 5.78, 5.164
Panretinal dystrophies
clinical findings of, 12.261, 12.263f
Coats reaction associated with, 12.260
nonsyndromic, 12.258–259
syndromic, 12.259
Panretinal photocoagulation (PRP), 3.115. See also Photocoagulation; Scatter laser treatment/photocoagulation
adverse effects of, 12.106
angle-closure glaucoma after, 10.143
applications of, 12.376–377, 12.377f
central retinal vein occlusion treated with, 12.135
idiopathic retinal vasculitis, aneurysms, and neuroretinitis treated with, 12.156
iris neovascularization and, 12.135
macular edema exacerabated by, 12.379
for neovascular glaucoma, 10.135
nonproliferative diabetic retinopathy treated with, 12.101
oxygen tension affected by, 12.104
proliferative diabetic retinopathy treated with, 12.104, 12.106, 12.106f
for radiation retinopathy, 1.239
for retinopathy of prematurity, 6.332, 6.333f

Pantoscopic tilt, 3.192, 3.199
syndromic, 12.259
nonsyndromic, 12.258–259
Coats reaction associated with, 12.260
clinical findings of, 12.261, 12.263f
in reactive arthritis/Reiter syndrome, 8.305–306
giant (GPC), after penetrating keratoplasty, 8.426
description of, 4.50–51f, 8.47f, 8.48f
in atopic keratoconjunctivitis, 8.292, 8.293f
in floppy eyelid syndrome, 8.82, 8.83f
in palpebral vernal keratoconjunctivitis, 8.289, 8.290f
Papillary cancer, 1.46
Papillary conjunctivitis
description of, 4.50–51f, 8.47f, 8.48f
giant (GPC), after penetrating keratoplasty, 8.426
in reactive arthritis/Reiter syndrome, 8.305–306
Papillary endothelial hyperplasia, intravascular, 8.345f
Papilledema, 2.473f, 5.82, 5.83f, 5.105–113, 5.107f, 5.108f, 5.109f, 5.110f, 5.111f. See also Optic nerve head (ONH/optic disc), edema of acute, 5.105–107
Parasympathomimetic agents
Parasympatholytic agents, accommodation affected by, 11.23
description of, 6.289f
for glaucoma, 10.173f, 10.181–182

Parathyroid hormone/disease, corneal changes and, 8.200–201
Paratope, 9.35
Paratrigeminal syndrome, Raeder, 5.261
Paraxial rays, 3.41, 3.70
Paracrine. See Proparacrine
Parecoxib, 1.176
Paredrine. See Hydroxyamphetamine
Paremyd. See Hydroxyamphetamine hydrobromide/tropicamide
Parental diagnosis. See Genetic testing/counseling
Parenteral antihypertensives, 1.64
Paresis. See Paralysis: specific type
Pareto chart, 1.28, 1.30f
Parietal bone, 5.5
Parietal cortex, posterior (PPC), 5.30, 5.30f
Parietal eye field, 5.32f
Parietal lobe, 5.24f
lesions of, 5.156
illusions/hallucinations and, 5.175, 5.177
visual field defects in, 5.84, 5.156, 5.219
Parieto-occipital artery, 5.19f, 5.20
Parinaud (dorsal midbrain) syndrome, 5.37, 5.229, 5.230f, 5.273
in children, 5.231
convergence-retraction nystagmus in, 5.229, 5.250
eyelid retraction in, 5.229, 5.250, 5.274, 5.275f
light-near dissociation in, 5.229, 5.230f, 5.266f, 5.266–267
multiple sclerosis and, 5.319
Parinaud oscillopsia syndrome (POS), 2.38, 4.51, 6.240f, 6.240–241, 8.265–266, 9.241, 12.242. See also Cat-scratch disease
Parkinson disease (PD)/parkinsonism
convergence insufficiency associated with, 5.227, 6.103
description of, 1.204–205
exposure keratopathy and, 8.79
facial weakness/paralysis in, 5.278
medications for, tear production affected by, 8.62f
Parks-Bielschowsky 3-step test, 6.73, 6.120. See also 3-step test
in fourth nerve (trochlear) palsy, 5.198–199
Paroxysmal hemicrania, 5.289f, 5.294
Paroxysmal nocturnal hemoglobinuria (PNH), 1.136, 1.148
Parry-Romberg syndrome (progressive facial hemiatrophy), 8.192f
Pars plana, 4.115f, 4.182, 4.183f, 12.10
ciliary body, 2.72, 2.100f
in uveitis. See Intermediate uveitis; Pars planitis
Pars plana vitrectomy. See also Vitrectomy
angle-closure glaucoma after, 10.143
branch retinal vein occlusion treated with, 12.130
for capsular rupture during cataract surgery, 11.143
cataract/cataract surgery after, 11.55, 11.190
central retinal vein occlusion treated with, 12.135
complications of, 12.402f, 12.402–403
cystoid macular edema treated with, 12.393, 12.394f
description of, 9.150
diabetic macular edema treated with, 12.115, 12.388
diabetic retinopathy complications treated with, 12.107
epiretinal membranes treated with, 12.382, 12.383
for hemolytic/ghost cell glaucoma, 10.106
idiopathic macular holes treated with, 12.384–385, 12.385f
indications for, 12.381
intracocular foreign body removed with, 12.361
for intraocular lymphoma diagnosis, 4.312
for IOL decentration/dislocation, 11.145
for malignant/ciliary block glaucoma (aqueous misdirection), 10.141
needle perforation/penetration of globe treated with, 12.396
posteriorly dislocated intraocular lenses treated with, 12.393
postoperative endophthalmitis treated with, 11.162
acute-onset, 12.388–390, 12.390f
bleb-associated, 12.390–391, 12.391f
chronic, 9.293, 12.390, 12.391f
retained lens fragments after phacoemulsification treated with, 11.41, 12.391–393, 12.392f
for retinal detachment
cataract surgery/IOL and, 11.166
rhegmatogenous, 12.400f
submacular hemorrhage treated with, 12.385, 12.386f
uveitis macular edema treated with, 9.322
vitreous opacities treated with, 12.386
Pars planitis, 6.316, 12.231. See also Intermediate uveitis; Uveitis ancillary tests for, 9.148–149
cataracts in, 9.151
clinical characteristics of, 9.147–148
complications of, 9.151
corticosteroids for, 9.149–150
description of, 9.70
differential diagnosis of, 9.148
glaucoma in, 9.151
histologic findings in, 9.148–149
macular edema in, 9.147
medical management of, 9.93
multiple sclerosis and, 5.318
prognosis for, 9.149
treatment of, 9.149–150
Pars plicata, 2.72, 2.73f, 2.100f, 2.472f, 4.115f, 4.182, 4.183f, 10.15f
Part-time occlusion, for amblyopia, 6.58
Partial seizures, 1.206–207
Partial third nerve (oculomotor) palsy, 5.193, 5.193f, 5.195–196, 5.196f
Partially accommodative esotropia, 6.90–92
Partially polarized light, 3.99
Particle theory of light, 3.94
Parvocellular neurons (P cells/system), 5.28, 5.32, 10.42
Parvoviruses, 1.236
PAS. See Peripheral anterior synchiae
PAS (periodic acid-Schiff) stain, 4.31f
Passive immunization, 1.223, 1.233
Pataday. See Olopatadine
Patanol. See Olopatadine
Patau syndrome, 6.386
Patching. See also Occlusion therapy
for conjunctivochalasis, 8.86
for corneal defects/abrasions, 8.368, 8.369f, 8.369–370, 8.370f, 8.398
for dellen, 8.79, 8.92, 8.368
for hyphema, 10.105
for penetrating and perforating ocular trauma, 8.402
for recurrent corneal erosion, 8.87, 8.368
for topical anesthetic abuse diagnosis/management, 8.90
Patellar fossa, 12.7
Pathogen-associated molecular patterns (PAMPs), 9.5
Pathologic (high) myopia
chorioretinal atrophy in, 12.214f
choroid in, 12.212–216, 12.214–12.215f
choroidal neovascularization in, 12.89, 12.90f, 12.211f, 12.211–212
definition of, 12.207
factors associated with, 12.207
glaucoma in, 12.218, 12.218f
global prevalence of, 12.207
macular holes in, 12.209
ocular expansion related to, 12.216
optic nerve in, 12.217–218, 12.218f
prevalence of, 12.207
prevention of, 12.207–208
retina in, 12.208–216, 12.209–215f
sclera in, 12.216–217, 12.217f
swept-source optical coherence tomography of, 12.209f
traction effects on retinal vessels in, 12.209
Pathologic suppression, 6.48
Pathology, ophthalmic. See Ophthalmic pathology
Patient
examination of. See Examination
perimetry results affected by, 10.59, 10.60
selection/preparation of. See also Preoperative assessment/preparation for surgery
for corneal crosslinking, 13.131–132
expectations/motivations and, 13.35–36, 13.36f, 13.47
for LASIK, 13.78–80
for monovision, 13.39, 13.165
for multifocal IOLs, 13.155, 13.166–167
for phakic IOLs, 13.140–141
for photoablation, 13.77–80, 13.78f
for refractive lens exchange, 13.147–149
for surface ablation, 13.77–78
for toric IOLs, 13.151
Patient education
before cataract surgery, 11.87–88
for medication instillation, 10.184–185
adherence and, 10.186
in children, 10.165
Patient Health Questionnaire-2 (PHQ-2), 1.189–190
Pattern-appearance visual evoked potential, 5.95, 12.53
in nonorganic disorder evaluation, 5.302
Pattern deviation map/plot, 5.86, 5.87f, 10.65, 10.65f
Pattern strabismus

Pattern Standard Deviation (PSD), 10.65

Pattern electroretinography (PERG), 12.45–46, 12.46–49f

Pattern dystrophies, 4.170, 4.171f, 12.67, 12.272, 12.276f, 12.276–277

downward-sloping peripheral foveal dystrophy, 4.170, 12.67f

Pattern- reversal visual evoked potential, 12.52, 12.53f

Pattern recognition receptors (PRRs)

dendritic cells' use of, 9.4
description of, 9.5

Toll-like receptors as, 9.58

Pattern electroretinography (PERG), 12.45–46, 12.46–49f

Pattern dystrophies, 4.170, 4.171f, 12.67, 12.272, 12.276f, 12.276–277

downward-sloping peripheral foveal dystrophy, 4.170, 12.67f

Pattern- reversal visual evoked potential, 12.52, 12.53f

Pattern Standard Deviation (PSD), 10.65

Pattern strabismus

A-
clinical features of, 6.109
clinically significant, 6.109
definition of, 6.107
etiology of, 6.107–109, 6.108f
exotropia, 6.108f, 6.112
in exotropia, 6.109
horizontal rectus muscle transposition for, 6.112
identification of, 6.109
intorsion as cause of, 6.107, 6.110
medial rectus muscle displacement for, 6.110
palpebral fissure slanting associated with, 6.196
superior oblique muscle overaction associated with, 6.112
superior oblique tenotomy for, 6.112
anomalous innervation as cause of, 6.109

clinical features of, 6.110

treatment of, 6.112, 6.112f

superior oblique palsy and, 6.122
surgical treatment of, 6.111–112, 6.112f

X-
clinical features of, 6.110

treatment of, 6.113

Y-
clinical features of, 6.110

treatment of, 6.113

PaxiVata Square Wave Paddles, 6.8

Patton lines, 12.201

Pattif Stripes Square Wave Grating Paddles, 6.8

Paving-stone (cobblestone) degeneration, 4.150, 4.150f, 12.313, 12.314f

PAX genes. See also specific type

in aniridia, 4.184, 10.150, 10.155, 11.33

PAX2 gene, mutations of, 2.179

optic nerve dysplasia and, 5.145

PAX6 gene, 2.164, 6.267, 6.338

in aniridia, 2.225–226
description of, 2.179

mutation in

in aniridia, 4.184, 10.150, 10.155, 11.33
in Axenfeld-Rieger syndrome, 8.97f, 8.102
in microcornea, 8.95
in Peters anomaly, 8.97f, 8.103, 10.150, 11.32
mutations of, 2.226

PBK. See Pseudophakic (aphakic) bullous keratopathy

PC. See Posterior commissure

PCA. See Posterior cerebral artery

PCAB. See Pharmacy Compounding Accreditation Board

PCG. See Primary congenital glaucoma

PCI. See Percutaneous coronary intervention

PCIOls. See Intraocular lenses, posterior chamber

PCNSL. See Primary central nervous system/ intraocular/vitreoretinal/retinal lymphoma

PCO. See Posterior capsular/capsule opacification

PCoA. See Posterior communicating artery

PCP (pneumocystis pneumonia). See Pneumocystis jirovecii

PCR. See Polymerase chain reaction

PCV. See Pneumococcal vaccination; Polypoidal choroidal vasculopathy

PD. See Parkinson disease/parkinsonism; Proton density

PD-1. See Programmed death 1

PD-L1. See Programmed death ligand-1

PDCD. See Pre-Descemet corneal dystrophy

PDE. See Phosphodiesterase

PDGFS. See Platelet-derived growth factors

PDR. See Proliferative diabetic retinopathy

PDT. See Photodynamic therapy

PE. See Pigmented epithelium

Pearson marrow-pancreas syndrome, 2.185

Peau d'orange, 12.87, 12.89

Peculiar substance, “in Meesmann corneal dystrophy, 8.139

PEDs (pigment epithelial detachments). See Retinal pigment epithelium (RPE), detachment of

Pediatric cataract. See Cataract, pediatric

Pediatric corneal transplantation, 8.450–451

Pediatric glaucoma. See Glaucoma, pediatric (childhood/congenital/infantile/juvenile)
Pediatric granulomatous arthritis, 6.318
Pediatric life support (PLS), 1.299
Pediatric low vision. See Low vision, in infants
Pediatric uveitis, 9.320
Pediculosis (lice)
humanus capitis, 8.255
humanus corporis, 8.255
ocular infection caused by, 8.255
Pedigree analysis, 2.200–201, 2.201f
PEDS. See Pigment epithelial detachments
Pedunculosis, 3.316
Peduncular hallucinosis, 5.176
Pellagra, 11.2
Pellucid marginal degeneration (PMD), 4.95, 8.168–169, 8.169f, 8.170f
corneal topography in evaluation of, 8.31, 8.33f, 8.169, 8.170f
refractive lens exchange and, 13.149
refractive surgery contraindicated in, 13.24, 13.44
control of, 8.431–432, 8.432f, 8.437f, 8.438f
keratoplasty for, 8.419–432
keratoplasty, penetrating
preoperative, 8.403
surgical, 8.403–409, 8.404f, 8.405f, 8.407f, 8.408f
ocular signs of, 8.402f
uveal prolapse in, repair of, 8.375
definitions of, 8.396
eyelid. See Lacerations, eyelid
fibrocellular proliferation and, 4.20–22, 4.21f
fibrous ingrowth/angle-closure glaucoma and, 10.142, 10.143f
lens damage caused by, 11.55, 11.55f, 11.56f
glaucoma and, 11.67
Seidel test in identification of, 8.36–37, 8.38f
sympathetic ophthalmia secondary to, 12.233.
See also Trauma
Penetrating keratoplasty (PK/PKP), 8.411, 8.412, 8.419–432, 8.437f. See also Keratoplasty, penetrating
for Acanthamoeba keratitis, 8.279
advantages of, 8.421f
arcuate keratotomy and, 13.56–57, 13.58
astigmatism after
control of, 8.431–432, 8.432f
refractive surgery for, 13.178–180
suture removal/adjustment and, 8.419f,
8.431–432, 8.432f
keratokうこと and, 8.28
keratophakia for, 8.32, 8.431–432, 8.432f
rejection of, 9.55
success rate for, 9.55
Penetrating wound, 8.396. See also Penetrating and perforating ocular trauma
Penicillamine, for Wilson disease, 8.189
Penicillin G
Borreli burgdorferi treated with, 1.255
for leptospirosis, 9.233
for Lyme disease, 9.307
for syphilis, 1.253, 6.413, 9.225–226, 9.226f
Penicillin-resistant Neisseria gonorrohoeae (PRNG), 8.259, 8.264
Penicillinase-resistant penicillins, 1.246, 1.271
Penicillamine, for Wilson disease, 8.189
Penicillin G
Borreli burgdorferi treated with, 1.255
for leptospirosis, 9.233
for Lyme disease, 9.307
for syphilis, 1.253, 6.413, 9.225–226, 9.226f
Penicillin-resistant Neisseria gonorrohoeae (PRNG), 8.259, 8.264
Penicillinase-resistant penicillins, 1.246, 1.271, 2.418
Penicillins, 2.417–419. See also specific agent
Pentacam system, for corneal power measurements, 3.248, 3.248f
Pentolair.
Pentolin.
See Cylcopentolate
Pentose phosphate pathway (hexose monophosphate [HMP] shunt), 2.289
in glucose/carbohydrate metabolism, in lens, 11.17, 11.18f, 11.19
Penumbra, 1.110
Peptidoglycan, in bacterial cell wall, 8.243
Peptidoglycan, in bacterial cell wall, 8.243
Peptidoglycan, in bacterial cell wall, 8.243
Peptidoglycan, in bacterial cell wall, 8.243
Peptidoglycan, in bacterial cell wall, 8.243
Penicillamine, for Wilson disease, 8.189
Penicillin G
Borreli burgdorferi treated with, 1.255
for leptospirosis, 9.233
for Lyme disease, 9.307
for syphilis, 1.253, 6.413, 9.225–226, 9.226f
Penicillin-resistant Neisseria gonorrohoeae (PRNG), 8.259, 8.264
Penicillinase-resistant penicillins, 1.246, 1.271, 2.418
Penicillins, 2.417–419. See also specific agent
Pentacam system, for corneal power measurements, 3.248, 3.248f
Pentolair.
Pentolin.
See Cylcopentolate
Pentose phosphate pathway (hexose monophosphate [HMP] shunt), 2.289
in glucose/carbohydrate metabolism, in lens, 11.17, 11.18f, 11.19
Penumbra, 1.110
Peptidoglycan, in bacterial cell wall, 8.243
Peptidoglycan, in bacterial cell wall, 8.243
Peptidoglycan, in bacterial cell wall, 8.243
Penicillamine, for Wilson disease, 8.189
Penicillin G
Borreli burgdorferi treated with, 1.255
for leptospirosis, 9.233
for Lyme disease, 9.307
for syphilis, 1.253, 6.413, 9.225–226, 9.226f
Penicillin-resistant Neisseria gonorrohoeae (PRNG), 8.259, 8.264
Penicillinase-resistant penicillins, 1.246, 1.271, 2.418
Penicillins, 2.417–419. See also specific agent
Pentacam system, for corneal power measurements, 3.248, 3.248f
Pentolair.
Pentolin.
See Cylcopentolate
Pentose phosphate pathway (hexose monophosphate [HMP] shunt), 2.289
in glucose/carbohydrate metabolism, in lens, 11.17, 11.18f, 11.19
Penumbra, 1.110
Peptidoglycan, in bacterial cell wall, 8.243
Penicillamine, for Wilson disease, 8.189
Penicillin G
Borreli burgdorferi treated with, 1.255
for leptospirosis, 9.233
for Lyme disease, 9.307
for syphilis, 1.253, 6.413, 9.225–226, 9.226f
Penicillin-resistant Neisseria gonorrohoeae (PRNG), 8.259, 8.264
Penicillinase-resistant penicillins, 1.246, 1.271, 2.418
Penicillins, 2.417–419. See also specific agent
Pentacam system, for corneal power measurements, 3.248, 3.248f
Pentolair.
Pentolin.
See Cylcopentolate
Pentose phosphate pathway (hexose monophosphate [HMP] shunt), 2.289
in glucose/carbohydrate metabolism, in lens, 11.17, 11.18f, 11.19
Penumbra, 1.110
Peptidoglycan, in bacterial cell wall, 8.243
drug-eluting stents with, 1.92
myocardial infarction treated with, 1.85, 1.94
Perinatal infections. See also Periocular infections.
Peripapillary choroiditis, 9.201
Peripapillary atrophy (PPA), in glaucoma, 10.48, 10.52
Perioperative management in ocular surgery, 5.245–246, 6.149
Perioperative ischemic optic neuropathy, 5.124–125
Perioperative pain caused by, 5.298
Perineural invasion, pain caused by, 5.298
Periorbitopathy, prostaglandin-associated, 10.176
Periocular corticosteroids, for uveitis, 9.95–96, 9.96–97
Periocular injections, 2.359
Periocular structures. See also Periorbita (periocular structures).
Periocular lacerations, 2.32
Periocular ecchymoses, 6.379, 6.384
See also Periocular injections.
Periocular anesthetic, 2.442, 6.174
for cataract surgery, 11.91
for phakic IOL insertion, 13.141
Pericentral scotoma, 5.105
Periocular space-occupying lesions, 2.470
Perioperative ischemic optic neuropathy, 5.124–125
Perioperative assessment and. See Preoperative assessment/preparation for surgery
Periorbita (periocular structures). See also specific structure
Periorbital cellulitis affecting. See Orbital cellulitis; Preseptal cellulitis
description of, 7.11
involutional changes in, 7.259
orbital disorder-related changes in, 7.22, 7.23
sebaceous carcinoma, 7.208
sensory innervation of, 7.18
structures of, 7.19–20
Periorbital ecchymoses, 6.379, 6.384
Periorbital lacerations, 2.32
Periorbital pain, 5.295
in optic neuritis, 5.78, 5.113–114, 5.123
Periorbital sinuses
anatomy of, 2.12–15
computed tomography of, 2.14
orbit and, 2.12–15
Periorbital space-occupying lesions, 2.470
Periorbital atrophy (PPA), in glaucoma, 10.48, 10.52
Periapillary choroiditis, 9.201
Periapillary fibers. See also Nerve fiber layer
assessment of, OCT in assessment of, 5.91
gliosis of, 5.109
in ONH edema, 5.82, 5.82, 5.83, 5.105
Perfusion pressure, ocular, glaucoma and, 10.83
tendency-oriented algorithm (TOP), 10.61
Perfusion pressure, ocular, glaucoma and, 10.83
Perineuritis, optic, 5.119
Perineural invasion, pain caused by, 5.298
Pattern electroretinography
Peripapillary gliosis of, 5.109
in ONH edema, 5.82, 5.82
Peripapillary macula, 12.9f
Peripapillary fields, in abusive head trauma, 6.382–383
Perimetrist, perimetry results affected by, 10.59, 10.60
Perimetry, 5.84–88, 5.87
Perimetry, automated, static
short-wavelength (SWAP), 10.75
standard (SAP/achromatic), 10.59
static, 5.84, 5.85f, 5.85–88, 5.87f, 5.109, 10.60–62
artifacts seen on, 10.66f, 10.66–67, 10.67f
in glaucoma, 10.59, 10.60–62
high false-positive rate in, 10.67f
incorrect corrective lens used in, 10.66
learning effect and, 10.71
in nonorganic disorder evaluation, 5.306–307, 5.307f, 5.308f
screening tests, 10.62
threshold tests, 10.61f, 10.61–62, 10.63f
for central visual field assessment, 5.85, 5.85f
factors affecting, 10.59–60
false-negative/positive responses and, 5.86, 10.62, 10.67, 10.67f
frequency-doubling technology (FDT), 10.75
in glaucoma suspect screening, 10.89
in glaucoma, 10.59–77
preperimetric glaucoma and, 10.3
in glaucoma suspect screening, 10.62, 10.89
Goldmann, 5.84, 5.85f
in nonorganic disorder evaluation, 5.308, 5.308f
interpretation in
artifacts and, 10.66f, 10.66–67, 10.67f
normality versus abnormality of field and, 10.62–65, 10.64f, 10.65f
optic nerve/head/disc changes and, 10.74–75
patterns of field loss and, 10.67–69, 10.68f, 10.69f, 10.70f
quality/reliability and, 10.62
serial fields/detection of visual field progression, 10.71–75, 10.72f, 10.73f, 10.74f
single field, 10.62–67, 10.64f, 10.65f, 10.66f, 10.67f
kinetic, 5.84, 5.85f, 10.59
in nonorganic disorder evaluation, 5.308, 5.308f
in optic neuropathy, 5.86
preperimetric glaucoma and, 10.3
screening, 10.62
static. See Perimetry, automated, static
Swedish interactive thresholding algorithm (SITA), 5.86, 10.60–61, 10.62
tangent screen in. See Tangent screen
tendency-oriented algorithm (TOP), 10.61
terminology used in, 5.105
threshold, 5.86, 10.61f, 10.61–62, 10.63f
in uveitis evaluations, 9.90
Perinatal infections. See Intrauterine ocular infections
Perineal pain caused by, 5.298
Perineuritis, optic, 5.119
radial (radial keratitis), in Acanthamoeba keratitis, 4.79, 8.277
in sarcoidosis, 5.327
Perinuclear antinuclear antibody testing, 9.160
Periorbital sinuses
Periorbital pain, 5.295
Periorbital lacerations, 2.32
Periorbital ecchymoses, 6.379, 6.384
Periorbital lacerations, 2.32
Periorbital pain, 5.295
Peripheral neurofibromatosis, 10.156. See also Neurofibromatosis 1 (NF1/von Recklinghausen)
Peripheral retina

definition of, 12.10
evacuations, 12.312–313
Peripheral retinal neovascularization, 12.154f
Peripheral retinitis, 9.251f
Peripheral scleral inflammation, 8.52
Peripheral suppression, 6.48
Peripheral surgical space, 7.12
Peripheral uveitis. See Intermediate uveitis; Pars planitis
Peripheral vacuolar cataracts, 6.298
Peripheral vascular sheathing, in intermediate uveitis, 9.75
Peripheral vestibular nystagmus, 5.216, 5.241f, 5.241–243
Peripheral visual field/field deficit, 3.318. See also Visual field defects
Peripheral vitreous, 2.296, 12.7
Peripheral zone, corneal, 8.25, 8.25f
Peripherin, 2.308, 2.313
Peripheral zone, corneal, 8.25, 8.25
Peripheral neurofibromatosis, 10.156.
Peripheral iridectomy, 9.318
Peripheral neovascularization, vitreous hemorrhage associated with, 12.232
Peripheral neurofibromatosis, 10.156. See also Neurofibromatosis 1 (NF1/von Recklinghausen)
Peripheral retina
definition of, 12.10
evacuations, 12.312–313
Peripheral retinal neovascularization, 12.154f
Peripheral retinitis, 9.251f
Peripheral scleral inflammation, 8.52
Peripheral suppression, 6.48
Peripheral surgical space, 7.12
Peripheral uveitis. See Intermediate uveitis; Pars planitis
Peripheral vacuolar cataracts, 6.298
Peripheral vascular sheathing, in intermediate uveitis, 9.75
Peripheral vestibular nystagmus, 5.216, 5.241f, 5.241–243
Peripheral visual field/field deficit, 3.318. See also Visual field defects
Peripheral vitreous, 2.296, 12.7
Peripheral zone, corneal, 8.25, 8.25f
Peripherin, 2.308, 2.313
Peripheral zone, corneal, 8.25, 8.25
Peripheral neurofibromatosis, 10.156.
cataract and, 4.126, 11.42
glaucoma and, 10.144
retinoblastoma differentiated from, 4.294–295
Persistent hyaloid artery/system, 4.125–126, 4.126f.  
See also Persistent fetal vasculature
Persistent hyperplastic primary vitreous, 2.293
Persistent positive visual phenomena, 5.177, 5.201, 5.290
Persistent pupillary membrane, 6.264, 6.264f, 6.266f
Person with disabilities, referrals for providers of
Personality disorders, 1.198
Persistent hyaloid artery/system, 4.125–126, 4.126
See also Persistent fetal vasculature
Persistent positive visual phenomena, 5.177, 5.201, 5.290
Persistent pupillary membrane, 6.264, 6.264f, 6.266f
Person with disabilities, referrals for providers of
Personality disorders, 1.198
Phacoemulsification, 11.90–91, 11.98–118. See also  
Cataract surgery
for advanced cataract, 11.180
anterior capsulotomy for, 11.109–110
in anterior chamber, 11.112
anticoagulant use and, 11.171–172, 11.172f
aspiration system for, 11.102, 11.115
burst-mode, 11.101
capsular rupture during, 11.142–143
capsule staining for, 11.178–179, 11.179f
capsulorrhesis in, 11.108–110, 11.109f
clear corneal incision for, 11.106f, 11.106–107
cystoid macular edema after, 11.164, 11.187
eighth, 11.101
eye marking/time-out before, 11.104–105
flat or shallow anterior chamber and, 11.134–136
intraoperative complications and, 11.134–135
posterior fluid misdirection syndrome and,
11.134–135
postoperative complications and, 11.135–136
foldable IOLs for, 11.116, 11.120, 11.120f. See also  
Foldable intraocular lenses
in glaucoma, 11.186
combined with trabeculectomy, 10.213
after filtering surgery, 11.187
intraocular pressure lowered by, 11.186
globe exposure for, 11.105, 11.105f
high myopia and, 11.184–185
historical overview of, 11.90–91
hydropneumation in, 11.110
hydropseduction in, 11.110
incisions for. See also Incisions, for cataract
surgery
clear corneal incisions, 11.106f, 11.106–107
scleral tunnel incisions, 11.107f, 11.107–108
instrumentation for, 11.98f, 11.98–99
for intumescent cataract extraction, 11.179–180
IOLs for, 11.115–117, 11.118–122. See also Foldable
intraocular lenses
procedures after insertion of, 11.117–118
at iris plane, 11.112
irrigation in, 11.101–102, 11.115
posterior fluid misdirection and, 11.134–135
toxic solutions exposure and, corneal edema
caued by, 11.129, 11.133–134
lens particle glaucoma and, 11.67
locations of, 11.111–112
nuclear rotation in, 11.111
nucleus disassembly/removal in, 11.111, 11.112–114,
11.113f
locations for emulsification and, 11.111–112
techniques of, 11.112–114, 11.113f
chopping techniques, 11.114
phaco fracture, 11.112–114, 11.113f
ocular trauma affecting visualization and,
11.191
paracentesis for, 11.105
after pars plana vitrectomy, 11.190
posterior capsule opacification and, 11.152–153
Nd:YAG laser capsulotomy for, 11.152, 11.153,
11.154f, 11.154–157, 11.156f. See also Nd:YAG
laser, capsulotomy
in posterior chamber, 11.111–112

Phacoemulsification, 11.90–91, 11.98–118. See also  
Cataract surgery
for advanced cataract, 11.180
anterior capsulotomy for, 11.109–110
in anterior chamber, 11.112
anticoagulant use and, 11.171–172, 11.172f
aspiration system for, 11.102, 11.115
burst-mode, 11.101
capsular rupture during, 11.142–143
capsule staining for, 11.178–179, 11.179f
capsulorrhesis in, 11.108–110, 11.109f
clear corneal incision for, 11.106f, 11.106–107
cystoid macular edema after, 11.164, 11.187
eighth, 11.101
eye marking/time-out before, 11.104–105
flat or shallow anterior chamber and, 11.134–136
intraoperative complications and, 11.134–135
posterior fluid misdirection syndrome and,
11.134–135
postoperative complications and, 11.135–136
foldable IOLs for, 11.116, 11.120, 11.120f. See also  
Foldable intraocular lenses
in glaucoma, 11.186
combined with trabeculectomy, 10.213
after filtering surgery, 11.187
intraocular pressure lowered by, 11.186
globe exposure for, 11.105, 11.105f
high myopia and, 11.184–185
historical overview of, 11.90–91
hydropneumation in, 11.110
hydropseduction in, 11.110
incisions for. See also Incisions, for cataract
surgery
clear corneal incisions, 11.106f, 11.106–107
scleral tunnel incisions, 11.107f, 11.107–108
instrumentation for, 11.98f, 11.98–99
for intumescent cataract extraction, 11.179–180
IOLs for, 11.115–117, 11.118–122. See also Foldable
intraocular lenses
procedures after insertion of, 11.117–118
at iris plane, 11.112
irrigation in, 11.101–102, 11.115
posterior fluid misdirection and, 11.134–135
toxic solutions exposure and, corneal edema
caued by, 11.129, 11.133–134
lens particle glaucoma and, 11.67
locations of, 11.111–112
nuclear rotation in, 11.111
nucleus disassembly/removal in, 11.111, 11.112–114,
11.113f
locations for emulsification and, 11.111–112
techniques of, 11.112–114, 11.113f
chopping techniques, 11.114
phaco fracture, 11.112–114, 11.113f
ocular trauma affecting visualization and,
11.191
paracentesis for, 11.105
after pars plana vitrectomy, 11.190
posterior capsule opacification and, 11.152–153
Nd:YAG laser capsulotomy for, 11.152, 11.153,
11.154f, 11.154–157, 11.156f. See also Nd:YAG
laser, capsulotomy
in posterior chamber, 11.111–112
for posterior polar cataract, 11.180–181
definition of, 11.181
hydrodissection/nucleus rotation and, 11.111, 11.181
power delivery and, 11.99
advances in, 11.100f, 11.100–101
procedure for, 11.104–118
pulsed, 11.100
retained lens fragments after, 11.141
retinal detachment and, 11.127, 11.166–167
scleral tunnel incisions for, 11.107f, 11.107–108
supracapsular, 11.110
suprachoroidal effusion/hemorrhage risk and, 11.171
torsional, 11.101
for traumatic cataract, 11.192
in triple procedure, 11.175
ultrasonic technology terminology and, 11.99–100
after vitrectomy
description of, 11.190
for retained lens fragments after, 12.391–393, 12.392f
in zonular dehiscence with lens subluxation or dislocation, 11.181–183, 11.182f, 11.183f

Phacolysis, fluid-based, 11.125
Phacolytic glaucoma (phacolytic uveitis), 4.103, 4.103f, 4.122, 9.13, 9.136f, 9.136–137, 10.97f, 10.97–98, 11.67f
Phacomorphic glaucoma, 10.119, 10.125, 10.129f, 11.67, 11.68f
Phagocytosis
antigen-presenting cells in, 9.30, 9.32f
description of, 9.12
mechanisms of, 9.16
of outer segments, 12.17
pathologic changes that affect, 12.17
reactive oxygen intermediates in, 9.16
retinal pigment epithelium cell, 12.17
Phagosomes, 2.99, 2.323, 9.12
Phakic intraocular lenses (PIOLs), 13.8t, 13.137, 13.138–147, 13.139f, 13.142f, 13.143f
advantages of, 13.138
for amblyopia/anisometropic amblyopia/strabismus, 13.185–187
ancillary preoperative tests for, 13.141
angle-supported, 13.137, 13.138, 13.139t, 13.144
complications of, 13.146–147
anterior chamber, 13.8f
for astigmatism after penetrating keratoplasty, 8.432
background of, 13.138
in children of, 13.187
complications of, 13.145–147
contraindications for, 13.140
corneal crosslinking with, 13.134, 13.207–208
disadvantages/limitations of, 13.47f, 13.138–140
indications for, 13.140
informed consent for, 13.140–141
iris-fixated/supported, 13.8f, 13.137, 13.138, 13.139f, 13.141–142, 13.142f
complications of, 13.145
sizing, 13.142, 13.142f
outcomes of, 13.144–145
patient evaluation for, 13.140
patient selection for, 13.140–141
posterior chamber, 13.8t, 13.138, 13.142f, 13.142–144, 13.143f
complications of, 13.145–146
corneal crosslinking with, 13.207–208
sizing, 13.144
retinal detachment and, 13.138, 13.145, 13.146
sulcus-supported, 13.137, 13.139f
surgical technique for insertion of, 13.141–144, 13.142f, 13.143f
Phakic refractive procedures, 13.8t
Phakinin, 2.285, 11.16
Phakoma/phakomatoses (neurocutaneous syndromes), 2.227–229, 5.330–333, 333f, 5.334f. See also Neurofibromatosis; specific type
definition of, 12.165
retinal, 6.397, 6.399
retinal cavernous hemangioma, 12.168, 12.169f
von Hippel–Lindau syndrome, 12.165–168, 12.166–12.167f
Wyburn-Mason syndrome, 6.222, 6.394f, 6.405t, 6.405–406, 12.168
Phakomatous choristoma (Zimmerman tumor), 4.202–203, 4.203f
Pharmacodynamics, 2.349–350, 2.367
Pharmacogenetics, 2.233–234, 2.368
Pharmacogenomics
for age-related macular degeneration, 12.63
description of, 2.368
Pharmacokinetics
definition of, 2.349–350
topical eyedrops, 2.355f
Pharmacologic anisocoria, 5.258t, 5.263
Pharmacologic blockade, fixed, dilated pupil caused by, 5.310
Pharmacologic principles
in elderly patients, 2.351–352
pharmacodynamics, 2.349–350, 2.367
pharmacokinetics. See Pharmacokinetics
pharmacotherapeutics, 2.349–350
terminology associated with, 2.349
toxicity, 2.350–351
Pharmacology, 2.349. See also Drugs, ocular; specific agent
Pharmacotherapeutics. See also Drugs, ocular; specific agent
compliance with, 2.373
compounded pharmaceuticals, 2.372–373
definition of, 2.349–350
legal aspects of, 2.370–371
noncompliance with, 2.373
Pharmacy Compounding Accreditation Board (PCAB), 2.372
Pharyngitis, 1.247
Pharyngoconjunctival fever, 6.242, 8.233, 8.234
Phenethicillin, 2.417
Phenocopy, 2.218
Phenol red-impregnated cotton thread test, of tear secretion, 8.39
Phenothiazines, 12.297–298, 12.298f
cornea verticillata caused by, 8.130
corneal pigmentation caused by, 8.130, 8.132
lens changes caused by, 11.52, 11.52f
Phenotype, 2.218
Phentolamine, 1.64
Phenylalanine, in alkaptonuria, 8.184
Phenylephrine
Phenylalanine, in alkaptonuria, 8.184
Phentolamine, 1.64
Phialophora
Phimosis, capsular, 11.153–154
Phosphatidylethanolamine, in retinal pigment
PHN.  
See PHMB.
Phlyctenules/phlyctenulosis, 8.46, 8.75, 8.75
Phleboliths, 7.75
See also Trial frames
Phoropter.
Phorias.  
See also Heterotropias/tropias-phoria (suffix), 6.16
Phosphatidylcholine, in retinal pigment epithelium,
Phosphate, in aqueous humor, 2.274
Phospholine.  
See Phospholine iodide.

Phospholine iodide, 2.379
Phosphoinositide kinase, FYVE finger containing-
PIKFYVE (PIKFYVE) gene, in Fieck corneal dystrophy, 8.136
Phospholipid.  
See also Lipids
arachidonic acid from, 9.19
in tear film.  
See Lipid layer of tear film
Phosphonofomeric acid.  
See Foscarnet
Phosphoreseence, 3.111
Photic damage/phototoxicity/light toxicity, 12.367–369, 12.366
phacoemulsification caused by, 11.166
ophthalmic instrumentation causing, cataract surgery and, 11.166
Photic damage/phototoxicity/light toxicity, 12.367–369, 12.366
phacoemulsification caused by, 11.166
ophthalmic instrumentation causing, cataract surgery and, 11.166
Phosphenes, optic neuritis causing, 5.176, 5.317
Photo-oxidation, 2.337
See also LASEK; LASIK; Surface ablation; Wavefront-guided (custom) laser ablation; Wavefront-optimized laser ablation
aberrations after, 13.11, 13.12, 13.13, 13.102–103, 13.103f
application of laser treatment for, 13.91f, 13.91–93
biotics with, 13.157
Bowman layer/stromal bed preparation for, 13.82–90
central islands and, 13.103–104, 13.104f
central toxic keratopathy after, 13.105f, 13.105–106
complications/adverse effects of, 13.101–126.  
See also specific type
contact lens use after, 13.200
corneal curvatures affected by, 13.9, 13.26–28, 13.27f, 13.28f
IOL power calculation and, 13.44, 13.91–93
infectious keratitis after, 13.180–183, 13.182
central toxic keratopathy after, 13.105f, 13.105–106
complications/adverse effects of, 13.101–126.  
See also specific type
defuse lamellar keratitis, 13.117
elevated intraocular pressure/glaucoma and, 13.41, 13.104–105, 13.182, 13.201
fungal keratitis and, 13.106
erpes simplex keratitis and, 13.174
LASIK, 13.93, 13.94
regression in overcorrection and, 13.101, 13.108–109
regression in undercorrection and, 13.102, 13.108
surface ablation, 13.92, 13.94, 13.108–109
See also Custom (wavefront-guided) ablation
decentered ablation and, 13.104, 13.104f
dry eye after, 13.78–79
fundamentals of, 13.29–30, 13.30f
herpes simplex virus keratitis and, 13.173–174
infectious keratitis after, 13.106f, 13.106–107, 13.107f
diffuse lamellar keratitis differentiated from, 13.117–118, 13.118f, 13.118t
keratoconus and, 13.42–43, 13.175f, 13.175–178, 13.176f, 13.177f

laser types for, 13.30–32

outcomes of, 13.95–97

techniques for, 13.73–100

overcorrection and, 13.101–102, 13.108–109

patient selection for, 13.77–80, 13.78t

postoperative care for, 13.93–95

immediate postablation measures, 13.92–93

patient selection for, 13.77–80, 13.78

planning/laser programming and, 13.31, 13.40, 13.81

re-treatment/enhancements and, 13.97–100, 13.99f

for overcorrection, 13.101–102

for undercorrection, 13.102

for retinoblastoma, 4.300

surgical technique for, 13.80–95

techniques for, 13.73–100

topography-guided, 13.32, 13.77

outcomes of, 13.97

tracking/centration/ablation and, 13.91f, 13.91–92

undercorrection and, 13.102, 13.108

re- treatment/enhancements and, 13.97–100, 13.99f

for overcorrection, 13.101–102

for undercorrection, 13.102

for retinoblastoma, 4.300

surgical technique for, 13.80–95

techniques for, 13.73–100

topography-guided, 13.32, 13.77

outcomes of, 13.97

tracking/centration/ablation and, 13.91f, 13.91–92

undercorrection and, 13.102, 13.108

re-treatment/enhancements and, 13.97–100, 13.99f

for overcorrection, 13.101–102

for undercorrection, 13.102

for retinoblastoma, 4.300

surgical technique for, 13.80–95

techniques for, 13.73–100

topography-guided, 13.32, 13.77

outcomes of, 13.97

tracking/centration/ablation and, 13.91f, 13.91–92

undercorrection and, 13.102, 13.108

re-treatment/enhancements and, 13.97–100, 13.99f

for overcorrection, 13.101–102

for undercorrection, 13.102

for retinoblastoma, 4.300

surgical technique for, 13.80–95

techniques for, 13.73–100

topography-guided, 13.32, 13.77

outcomes of, 13.97

tracking/centration/ablation and, 13.91f, 13.91–92

undercorrection and, 13.102, 13.108

re-treatment/enhancements and, 13.97–100, 13.99f

for overcorrection, 13.101–102

for undercorrection, 13.102

for retinoblastoma, 4.300

surgical technique for, 13.80–95

techniques for, 13.73–100

topography-guided, 13.32, 13.77

outcomes of, 13.97

tracking/centration/ablation and, 13.91f, 13.91–92

undercorrection and, 13.102, 13.108

re-treatment/enhancements and, 13.97–100, 13.99f

for overcorrection, 13.101–102

for undercorrection, 13.102

for retinoblastoma, 4.300

surgical technique for, 13.80–95

techniques for, 13.73–100

topography-guided, 13.32, 13.77

outcomes of, 13.97

tracking/centration/ablation and, 13.91f, 13.91–92

undercorrection and, 13.102, 13.108

re-treatment/enhancements and, 13.97–100, 13.99f

for overcorrection, 13.101–102

for undercorrection, 13.102

for retinoblastoma, 4.300
piggyback intraocular lenses
piezoelectric crystal, in phacoemulsification handpiece
pierre robin sequence, 6.183, 6.211
pierre robin malformation, 8.192
pi er study, 12.80
pic, see punctate inner choroiditis/choroidopathy
pic a. see posterior inferior cerebellar artery
picornaviruses, ocular infection caused by, 8.208
pigment, in retinal pigment epithelium, 12.12
pigment granules, 12.348
pigment epithelium–derived factor, 2.332
pigment epithelium cysts, of iris, 6.272, 6.272f
pigment epithelium detachment (ped), 6.342. see also
retinal pigment epithelium (rpe), detachment of
definition of, 12.64
intraocular lenses
definition of, 3.240
description of, 3.226
intralenticular fibrosis after placement of, 3.241
power calculations for, 3.251
retractive lens exchange and, 13.150
pigment, in retinal pigment epithelium, 12.12f, 12.17
pigment dispersion syndrome, 9.311
pigment epithelial detachments (ped), 6.342. see also
retinal pigment epithelium (rpe), detachment of
definition of, 12.64
drusenoid, 12.64, 12.272, 12.274f
fibrovascular
anti-vegf therapy for, 12.201f
description of, 12.72–73
retinal pigment epithelial tear risks, 12.82
in hypertensive choroidopathy, 12.123
optical coherence tomography of, 12.74f
serous, 12.72–73, 12.74f
subfoveal, 12.74–12.75f
pigment epithelium cysts, of iris, 6.272, 6.272f
pigment epithelium–derived factor, 2.332
pigment granules, 12.348
pigment/pigmentary dispersion syndrome, 4.105,
4.105f, 10.93–96, 10.94–96f
anterior chamber and trabecular meshwork affected
in, 4.104–105, 4.105f
cornea affected in, 8.128
gene for, 10.11f
in glaucoma and, 4.105, 4.105f, 10.93–96, 10.94f, 10.95f,
10.96f
posterior chamber phakic iol and, 13.145–146
pigment spot of sclera, 8.338
pigmentary glaucoma, 4.105, 4.105f, 10.95–96, 10.96f
Platelet count, 1.139
Platelet degranulation, 9.8
Platelet-derived growth factors (PDGFs), 9.24
Platelet-fibrin embolus, transient visual loss and, 5.165, 5.16f
Platelet function analyzer, 1.139
Platelet glycoprotein IIb/IIIa inhibitors. See Glycoprotein IIb/IIIa inhibitors
Platinum eyelid weights for corneal exposure in facial palsy, 5.281 for exposure keratopathy, 8.80
Platysma muscle, 7.267
Platysmaplasty, 7.276, 7.276f
Pleaismorphism
Pleomorphic adenoma (benign mixed tumor), 8.252
Pleomorphic hyalinosis
Pleomorphic rhabdomyosarcomas, 4.236, 7.88
Pleomorphic adenoma (benign mixed tumor), 5.334
Pleiotropism, 2.220
see Plavix.
Pleurotus, 8.252
Plexiform layer See Inner plexiform layer; Outer plexiform layer
Plexiform neurofibromas, 5.334
Plexiform layer See Inner plexiform layer; Outer plexiform layer
Pleurotus
Pleurotus aurinalis, 8.23
Pleurotus cornucopioides, 8.23
Pleurotus ostreatus, 8.23
Pleurotus pulmonarius, 8.23
Pleurotus rhacodes, 8.23
Pleurotus sanguineus, 8.23
Pleurotus parasiticus, 8.23
Pleurotus salmonicolor, 8.23
Pleurotus incarnatus, 8.23
Pleurotus ostreatus
Pleurotus aurinalis
Pleurotus cornucopioides
Pleurotus ostreatus
Pleurotus rhacodes
Pleurotus sanguineus
Pleurotus parasiticus
Pleurotus salmonicolor
Pleurotus incarnatus
Pneumolysin, 8.245
Pneumonia, pneumococcal, 1.230–231
Pneumococcal polysaccharide vaccine 13-valent, 1.230
Pneumococcal polysaccharide vaccine 23-valent, 1.230
Pneumococcal polysaccharide vaccine 13-valent, 1.230
Poliosis, in staphylococcal blepharitis, 8.74
Polio vaccine, 1.229
Poliovirus type 1, 1.229
Polyangiitis with granulomatosis (GPA/Wegener granulomatosis)
Poliosis, in staphylococcal blepharitis, 8.74
Poly- Immune suppressor, 1.60
Poly- Pred.
Poly- Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Poly-Dex.
Polymerase chain reaction (PCR), 4.36–40, 4.38
Polyinosinic acid–polycytidylic acid, 2.447
Polyhexamethylene biguanide (PHMB), 2.437
Polyhedral cells, in choroidal/ciliary body nevus, 4.191
Polyethylene orbital implant.
Polyenes, 2.429, 2.430
Polydystrophy, pseudo-Hurler (ML III), 8.178
Polydioxanone intracanalicular plugs, for dry eye, 8.64
Polydactyly, 6.391, 6.391
Polycythemia vera, transient visual loss and, 5.171
Polycystic kidney disease, 1.53
Polychondritis, relapsing, eyelid manifestations of, 4.207
Polycarbonate, 3.195–196, 3.314
Polyarticular-onset juvenile idiopathic (chronic/ArthritisPolyarthritis, 9.143
See also.
Polyarteritis nodosa (PAN), 1.170–171, 7.65, 9.125
t
Polymegethism, 8.10
Poly(lactic-glycolic acid) (PLGA), 2.360, 2.364
Polymerase chain reaction (PCR), 4.36–40, 4.38t, 4.39t, 4.40f
for chronic postoperative endophthalmitis, 9.293
clinical use of, 4.40, 4.41–42
disadvantages of, 9.90
fluorescent, 2.239
Goldmann-Witmer coefficient and, 9.91
in primary central nervous system/intraocular/vitreoretinal/retinal lymphoma, 4.136
principles of, 2.186–187
real-time quantitative (RT-PCR/qPCR), 4.39t
reverse (RT-PCR), 4.38t
syphilis diagnosis using, 9.225
thermal cycling in, 2.186
for Tropheryma whippelii, 9.245
in uveitis, 9.90–91
Polymethylmethacrylate (PMMA)
contact lenses constructed of, 3.213, 6.302
intraocular lens constructed of, 3.240, 11.116, 11.118–119
capsular opacification and, 11.153
insertion of, 11.116
for manual small-incision cataract surgery, 11.198
phakic intraocular lenses, 13.138, 13.139f
intrastromal corneal ring segments made from, 13.59, 13.62
Polymorphic amyloid degeneration, 8.122, 8.123f, 8.186f
Polymorphism, 8.10
Polymorphisms
definition of, 2.183, 2.218
mutations versus, 2.182–183
single-nucleotide, 2.182, 2.193–194, 2.195f, 2.218, 2.368
Polymorphonuclear leukocytes (PMNs), 4.7, 4.8f, 9.2.
See also Basophils; Eosinophils; Neutrophil(s)
Polymorphonuclear leukocytes (PMNs)
definition of, 2.183, 2.218
mutations versus, 2.182–183
single-nucleotide, 2.182, 2.193–194, 2.195f, 2.218, 2.368
Polymyositis, 1.167–168
Polymyxin B sulfate/trimethoprim sulfate, 2.418t, 2.427–428
Polymyxin B sulfate/bacitracin zinc, 2.421t
Polymyxin B sulfate/neomycin sulfate/bacitracin zinc, 2.421t
Polymyxin B sulfate/neomycin sulfate/gramicidin, 2.421t
Polymyxin B sulfate/trimethoprim sulfate, 2.421t, 2.427–428, 8.258
Polyneuropathy, familial amyloid (FAP), 4.134, 4.134f, 4.206.
See also Familial amyloidosis
vitreous involvement/opacification in, 4.134, 4.134f
Poly(orbital) pathway
in cataract formation, 11.19
description of, 2.289, 2.291
in lens glucose/carbohydrate metabolism, 11.18f, 11.19
Polyp, 5.185
in cataracts, 11.70–71
PolyPhen, 2.194
Polypoidal choroidal vasculopathy (PCV/posterioruveal bleeding syndrome), 4.166f, 4.166–168, 4.167f
central serous chorioretinopathy versus, 12.193
clinical presentation of, 12.75
definition of, 12.75
indocyanine green angiography for, 12.38, 12.38f
subretinal hemorrhage associated with, 12.76
verteporfin for, 12.76
Polyposis, familial adenomatous (FAP/Gardner syndrome), 12.285–286
congenital hypertrophy of retinal pigment epithelium in, 2.201, 2.202f
retinal manifestations of, 4.144–145, 4.269
Polysporin. See Polymyxin B
Polytrim. See Polymyxin B sulfate/trimethoprim sulfate
Polyunsaturated fatty acids (PUFAs), 2.324, 2.336–337, 2.340
Polysporin. See Polymyxin B
Polyvinyl alcohol (PVA), 2.357
Pons, 5.27f. See also specific Pontine entries
horizontal eye movements and, 5.36, 5.37f, 5.37–38
Pontine lesions
facial myokymia caused by, 5.284
facial weakness/paralysis caused by, 5.278, 5.278t
gaze palsy caused by, 5.191, 5.228, 5.229f
Horner syndrome and, 5.260f
Millard-Gubler syndrome caused by, 5.192
motility disorders caused by, 5.187f, 5.191, 5.192
in acute zonal occult outer retinopathy, 9.162–164, 9.190–192
in autoimmune retinopathy, 9.192–193
characteristics of, 9.70, 9.75
definition of, 6.317, 9.70, 9.153
differential diagnosis of, 6.312
electroretinography findings in, 12.44
evaluation of, 9.72–74
flucinolone acetonide implant for, 9.97–98
fundus autofluorescence of, 9.89
glaucoma and, 10.139
idiopathic, 9.254
inflammation in, 6.320
intermediate uveitis, 12.231
in inflammatory chorioretinopathies of unknown etiology. See Inflammatory chorioretinopathies
intermediate uveitis, 12.231
laboratory tests for, 6.321
in multifocal choroiditis and panuveitis syndrome, 9.179–181, 9.180
in polyaneritis nodosa, 9.156–158, 9.157
in punctate inner choroiditis, 9.181–184, 9.182–183
signs of, 9.83
in subretinal fibrosis and uveitis syndrome, 9.184–185
in Susac syndrome, 9.160, 9.160–161
symptoms of, 9.76, 9.77
syphilitic, 9.224
in systemic lupus erythematosus. See Systemic lupus erythematosus
toxocariasis as cause of, 6.317f, 6.317–318
toxoplasmosis as cause of, 6.317, 9.275
Posterior vitreous detachment (PVD), 4.128–129, 4.129, 6.347
age-related, 12.307–308
anatomy of, 12.331
atrophic holes presenting with, 12.318
cholesterolosis and, 12.348
conditions associated with, 12.307
definition of, 12.331
description of, 2.300, 2.301f
diagnosis of, 12.331
enzymes that induce, 2.304
epiretinal membranes. See Epiretinal membranes
examination of, 12.309
fibroglial tissue in, 12.331
floaters associated with, 12.308–309
idiopathic macular holes, 12.337–339, 12.338f
imaging of, 12.308f
indirect ophthalmoscopy of, 12.309, 12.331
management of, 12.309
myopia macular retinoschisis in, 12.209
nonproliferative diabetic retinopathy progression affected by, 12.102
optical coherence tomography of, 12.309, 12.332
in pars plana vitrectomy for diabetic macular edema, 12.115
pathologic conditions caused by, 12.332
photopsias associated with, 12.308
prevalence of, 12.331
retinal breaks associated with, 12.309
retinal detachment after cataract surgery and, 11.166
retinal tears caused by, 12.307, 12.308f, 12.309
risk factors for, 12.309
signs and symptoms of, 12.308
slit-lamp biomicroscopy of, 12.331
ultrasonographic findings in, 2.471f
vitrectomy for, 12.333, 12.335
vitreomacular adhesions, 12.336, 12.336f
vitreomacular traction syndrome, 12.332, 12.332f, 12.336f, 12.336–337, 12.337f
vitreous hemorrhage associated with, 4.133, 12.309
Postexposure prophylaxis, 1.226, 1.268
Postganglionic fibers, 2.15
Postganglionic Horner syndrome, 5.258, 5.259, 5.260, 5.260f, 5.261, 5.262f
Postherpetic neuralgia (PHN), 1.261, 1.278, 5.280, 5.298, 8.226f, 8.227, 8.229, 8.230
Postherpetic neurotrophic keratopathy, 4.77f, 4.78
Postictal period, 1.207
Postictal paresis (Todd paralysis), 1.207, 5.285
Postnatal period, 1.207
Postoperative care of ophthalmic surgery patient
 cataract surgery and antimicrobial prophylaxis, 11.95
 after ECCE, 11.198
 after ICCE, 11.201
 corneal imaging in, 13.23f, 13.23–24, 13.24f
 DSEK and, 8.441f, 8.441f, 8.442f
 LASIK and, 13.94–95
 penetrating and perforating trauma repair and, 8.409
 penetrating keratoplasty and, 8.423–430
 refractive/keratorefractive surgery and, 13.93–95, 13.193–201
 surface ablation and, 13.93–94
 immediate postablation measures and, 13.92–93
 trabeculectomy and, 10.208–209
 See also Uveitis, postoperative
 bleb-associated, 10.163, 10.209, 10.209f, 10.210f
 prevention of, 11.95–95, 11.94f, 11.161–162
 Propionibacterium acnes causing, 4.119, 4.119f, 11.140, 11.162
 after penetrating keratoplasty, 8.424
 prophylaxis for, cataract surgery and, 11.93–95, 11.94f, 11.161–162
 Propionibacterium acnes causing, 4.119, 4.119f, 8.246, 11.140, 11.162
 Postoperative nausea and vomiting, 1.289, 6.174
 Postpartum period
 neuro-ophtalmic disorders and, 5.333–335
 reversible cerebral vasoconstriction syndrome and, 5.346
 Postpartum thyroiditis, 1.46
 Postprandial hypoglycemia, 1.300
 Postpubescent children.
 Postpubertal children.
 Postprandial hypoglycemia, 1.300
 Postsurgical necrotizing scleritis, 9.121, 9.121f
 Posttest probability of disease, 1.19–20
 Posttraumatic angle recession, 4.18, 4.19f, 4.103–104
 glaucoma and, 4.18, 4.103–104, 10.39–40, 10.40f, 10.41f, 10.106–108, 10.107f
 Posttraumatic angle recession, 4.18, 4.19f, 4.103–104
 glaucoma and, 4.18, 4.103–104, 10.39–40, 10.40f, 10.41f, 10.106–108, 10.107f

Potassium balance, in lens, pump-leak theory of, 2.287, 11.21

Postviral optic neuritis, 5.113

Postviral neuroretinitis, 5.118

Postural change, transient visual loss and, 5.161, 5.164, 11.21

Posttraumatic endophthalmitis, 12.362–363

Transverse magnification

Power (optical).

See also

Povidone-iodine solution, 2.428

Potential, visual evoked/visual evoked cortical/visual potential energy, 3.106

Potential acuity estimation/potential acuity meter (PAM) testing, 5.88–89

in cataract surgery evaluation, 11.81–82

in nonorganic disorder evaluation, 5.306

Potential energy, 3.106

Potential, visual evoked/visual evoked cortical/visual evoked response (VEP/VECP/VER), 5.95. See also Visual evoked potentials in low vision evaluation, 5.95 in nonorganic disorder evaluation, 5.302

Povidone-iodine solution, 2.428

Power (optical). See also Transverse magnification contact lenses, 3.220–324f, 3.220–222

corneal
central, 3.243, 3.248
in spheric eye, 3.127f
definition of, 3.4, 3.8, 3.106, 3.112

equation for, 3.8

IOL, determination of, 11.84–87
biometry in, 11.82–83, 11.83f, 11.84–85, 11.87
hypotony affecting, 11.85
contact lens method for, 13.195
formulas for, 11.84, 11.85–87
regression formulas, 11.85–87
historical methods for, 11.86–87, 13.194
improving outcomes of surgery and, 11.87
incorrect, 11.85
online post-refractive calculator for (ASCRS), 13.52, 13.195–197, 13.196f
preventing errors in, 11.87
after radial keratotomy, 13.51, 13.52–53, 13.193
refraction and, 11.76
refractive lens exchange and, 13.150
topographical method for, after refractive surgery, 13.193, 13.194
triple procedure and, 11.175
unexpected refractive results after surgery and, 11.86, 11.150
lenstaker's equation for comparing, 3.52
in phacoemulsification, 11.100
delivery of, 11.99
advances in, 11.100f, 11.100–101
refractive. See also Refractive power; Transverse magnification
of cornea, 8.25–26, 13.7–9
measurement of, 8.26–27, 8.27f, 13.7–9. See also Keratometry/kerometer
sample size and, 1.5

Power calculations, 1.26
axial length, 3.243–248
central corneal power, 3.243, 3.248
in children, 3.254–255
in corneal transplant eyes, 3.253–254
double-K method, 3.252
formulas
biometric, 3.244–250
errors in, 3.252
for post-keratorefractive procedure eye, 3.252–253
prediction, 3.243–244
theoretical, 3.243
geometric optics and, 3.243
multifocal lenses, 3.258
piggyback lenses, 3.251
after refractive surgery, 3.251–253
in silicone oil–filled eyes, 3.254
sulcus placement adjustments, 3.250f

Power cross, 3.4, 3.16, 3.17f, 3.41, 3.77, 3.77–3.78f. See also Cylinder power

Power maps, 8.28–33, 8.29–33f, 13.14–19, 13.15f, 13.17f, 13.19f, 13.44–45, 13.45f. See also Cornea, topography of interpretation of, 8.28–31
in keratococcus, 8.165, 8.165f, 8.167f
in pellucid marginal degeneration, 8.31, 8.33f, 8.169, 8.170f
postoperative, 13.23, 13.24f

Power per unit area, 3.107

Power prediction formulas, for IOLs, 11.84, 11.85–87
regression formulas, 11.85–87
Power-versus-meridian graph (PVMG), 3.41, 3.79f, 3.79–80

Poxviruses (Poxviridae)/poxvirus infection, 8.236–238

PPA. See Peripapillary atrophy

PPC. See Posterior parietal cortex

PPCD. See Posterior polymorphous corneal dystrophy

PPMD. See Presenile corneal dystrophy

PPRPF. See Paramedian pontine reticular formation

PPSV23. See Pneumococcal vaccination

PPV. See Positive predictive value

PPV interval, 1.84f
PR segment, 1.84f

Prader-Willi syndrome, imprinting abnormalities as cause of, 2.180–181

Prager shell, 3.246f

Pralidoxime, 2.379

Prader-Willi syndrome, imprinting abnormalities as cause of, 2.180–181

Prater, shell, 3.246f

Pravoexole, for Parkinson disease, 1.205

Pravatolin. See Pravastatin

Pravastatin, 1.75f

Pravosin, intraoperative floppy iris syndrome and, 11.74, 11.136–137, 11.137f

PRDM5 gene, 6.254

Pre-Descemet corneal dystrophy (PDCD), 8.135f, 8.136f, 8.155f, 8.155–156

Pre-Descemet (Duâ’s) layer, 4.73, 4.74f, 8.9

Pre-exposure prophylaxis, 1.268

Pre–plus disease, 6.326, 6.327f, 6.330f

Preadolescents. See Children

Praecurricular skin tags, in Goldenhar-Gorlin syndrome, 8.195
Precentral gyrus, 5.49
facial weakness/paralysis caused by lesion of, 5.277
Precentral cortical layer of, 2.247
description of, 2.49–50, 2.259
functions of, 2.247
layers of, 2.247, 2.248
Precentral cortical vacuolar pocket, 12.7, 12.8
Precorneal tear film. See also Tear film (tears)
Precorneal tear film, 4.247
functions of, 4.248
accommodation, 4.248
Preliterate children, optotypes for visual acuity assessment in, 6.6f, 6.6–7, 6.7f
Preload, 1.99
Prenuclear (supranuclear/cortical) pathways, 5.32
"Premium" IOLs, 11.120–12l
Preproliferative phase, 11.165
Preproliferative vitreous, 12.7, 12.8
Prematurity
Premature contractions, 1.101–102
atric, 1.101
junctional, 1.101
ventricular, 1.101
Prematurity
ocular deviations and, 5.231
retinopathy of. See Retinopathy of prematurity
"Premium" IOLs, 11.120–12l
contraindication for, capsular decentration and, 11.183
dry eye therapy before use of, 11.173
Premotor neurons, 5.33
Prenatal diagnosis (PND), 2.239
Prenatal diagnosis, 2.239
Presbyopia, 11.176
Pregnancy. See also specific Congenital entries
angiotensin-converting enzyme inhibitor contraindications in, 1.61
antihypertensive therapy in, 1.68
antiphospholipid syndrome in, 1.163
cerebral venous thrombosis and, 5.346
cocaine use during, 1.199
congenital toxoplasmosis in, 9.275–276, 9.281
diabetic retinopathy in progression of, 12.93–94
proliferative, 12.94
fluorescein angiography in, 12.36
Pregabalin, for postherpetic neuralgia, 8.230
Preganionic Horner syndrome, 5.230
Pregnancy
rubella during, 8.240, 8.240f
statins contraindications in, 1.77
thyrotropin-releasing hormone levels in, 1.42
thyroxine levels in, 1.42
toxemia. See Eclampsia; Preeclampsia
Toxoplasma gondii toxemia.
See also Optic nerve head
Preliterate children, optotypes for visual acuity assessment in, 6.6f, 6.6–7, 6.7f
Preload, 1.99
Prenuclear (supranuclear/cortical) pathways, 5.32
"Premium" IOLs, 11.120–12l
Preproliferative phase, 11.165
Preproliferative vitreous, 12.7, 12.8
Prematurity
Premature contractions, 1.101–102
atric, 1.101
junctional, 1.101
ventricular, 1.101
Prematurity
ocular deviations and, 5.231
retinopathy of. See Retinopathy of prematurity
"Premium" IOLs, 11.120–12l
contraindication for, capsular decentration and, 11.183
dry eye therapy before use of, 11.173
Premotor neurons, 5.33
Prenatal diagnosis (PND), 2.239
Prenatal diagnosis, 2.239
Presbyopia, 11.176
Pregnancy. See also specific Congenital entries
angiotensin-converting enzyme inhibitor contraindications in, 1.61
antihypertensive therapy in, 1.68
antiphospholipid syndrome in, 1.163
cerebral venous thrombosis and, 5.346
cocaine use during, 1.199
congenital toxoplasmosis in, 9.275–276, 9.281
diabetic retinopathy in progression of, 12.93–94
proliferative, 12.94
fluorescein angiography in, 12.36
Pregabalin, for postherpetic neuralgia, 8.230
Preganionic Horner syndrome, 5.230
Pregnancy
rubella during, 8.240, 8.240f
statins contraindications in, 1.77
thyrotropin-releasing hormone levels in, 1.42
thyroxine levels in, 1.42
toxemia. See Eclampsia; Preeclampsia
Toxoplasma gondii toxemia.
See also Optic nerve head
Preliterate children, optotypes for visual acuity assessment in, 6.6f, 6.6–7, 6.7f
Preload, 1.99
Prenuclear (supranuclear/cortical) pathways, 5.32
"Premium" IOLs, 11.120–12l
Preproliferative phase, 11.165
Preproliferative vitreous, 12.7, 12.8
Prematurity
Premature contractions, 1.101–102
atric, 1.101
junctional, 1.101
ventricular, 1.101
Prematurity
ocular deviations and, 5.231
retinopathy of. See Retinopathy of prematurity
"Premium" IOLs, 11.120–12l
contraindication for, capsular decentration and, 11.183
dry eye therapy before use of, 11.173
Premotor neurons, 5.33
Prenatal diagnosis (PND), 2.239
Prenatal diagnosis, 2.239
Presbyopia, 11.176
Pregnancy. See also specific Congenital entries
angiotensin-converting enzyme inhibitor contraindications in, 1.61
antihypertensive therapy in, 1.68
antiphospholipid syndrome in, 1.163
cerebral venous thrombosis and, 5.346
cocaine use during, 1.199
congenital toxoplasmosis in, 9.275–276, 9.281
diabetic retinopathy in progression of, 12.93–94
proliferative, 12.94
fluorescein angiography in, 12.36
Pregabalin, for postherpetic neuralgia, 8.230
Preganionic Horner syndrome, 5.230
Pregnancy
optokinet system/nystagmus and, 5.212, 5.212t, 5.218–219
saccades/saccadic system and, 5.32–33, 5.38, 5.212, 5.212t, 5.219–223, 5.220f
smooth-pursuit system and, 5.32, 5.33, 5.34f, 5.212, 5.212t, 5.224–226, 5.225f
tonic deviations and, 5.230–231
vergence system and, 5.212, 5.212t, 5.226–228
vestibular-ocular system and, 5.38–39, 5.39f, 5.212, 5.212t, 5.214–218, 5.216f
Preoperative assessment/preparation for surgery, 1.281–283
cataract surgery, 11.74–76, 11.87–88
antimicrobial prophylaxis and, 11.93–94
in diabetes mellitus, 11.80–81
ECCE, 11.196
ICCE, 11.199
medical evaluation and, 11.170–171
ocular trauma and, 11.190–191
corneal transplantation, 8.418–419
penetrating and perforating trauma repair, 8.403
refractive/keratorefractive surgery, 13.35–48, 13.36
premature, 3.176
perimetry results affected by, 10.60
preoperative/prethreshold disease (retinopathy of prematurity), 5.229, 5.230
vertical gaze palsy caused by, 5.266–267
multiple sclerosis and, 5.319
Preparative (pretectal nuclei) syndrome, 5.37, 5.229, 5.230f
in children, 5.231
convergence-retraction nystagmus in, 5.229, 5.250
eyelid retraction in, 5.229, 5.250, 5.274, 5.275f
light-near dissociation in, 5.229, 5.230f, 5.266t, 5.266–267
convergence-insufficiency caused by, 5.227
vertical gaze palsy caused by, 5.229
Pretest probability of disease, 1.18–21, 1.20f
Prethreshold disease (retinopathy of prematurity), 6.326, 12.178f, 12.179, 12.185
Pretibial myxedema, 7.58
Pretrichial brow- and forehead-lift, 7.265
pressure-sensitive (uveoscleral) outflow, 10.5
Pressure-induced stromal keratopathy (PISK), after LASIK, 13.119, 13.120f
Pressure-insensitive (uveoscleral) outflow, 10.5f, 10.13, 10.19
Presumed ocular histoplasmosis syndrome (POHS). See Ocular histoplasmosis syndrome
Presoreal children. See Children
Preseptal cellulitis, 4.204, 4.204
Preseptal palpebral muscles, 5.52
Preservatives, 2.351
in ocular medications
allergic/adverse reactions to, 10.184
preservative–free formulations and, 8.62, 8.63, 8.80, 8.90, 8.91, 10.170–175, 10.175f
artificial tears/demulcents, 8.62, 8.63
contact dermatoblepharitis and, 8.286
persistent corneal defects/toxic keratoconjunctivitis/keratopathy caused by, 8.80, 8.90, 8.90t, 8.91
Press-on prisms
for diplopia, 6.96
induced anisohoria correction using, 3.188
Pressure-induced stromal keratopathy (PISK), after LASIK, 13.119, 13.120f
Pretectum/pretectal nuclei
Pretectum/pretectal nuclei, 5.54, 5.55
for, 13.163–164, 13.166
nonaccommodative, 13.164–169, 13.166f
refractive lens exchange for, 13.149
scleral surgery for, 13.162–163, 13.163f
theories of accommodation and, 13.159–162, 13.160, 13.161f
Pretectum/pretectal nuclei syndrome, 5.37, 5.229, 5.230f
in children, 5.231
convergence-retraction nystagmus in, 5.229, 5.250
eyelid retraction in, 5.229, 5.250, 5.274, 5.275f
light-near dissociation in, 5.229, 5.230f, 5.266t, 5.266–267
multiple sclerosis and, 5.319
Pretectum/pretectal nuclei, 5.54, 5.55f
convergence insufficiency caused by, 5.227
vertical gaze palsy caused by, 5.229
Pretectum/pretectal nuclei, 5.54, 5.55f
convergence insufficiency caused by, 5.227
vertical gaze palsy caused by, 5.229
Pretectum/pretectal nuclei, 5.54, 5.55f
convergence insufficiency caused by, 5.227
vertical gaze palsy caused by, 5.229
Presbyopia, 2.75, 11.23, 13.159–170
age/aging and, 11.23, 13.159
age at onset, 3.175
bifocal contact lenses for, 3.224–225
contact lenses for, 3.223–225. See also Contact lenses, bifocal
definition of, 3.124, 3.140, 3.148, 3.175
Goldberg theory of reciprocal zonular action and, 13.162
Helmholtz hypothesis (capsular theory) of accommodation and, 11.22, 13.159–160, 13.160f
monovision for, 3.224
with myopia, refractive lens exchange for, 13.148
perimetry results affected by, 10.60
premature, 3.176
progressive addition lenses for, 3.183
Schachar theory of accommodation and, 13.160–162, 13.161f
surgical correction of, 13.38–39, 13.159–170
accommodative, 13.162–164, 13.163f, 13.164f
conductive keratoplasty for, 13.128, 13.128f, 13.165
corneal inlays for, 13.59–71, 13.169
corneal intrastromal femtosecond laser treatment for, 13.168
custom/multifocal ablations for, 13.167, 13.168f
IOLs for accommodating lenses, 13.8t, 13.154, 13.163–164, 13.164f
experimental lenses, 13.170, 13.170f
multifocal lenses, 13.165–167, 13.166f
keratophakia for, 13.59–62, 13.62f
monovision and, 13.39, 13.164–165
nonaccommodative, 13.164–169, 13.166f, 13.168f
refractive lens exchange for, 13.149
scleral surgery for, 13.162–163, 13.163f
theories of accommodation and, 13.159–162, 13.160f, 13.161f
Preschool-aged children. See Children
Precorneal epithelial damage and, 5.250
Preseptal palpebral muscles, 5.52
Preservatives, 2.351
in ocular medications
allergic/adverse reactions to, 10.184
preservative–free formulations and, 8.62, 8.63, 8.80, 8.90, 8.91, 10.170–175, 10.175f
artificial tears/demulcents, 8.62, 8.63
contact dermatoblepharitis and, 8.286
persistent corneal defects/toxic keratoconjunctivitis/keratopathy caused by, 8.80, 8.90, 8.90t, 8.91
Press-on prisms
for diplopia, 6.96
induced anisohoria correction using, 3.188
Pressure-induced stromal keratopathy (PISK), after LASIK, 13.119, 13.120f
Pressure-insensitive (uveoscleral) outflow, 10.5f, 10.13, 10.19
Presumed ocular histoplasmosis syndrome (POHS). See Ocular histoplasmosis syndrome
Pretarsal palpebral muscles, 5.52
Pretectum/pretectal nuclei
Pretectal (Parinaud/dorsal midbrain) syndrome, 5.37, 5.266–267
vertical gaze palsy caused by damage to, 5.227
vertical gaze palsy caused by damage to, 5.229
Pretest probability of disease, 1.18–21, 1.20f
Prethreshold disease (retinopathy of prematurity), 6.326, 12.178f, 12.179, 12.185
Pretibial myxedema, 7.58
Pretrichial brow- and forehead-lift, 7.265
Preussner formula, for IOL power determination/selection, 11.85
Preventive medicine
immunizations. See Immunizations
screenings. See Screening
Preverbal children
fixation assessments in, 6.300
visual acuity assessment methods in, 6.8–9, 6.154
Primary aberrant regeneration, 5.198
Primary acquired melanosis (PAM), 4.63t, 4.65, 4.66–68,
4.67f, 8.327, 8.338t, 8.339t, 8.342f, 8.342–343
melanoma and, 4.66–68, 4.67f, 4.68f, 8.327,
8.324, 8.343
Primary angle closure (PAC), 10.4t, 10.117, 10.117t,
10.118, 10.120–122. See also Angle closure; Primary
angle-closure glaucoma
acute, 10.123–125, 10.124f
management of, 10.184
chronic, 10.4t, 10.126–127
pupillary block causing, 10.118–119
Primary angle-closure glaucoma (PACG), 10.4t, 10.117,
10.117t, 10.118, 10.120–122. See also Angle-closure
primary glaucoma
acute, 10.123–125, 10.124f
management of, 10.184
epidemiology of, 10.9–10
prevalence of, 10.9, 10.117
with pupillary block, 10.119
iridotomy/iridectomy for, 10.124, 10.125,
10.127, 10.128
risk factors for, 10.9, 10.120–122
subacute/intermittent, 10.125–126
without pupillary block (plateau iris), 10.4t, 10.9,
10.120, 10.127f, 10.127–128
Primary angle-closure suspect (PACS), 10.4t, 10.117,
10.117t, 10.117, 10.122–123
Primary anophthalmia, 7.35
Primary aphakia, 4.117, 11.30. See also Aphakia
Primary central nervous system/intraocular/vitreoret-
al/retinal lymphoma (PCNSL/PIOL), 4.135f,
4.135–137, 4.136f, 4.311f, 4.311–313, 4.313f, 5.349,
9.303, 9.304f
in HIV infection/AIDS, 5.349
Primary coloboma, 11.30–31. See also Coloboma
Primary congenital glaucoma (PCG), 4.98, 4.99f, 8.95,
8.108–109, 10.4t, 10.147, 10.148f, 10.151f, 10.151–153,
10.152f, 10.152f. See also Glaucoma, pediatric
anterior segment findings in, 6.282, 6.282f
axial length in, 6.283
central corneal thickness in, 6.281
clinical manifestations of, 6.279–280, 6.280f
cornea affected in, 8.108–109
corneal edema in, 6.279–280, 8.108–109
corneal findings in, 6.280f, 6.280–281
corneal opacities and, 6.257f, 6.260, 6.261f, 8.108–109
definition of, 6.278
diagnostic examination for, 6.280–283, 6.282–283f
differential diagnosis of, 6.281t, 10.151–152, 10.152f
genetics of, 6.277–278, 10.111, 10.150
gonioscopy for, 6.282, 6.282f
goniometry for, 6.285, 6.286f
incidence of, 6.278
megacornea and, 8.95, 8.96f, 8.99–100, 8.108
natural history of, 6.283–284
optic nerve findings in, 6.282–283, 6.283f
optic nerve/fundus evaluation in, 10.160
optical coherence tomography of, 6.283
pathophysiology of, 6.278
surgical treatment of, 6.285–287, 6.286f
tonometry in, 6.281–282
trabeculotomy, 6.286f, 6.286–287
treatment of, 10.153
medical, 10.153
surgical, 10.153, 10.160–164, 10.161f, 10.162f, 10.187
Primary conjunctival melanosis (complexion-associated/hypermelanosis), 4.63t, 4.65, 4.66, 4.66f.
See also Complexion-associated melanosis
Primary deviation
definition of, 6.38
secondary deviation versus, 6.115
Primary divergence insufficiency, 6.94
Primary endothelial failure
after endothelial keratoplasty (DMEK/DSEK), 8.447
after penetrating keratoplasty, 8.423, 8.423f
Primary glaucoma. See Glaucoma; Primary angle-
closure glaucoma; Primary congenital glaucoma
Primary hypercoagulable states, 1.146–148
Primary hypothyroidism, 1.45
Primary immune response, 9.37–38
Primary intracranial pineoblastoma, retinoblastoma
and, 4.298, 4.302
Primary intraocular/central nervous system lymphoma
(PIOL/PCNSL), 4.135f, 4.135–137, 4.136f, 4.311f,
4.311–313, 4.313f, 5.349. See also Primary central
nervous system/intraocular/vitreoret/retinal
lymphoma
Primary lens fibers, development of, 11.26–27,
11.27f
Primary lipid keratopathy, 8.126
Primary megalocornea, 6.253–254
Primary open-angle glaucoma. See Open-angle
primary glaucoma, primary
Primary orbital meningiomas, 7.85
Primary position hypertropia, with Brown syndrome,
6.137
Primary position of gaze, 6.31, 6.64
Primary posterior capsulectomy, 6.303
Primary syphilis, 9.221
Primary telecanthus, 6.203
Primary telecanthus, 6.203
Primary visual (striate/occipital) cortex, 2.119, 2.119
Primary visual cortex (visual areas), 5.29
Primary villous adenoma, 11.228
Primary vitreous, 2.157, 2.159f, 2.297, 4.125
persistent hyperplasia of (PHPV). See Persistent fetal
vasculature
Primed macrophages, 9.14, 9.15f
Priming, 2.186
  in polymerase chain reaction, 4.37, 4.40f
Primer, 2.186
  in polymerase chain reaction (PCR), 4.37, 4.40, 4.40f
Principal axes of astigmatism, 3.138–139
Principal line of vision, 3.128
Principal meridians
  definition of, 3.4, 3.16
  in irregular astigmatism, 3.139
  refractive powers of, 3.16
Principal planes
  definition of, 3.41
  description of, 3.56–57, 3.57f
  distant objects and, 3.59
Principal points, 3.41, 3.56–57
Prinzmetal angina, 1.83
Prion- associated neurologic disorders, 1.211
Prions/prion diseases, 5.357, 8.254
Prismatic. See also base-down prism; base-out prisms;
  base-up prism
  angle of deviation in, 3.45, 3.46f
  apex of, 3.46
  base-down, 3.188
  base-in, 3.211
  base of, 3.46
  base-out, 3.211
  convergence insufficiency and, 6.103
  convergence paralysis and, 6.106
  dissociated vertical deviation and, 6.129
  nystagmus treated with, 6.155
  base-up, 3.188
  convergence insufficiency treated with, 6.103
  convergence paralysis treated with, 6.106
  diplopia treated with, 6.72
  in fourth nerve (trochlear) palsy evaluation, 5.198
  Fresnel
    advantages of, 3.197
    description of, 3.49, 3.49f
    induced anisophoria correction using, 3.188
    Press-On, 3.49
  in fusional convergence evaluation, 5.226
  horizontal heterophoria correction using, 5.216–17
  image position affected by, 3.48f
  intermittent exotropia treated with, 6.102
  for myasthenia gravis, 5.326
  in nonorganic disorder evaluation, 5.302–303, 5.303f
  for nystagmus, 5.236, 6.155
  in ocular misalignment evaluation, 5.184
  orientation of, 3.46
  positioning of, 3.45, 3.46f
  press-on, 3.188
  in relative cyclotropia evaluation, 5.185
  slab-off
    definition of, 3.148
    induced anisophoria correction using, 3.188, 3.188f
  spectacle lens incorporation of, 3.197, 3.285
  therapeutic use of, 3.196–197
  uses of, 3.45
  vertical heterophoria correction using, 3.197
  visual acuity assessment in children using, 6.6
  Prism Adaptation Study, 6.93
  Prism adaptation test, 6.82
  Prism alternate cover test (PACT), 6.65–66, 6.66f
  in fourth nerve (trochlear) palsy, 5.198
  in ocular misalignment, 5.184
  Prism and cover test
    exodeviation evaluations, 6.100
    simultaneous, 6.66–67
  Prism diopter
    definition of, 3.41, 3.46, 3.47f
    pictorial representation of, 3.47f
  Prism dissociation
    for binocular balance, 3.168, 3.168f
    for nonorganic disorder evaluation, 5.303, 5.303f
  Prism power
    definition of, 3.45
    nonadditive nature of, 3.46, 3.47f
    in Prentice position, 3.49f
    Snell's law used to calculate, 3.48
  Prisms (wavefront aberrations), 13.11
  PRK. See Photorefractive keratectomy
  PRL. See Preferred retinal loci
  PRNG. See Penicillin-resistant Neisseria gonorrhoeae
  Probe amplification, multiplex ligation-dependent
    (MLPA), 4.39f
  Probencid, 2.236
  Probes, DNA. See DNA probes
  Probing
    for congenital nasolacrimal duct obstruction, 6.232–234
    6.233f, 6.239f, 6.291f, 6.291–292, 7.298, 7.300
    lacrimal system, for meibomian gland dysfunction, 8.68
  Procainamide, 12.300
  Procaine penicillin
    description of, 2.438f
    for syphilis, 1.253
  Procerus muscle, 2.31
  Process quality, 1.25
  Prodrugs, 2.363
  Profilin, 1.167
  Programmed death 1 (PD-1), 7.206, 7.211
  Programmed death ligand-1 (PD-L1), 7.206, 7.211
  in external eye defense, 8.12–13f
  Progressive addition lenses (PALs)
    candidates for, 3.183
    description of, 3.182–184, 3.183f
    fitting of, 3.183
    hard-design, 3.182, 3.183f
    prescription for, 3.198
    soft-design, 3.182, 3.183f
  Progressive (chronic progressive) external
    ophthalmoplegia (CPEO)
    description of, 5.328–329, 5.329f
    ptosis in, 5.273, 5.273f, 5.328, 5.329f
  Progressive facial hemiatrophy (Parry-Romberg
    syndrome), 8.192f
  Progressive flattening effect, after radial keratotomy, 13.51
  Progressive multiple sclerosis, 5.315
  Progressive outer retinal necrosis (PORN), 9.250–254,
Prostate cancer
  choroidal metastases and, 4.304f
digital rectal examination for, 1.221
eye/orbital metastases and, 4.304f
metastatic, 7.105f, 7.107
screening for, 1.216f, 1.221
Prostate-specific antigen (PSA), 1.221
Prostheses, ocular, 7.140–141, 7.147f
  for graft-vs-host disease, 8.304f
  for Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis), 8.298
Prostigmin. See Neostigmine
Prostigmine, 2.362
Protan red-green color deficiency, 12.54
Protanomalous dichromatism, 12.250f
Protanomalous trichromatism, 12.250f
Proteases, microbial, in ocular infections, 8.207
Protein(s)
in aqueous humor, 2.275–276
cytoskeletal, 2.285
  disorders of metabolism of
  corneal changes in, 8.181f, 8.181–190, 8.182t, 8.183t, 8.184f, 8.185f, 8.186f, 8.187f, 8.188f, 8.189f
  corneal crystal deposition and, 8.182t
lens. See Lens proteins
  in lens, 2.284–286
  membrane, 2.285
  in retinal pigment epithelium, 2.323–324
  in tear film, 2.252
  in vitreous, 2.298
Protein C
deficiency of, 1.147, 12.134
description of, 1.139
Protein S
deficiency of, 1.147, 12.134
description of, 1.139
Proteinase inhibitors, in aqueous humor, 2.276
Proteinases, in aqueous humor, 2.276
Proteinuria, 1.56
Proteoglycans
corneal, 2.53, 8.9
Proto, 8.247
  conjunctivitis caused by, 8.257t
description of, 2.419
Prothrombin G20210A gene mutation, 1.147
Prothrombin time (PT), 1.139
Proto-oncogenes
description of, 2.183
Neu, in immunohistochemistry, 4.35
Proton density (PD)
description of, 7.28
  magnetic resonance imaging, 5.62, 5.63f, 5.63t, 5.64f, 5.75
Protozoal/protozoal infection. See also specific causative organism
ocular, 4.147–148, 4.148f, 8.252
  Acanthamoeba keratitis, 8.208f, 8.252, 8.276–279, 8.277f, 8.278f
  corneal opacity and, 8.16f
  retinitis, 4.147–148, 4.148f
Protozoal uveitis
ocular toxoplasmosis. See Toxoplasmosis, ocular
onchocerciasis, 9.289f, 9.289–290
Protractors, eyelid, spasm of (benign essential blepharospasm/BEB). See Blepharospasm
Provera. See Medroxyprogesterone
Proximal (instrument) convergence, 6.39
Proximal illumination, for slit-lamp biomicroscopy, 8.18–19
PRP. See Panretinal photocoagulation
PRP gene, 5.357
PrPSc, 5.357
PrPScPrP, 5.357
PRPH2 (RDS/peripherin) gene
description of, 12.272, 12.273f
  mutation
  in pattern dystrophies, 4.170
  in Stargardt disease, 4.168
PrPScPrP, 5.357
PRRs. See Pattern recognition receptors
PRSS56 gene, 6.263
Prussian blue stain, Perls, 4.31t
PSA. See Prostate-specific antigen
Psammoma bodies, in optic nerve meningioma, 4.250
PSC. See Posterior subcapsular cataract
PSCD. See Pattern Standard Deviation
Pseudo (double) anterior chamber, after lamellar keratoplasty, 8.435
Pseudo-eyelid retraction, 5.274, 5.275t
Pseudo-Foster Kennedy syndrome, 5.122
Pseudo-Hurler polydystrophy (ML III), 6.388t, 8.178
Pseudo-internuclear ophthalmoplegia, myasthenic, 5.190, 5.324
Pseudo-POHS. See Pseudo–presumed ocular histoplasmosis syndrome
Pseudo–presumed ocular histoplasmosis syndrome (pseudo-POHS), 12.225. See also Multifocal choroiditis
Pseudo-Roth spots, in leukemia, 4.315
Pseudo-spasmus nutans, 5.130
Pseudoaccommodating intraocular lenses, complications of, 11.151
Pseudo-adrenomatous hyperplasia (Fuchs adenoma), 4.179, 4.279
Pseudocholinesterase, 2.234, 2.379
Pseudocolobomas, 6.211
Pseudocrystalline/crystalline keratopathy, infectious, 4.79–80, 4.80f
after penetrating keratoplasty, 4.79
Pseudodendrites
in Acanthamoeba keratitis, 8.277
herpes zoster, 8.227–228
in tyrosinemia, 8.183, 8.184f
Pseudodominance, 2.206
Pseudodrusen
characteristics of, 12.200, 12.200f
imaging of, 12.200
in pseudoxanthoma elasticum, 12.198
Pseudophakic (aphakic) bullous keratopathy (PBK).

Pseudophakia.


Pseudoneutralization, 3.159–160.

Pseudomonas/Pseudomonas aeruginosa, 1.251–252, 8.249.

Pseudomonas corneal ulcer, 3.231.

Pseudomembranous conjunctivitis, 6.251.

Pseudomembranous colitis, 1.273, 2.426.

Pseudomembranous conjunctivitis, 8.247, 8.249.

Pseudohermaphrodites, 2.225.

Pseudogliomas, 4.172.

Pseudoexotropia.

Pseudoexfoliation/exfoliation syndrome (PXE), 4.101–103, 4.102f, 10.11t, 10.31, 10.91, 10.93, 10.130, 10.131f.

IOL decentration/dislocation and, 5.141, 5.142–143.

drusen and, 4.247, 5.107, 5.108f, 5.141f, 5.142–143.

Pseudoplasticity, of ophthalmic viscosurgical device, 12.199.

Pseudoxanthoma elasticum (PXE), 1.140.

Pseudoxanthoma elasticum (PXE), 4.163.

Pseudoultrasound, in flap creation, 13.86.

Pseudostrabismus, 7.177.

Pseudotumor.

benign lymphoid (pseudolymphoma). See Lymphoid hyperplasia.


in children, 5.113.

headache and, 5.110, 5.112, 5.113, 5.288.

Pseudoxanthoma elasticum (PXE), 1.140.

angiod streaks and, 12.87, 12.89f.

Bruch membrane calcification in, 12.19.

optical coherence tomographic angiography of, 12.199.

pseudoedrusen in, 12.198.

PSF. See Point spread function.

Psoriasi, 1.156–157.

acute anterior uveitis in, 9.133.

clinical presentation of, 9.133, 9.134f.

laboratory tests for, 9.125.

PSR. See Progressive supranuclear palsy.

Psychiatric disorders. See Behavioral/psychiatric disorders; Nonorganic (functional/nonphysiologic) ophthalmic disorders.

Psychological counseling, 3.327.

Psychophysical testing. See also specific test color vision, 12.54–56, 12.55f.

dark adaptation, 12.57–58.

tests used in, 12.53–54.

Psychotherapy, 1.198.

Psychotic disorder. See Schizophrenia.

Psychotropic drugs, tear production affected by, 8.62t.

PT. See Prothrombin time.

PTC. See Pseudotumor cerebri.

Pterygium, 4.57, 4.57f, 4.57–58, 8.111, 8.112–113, 8.113f, 8.351, 8.352, 8.352f.

conjunctival transplantation for, 8.351.

excision of, 8.351, 8.352–356, 8.353f, 8.354f.

bacterial scleritis after, 8.282, 8.283f.

recurrent, 8.351, 8.352, 8.353, 8.353f, 8.355.

Pterygoid process, of sphenoid bone, 5.5.

Pterygoid venous plexus, 2.26f, 5.21f, 5.22.

Pterygomaxillary area, 5.11, 5.56.

Pterygopalatine area, 5.11.
Polyunsaturated fatty acids
PTGFR. See Prostaglandin F2α receptor gene
PTK. See Photothermal keratectomy
Pupil reflexes
light reflex, 2.126, 2.127
near reflex, 2.126
pathways for, 2.126, 2.127
Pupil size. See Pupil(s), size of
Pupillary light reflex (pupillary response to light), 5.253–257. See also Pupil(s), examination of
in cataract surgery evaluation, 11.78
in children, 6.10
consensual response in, 5.254
development of, 6.181
direct response in, 5.254
disorders of/light-near dissociation and, 5.254, 5.266f, 5.266–267
in Horner syndrome, 5.258
in myotonic dystrophy, 5.330
near response and, 5.254, 5.266
nonorganic disorders and, 5.301, 5.310
pathways for, 5.28, 5.44, 5.44f, 5.54, 5.55, 5.55f
testing, 5.79f, 5.79–81, 5.254, 5.255–257
Pupillary membrane
anterior, 11.29, 11.29f
in cataract surgery, 11.188
development and, 11.29, 11.29f
posterior, 11.29f
remnant of (Mittendorf dot), 11.29, 11.31, 11.32f
Pupillary muscles, innervation of, 5.44, 5.44f, 5.52, 5.54, 5.55
Pupillary near reflex. See also Near reflex
spasm of, 5.227, 5.309–310
Pupillometer, 13.40
Pupilloplasty
for cataracts, 11.71–72
for IOL decentration/dislocation, 11.145
Purified neurotoxin complex, 2.443
Purified protein derivative (PPD) test, 1.256–257, 9.28, 9.238. See also Tuberculin skin test
Purine nucleotides/purines, hyperuricemia caused by
disorders of metabolism of, 8.188
Purkinje cells, 5.40
Purpura, 1.140
Purtscherlike retinopathy, 5.32, 5.33, 5.34f, 5.212, 5.212f, 5.224–226, 5.225f
dysfunction/injury of, 5.156, 5.224, 5.225–226
optokinetic nystagmus/system and, 5.156, 5.218, 5.219
Pursuit latency, 6.40
Purtscher retinopathy, 12.171–173, 12.173
Purtscher flecken, 12.171
Purtscher-like retinopathy, 12.171–173, 12.172f, 12.173f
“Pushing plus,” before refractive surgery, 13.39
Pustule, of eyelid, 8.45f
PVA. See Polyvinyl alcohol
PVD. See Posterior vitreous detachment
PVL. See Periventricular leukomalacia
PVMG. See Power-versus-meridian graph
PVR. See Proliferative vitreoretinopathy
PWS. See Port-wine stain
PXE. See Pseudoxfoliation/exfoliation syndrome;
Pseudoxanthoma elasticum
Pyogenic granuloma, 4.55, 4.55f, 6.170, 6.171f, 6.199, 6.199f, 7.142f, 7.310–312, 8.345f, 8.346, 8.346f
after pterygium excision, 8.356
Pyridostigmine, in myasthenia gravis treatment,
Pyrimethamine, for ocular toxoplasmosis, 6.409, 9.281
Pyruvate kinase deficiency, 1.136
Pythium insidiosum, 8.251
keratitis caused by, 8.251, 8.275
Pyruvate kinase deficiency, 1.136

Q

Q. See Radiant energy
Q. See Radiant energy
Q factor, 3.267, 3.269, 3.279
Q formula, Hoffer, for IOL power determination/selection, 11.85
Q-switching, 3.112
Q value, 13.14
Q waves, 1.84
QED. See Quantum electrodynamics
qPCR. See Quantitative (real-time) polymerase chain reaction
QRS complex, 1.84
QT interval
illumination of, 1.84
prolongation of, in myocardial infarction, 1.86
Quadrantanopia, 5.105
hallucinations with, 5.177
occipital lobe lesions causing, 5.156
temporal lobe lesions causing, 5.155
Quadripod fractures. See Zygomaticomaxillary complex (ZMC) fractures
Quadruple sectoranopia, lateral geniculate body lesions causing, 5.154, 5.154
Quadruple therapy, for toxoplasmic retinochoroiditis, 12.243

R

R9AP gene, 12.49
RA. See Retinoic acid; Rheumatoid arthritis
Rab escort protein 1, 2.314
Rabies virus
corneal transplantation in transmission of, 8.240, 8.240t, 8.416t
ocular infection caused by, 8.240, 8.240t
vaccination against, 1.232
Raccoons, 12.246
Race. See also Ethnic background
age-related macular degeneration and, 12.62
angle-closure glaucoma and, 10.9, 10.117, 10.120
cataract development and, 11.6
choroidal/ciliary body melanoma risk and, 4.262
complexion-associated melanosis and, 8.341
corneal thickness and, 10.81, 10.82, 10.90
glaucoma risk and, 10.7–8, 10.9, 10.81, 10.82, 10.120
multiple sclerosis and, 5.315
ocular melanocytosis and, 8.338
open-angle glaucoma and, 10.7–8, 10.81, 10.82
optic nerve/nerve head/disc size and, 10.48
polypoidal choroidal vasculopathy and, 4.168, 12.75
pseudoexfoliation/exfoliation syndrome and, 10.93
sarcoidosis and, 5.327
sickle cell hemoglobinopathies and, 12.149, 12.154
spasmus nutans and, 5.239
systemic lupus erythematosus and, 12.230
Vogt-Koyanagi-Harada disease/syndrome and, 4.186, 12.232
Racial melanosis (complexion-associated melanosis/CM), 8.338f, 8.339f, 8.341, 8.341f
Radial axis index, skewed, in keratoconus/corneal ectasia, 8.32t, 8.165
Radial ciliary muscle, 2.25
Radial incisions for intrastromal corneal ring segment placement, 13.64
for keratorefractive surgery, 13.27
for radial keratotomy, 13.50, 13.50f
traumatic rupture of, 13.52
Radial keratoneuritis, in Acanthamoeba keratitis, 4.79, 8.277
Radial keratotomy (RK), 13.8t, 13.49–53, 13.50–51f. See also Keratorefractive surgery
aberrations after, 13.11, 13.12
additional refractive surgery and, 13.37
cataract surgery after, 11.79, 11.177, 13.52–53
IOL power calculation after, 3.251, 13.51–53, 13.193
contact lens use after, 13.52, 13.199, 13.199f, 13.199–200
corneal topography after, 13.50–51
corneal transplantation/penetrating keratoplasty after, 13.52, 13.198
herpes simplex virus keratitis and, 13.174
hyperopic shift and, 11.177, 13.51
intraocular lens power calculation after, 3.251, 13.51–53, 13.193
iron lines associated with, 8.117
ocular surgery after, 13.52–53
refraction after, 13.50–51
stability of, 13.51
surgical technique for, 13.50, 13.50f
visual acuity after, 13.50–51, 13.51–52
Radial keratitis, in Acanthamoeba keratitis, 4.79, 8.277
Radial peripapillary capillary network, 12.16
Radial perivascular lattice degeneration, 4.150
Radial thermokeratoplasty, 13.127
Radial ultrasound biomicroscopy scans, 2.468–469, 2.472f
Radiance (L'), 3.107, 3.107f, 3.109
Radiant energy, 3.107t
Radiant exitance (M'), 3.108
Radiant flux, 3.107t
Radiant intensity, 3.107, 3.107f
Radiation exposure. See also Radiation therapy; Ultraviolet (UV) light
anterior segment injury caused by, 8.385–386
cancer caused by, 1.236
cataracts caused by, 11.57–58
ionizing, retinopathy caused by, 12.170f, 12.170–171
neuroimaging in evaluation of disorders caused by, 5.72f
primary vitreoretinal lymphoma treated with, 12.234
Radiation necrosis, 5.358
Radiation optic neuropathy (RON), 5.358, 5.358f
Radiation retinopathy, 2.346, 12.170f, 12.170–171
Radiation surgery, 5.357
Radiation therapy (RT), 5.357
basal cell carcinoma treated with, 7.205
brachytherapy, 1.237–238
cancer treated with, 1.237–239
cataracts caused by, 1.239
for choroidal hemangioma, 4.283
for choroidal melanoma/ciliary body melanoma, 4.253, 4.275f, 4.275–276
complications of, 5.358, 5.358f, 7.205
external beam, 1.237–238
infantile hemangiomas treated with, 7.72
for iris melanoma, 4.261
lacrimal drainage system tumors treated with, 7.317
for lymphoma, 4.312
malignant lacrimal gland tumors treated with, 7.100
for metastatic eye disease, 4.310
monoclonal antibody use in, 1.238
neuro-ophthalmic complications of, 5.358, 5.358f
neuromyotonia after, 5.202, 5.358f
ocular effects of, 1.238, 1.238f
for optic nerve glioma, 5.130, 7.83
for optic nerve sheath meningioma, 5.128, 5.129
optic neuropathy caused by, 1.239
for retinal hemangioblastoma, 4.285
for retinoblastoma, 4.301
secondary tumors and, 4.302, 4.302f
retinopathy caused by, 1.239
rhabdomyosarcomas treated with, 7.88–89
for uveal lymphoid proliferation/infiltration, 4.314
Radiculitis, herpes infection and, 5.350
Radioactive iodine (RAI)
hyperthyroidism treated with, 7.60
nasolacrimal duct obstruction caused by, 7.307
for retinoblastoma, 4.301
uptake testing, for Graves disease, 1.42
for uveal melanoma, 4.275
Radioactive plaque therapy (brachytherapy)
for choroidal hemangioma, 4.283
for choroidal melanoma/ciliary body melanoma, 4.253, 4.275f, 4.275–276
for iris melanoma, 4.261
for medulloepithelioma, 4.296
for metastatic eye disease, 4.310
for retinal hemangioblastoma, 4.285
for retinoblastoma, 4.301
Radiofrequency
for conductive keratoplasty, 13.128, 13.128f
for punctal occlusion, 8.65
Radiofrequency ablation
catheter-based, 1.64–65
for trichiasis, 7.240
Radiography, chest. See Chest radiographs
Radionuclide scintigraphy and scans
in coronary heart disease diagnosis, 1.88
technetium-99m, 1.88
thallium-201, 1.88
Radiosurgery, 5.357
Radius of curvature, corneal, 8.8, 8.27
in cornea plana, 8.100
instantaneous (meridional/tangential power), 13.16–17, 13.17f
keratometry in measurement of, 8.27. See also Keratometry/keratometer
in schematic eye, 3.127f
Raeder paratrigeminal syndrome, 5.261
Ragged red fibers, in chronic progressive external ophthalmoplegia, 5.328, 5.329f
RAI. See Radioactive iodine
Rainbow glare, after LASIK with femtosecond laser flap creation, 13.123–124
Raindrop Near Vision Inlay, 13.28, 13.169
RAIU. See Radioactive iodine, uptake testing
Rake defects, 5.82, 5.82f
RAM. See Retinal Acuity Meter
Ramsay Hunt syndrome, 5.280
Random assignment, 1.4
Random-Dot E test, 6.81
Random-dot stereopsis tests, 6.81
Randomized controlled trials
features of, 1.14
schematic diagram of, 1.13f
Randot test, 6.81
Range of accommodation, 3.140
Ranibizumab, 2.449
bevacizumab and, comparison between, 12.83, 12.84f
branch retinal vein occlusion treated with, 12.135
central retinal vein occlusion treated with, 12.135
clinical trials of, 12.82f
diabetic macular edema treated with, 12.111–112, 12.112f
diabetic retinopathy treated with, 12.102
for macular edema, 4.152
neovascular age-related macular degeneration treated with, 12.80–82, 12.82f
photodynamic therapy and, 12.85
proliferative diabetic retinopathy treated with, 12.104
retinal vein occlusion treated with, 12.135
for retinopathy of prematurity, 6.333
Ranitidine, 1.288
RAPD. See Relative afferent pupillary defect
Rapid plasma reagin, 9.224
Rapid plasma reagin (RPR) test, 1.252, 12.241
RAPs. See Retinal angiomatous proliferations ras, 2.183
Rasagiline, 1.205
Ray(s)
divergent. See Vergence
paraxial, approximation/tracing of. See Ray tracing
Ray-deflection autorefractors, 3.289
Ray-deflection principle, 3.282, 3.286
Ray tracing
for concave mirrors, 3.82f, 3.83
for convex mirrors, 3.82f
definition of, 3.41
description of, 3.64–66, 3.65–3.66f
for Galilean telescope, 3.84f
for general optical system, 3.69f
for Keplerian telescope, 3.84f
mirrors and, 3.81, 3.82f
nodal points in, 3.67
for wavefront aberrations, 3.277
Rayleigh scattering, 3.92, 3.97
Raynaud phenomenon
cold-induced anterior segment trauma and, 8.385
in systemic lupus erythematosus, 1.159, 1.159f
in systemic sclerosis, 1.165–166
treatment of, 1.166
RB. See Reticulate body; Retinoblastoma
Rb locus. See RB1 (retinoblastoma) gene
RB1 (retinoblastoma) gene
mutations, 2.227
in pinealoblastoma, 4.298
in retinocytoma, 4.298
secondary malignancies and, 4.302
RBC indexes. See Red blood cell (RBC) indexes
RBCD. See Reis- Bücklers corneal dystrophy
RBCs. See Red blood cells
RBP . See Retinol- binding protein
RCFM. See Retrocorneal fibrous membrane
RCVS. See Reversible cerebral vasocnstriction syndrome
RDH. See Retinol dehydrogenase
RDH5 gene, 12.252
RDS/peripherin (PRPH2) gene mutation
in pattern dystrophies, 4.170
in Stargardt disease, 4.168
RDW. See Red cell distribution width
Reactive arthritis/Reiter syndrome, 6.315 acute anterior uveitis in, 9.132–133
conjunctivitis/episcleritis associated with, 8.305–306
conjunctivitis in, 1.157
description of, 1.155–156f, 1.157, 8.305–306
diagnostic criteria for, 9.132–133, 9.133f
human leukocyte antigen association with, 9.65t, 9.132
iridocyclitis associated with, 1.157
laboratory tests for, 9.125f
Reactive lymphoid hyperplasia (RLH), 7.94. See also Lymphoid hyperplasia
of conjunctiva, 4.69, 4.70f
of orbit, 4.231, 4.232
uveal. See Uveal lymphoid proliferation/infiltration/ lymphoma (primary choroidal lymphoma)
Reactive nitrogen products, 9.16
Reactive oxygen intermediates (ROIs). See also Free radicals
in phagocytosis, 9.16
Reactive oxygen species (ROS)
cell protection from, 2.339
defense mechanisms and, 2.338–339
description of, 2.335
detoxification of, 2.336f
generation of, 2.336f
in glaucoma, 2.345
oxidative stress caused by, 2.335
pathways of, 2.337f
radiation retinopathy caused by, 2.346
retinal vulnerability to, 2.340–341
sources of, 2.336
UV light as source of, 2.339
Reactive thrombocytosis, 1.142
Reading-add power, 3.285
Reading glasses, 3.320
Reading tests, 3.318
Real images, 3.41, 3.60–61
Real objects
versus virtual objects versus, 3.61
Reattachment surgery. See Retinal detachment, surgery for
Rebamipide, 2.416
Rebif. See Beta (β)- interferon
Rebleeding, after traumatic hyphema, 8.394, 8.394f, 10.104, 10.105
Rebound headache, analgesic, 5.293
Rebound hypertension, 1.69
Rebound nystagmus, 5.240–241
Rebound tonometry, 10.26
in infants and children, 10.158
Rebubbling, after endothelial keratoplasty, 8.438
Recall bias, 1.11
Receiver operating characteristic (ROC) curve, 1.16–18, 1.18f
Receptor tyrosine-protein kinase erbB-2, in immunohistochemistry, 4.35
Recession/resection. See also specific muscle
definition of, 6.164t
of horizontal rectus muscles
description of, 6.139
for esodeviations, 6.160
monocular, 6.161
for nystagmus correction, 6.157
of inferior rectus muscle
description of, 6.29
eyelid position affected by, 6.173
of lateral rectus muscle
for Duane retraction syndrome, 6.134
for exodeviations, 6.160
for high myopia, 6.143
for intermittent exotropia, 6.102
for third nerve palsy, 6.139
for X-pattern strabismus, 6.113
of medial rectus muscle
for convergence insufficiency, 6.103
for Duane retraction syndrome, 6.133
for esotropia from nystagmus blockage syndrome, 6.155
for infantile esotropia, 6.89
for internuclear ophthalmoplegia, 6.144
for Möbius syndrome, 6.136
for nystagmus, 5.236, 5.237f
Recessive diseases, 2.194
Recessive inheritance
  autosomal, 2.203–206
description of, 2.202–203
  X-linked, 2.208–209, 2.209t
Recessive optic atrophy, 6.368
Recognition disorders, 5.178, 5.179, 5.180f
Recombinant tissue plasminogen activator (rtPA), 1.113.
  See also Tissue plasminogen activator
Recombination frequency, 2.188
Reconstructive surgery
  eyelid. See Eyelid(s), surgery/reconstruction of socket.
  See also Anophthalmic socket surgery
Record review, 1.25–26
Recoverin (CAR antigen), 5.102
Recruitment, 6.33
Rectus muscles, 5.8f, 5.45, 5.46f. See also specific muscle
  anatomy of, 5.8f
  capsule of, 6.26
  horizontal
    anatomy of, 6.20, 6.35f
    inferior zone of, 6.24
    innervation of, 6.34
    in pattern strabismus, 6.109–110
    primary position of, 6.35, 6.35f
    recession/resection of
      description of, 6.139
    for esodeviations, 6.160
    monocular, 6.161
    for nystagmus correction, 6.157
    superior zone of, 6.24
    transposition of, 6.110, 6.112
  horizontal gaze and, 5.37f, 5.38
  innervation of
    compartmentalization of, 6.24
    description of, 5.35, 5.44f
    insertion of, 6.22, 6.23f
    posterior fixation of, 6.164t, 6.167
    pulley system for, 6.28
    "restrained shortest-path model" of, 6.28
    in thyroid eye disease, 4.226, 5.206
  tightening procedures for, 6.163–164, 6.164t
  vertical
    anatomy of, 6.20, 6.22f
    eyelid attachments to, 6.30f
    insertion of, 6.22
    surgery of
      for nystagmus, 6.156
      for pattern strabismus correction, 6.111
    vertical strength of, 6.35
  weakening procedures for, 6.163, 6.164t
  Recurrent corneal erosion, 8.79, 8.86–88
    dystrophic, 8.86, 8.87, 8.133, 8.135f
    in epithelial basement membrane dystrophy, 8.86, 8.87, 8.133, 8.138
    in lattice corneal dystrophy type 1, 8.147
    in Reis-Bücklers corneal dystrophy, 8.143
    management of, 8.368
    pain caused by, 5.295, 8.86, 8.87
    posttraumatic, 8.86, 8.87
  Recurrent erosion corneal dystrophies (EREDs), 8.86, 8.87, 8.133, 8.135f. See also Recurrent corneal erosion
  Recurrent meningeal artery, 5.14, 5.14f, 5.15f
  Recurrent multifocal choroiditis (RMC). See Multifocal choroiditis
  Recurrent painful oculomotor neuropathy, 5.197
  Recurrent ptterygia, 5.47, 8.351, 8.352, 8.353, 8.353f, 8.355
  Recurrent uveitis, 9.76
  Red blood cell (RBC) indexes, 1.132
  Red blood cells (RBCs)
    anemia caused by destruction of, 1.136–137
    life span of, 1.131, 1.136
    precursors of, 1.131
  Red cell distribution width (RDW), 1.132
  Red comparison test, in confrontation testing, 5.84
  Red cones. See L cones
  Red eye. See Conjunctival hyperemia/congestion; Conjunctivitis
  Red-glass test, 6.51, 6.75–76, 6.76f
  Red-green color deficiency
    anomaloscope of, 12.54
    description of, 2.232f
    types of, 12.54
  Red-green color vision defects, 2.312
    screening/testing for, 5.78. See also Red-green test
  Red-green dyschromatopsia, 6.368
  Red-green test. See also Duochrome test
    in nonorganic disorder evaluation
      monocular no light perception and, 5.303, 5.304f
      monocular reduced vision and, 5.305
      before refractive surgery, 13.39
  Red laser, 12.374
  Red Maddox rod, 5.184, 5.184f. See also Maddox rod/Maddox rod test
  "Red man syndrome," 2.427
  Red nucleus, 2.107f, 5.18f, 5.34f, 5.35f, 5.41f, 5.55f
    in Benedikt syndrome, 5.191
  Red perception testing, for relative afferent pupillary defect, 5.81
  Red reflex. See also Retinal reflex
    in complete cataract, 11.38
    after ECCE, 11.198
    in keratoconus, 8.163
    in lenticusus/lentiglobus, 4.118, 11.30
    media opacity effects on, 6.68
    poor, cataract surgery and, 11.178–179, 11.179f
    refractive error effects on, 6.68
    testing of
      in children, 6.9
      ocular alignment assessments using, 6.67–68
  Red target test, kinetic, in confrontation testing, 5.83
  Reduced schematic eye, 3.124, 3.126
  Reduced vergence
    definition of, 3.41, 3.51
    intraocular power and, 3.247
  Reese-Ellsworth Classification for Intraocular Tumors
    description of, 6.354
    retinoblastoma and, 4.297
  Reference sphere
    definition of, 3.41, 3.70, 3.70f
    in wavefront analysis, 3.274, 3.274f
  Refixation movements, microsaccadic, 5.213
Reflection

description of, 3.96

law of

definition of, 3.40
description of, 3.80–81

vergence equation for mirrors derived from, 3.88–89, 3.89f

light, specular, for slit-lamp biomicroscopy, 8.17f, 8.17–18, 8.19f
total internal, 3.42, 3.50, 3.50f

Reflex, ocular. See Vestibular-ocular system/vestibular-ocular reflex; specific type

Reflex blepharospasm, 5.281, 7.256

Reflex tearing, 2.358

parasympathetic nerves and, 5.56
tests of, 8.39

Reflexive saccades, 5.219, 5.220

in progressive supranuclear palsy, 5.221

Refractec system. See Conductive keratoplasty

Refractile bodies/spots, in papilledema, 5.110, 5.110f

Refracting power, 8.27.

See also Refractive power

in IOL power determination, 11.84

Refracting systems

axial (longitudinal) magnification, 3.63–64

composition of, 3.58

couple points, 3.64

Gaussian optics, 3.60
general, 3.58–67

nodal points, 3.66–67, 3.67f

ray tracing, 3.64–66, 3.65–66f

transverse magnification, 3.62

Refraction. See also Refractive errors

in children, glaucoma and, 10.158

clinical

bifocal lenses. See Bifocal lenses

in cataract

nonsurgical management and, 11.71

before surgery/IOL power determination, 11.76

cycloplegic, 3.168–169

before refractive surgery, 13.40

laser programming and, 13.40, 13.81

definition of, 3.21

exam room length for, 3.149–150

in glaucoma evaluation, 10.29

in children and adolescents, 10.158

goal of, 3.34

in low vision/vision rehabilitation, 5.78

manifest (noncycloplegic), 3.168–169

after penetrating keratoplasty, 8.431–432, 8.432f

refractive surgery and, 13.39, 13.40

IOL power calculation and, 13.194, 13.195

laser programming and, 13.40, 13.81

minus cylinder, 3.148–149

objective (retinoscopy). See Retinoscope/retinoscopy

overrefraction, 3.169

plus cylinder, 3.148–149

pseudoneutralization, 3.159–160

after radial keratotomy, 13.50–51

stability of, 13.51

after refractive surgery, IOL power calculation and, 13.194

before refractive surgery, 13.38, 13.39–40

for accommodative esotropia, 13.188

IOL power calculation and, 13.194

laser programming and, 13.31, 13.40, 13.81

refractometry. See Retinoscope/retinoscopy

subjective refraction. See Subjective refraction

"Refraction operator," 3.60

Refractive accommodative esotropia, 6.90–92

Refractive amblyopia, 3.175, 6.54–55

Refractive ametropia, 3.137, 3.257

Refractive errors. See also Astigmatism; specific type

accommodation in progression of, 3.144

age-based prevalence of, 3.142f

astigmatic. See Astigmatism

axial, correction of, 3.12–13

in cornea plana, 8.96f, 8.100, 8.101

correction of. See also Contact lenses; Intraocular lenses (IOLs), for refractive errors; Refractive surgery; Spectacle lenses

in amblyopia, 6.57–58

in intermittent exotropia, 6.101

from lens dislocation, 6.310

options for, 3.144

epidemiology of, 3.141f, 3.141–142

extraocular muscle surgery effects on, 6.173–174

in glaucoma, 10.9, 10.29, 10.122, 10.166

headaches and, 3.25

initial estimate of, 3.27f, 3.27–29

myopia. See Myopia

optical principles/wavefront analysis and, 13.9–13, 13.10f, 13.11f, 13.12f, 13.13f

after penetrating keratoplasty, 8.431–432, 8.432f

perimetry results affected by, 10.60

postoperative

overcorrection and, 13.101–102, 13.108–109

re-treatment/enhancements and, 13.97–100, 13.99f

undercorrection and, 13.102, 13.108

postsurgical, 3.255

prevention of, 3.144

red reflex affected by, 6.68

unexpected, after cataract surgery, 11.86, 11.149–150

Refractive index

of air, 8.26

of aqueous, 8.26

of cornea, 8.8, 8.26

definition of, 3.4, 3.41

description of, 3.43–44

dispersion effects on, 3.45

equation for, 3.43

errors in, 3.252

of lens, 11.11
Refractive lens exchange (RLE), 13.8t, 13.137, 13.147–151
advantages of, 13.147
for astigmatism, 13.148–149
complications of, 13.151
disadvantages/limitations of, 13.47t, 13.147
for hyperopia, 13.148, 13.150
indications for, 13.147
informed consent for, 13.147–148
IOL power calculations in, 13.150
for myopia, 13.148, 13.150
patient selection for, 13.147–149
for presbyopia, 13.149
retinal detachment and, 13.148
surgical planning/techniques for, 13.149–150
Refractive lenticule extraction (RelEx), 13.8t, 13.27, 13.203–206
complications of, 13.205
indications and preoperative evaluation for, 13.204
LASIK compared with, 13.206
outcomes of, 13.205
re-treatment and, 13.206
surgical technique for, 13.204–205
Refractive multifocal intraocular lenses, zonal, 13.166, 13.166f. See also Multifocal lenses, intraocular
Refractive power. See also Transverse magnification of cornea, 8.25–26, 13.7–9
measurement of, 8.26–27, 8.27f, 13.7–9. See also Keratometry/keratometer
in schematic eye, 3.127f
of schematic eye, 3.127t
Refractive procedure–induced diplopia, 5.209
Refractive states. See also Refractive errors
ametropia, 3.136–137, 3.137f
astigmatism. See Astigmatism
description of, 6.180f, 6.180–181
emmetropia, 3.136, 3.137f
far point concept of, 3.136
focal point concept of, 3.136
spherical equivalent of, 3.139
Refractive surgery, 13.7, 13.8t. See also Keratorefractive surgery: Ocular surgery, refractive, specific procedure abbreviations and acronyms used in, 13.3–5
amblyopia/anisometropic amblyopia and, 13.185–187
astigmatism and corneal topography in detection/management of, 8.32, 13.18–19, 13.22–23, 13.44, 13.45, 13.45f
penetrating keratoplasty and, 13.178–180
in autoimmune disease, 13.191
cataract/cataract surgery and, 11.123–124, 11.176–177, 11.177f, 13.44–43
IOL power calculation and, 11.85–87, 11.176, 11.177f, 13.44, 13.194
preoperative evaluation/planning and, 11.76, 11.79 in children, 13.187–188
in collagen vascular/connective tissue diseases, 13.37, 13.171, 13.191
contact lens use after, 13.198–200, 13.199f
contraindications to corneal topography in identification of, 13.23, 13.24–26, 13.25f
in ocular and systemic disease, 13.171
corneal, 13.7, 13.8t. See also Keratorefractive surgery; Photoablation
collagen shrinkage, 13.8t, 13.28, 13.28f, 13.127–129, 13.128f, 13.129f
corneal crosslinking, 13.8t, 13.130–135, 13.131f, 13.133f, 13.133f
corneal outcomes of, 13.205
LASIK compared with, 13.206
indications for, 13.22–24, 13.23f, 13.24f
postoperative, 13.23f, 13.23–24, 13.24f
toric, 13.14–26, 13.44–45, 13.45f, 13.79–80
corneal optics and, 13.7–9
corneal shape and, 13.9
corneal topography and, 13.14–19, 13.15–19f, 13.24–26, 13.25f, 13.44–45, 13.45f, 13.79. See also Cornea, topography of: specific type
dry eye and, 13.173
indications for, 13.22–23, 13.23f, 13.24f
postoperative evaluation and, 13.23f, 13.23–24, 13.24f
toric IOLs and, 13.151–152
corneal transplant after, 13.197–198
dry eye caused by, 5.209
in diabetes mellitus, 13.37, 13.190–191
infectious disease caused by, 5.209
in ocular and systemic diseases, 13.171
herpes simplex virus infection and, 13.173–174 in HIV infection/AIDS, 13.188–190
herpes simplex virus infection and, 13.173–174
incisional, 13.8t, 13.26–27, 13.27f, 13.49–58
instrument error after, 3.251–252
intraocular lens power calculations after, 3.251–253, 13.44, 13.193–197, 13.196f
See also Ocular (intraocular) surgery, refractive with keratorefractive (corneal) surgery (bioptics), 13.137, 13.157
iron lines associated with, 8.117
irregular astigmatism and, 13.18–19, 13.22–23, 13.44, 13.45
See also Keratoconus
keratometric power measurements affected by, 13.193
laser biophysics and, 13.29–32, 13.30f
lenticular. See specific procedure
limitations of procedures used in, 13.47t
medical history and, 13.36f, 13.37
monovision and, 13.39, 13.164–165
in ocular and systemic disease, 13.171–191. See also specific disorder
ocular history and, 13.36f, 13.37–38
optical considerations/principles in, 13.9–13, 13.10f, 13.11f, 13.12f, 13.13f
overview of procedures used in, 13.7, 13.8f
penetrating keratoplasty after, 13.197–198
postoperative considerations and, 13.193–201
contact lens use after, 13.198–200, 13.199f
corneal imaging and, 13.23f, 13.23–24, 13.24f
corneal transplantation after, 13.197–198
glaucoma and, 13.200–201
IOL power calculations and, 13.193–197, 13.196f
retinal detachment repair after, 13.197
preoperative evaluation for, 13.35–48, 13.36f
corneal imaging/ancillary tests and, 13.14–26, 13.44–46, 13.45f, 13.79–80. See also Cornea, topography of; specific type
discussion of findings/informed consent and, 13.36f, 13.46–48, 13.47t
history and, 13.35–39, 13.36f
ocular examination and, 13.36f, 13.39–44, 13.42f, 13.43f
patient expectations/motivations and, 13.35–36, 13.36f, 13.47
in presbyopia, 13.38–39, 13.159–170
after radial keratotomy, 13.52
retinal disease/detachment and, 13.183–185, 13.197
science of, 13.7–33
social/occupational history and, 13.36f, 13.36–37
strabismus and, 13.41, 13.185–187
wavefront aberrations/analysis and, 13.9–13, 13.10f, 13.11f, 13.12f, 13.13f, 13.31, 13.46
postoperative, 13.102–103, 13.103f
Refractor. See Phoropter
Refsum disease, 2.204t, 2.314f, 6.389t, 12.283f, 12.286, 12.290
Regeneration, 4.13. See also Wound(s), healing/repair of aberrant nerve. See Aberrant nerve regeneration
Regional anesthetics, 2.438t. See also Anesthesia (anesthetics); local
Regional enteritis. See Crohn disease
Regional immunity, 9.51, 9.52t. See also Immunologic microenvironment
Registration, for laser centration, 13.91, 13.91f
Regression analysis, 1.12
Regression formulas, for IOL power determination/selection, 11.85–87
Regular astigmatism, 3.124, 3.139, 3.276
corneal topography in detection/management of, 13.17, 13.18f
wavefront aberrations produced by, 13.11, 13.11f
Regulatory (Treg/Suppressor) T cells. See also T cell(s)
in corneal transplant tolerance, 8.316
in external eye defense, 8.12–13f, 8.13, 8.14
Rehabilitation. See Vision rehabilitation
Reichert Phoroptor, 3.173
Reis-Bücklers corneal dystrophy (RBCD/CDB1/atypical granular corneal dystrophy), 4.88, 4.88f, 4.91f, 8.135f, 8.136f, 8.142f, 8.142–143
Reiter syndrome/reactive arthritis, 1.155, 8.305–306
conjunctivitis/episcleritis associated with, 8.305–306
Rejection (corneal transplant), 4.84, 4.85f, 8.316–318, 8.428–431
after endothelial keratoplasty (DMEK/DSEK), 8.437f, 8.447f, 8.447–448
after lamellar keratoplasty, 8.411, 8.435, 8.435f
after penetrating keratoplasty, 8.316–318, 8.428–431, 8.437f
prevention of, 8.430–431
treatment of, 8.429–430
Rejuvenation, facial. See also Facial surgery; specific procedure
autologous fat grafting for, 7.271
botulinum toxin for, 7.269–270
dermal fillers for, 7.270f, 7.270–271
hyaluronic acid fillers for, 7.270, 7.270f
laser skin resurfacing for, 7.268–269
lower face, 7.272–273
nonsurgical, 7.268–271, 7.270f
rhytidectomy, 7.273–274, 7.274–275f
soft-tissue dermal fillers for, 7.270f, 7.270–271
surgical techniques for, 7.271–276, 7.272–275f
Relapsing polychondritis, 1.168–169, 9.125f
eyelid manifestations of, 4.207f
Relapsing-remitting multiple sclerosis, 5.315
Relative afferent pupillary defect (RAPD/Marcus Gunn pupil), 5.253
in acute idiopathic blind-spot enlargement/acute zonal occult outer retinopathy/multiple evanescent white dot syndrome, 5.101
cataract surgery in patient with, 11.78
in NAION, 5.122
in ocular trauma, 8.401
in optic neuropathy versus maculopathy, 5.81, 5.99, 5.100f
in optic tract syndrome, 5.153
testing for, 5.79f, 5.79–81
in glaucoma evaluation, 10.30
nonorganic disorders and, 5.302
Relative risk, 1.22–23, 1.214, 9.64
Relaxation, in MRI, 5.75
Relaxation times, in MRI, 5.62, 5.63t, 5.76
Relaxing incisions
for anterior capsule contraction, 11.154f, 11.156
for corneal astigmatism after penetrating keratoplasty, 8.432
wavefront aberrations and, 13.41, 13.185–188
...
limbal (LRIs), 13.8f, 13.27f, 13.53–58, 13.54–57/ f  
cataract surgery and, 11.123–124  
complications of, 13.58  
instrumentation for, 13.55, 13.56/ f  
ocular surgery after, 13.58  
outcomes of, 13.57  
refractive lens exchange and, 13.149  
technique for, 13.55–57, 13.56f, 13.57f  
ReLex. See Refractive lenticule extraction  
Reliability, 1.24  
Relocation of images, 3.62  
Renal artery stenosis, angiotensin-converting enzyme  
inhibitor contraindications in, 1.61  
Renal cell carcinoma, metastatic eye disease and,  
4.30f  
Renal diseases  
chronic, 1.65  
contrast agents contraindicated in, 5.60  
diabetes mellitus/diabetic retinopathy and. See  
Diabetic retinopathy  
retinal degeneration associated with, 12.285  
Renal sympathetic nerves, catheter-based  
radiofrequency ablation of, 1.64–65  
Rendu-Osler-Weber disease, 1.140  
Renin-angiotensin-aldosterone system  
angiomyomas of, 12.168  
in hypertension, 1.53, 1.54f, 1.69  
in ocular tissues, 1.69  
schematic diagram of, 1.54f  
Renovascular disease, hypertension caused by, 1.53  
Respiratory burst, 2.336  
Respiratory disorders. See Pulmonary diseases  
Respiratory obstruction, 1.301  
Response accommodative convergence/accommodation  
(AC/A) ratio, 6.71. See also Accommodative  
convergence/accommodation (AC/A) ratio  
Restasis. See Cyclosporine/cyclosporine A, topical  
Resting macrophages, 9.13, 9.15/ f  
Resting neutrophils, 9.10  
“Restrained shortest-path model,” 6.28  
Restrictive lung diseases, 1.125  
Restrictive strabismus, Hering’s law of motor  
correspondence and, 6.38  
Restrictive syndromes, diplopia caused by, 5.186,  
5.206–209, 5.207f  
paretic syndromes differentiated from, 5.186, 5.186f  
postsurgical, 5.207  
posttraumatic, 5.186, 5.206  
Resuscitation. See Cardiopulmonary resuscitation  
RET gene, in multiple endocrine neoplasia, 8.200  
Retained lens fragments after phacoemulsification,  
12.391–393, 12.392f  
Retained lens material, cataract surgery and, 11.140–141  
Reticular degenerative (bullous) retinoschisis, 4.148,  
12.326, 12.327  
Reticular formation  
mesencephalic (MRF), 5.35f  
paramedian pontine (PPRF), 5.33, 5.35, 5.35f, 5.219  
horizontal gaze and, 5.36, 5.37, 5.37f  
in one-and-a-half syndrome, 5.191  
saccades generated by, 5.219–220, 5.221  
Reticular peripheral cystoid degeneration (RPCD),  
4.148, 4.149f, 12.326  
Reticular pseudodrusen (RPD/subretinal drusenoid  
 deposits), 4.162, 4.163, 4.163f, 4.171f, 12.65f,  
12.65–66  
Reticular-type pattern dystrophy, 12.276, 12.276f  
Reticulate body (RB), 8.249  
Reticulocyte count, 1.132  
Reticulum cell sarcoma. See Primary central nervous  
system/ intraocular/vitreoretinal/retinal lymphoma  
Retina, 4.139–180. See also under Retinal  
acute necrosis of, 9.250, 9.251–252f, 9.330  
adhesion of, 2.331–332  
anatomy of, 2.49, 2.83, 2.84f, 4.139–140, 4.140f,  
4.141f, 5.17f, 5.23–25, 5.24f, 5.25f  
angiography of. See Fluorescein angiography;  
Indocyanine green angiography  
angiomas of, 12.168  
avascular anomalies of, 2.470f  
antioxidant localization in, 2.344f  
arboviruses of, 2.90  
avascular hamartoma of, 4.295, 4.296f  
optic nerve/nerve head/disc drusen differentiated  
from, 5.108f, 5.143  
retinoblastoma differentiated from, 4.295, 4.296f  
atrophy of, ischemia causing. See also Retinal  
ischemia  
in diabetic retinopathy, 4.159  
in retinal arterial and venous occlusions, 4.156, 4.159  
blood–retina barrier, 2.88, 2.90f  
blood supply to, 12.140. See also Retinal blood vessels  
blood vessels of, 4.139. See also specific vessel  
avascular anomalies of, 4.143f, 4.143–144, 4.144f  
description of, 2.90
disease of. See Retinal disease, vascular ischemia and, 4.140, 4.151, 4.154f, 4.152–156, 4.153f, 4.154f, 4.155f, 4.156f. See also Retinal ischemia
See also Retinal angiomatosis cavernous hemangoma of, 4.285f, 4.285–286
cells of, 2.305
amacrine cells, 2.316 bipolar cells, 2.315–318, 2.316f classes of, 2.315–318, 2.316f ganglion cells, 2.317 glial cells, 2.317 horizontal cells, 2.315f, 2.316 neurons, 2.315–317, 2.328 vascular cells, 2.317–318 circulation of, 2.90, 12.16f, 12.16–17 combined hamartoma of the retina and retinal pigment epithelium, 6.350 congenital disorders of, 4.142f, 4.142–145, 4.143f, 4.144f, 4.145f degenerations of. See Retinal degeneration detachment of. See Retinal detachment development of, 2.155, 2.155f, 2.306f diabetes mellitus affecting. See Diabetic retinopathy disorders of. See Retinal disease; Retinopathy; specific type
embryology of, 2.83, 2.155, 2.155f equatorial, 12.9–10 examination of before cataract surgery, 11.80–81 imaging in. See Retina, imaging techniques in evaluation of before refractive surgery, 13.44, 13.183 gliosis of, 4.157, 4.158f of peripapillary nerve fiber layer, 5.5, 5.109 growth and development of, 6.182, 6.325 gyrate atrophy of, 2.204f
cat-scratch disease, 12.242–243, 12.243f
cytomegalovirus retinitis, 12.235–236
diffuse unilateral subacute neuroretinitis, 12.246 endogenous bacterial endophthalmitis, 12.237–239, 12.238f
fungal endophthalmitis, 12.239, 12.239f infectious causes, 12.235–247 Lyme disease, 12.245–246
crotzizing herpetic retinitis, 12.236–12.237f, 12.236–237, 12.238f
noninfectious causes, 12.219–234 progressive outer retinal necrosis syndrome, 12.236–237, 12.237f
West Nile virus chorioretinitis, 12.246, 12.247f
white dot syndromes as cause of. See White dot syndromes
yeast endophthalmitis, 12.239, 12.240f ischemic lesions of. See Retinal ischemia layers of, 2.89f, 2.96f, 4.139–140, 4.140f, 4.141f. See also Retina, neurosensory blood supply to, 12.140 external limiting membrane, 12.11, 12.12f ganglion cell layer, 12.11, 12.12f Henle fiber layer, 12.11, 12.12f imaging of, 12.10–11, 12.11, 12.12f inner nuclear layer, 12.11, 12.12f inner plexiform layer, 12.11, 12.12f internal limiting membrane, 12.11, 12.12f middle limiting membrane, 12.11, 12.12f nerve fiber layer, 12.11, 12.12f optical coherence tomography angiography of, 12.29 outer nuclear layer, 12.11, 12.12f outer plexiform layer, 12.11, 12.12f, 12.16 oxygen supply to, 12.16 lesions of, 12.378–379 in leukemia, 4.315, 4.315f
light-related injury to, 12.367. See also Retina, photic injury of lymphoma of, 4.135f, 4.135–137, 4.136f, 4.311f, 4.311–313, 4.311f, 5.349. See also Primary central nervous system/intraocular/vitreoretinal/retinal lymphoma
magnetic resonance imaging of, 2.459f
melanoma invading, 4.194, 4.195f
mesenchymal tissue, 6.325
metabolic needs of, 12.20
metastasis to, 9.309
microglia in, 9.57
nasal, 5.24f, 5.25, 5.27
necrosis of, acute, 4.145, 4.146f
neovascularization of. See also Neovascularization
in age-related macular degeneration, 4.161f, 4.164–166, 4.165f
ischemia causing, 4.154, 4.156f
in uveitis, 9.324–325
neural
anatomy of, 2.48f
development of, 2.155, 2.155f
lamination of, 2.155
neuro-ophthalmic elements of, 5.23–25, 5.24f
neurosensory, 4.139–140, 4.140f
anatomy of, 4.139–140, 4.140f, 4.141f
cells of, 2.305
definition of, 2.84
description of, 2.83
external limiting membrane of, 2.91
ganglion cell layer of, 2.92
glial elements of, 2.88
inner nuclear layer of, 2.92
inner plexiform layer of, 2.92
internal limiting membrane of, 2.92
layers of, 2.84, 2.85f. See also Retina, layers of middle limiting membrane of, 2.92
nerve fiber layer of, 2.92
neuronal elements of, 2.84–88, 2.86f
ischemia affecting, 4.151f, 4.151–152, 4.152f
outer nuclear layer of, 2.91–92
outer plexiform layer of, 2.91–92
retinal pigment epithelium and, 2.91
stratification of, 2.91–93, 2.93f
vascular elements of, 2.88–90, 2.90–91f. See also Retinal blood vessels
noninfectious inflammation of
acute idiopathic maculopathy, 12.228–229
acute macular neuroretinopathy, 12.228, 12.229f
acute zonal occult outer retinopathy, 12.226–228, 12.227f
white dot syndromes. See White dot syndromes
oxidative lens damage during surgery on, 11.20
oxygen supply to, 12.16f, 12.16–17
in pathologic myopia, 12.207–216, 12.209–12.215f
peripheral, 12.10. See also Peripheral retina
phakomas of, 6.397, 6.399. See also Phakoma/
phakomatoses
photic injury of, during cataract surgery, 11.166
pigment epithelium of. See Retinal pigment epithelium
psychophysical testing of. See Psychophysical testing
reactive oxygen species vulnerability of, 2.340–341
retinal pigment epithelium separation of, 12.17
"Rim" proteins, 2.308
splitting of. See Retinoschisis, X-linked
surface of, in exudative retinal detachment, 12.326
temporal, 5.24f, 5.25
thickness of
description of, 2.93
in pathologic myopia, 12.208
topography of, 2.93–97, 2.96f, 4.139–140, 4.140f, 4.141f, 12.9f, 12.9–10
tuberculosis involvement of, 9.237–238
tumors of, 4.172–180. See also Retinoblastoma
glaucoma caused by, 10.98–100, 10.99f, 10.138
metastatic, 4.303, 4.308, 4.309f
pigmented, 4.279–280, 4.280f
in uveitis. See Posterior uveitis
vascular occlusion of, 12.231
vasculature of, 6.182, 6.325, 6.180
description of, 2.155, 12.16f, 12.16–17
optical coherence tomography angiography of, 12.29, 12.30f
veins of, 2.90
venous pressure in, 12.125
visual evoked cortical potentials of, 12.52–53
visual pathways of, 2.115
in von Hippel–Lindau disease. See Retinal angiomatosis
zones of, 6.328f
Retinal Acuity Meter (RAM), in cataract surgery
evaluation, 11.81
Retinal angiography. See Fluorescein angiography;
Indocyanine green angiography
Retinal angiomas (angiomatoses retinae, von Hippel/
von Hippel–Lindau syndrome/disease), 4.144,
4.144f, 4.283–285, 4.284f, 5.330, 5.331f, 5.334t,
6.400f
Retinal angiomatous proliferations (RAPs), 12.72, 12.78f
Retinal arterial arcades, inferior/superior, 5.14
Retinal arterial macroaneuysms, 12.147–148, 12.148f
Retinal arterioles
obstruction of. See Cotton-wool spots
optic nerve supplied by, 5.17f, 10.45
Retinal arteriovenous anastomoses, in Takayasu
arteritis, 1.170
Retinal artery, 5.17f
central (CRA), 5.12, 5.13f, 5.14, 5.14f, 5.16f, 5.17f, 10.44–45, 10.45f. See also Central retinal artery
optic nerve supplied by, 5.17f, 5.26, 10.44–45, 10.45f
microaneuysms of, 4.154, 4.155f
in diabetes mellitus, 4.155f, 4.159
in diabetic retinopathy, 4.159
in retinal vein occlusion, 4.158, 4.159
occlusion of. See Retinal artery occlusion
Retinal artery occlusion
branch. See Branch retinal artery occlusion
capillary retinal arteriole obstruction, 12.140f,
12.140–141
central. See Central retinal artery occlusion
cilioretinal artery occlusion, 12.143
ophthalmic artery occlusion, 12.146, 12.147f
paracentral acute middle maculopathy, 12.143
transient visual loss and, 5.161
Retinal blur, vergence system and, 5.226
Retinal breaks, 2.471f. See also Retinal tears
aphakia and, 12.319
asymptomatic, 12.318
classification of, 12.315
cryotherapy of, as prophylactic treatment, 12.317
definition of, 12.314
description of, 12.396
lattice degeneration and, 12.310
Lincoff rules for finding, 12.320, 12.322f
posterior vitreous detachment and, 12.309
prophylactic treatment of, 12.317f, 12.317–320
 pseudophakia and, 12.319
retinal detachment caused by illustration of, 12.318f
prophylactic treatment to prevent, 12.317
rhegmatogenous, 12.314–315, 12.320, 12.322f,
12.324
significance of, 12.314
symptomatic, 12.318
traumatic, 12.315–316, 12.316f
treatment for, 12.314
vitreoretinal traction as cause of, 12.315
Retinal capillaries
anomalous
afterimage test for, 6.79f
definition of, 6.50
diagnosis of, 6.49f
eccentric fixation versus, 6.51
Maddox rod testing in, 6.68
major amblyoscope for, 6.70
red-glass test findings in, 6.76f
after strabismus surgery, 6.50
testing for, 6.50–51
description of, 6.41–42
normal
afterimage test for, 6.79f
strabismus and, 6.48, 6.49f
testing for, 6.51
"Retinal crystals." See Refractile bodies/spots
See also Pigmentary retinopathy; Retinal disease;
Retinal dystrophies; Retinopathy; specific type
amino acid disorders that cause, 12.293
autoimmune causes of, 12.286–287
cancer-associated retinopathy as cause of, 12.286,
12.287f
dental diseases associated with, 12.286
dermatologic diseases associated with, 12.286
gastrointestinal diseases associated with, 12.285–286
gene defects that cause, 2.312, 2.314f
hearing loss and. See Usher syndrome
ischemic, 4.140, 4.150–160. See also Retinal ischemia
lattice, 4.148–150, 4.149f
radial perivasculum, 4.150
liver diseases associated with, 12.285
melanoma-associated retinopathy as cause of, 12.286
metabolic diseases that cause
abetalipoproteinemia, 12.289–290
albinism, 12.288
central nervous system, 12.288–292
lysosomal, 12.291–292, 12.292f
mucopolysaccharidoses, 12.290–291
neuronal ceroid lipofuscinoses, 12.289, 12.290f
Niemann-Pick disease, 12.291
peroxisomal disorders, 12.290
Refsum disease, 12.290
 Tay-Sachs disease, 12.291, 12.292f
vitamin A deficiency, 12.289–290
Zellweger syndrome, 12.290
mitochondrial disorders that cause, 12.293–294
neuromuscular disorders associated with, 12.285
paraneoplastic retinopathies that cause, 12.286–287
cobblestone retina, 4.150, 4.150f, 12.313,
12.314f
peripheral cystoid, 4.148, 4.149f
reticular (RPCD), 4.148, 4.149f, 12.326
typical (TPCD), 4.148, 4.149f, 12.326
retinal lipofuscinosis and, 12.326f
renal diseases associated with, 12.285
systemic disorders associated with
Bardet-Biedl syndrome, 12.281, 12.282f, 12.284,
12.284f
Leber congenital amaurosis, 12.281
list of, 12.282–12.283
overview of, 12.281
Usher syndrome, 12.284
Retinal detachment, 4.130f, 4.130–131, 4.131f
angle-closure glaucoma and, 10.141
anterior segment trauma and, 8.409
after cataract surgery, 6.304, 11.127, 11.166–167, 12.319
family history as risk factor and, 11.75
Nd:YAG laser capsulotomy and, 11.157, 11.166
central serous retinopathy as cause of, 12.189,
12.191
choroidal hemangioma and, 4.281, 4.283
choroidal melanoma/ciliary body melanoma and,
4.193f, 4.194, 4.194f, 4.263, 4.264f
choroidal nevi and, 4.156–157, 4.257f
chronic, 12.324f
classification of, 12.320
in Coats disease, 4.143, 4.143f, 4.295, 4.295f
cobblestone degeneration and, 12.313, 12.314f
in cytomegalovirus retinitis, 9.324, 9.329
definition of, 2.98
descriptor of, 2.93, 2.331
diagnostic features of, 12.320, 12.321f
differential diagnosis of
description of, 12.320
following, 12.326–328
extrafoveal, in retinopathy of prematurity, 6.329f
exudative causes of, 12.320
diagnostic features of, 12.321f
in familial exudative vitreoretinopathy, 12.343
in glaucoma and, 10.141
imaging of, 12.325f
management of, 12.325–326
photocoagulation as cause of, 12.379
retinal surface in, 12.326
subretinal fluid findings in, 12.326
in fellow eye, 12.319
in glaucoma and, 10.141
in halluciinations caused by, 5.175
in lattice degeneration and, 4.148, 4.150, 12.309–311,
12.310–12.311f, 12.316f, 12.319
308 • Master Index
lesions not predisposing to, 12.313–314
lesions predisposing to, 12.309–312, 12.310–12.313, 12.312–329
macular hole as cause of, 12.330
macular lesions associated with, 12.328–329
management of, 12.324, 12.324f
meridional folds and, 12.312, 12.313f
metastatic eye disease and, 4.305–306, 4.306f
myopia/high myopia and, 13.44, 13.183–184, 13.184, 13.197
after Nd:YAG laser capsulotomy, 11.157, 11.166
nonrhegmatogenous. See Retinal detachment, exudative
optic pit maculopathy and, 12.328–329, 12.329f
paving-stone degeneration and, 12.313, 12.314f
phakic IOLs and, 13.138, 13.145, 13.146
iris-fixated lenses, 13.145
posterior chamber lenses, 13.146
posterior vitreous detachment and, 12.324
reafferative surgery after, 13.185
sclerectomy and, 4.305–306, 4.306f
surgical repair of, 12.397–401, 12.398–400
tractional retinal detachment versus, 12.325
uveitis as cause of, 9.324
vision loss caused by, 12.128
vitrectomy for, 12.324, 12.400f, 12.400–401
word origin of, 12.320
Schwartz (Schwartz-Matsuo) syndrome and, 10.109
scleral buckling for after cataract surgery, 11.166–167
scleral perforation as cause of, 6.170
secondary (nonrhegmatogenous). See Retinal detachment, exudative
serous, 6.362
in intraocular lymphoma, 12.234
MEK inhibitors as cause of, 12.299
in sickle cell retinopathy, 12.155
in Stickler syndrome, 6.346
subclinical, 12.319–320
surgery for angle-closure glaucoma after, 10.143
diagnostic features of, 12.325
LASIK and, 13.185, 13.197
refractive surgery and, 13.185
vitrectomy. See Retinal detachment, vitrectomy for tractional, 6.348f, 6.360
causes of, 12.320
description of, 12.286
diagnostic features of, 12.321f, 12.325
in familial exudative vitreoretinopathy, 12.343
imaging of, 12.387f
management of, 12.325
pathophysiology of, 12.387
in proliferative diabetic retinopathy, 12.103, 12.108, 12.387–388
rhegmatogenous retinal detachment versus, 12.325
vitrectomy for, 12.325, 12.387–388
trauma and anterior segment, 8.409
diagnostic features of, 12.317
in uveal lymphoid proliferation/infiltration, 4.314
vitrectomy for, refractive surgery after, 13.185
vitreoretinal tufts and, 12.311–312, 12.312f
vitreous contraction as cause of, 12.349
Retinal dialysis, 4.19–20, 4.20f, 12.315
Retinal disease and disorders, 4.139–180. See also Macula/macula lutea, diseases of; Retinitis; Retinopathy; specific type acquired, 6.358–360, 6.359f
angiography in. See Fluorescein angiography;
Indocyanine green (ICG) angiography
arterial macroaneurysms, 12.147–148, 12.148f
arterial occlusive branch retinal artery occlusion. See Branch retinal artery occlusion
capillary retinal arteriole obstruction, 12.140f, 12.140–141
central retinal artery occlusion. See Central retinal artery occlusion
cilioretinal artery occlusion, 12.143
ophthalmic artery occlusion, 12.146, 12.147f
paracentral acute middle maculopathy, 12.143
after cataract surgery; 11.163–167, 11.164f
cataract surgery in patient with, 11.189
Coats disease, 6.358–360, 6.359f
combined hamartoma of the retina and retinal pigment epithelium, 6.350
genital/developmental, 4.142f, 4.142–145, 4.143f, 4.144f, 4.145f
degenerative, 4.148–170, 4.171f, 4.172f. See also Retinal degeneration
in diabetes mellitus. See Diabetic retinopathy
electrophysiologic testing in, 5.95–97, 5.96f. See also specific test
ERG in, 5.96f, 5.96–97
hallucinations caused by, 5.175
hereditary
achromatopsia, 6.337–338
Aicardi syndrome, 6.338–339, 6.339f
genital stationary night blindness, 6.338
evaluative tests for, 6.335
foveal hypoplasia, 6.338
Leber congenital amaurosis, 6.335–336, 6.337f
nystagmus associated with, 6.335
paradoxical pupils associated with, 6.335, 6.336f
human immunodeficiency virus complications, 6.348
illusions caused by, 5.174–175
imaging modalities for
adaptive optics imaging, 12.33
fluorescein angiography, 12.33–38, 12.34f, 12.36–12.37f
fundus autofluorescence, 12.29, 12.31–33
fundus camera imaging, 12.22–23, 12.23f
indirect ophthalmoscopy, 12.21–22
indocyanine green angiography, 12.33–38, 12.34
ophthalmoscopy, 12.21–22
optical coherence tomography, 12.25–27, 12.27f. See also Optical coherence tomography
optical coherence tomography angiography, 12.28–29
scanning laser ophthalmoscopy, 12.24
ultrasoundography, 12.39–40
infectious, 6.348
inflammatory, 4.145–148, 4.146f, 4.147f, 4.148f.
See also Retinitis; specific disease
infectious, 4.145–148, 4.146f, 4.147f, 4.148f
macular dystrophies
Best disease, 6.340–342, 6.342f
neoplastic, 4.172–180. See also Retinoblastoma
low vision caused by, 10.98–100, 10.99f
metastatic, 4.303, 4.308, 4.309f
pigmented, 4.279–280, 4.280f
nystagmus associated with, 5.236
psychophysical testing in. See specific test
refractive surgery and, 13.44, 13.183–185
retinoblastoma. See Retinoblastoma
retinopathy of prematurity. See Retinopathy of prematurity
tumors, 6.349–358
vascular. See also Retinal vasculitis; specific type
angle-closure glaucoma and, 10.84, 10.134–135, 10.141, 10.143–144
arterial occlusion. See Retinal artery occlusion
branch retinal vein occlusion. See Branch retinal vein occlusion (BRVO)
central retinal vein occlusion. See Central retinal vein occlusion
Coats disease, 12.159–161, 12.160f, 12.326
genital, 4.143f, 4.143–144, 4.144f
cystoid macular edema. See Cystoid macular edema
in diabetes mellitus, 4.159. See also Diabetic retinopathy
hypertension, 12.121–125, 12.122–124f
macular telangiectasia. See Macular telangiectasia microaneurysms, 4.154, 4.155f
in diabetes mellitus, 4.155f, 4.159
in diabetic retinopathy, 4.159
in retinal vein occlusion, 4.158, 4.159
ocular ischemic syndrome, 12.138–140, 12.139f
Purtscher retinopathy, 12.171–173, 12.173f
Purtscherlike retinopathy, 12.171–173, 12.172f, 12.173f
radiation retinopathy, 12.170f, 12.170–171
retinal vein occlusion. See Retinal vein occlusion (RVO)
sickle cell retinopathy. See Sickle cell retinopathy
systemic arterial hypertension, 12.121–125, 12.122–12.124f
Terson syndrome, 12.173
Valsalva retinopathy, 12.171
vasculitis and, 12.155f, 12.155–156. See also Retinal vasculitis
venous occlusion. See Retinal vein occlusion
Wisbey–Mason syndrome and, 4.286f, 4.286–287, 5.331, 5.333f, 5.334t, 12.168
vitreoretinopathies
familial exudative, 6.347–348, 6.348f
juvenile retinoschisis. See Retinoschisis, X-linked
Knobloch syndrome, 6.346f, 6.346–347
Norrie disease, 6.347
Sticker syndrome, 6.345–346
Retinal disparity, vergence system and, 5.226
Retinal dystrophies. See also Retinal degeneration; specific type
classification of, 12.255
congenital sensory nystagmus from, 6.154
hereditary. See also Hereditary dystrophies; specific type
bilateral symmetric involvement of, 12.258
blindness concerns of patients with, 12.260
cystoid macular edema in, 12.260, 12.260f
diagnostic considerations for, 12.258–259
enhanced S-cone disease, 12.266, 12.267f
gene therapy for, 12.260, 12.266
genetic considerations for, 12.259
Leber congenital amaurosis, 12.265–266
management of, 12.259–260, 12.260f
molecular genetic testing for, 12.259
photoreceptor (diffuse), 4.170, 4.172f
rod–cone dystrophies, 12.261–264, 12.262–264f
stem cell therapy for, 12.260
infantile nystagmus syndrome and, 5.236
juvenile, 6.390f
nystagmus associated with, 6.391f
sporadic, 12.263
X-linked retinoschisis, 12.278f, 12.278–279
Retinal edema, 4.152, 4.153, 4.154f. See also Macular edema
illusions and, 5.174–175
myopia choroidal neovascularization as cause of, 12.212
Retinal folds
in familial exudative vitreoretinopathy, 12.343, 12.345f
fixed, 12.326
Retinal ganglion cells (RGCs), 2.335, 12.45. See also Ganglion cells/ganglion cell layer
apoptosis of, 6.44
development of, 6.44
Retinal gene therapy, 9.58
Retinal grafts, 12.340
Retinal hemorrhages
in abusive head trauma, 6.382–383, 6.382–383f, 12.366, 12.366f
in branch retinal vein occlusion, 4.159
in central retinal vein occlusion, 12.138
in central retinal vein occlusion, 4.156, 4.158f
dot-and-blot, 4.153–154, 4.155f, 5.170, 5.171f
ischemia causing, 4.153–154, 4.155f, 5.170, 5.171f
ischemia causing, 4.153, 4.155f
ischemia causing, 4.153–154, 4.155f, 5.170, 5.171f
in leukemia, 4.315, 6.414
Retinal holes
atrophic
definition of, 12.315
lattice degeneration and, 4.150, 12.310, 12.311f, 12.316f
retinal detachment secondary to, 12.310
description of, 12.378
lattice degeneration and, 4.150, 12.310, 12.311f, 12.316f
operculated, 12.315–316
Retinal image size, 3.126
Retinal ischemia, 4.140, 4.150–160, 12.140
cataract surgery and, 11.80–81
cellular responses to, 4.151f, 4.151–152, 4.152f
central and branch retinal artery and vein occlusions causing, 4.151f, 4.156–159, 4.157f, 4.158f
diabetic retinopathy and, 4.155f, 4.159–160, 4.160f, 4.161f
illusions and, 5.175
inner ischemic retinal atrophy and, 4.151, 4.151f
in diabetic retinopathy, 4.159
in retinal arterial and venous occlusions, 4.156, 4.159
outlier ischemic retinal atrophy and, 4.151, 4.151f
stroke and, 5.167, 5.168–169
vascular responses to, 4.152–156, 4.153f, 4.154f, 4.155f, 4.156f
Retinal light toxicity. See Photic damage/phototoxicity/light toxicity
Retinal neovascularization. See also Neovascularization; Retinal disease, vascular
in age-related macular degeneration, 4.161f, 4.164–166, 4.165f
ischemia causing, 4.154, 4.156f
Retinal nerve fiber layer (RNFL).
Retinal neovascularization. See also Neovascularization; Retinal disease, vascular
in age-related macular degeneration, 4.161f, 4.164–166, 4.165f
functions of, 2.98–99
illustration of, 2.322f
melanin granules in, 2.321, 2.323
\( \text{Na}^+,\text{K}^+\text{-ATPase} \) in, 2.324
number of, 2.321
pigment-laden, 12.66
choriocapillaris and, 2.322f
choroidal nevi and, 2.256, 4.257f
combined hamartoma of the retina and, 6.350
congenital abnormalities of, 4.142f, 4.142–145, 4.143f, 4.144f, 4.145f
hypertrophy (CHRPE), 4.144–145, 4.145f, 4.268–269, 4.269f, 6.349, 6.349f
in familial adenomatous polyposis, 2.201, 2.202f
melanoma differentiated from, 4.144, 4.268–269, 4.269f
cytokine synthesis by, 9.58
degeneration of, 12.258
depigmentation of, 12.227, 12.293
detachment of (PED/RPED). See also Pigment epithelial detachments (PEDs); Retinal detachment
multiple recurrent serosanguineous (polypoidal choroidal vasculopathy), 4.166f, 4.166–168, 4.167f
in primary central nervous system/intraocular/vitreoretinal/retinal lymphoma, 4.135, 4.135f, 4.136–137, 4.311, 9.305
development of, 2.157, 2.306f, 2.321
in disease, 2.332–333, 2.333f
disorders of, 4.139–180. See also specific type
drugs that affect
alkyl nitrites, 12.300, 12.300f
chloroquine derivatives, 12.295–297, 12.296f
chlorpromazine, 12.297
clofazimine, 12.298
deferoxamine, 12.298–299
dideoxyinosine, 12.299
MEK inhibitors, 12.299, 12.299f
nucleoside reverse transcriptase inhibitors, 12.299f
nonthiazines, 12.297–298
thioridazine, 12.297
embryology of, 2.97
functions of, 2.97, 12.17–18
genetic defects in, 2.332
glucose in, 2.323
hematoma of
combined, 4.179, 4.180f, 4.280, 4.280f
in Gardner syndrome, 4.145
simple, 4.279, 4.280f
healing/repair of, 4.17
histology of, 2.329f
hyperpigmentation of, 12.106f
hyperplasia of
around retinal tuft, 12.312
retinal detachment and, 12.313–314
hypertrophy of, 12.314
congenital (CHRPE), 4.144–145, 4.145f, 4.268–269, 4.269f, 6.349, 6.349f
in familial adenomatous polyposis, 2.201, 2.202f
melanoma differentiated from, 4.144, 4.268–269, 4.269f
immune responses of, 9.57–59
immunologic microenvironment of, 9.52f, 9.57–58
immunoregulatory systems of, 9.59
in Knobloch syndrome, 6.346
leaks from, 12.190, 12.190f
in Leber congenital amaurosis, 6.336
lesions of, 6.349, 6.349f
lipids in, 2.324
lipofuscin in, 9.89, 12.32
lipofuscin-like material, 12.270, 12.270f
major histocompatibility class II molecule expression by, 9.57
melanin pigment in, 2.331
net ionic fluxes in, 2.330
nucleic acids in, 2.324
nummular loss of, 12.204
ocular histoplasmosis syndrome findings in, 9.273
peripapillary changes in, 9.190f
phagocytosis of shed photoreceptor outer-segment discs by, 2.328
phosphatidylcholine in, 2.324
phosphatidylethanolamine in, 2.324
physiologic roles of, 2.324–332, 2.325f
pigments/pigmentation of, 2.331, 12.214, 12.277
description of, 12.12f, 12.17
mollting of, 12.79, 12.87, 12.90f
in primary central nervous system/intraocular/vitreoretinal/retinal lymphoma, 4.135, 4.135f, 4.136f, 4.136–137, 4.311, 9.305
progressive atrophy of, 12.66
proteins in, 2.323–324
in retinal adhesion, 2.331–332
retinal separation from, 12.17
in retinitis pigmentosa, 4.170, 4.172f
RPE65 expression in, 2.324
rubella as cause of, 9.260
secretions by, 2.332
serpiginous choroiditis findings in, 9.175
siderosis bulbi effects on, 12.362
standing potential, 12.50, 12.51f
structure of, 2.321–323
subretinal fibrosis in, 9.178
 tears of
autosfluorescence of, 12.31, 12.32f
in choroidal neovascularization, 12.31
fibrovascular pigment epithelial detachment as risk for, 12.82
thermal injury to, 12.367
tight junctions in, 2.85
toll-like receptor expression by, 9.57
topography of, 4.140f, 4.141, 4.141f
transport proteins in, 2.330
tumors of, 4.180
vitamin A regeneration in, 2.326–328, 2.327f
water transport in, 12.18
Retinal precipitates, 12.241
Retinal reflex
aberrations of, 3.159
break in, 3.156, 3.157f
description of, 3.152–153f, 3.152–153
against movement, 3.152, 3.153f, 3.155
with movement, 3.152, 3.153f, 3.155
skew of, 3.156, 3.157f
width of, 3.156, 3.157f
Retinal rivalry, 6.47, 6.47f
Retinal scars, 4.17
Retinal sclerectasia, 4.22, 12.356–358, 12.357f
Retinal tears, 4.20, 4.20f, 4.129–130, 4.130f. See also Retinal breaks
chorioretinal adhesions around, using laser retinopexy, 12.377
classification of, 12.315
flap, 12.315, 12.318–319
giant, 12.315
horseshoe-shaped, 12.316, 12.323f
lattice degeneration and, 4.150
mechanisms of, 12.308f
orbays and, 12.312
peripheral retinal excavations and, 12.312–313
posterior vitreous detachment as cause of, 12.307, 12.308f, 12.309f
retinal detachment, progression of, 12.347
ultrasonography of, 12.39
vitreoretinal/vitreous traction and, 4.129–130
in vitreous hemorrhage, 12.347
Retinal telangiectasia. See Coats disease
Retinal transient ischemic attack (RTIA)
stroke and, 5.167, 5.168–169
temporary monocular visual loss and, 5.164, 5.167, 5.168–169, 5.171
Retinal tufts, 12.311–312, 12.312f
Retinal vascular occlusive disease, in systemic lupus erythematosus, 9.154, 9.155f
Retinal vascular sheathing, 12.231f
Retinal vasculitis, 1.9, 12.155f, 12.155–156
characteristics of, 9.75
diseases associated with, 9.75t
human leukocyte antigen association with, 9.65t
in posterior uveitis, 9.74t
in uveitis. See Posterior uveitis
vasculopathy versus, 9.75
Retinal vasospasm, transient visual loss and, 5.161, 5.162, 5.171
Retinal vein, 5.17f
arcade, 5.21
central (CRV), 2.26f, 2.111, 2.120, 5.17f, 5.21f, 5.21f, 10.44, 10.45f, 10.46
optic nerve drained by, 5.17f, 10.45f, 10.46
occlusion of. See Retinal vein occlusion
Retinal vein occlusion (RVO)
aflibercept for, 12.135
anti-VEGF drugs for, 12.126, 12.136–137
bevacizumab for, 12.135
branch (BRVO), 4.158–159
aflibercept for, 12.135
at arteriovenous crossing, 12.126
bevacizumab for, 12.135
clinical findings of, 12.125–127, 12.126f
corticosteroids for, 12.137–138
diabetes mellitus and, 12.128
fluorescein angiography of, 12.129f
glaucoma as risk factor for, 12.125
hypertensive retinopathy and, 12.122
intraretinal hemorrhages associated with, 12.125, 12.126f
macular laser surgery for, 12.128
neovascularization in, 4.159, 12.125, 12.128, 12.129f
pars plana vitrectomy for, 12.130
pharmacologic management of, 12.135–138
prognosis for, 12.128
ranibizumab for, 12.135
risk factors for, 12.127–128
scatter photocoagulation for, 12.128–130
spontaneous resolution of, 12.125
surgical management of, 12.128–130
treatment of, 12.128–130
triamcinolone for, 12.137
vision loss caused by, 12.128
central (CRVO), 1.148, 4.156–158, 4.158f
aflibercept for, 12.135
age and, 12.133
angle-closure glaucoma and, 10.143–144
neovascularization and, 10.134–135
bevacizumab for, 12.135
causes of, 12.133–134
chronic changes caused by, 12.127f
cilioretinal artery occlusion caused by, 12.143
clinical findings of, 12.127f, 12.130
complications of, 12.135
corticosteroids for, 12.137–138
cystoid macular edema caused by, 12.136f
differential diagnosis of, 12.134
diuretic and, 12.134
electroretinography findings in, 12.50
evaluation of, 12.134–135
follow-up for, 12.134
hypercoagulable conditions presenting with, 12.134
hypertensive retinopathy and, 12.122
hyperviscosity retinopathy versus, 12.134
intraocular pressure in, 12.133
iris neovascularization in, 12.133, 12.135
ischemic/complete/nonperfused, 4.156, 4.157–158, 4.158f, 12.132f
macular laser surgery for, 12.135
management of, 12.134–135
neovascularization in, 12.125
nonischemic, 12.130, 12.131f
ocular ischemic syndrome versus, 12.134
open-angle glaucoma and, 10.84, 12.133
oral contraceptives and, 12.134
panretinal photocoagulation for, 12.135
papillophlebitis and, 5.125–126, 5.126f
pars plana vitrectomy for, 12.135
pharmacologic management of, 12.135–138
progression of, follow-up for, 12.134
ranibizumab for, 12.135
retinal microvascular changes in, 12.125, 12.127f
risk factors for, 12.133–134
spontaneous resolution of, 12.125
transient visual loss and, 5.170
treatment of, 12.135
vision loss caused by, 12.130
vitreous hemorrhage secondary to, 12.135
cystoid macular edema caused by, 12.135, 12.136f
dexamethasone implant for, 12.137
glaucoma as risk factor for, 12.125
improvements in, 12.125
intravitreal corticosteroids for, 12.137–138
ocular examination for, 12.125
panretinal photocoagulation for, 12.126
pharmacologic management of, 12.135–138
ranibizumab for, 12.135
spontaneous resolution of, 12.125
transient visual loss and, 5.170
triamcinolone for, 12.137

Retinoblastoma (RB), 4.172–177, 4.253, 4.289–302,
unilateral, 4.172, 4.177–178

Retinitis punctata albinosa, 12.258, 12.258f
Retinoblastoma (RB), 4.172–177, 4.253, 4.289–302,
7.136, 9.308–309
aniridia versus, 2.226
bilateral, 6.357f
brachytherapy for, 4.301
chemotherapy for, 4.253, 4.299–300, 4.300f, 6.356–357
classification of, 4.297, 4.297f, 6.354, 6.356f
clinical evaluation/diagnosis of, 4.291f, 4.291t,
4.291–294, 4.292f, 4.293f, 4.294f
differential diagnosis and, 4.294t, 4.294–297,
4.295f, 4.296f
clinical trials in, 4.301
Coats disease versus, 4.295, 4.295f, 6.352–353, 6.360
conditions associated with, 4.298
cryotherapy for, 4.300
description of, 6.299, 6.351
diagnosis of, 6.352–353f, 6.352–354
diffuse infiltrating, 4.292, 6.353
dendophytic, 6.352, 6.352f
denucleation for, 4.299
evaluation of, 6.353
exophytic, 6.352–353, 6.353f
external-beam radiation for, 4.301
extraocular, 6.357
fleurettes in, 1.175, 1.175f
Flexner-Wintersteiner rosettes associated with, 6.353
genes of, 2.226–227, 4.172–173, 4.253, 4.289–291,
4.290f, 6.354, 6.355f
counseling and, 4.289–291, 4.290f
eredimentary, 2.226–227
histologic features of, 4.173f, 4.173–175, 4.174f,
4.175f, 6.353–354
intracranial, 4.298
iris affected in, 4.174, 4.174f
Knudson’s hypothesis and, 2.227
laser therapy for, 4.300
leukocoria associated with, 6.351, 6.351f, 6.351t
leukocoria in, 4.291, 4.291f, 4.291t
metastatic, 4.177, 4.177f, 4.293–294
monitoring of, 6.358
ocular inflammation in, 4.291, 4.291f
optic nerve affected in, 4.176f, 4.176–177, 4.177f,
4.293
orbit affected in, 4.294, 4.294f
pathogenesis of, 4.172–173
persistent fetal vasculature differentiated from,
4.294–295
plaque radiotherapy for, 4.301
presenting signs and symptoms of, 4.291f, 4.291t,
4.291–294, 4.292f, 4.293f, 4.294f
prognosis for, 4.302, 4.302f
progression of, 4.176f, 4.176–177, 4.177f
radiation therapy for, 4.301
secondary tumors and, 4.302, 4.302f
recurrence of, 6.358
retinocytoma and, 4.178, 4.178f, 4.298
rosettes in, 4.174–175, 4.175f
secondary malignancies and, 4.302, 4.302f, 6.358
spontaneous regression of, 4.301, 6.353
sporadic, 2.228
staging of, 4.297
strabismus in, 4.291, 4.291f, 4.291t
transpupillary thermotherapy for, 4.300
treatment of, 4.299–301, 4.300f, 6.356–358
trilateral, 4.298, 6.357
tumorigenesis in, 2.226
ultrasonographic findings in, 2.470f
vitreous seeds and, 4.292, 4.293f
Retinoblastoma (RB1) gene, 4.172–173, 4.253, 4.289–290
in pinealblastoma, 4.298
in retinocytoma, 4.298
secondary malignancies and, 4.302
Retinocilioidal/retinociliary venous collaterals (opticociliary shunt vessels), 5.22
in optic nerve sheath meningioma, 5.127f, 5.128
in papilledema, 5.109
Retinociliary venous/retinochoroidal collaterals
See also specific disorder
Retinochoroidopathies, 9.88. See also specific disorder
Retinocytoma, 4.178, 4.178f, 4.298
Retinogeniculocortical pathway abnormal visual experience affecting, 6.44–47, 6.45–46f
development of, 6.44–47
Retinoic acid, 2.166
Retinoic acid–inducible gene-I-like (RIG-I-like) receptors, 9.5
Retinoid–binding proteins, interphotoreceptor (IRBP), 4.172
Retinoid cycle, 2.326, 2.327f
Retinol, 2.311
Retinol–binding protein, 2.326
Retinol dehydrogenase, 2.327
Retinopathy, 5.99–103, 5.100f. See also Retinitis; specific type
acute zonal occult outer, 12.226–228, 12.227f
arteriosclerotic, 12.122
autoimmune, 5.103, 9.192–193, 12.286
cancer-associated (CAR), 5.102, 9.192–193, 12.286, 12.287f
ERG in, 5.96, 5.102
central serous (CSR). See Central serous chorioretinopathy
CRB1-related, 12.258
crystalline
cause of, 12.302–304, 12.303f
drugs that cause, 12.302–304
tamoxifen as cause of, 12.303, 12.304f
West African, 12.303–304, 12.305f
diabetic. See Diabetic retinopathy
HIV-associated, 9.327, 9.328f. See also HIV infection/AIDS, retinitis in
hypertensive, 1.69, 1.70f, 12.121–123, 12.122f, 12.124f
hyperviscosity, 12.134
in leukemia, 4.315, 4.315f
measles, 9.262
melanoma-associated (MAR), 5.102–103, 9.192–193, 12.286
ERG in identification of, 5.96, 5.102–103
neurotrophic keratopathy/persistent corneal epithelial defect and, 8.81, 8.81f
occlusive, 12.300–301
in ocular ischemic syndrome, 5.170, 5.171f, 12.138
optic neuropathy differentiated from, 5.99–100, 5.100f
paraneoplastic, 5.102–103
pigmentary, 12.282–283t. See also Retinitis pigmentosa
hearing loss and. See Usher syndrome
pigmented paravenous, 12.263
Purtscher, 12.171–173, 12.173t
Purtscherlike, 12.171–173, 12.173f, 12.173t
radiation, 1.239, 12.170f, 12.170–171
refractive surgery in patient with, 13.190
sickle cell. See Sickle cell retinopathy
solar, 12.277, 12.367, 12.368f
syndromic/systemic diseases associated with, 12.257t
thioridazine as cause of, 12.297
Valsalva, 12.171
venous stasis (VSR), 5.170
Retinopathy of prematurity (ROP), 2.470f
aggressive posterior, 6.326, 6.327f, 6.330f, 6.333, 12.177
angle-closure glaucoma in, 12.181
anti-VEGF agents for, 6.333
bevacizumab for, 6.333
birth weight and, 12.182
blindness caused by, 6.335, 12.182
bicentric, 6.67, 12.181
classification of, 6.325–326, 6.327f, 6.328–330f, 6.331f, 12.175–179, 12.176t, 12.178t
clinically significant, 12.184f
complications of, 6.334–335
conditions associated with, 12.181–182
cryotherapy for, 6.331
definition of, 12.175
demarcation line in, 6.328f
diagnosis of, 6.329, 6.331
diet and, 12.184–185
digital retinal photography for, 6.331
discovery of, 6.325
Early Treatment for Retinopathy of Prematurity classification of, 6.326, 6.331f
diabetic. See Diabetic retinopathy
diabetic. See Diabetic retinopathy
diabetic. See Diabetic retinopathy
diabetic. See Diabetic retinopathy
diabetic. See Diabetic retinopathy
diabetic. See Diabetic retinopathy
diabetic. See Diabetic retinopathy
diabetic. See Diabetic retinopathy
diabetic. See Diabetic retinopathy
diabetic. See Diabetic retinopathy
end stage of, 12.175
epidemiology of, 12.175
extrafoveal retinal detachment in, 6.329f
extrafrenal fibrovascular proliferation in, 6.329f
familial exudative vitreoretinopathy versus, 12.344
follow-up examinations for, 6.332f
glaucoma and, 10.144
incidence of, in premature infants, 12.182
in infants, 12.175
insulin-like growth factor 1 in, 6.325, 6.326f, 12.182
International Classification of Retinopathy of Prematurity, 6.325, 6.327f
late sequelae of, 12.181–182
location of, 6.327f
macular dragging associated with, 6.334, 6.334f
myopia associated with, 6.334
natural course of, 12.181
neovascularization in, 12.180–181
ocular examination for, 6.329, 6.331, 6.332f
oxygen supplementation and, 12.184
panretinal photocoagulation for, 6.332, 6.333f
pathophysiology of, 6.325, 6.326f, 12.180–182
plus disease, 6.326, 6.327f, 6.330f
posterior persistent fetal vasculature versus, 12.342
pre–plus disease, 6.326, 6.327f, 6.330f
prethreshold disease, 6.326, 6.327t, 6.329t, 6.328
prevention of, 12.184–185
pseudoexotropia associated with, 6.334, 6.335f
pupillary-block glaucoma in, 12.181
ranibizumab for, 6.333
pneumatic, for rhegmatogenous retinal detachment,
laser, 12.376–377
weight, IGF-1, neonatal ROP algorithm for, 12.182
vitrectomy for, 6.335
supplemental oxygen as risk factor for, 6.326–327,
6.335, 12.188
stage 5, 6.327
stage 4, 6.327, 12.176, 12.177
stage 2, 6.327
stage 1, 6.327
spontaneous regression of, 12.181
severity of, 12.176
sequelae of, 6.334–335, 12.181–182
treatment of, 6.331–334
threshold level of, 6.331
threshold disease, 12.177, 12.178t, 12.179, 12.180f,
12.181, 12.185
treatment level of, 6.331
anti-VEGF drugs, 12.186–187
bevacizumab, 12.186–187
cryoablation, 12.185–186
intravitreal injections, 12.187
laser surgery, 12.185–186
overview of, 12.185
photocoagulation, 12.186f
 scleral buckling surgery, 12.187–188
vitrectomy, 12.187–188
type 1, 6.326, 6.331t, 6.332
type 2, 6.326, 6.331t, 6.332
vascular endothelial growth factor in, 6.325, 6.326f
weight, IGF-1, neonatal ROP algorithm for, 12.182
zones of, 6.325, 6.328f
Retinopexy
laser, 12.376–377
pneumatic, for rhegmatogenous retinal detachment,
12.397–398, 12.398f
Retinoschisis, 12.279
Retinoschisis
bullous, 12.326
demarcation lines in, 12.328
imaging of, 12.327f
outer-schisis-layer holes associated with, 12.327,
12.327f
reticular degenerative (bullous), 4.148, 12.326, 12.327
retinal detachments and, 12.326–328, 12.328
rhegmatogenous retinal detachment versus, 12.327t,
12.327–328
typical degenerative, 4.148, 12.326
X-linked
abusive head trauma as cause of, 6.383
description of, 6.342–343
diagnosis of, 6.344–345f
treatment of, 6.344
Retinoscope/retinoscopy
alignment of, 3.151
applications of, 3.150
in cataract evaluations, 6.299
before cataract surgery, 11.80
concave mirror setting with, 3.150, 3.151f
correcting lens in, 3.153–155, 3.154f
definition of, 3.148
dynamic
accommodation measurements using, 6.9
in children, 6.9
examiner positioning during, 3.151
fixation for, 3.152
fogging for, 3.152
initial estimate of refractive error obtained using, 3.28
irregular astigmatism and, 8.163
against movement in, 3.152, 3.153f, 3.155
with movement in, 3.152, 3.153f, 3.155
neutrality, 3.152, 3.153–3.154f, 3.155
pictorial representation of, 3.150f
plane mirror setting with, 3.150
plus cylinder phoropter for, 3.159f
regular astigmatism application of

cylinder axis, 3.156–158, 3.157–3.158f
cylinder power, 3.158
overview of, 3.155–156
retinal reflex, 3.152–3.153f, 3.152–153
streak projection system used in, 3.150, 3.273
summary of, 3.159f
working distance in, 3.154
Retinoscopic reflex. See Retinal reflex
Retinovascular occlusion, intravenous drug use as cause of,
1.199
Retisert. See Fluocinolone acetonide implant
Retraction, eyelid, 5.274, 5.275
Retraction, vitrectomy, 12.187–188
Retraction, vitrectomy, 12.187–188
Type 1, 6.326, 6.331t, 6.332
Type 2, 6.326, 6.331t, 6.332
vascular endothelial growth factor in, 6.325, 6.326f
vitrectomy for, 6.335
weight, IGF-1, neonatal ROP algorithm for, 12.182
zones of, 6.325, 6.328f
Retinoscopy
laser, 12.376–377
pneumatic, for rhegmatogenous retinal detachment,
12.397–398, 12.398f
Retinoschisin, 12.279
Retinoschisis
bullous, 12.326
demarcation lines in, 12.328
imaging of, 12.327f
Retrocaruncular incision
for medial orbitotomy, 7.128, 7.128f
for orbital decompression, 7.130
Retrochiasmal lesions, 5.146, 5.152–159

generalized body lesions, 5.154, 5.154f
in multiple sclerosis, 5.318
occipital lobe lesions, 5.147f, 5.156–158, 5.157f,
5.158f, 5.159f, 5.161
optic tract lesions, 5.147f, 5.153
parietal lobe lesions, 5.156
temporal lobe lesions, 5.147f, 5.155, 5.155f
Retrocorneal fibrous membrane (RCFM/posterior
collagenous layer), 2.267, 4.84, 4.85f
Retrogeniculate (cerebral/cortical) visual impairment,
6.186.  See also Cerebral/cortical blindness
Retinoillumination, 3.292, 3.293f

for slit-lamp biomicroscopy, 8.17
for analysis of optic nerve,
2.113, 10.42, 10.43, 10.45f, 10.46
Retrorenal fibroplasia.  See Retinopathy of prematurity
Retirov.  See Zidovudine
Retroviruses (Retroviridae), 8.240, 8.241
Retroviral disease, 8.241
Retroviral transmission, 8.241
Retroviral vector, 8.241
Retroviral vectors, 8.241
Reticulum

for RGP contact lenses.
See Rigid gas-permeable (RGP)
contact lenses
RGS9 gene, 12.49
Rhabdomyosarcoma, 7.87f, 7.87–89

eyelid, 6.200
orbital, 4.236, 4.237f, 6.217f, 6.217–218
retinoblastoma associated with, 4.302f
Rhabdoviridae, 8.240, 8.240f
Rhegmatogenous retinal detachment (RRD), 2.332.
See also Retinal detachment
child abuse and, 6.384
chronic, 12.324f
chronic peripheral, 9.311
complex, 12.401
definition of, 12.396
diagnostic features of, 12.320, 12.321f
floaters associated with, 12.320
incidence of, 12.320
intraocular pressure in, 12.320
lattice degeneration associated with, 12.310
macula-off, 12.401
macular hole as cause of, 12.330, 12.330f
management of, 12.324, 12.324f, 12.397
pigmented demarcation lines with, 12.324
pneumatic retinopexy for, 12.324, 12.397–398,
12.398f
proliferative vitreoretinopathy associated with,
12.320, 12.323f, 12.323f, 12.323–324
reattachment surgery for, 12.401–402
retinal breaks as cause of, 12.314–315, 12.320,
12.322f, 12.396
retinoschisis versus, 12.327, 12.327–328
risk factors for, 9.151, 12.396
scatter photocoagulation as cause of, 12.155
ciliary buckling for, 12.324, 12.398–400, 12.399f
Shaffer sign, 12.320
surgical repair of, 12.397–401, 12.398–400f
tractional retinal detachment versus, 12.325
uveitis as cause of, 9.324
vision loss caused by, 12.128
vitrectomy for, 12.324, 12.400f, 12.400–401
word origin of, 12.320
Rheophoresis, 12.71
Rheumatic disorders.  See also specific disorder
ankylosing spondylitis, 1.154–155
antiphospholipid syndrome, 1.148–149, 1.163–164
dermatomyositis, 1.167f, 1.167–168
description of, 1.151
enteropathic arthritis, 1.156
juvenile idiopathic arthritis, 1.157–158, 1.158f
ocular involvement in, 1.151
polymyalgia rheumatica, 1.154–155
reactive arthritis, 1.155–156f, 1.157
relapsing polychondritis, 1.168–169
rheumatoid arthritis.  See Rheumatoid arthritis
sarcoidosis, 1.162–163
Sjögren syndrome, 1.161, 1.166–167
spondyloarthritis.  See Spondyloarthropathies/
spondyloarthristis
systemic lupus erythematosus.  See Systemic lupus
eythematosus
systemic sclerosis, 1.164–166, 1.165f
treatment of
corticosteroids, 1.174–176, 1.175f
disease-modifying antirheumatic drugs.  See Disease-modifying antirheumatic drugs
nonsteroidal anti-inflammatory drugs, 1.176
vasculitis.  See Vasculitis/vasculitides
Rheumatoid arthritis (RA)
cataract surgery in patient with, corneal melting/
eratotomy and, 11.132
description of, 9.125f
extra-articular manifestations of, 1.152–153
hand deformities associated with, 1.152, 1.152f
juvenile. See Juvenile idiopathic arthritis
laboratory testing for, 1.153
ocular manifestations of, 1.153
peripheral ulcerative keratitis and, 8.311, 8.312, 8.312f
prevalence of, 1.152
refractive surgery contra indicated in, 13.191
scleritis/scleromalacia perforans and, 8.321–322, 8.322f
treatment of, 1.153–154
Rheumatoid factor (RF), 1.153
Rheumatoid melt, 8.368
Rhinoce re bral zygomycosis, 5.355, 5.355f
Rhinophyma, in rosacea, 8.71, 8.71f
Rhinosporidium/Rhinosporidium seeberi
(t rhinosporidiosis), 8.249, 8.251
Rhinoviruses, 8.240f
Rhizopus, 8.249, 8.251
ocular infection caused by, 5.355, 5.355f
Rho guanosine triphosphate hydrolase (Rho GTPase),
Rho kinase (ROCK), 2.395
Rho kinase inhibitors, 2.395–396, 10.182
Rhodopsin, 2.306–308, 2.307f, 2.326, 12.252, 12.264
Rhodopsin (RHO) gene mutation
description of, 2.312
in retinitis pigmentosa, 4.170
Rhodopsin kinase, 2.313f
Rhomboid flaps, for lateral canthal defects, 7.225, 7.226f
RHO-T.
See Right hypotropia
Rhytidectomy, 7.273–274, 7.274–275f
Riboflavin (vitamin B2)
in corneal crosslinking, 13.130–131, 13.132–134, 13.133f
description of, 3.114
Ribonucleic acid.
See RNA
Ribosomal RNA (rRNA), mitochondrial DNA-encoded,
2.184
Ribozymes, 2.197–198
Richner-Hanhart syndrome, 6.270, 8.183.
See also Tyrosinemia
Riddoch phenomenon, 5.158, 5.181
Riders, 11.35
Ridley intraocular lens, 11.118f, 11.118–119
RIEG1/RIEG2 genes, 10.11f
See also PITX2 gene
Rieger anomaly/syndrome, 8.102, 10.153.
See also Axenfeld-Rieger syndrome
gene for, 10.11f
Rifabutin, 9.139, 12.305
endothelial pigmentation caused by, 8.132
Rifampin, 1.276
for bartonellosis, 9.243
for cat-scratch disease, 12.243
ocular adverse effects of, 1.308f
tuberculosis treated with, 1.257
Rift Valley fever (RVF), 9.265, 9.265f
RIG-I-like receptors. See Retinoic acid–inducible gene-
I-like (RIG-I-like) receptors
Right hypotropia (RHoT), 6.17
Right to Sight, 11.6
Rigid contact lenses (hard contact lenses). See Rigid gas-
permeable (RGP) contact lenses
Rigid gas-permeable (RGP) contact lenses. See also
Contact lenses
advantages of, 3.214f, 3.215
apical alignment fit of, 3.218–219, 3.219f
apical bearing of, 3.218
apical clearance of, 3.218
for astigmatism, 13.17
after refractive surgery, 13.199
base curve of, 3.219f
characteristics of, 3.213–214
conical abnormalities corrected using, 3.226
conical reshaping uses of, 3.228
disadvantages of, 3.215
discontinuing use of before refractive surgery, 13.38
fitting of, 3.218–221f, 3.218–222, 3.220f
fluorescein patterns for fitting evaluations, 3.219f, 3.219–220
indications for, 3.207f, 3.227
interpalpebral fit of, 3.219
keratocunus correction using, 3.226
after LASIK, 13.199, 13.200
for myopia reduction (orthokeratology), 13.70–71
orthokeratology, 3.228
pauus associated with, 3.232
parameters of, 3.220f
ptosis secondary to, 3.233
after radial keratotomy, 13.199
after refractive surgery, 13.199
scleral, 3.226–227
soft lenses versus, 3.218
soft lenses
tear layer created by, 3.221
tear lens, 3.218, 3.218f
Riley-Day syndrome (familial dysautonomia/FD)
congenital corneal anesthesia and, 8.108
description of, 2.204f, 2.229, 6.271
Rilonacept, 1.180
“Rim”/RIM proteins, 2.308.
See also specific type
mutations in, 4.168–169
RimabotulinumtoxinB, 5.281.
See also Botulinum toxin
Rimantadine, 1.279
Rimexolone, 2.400, 2.403
RiMLF.
See Rostral interstitial nucleus of medial
longitudinal fasciculus
Ring infiltrate, in Acanthamoeba keratitis, 4.79, 4.79f, 8.277, 8.277f
Ring melanoma, 4.193, 4.194f, 4.262, 4.263f
Ring of Elschnig, 10.43
Ring opacity, topical anesthetic abuse and, 8.89, 8.89f
“Ring sideroblast,” 1.137
Ring sign, in optic nerve sheath meningioma, 5.127f
Riolan muscle, 4.201
Ripasudil, 2.396
Rise time, in phacoemulsification, 11.102, 11.103
Risk
absolute reduction of, 1.22
definition of, 1.22
relative, 1.22–23, 1.214
Risk calculators, 1.23
Risk difference, 1.22
Risk factors. See also specific disorder
disease and, 1.13
Risk reduction
absolute, 1.22
in diabetes mellitus, 1.35–36
Ritipenem, 1.273
Rituximab, 1.141, 1.180, 1.242, 2.406f, 6.322, 7.61, 7.67 for primary central nervous system/intraocular/vitreoretinal/retinal lymphoma, 4.312, 12.234 for scleritis, 8.324 for uveitis, 9.112 Rivaroxaban, 1.149 River blindness (onchocerciasis), 8.252–253, 9.289f, 9.289–290 Rizzutti sign, 8.163, 6.322, 7.61, 7.67 Rivipenem, 1.273 River blindness (onchocerciasis), 8.252–253, 9.289f, 9.289–290 Radial keratotomy Refractive lens exchange Reactive lymphoid hyperplasia Recurrent multifocal choroiditis. See Multifocal choroiditis RMS (root mean square) error, magnitude of wavefront deviation and, 13.9 RNA messenger description of, 2.176 intron excision, 2.179 proteins, 2.273 precursor, 2.177 retinal pigment epithelium synthesis of, 2.324 ribosomal, mitochondrial DNA-encoded, 2.184 short interfering, 2.198 transfer, mitochondrial DNA-encoded, 2.184 virus, 8.211. See also RNA viruses RNA viruses, 1.236, 1.237t, 8.211, 8.239–241, 8.240t. See also specific virus RNFL (retinal nerve fiber layer). See Nerve fiber layer ROC curve. See Receiver operating characteristic (ROC) curve Rochalimaea henselae. See Bartonella (bartonellosis), henselae ROCK. See Rho kinase Rocuronium, 2.382 Rod(s) abnormalities of. See Night blindness; Night-vision abnormalities anatomy of, 2.85, 2.86f cones versus, 2.306 density of, 12.11–12 in foveal center, 12.11 inner segments of, 2.85, 4.140f, 12.11–12, 12.12f. See also Photoreceptor(s), inner segments light effects on, 2.318, 2.318f light-sensitive molecules in, 12.12 neuronal elements of, 2.88 number of, 2.84 outer segments of, 2.98f, 4.140f, 12.11, 12.12f. See also Photoreceptor(s), outer segments phototransduction of, 2.306–308 schematic diagram of, 12.14f Rod ABC transporter, 2.313f Rod cGMP-gated channel, 2.313f Rod cGMP phosphodiesterase, 2.313f Rod–cone dystrophies. See also Retinitis pigmentosa in Bardet-Biedl syndrome, 12.284 characteristics of, 12.261–264, 12.262–264f conventional testing of, 12.261 electoretinography evaluations, 12.46, 12.47f, 12.261 imaging of, 12.262–264f macula-spared, 12.46, 12.47f Rod monochromatism, 6.337, 12.250, 12.250t. See also Achromatopsia Rod outer-segment protein 1, 2.308, 2.313, 2.313t Rod response. See Dark adaptation Rod transducin, 2.313t Rods (bacteria), 8.244 gram-negative, 8.244f, 8.247f, 8.247–248 therapy for infection caused by, 8.270f gram-positive, 8.244f, 8.245–247, 8.246f Rofecoxib, 1.176 ROIs. See Reactive oxygen intermediates Romycin. See Erythromycin RON. See Radiation optic neuropathy ROOF. See Retro-orbicularis oculi fat Root mean square (RMS) error, magnitude of wavefront deviation and, 13.9 ROP. See Retinopathy of prematurity Ropinirole, 1.205 ROS. See Reactive oxygen species Rosacea, 6.244, 8.69–71, 8.70f, 8.71f blepharitis and, 8.70, 8.73f cataract surgery in patient with, 11.172–173 meibomian gland dysfunction and, 8.60, 8.70 Rose bengal stain, 8.37, 8.71f in tear film/dry eye evaluation, 8.37, 8.56 Rosenthal, basilar vein of, 5.22 Rosenthal fibers, in optic nerve gliomas, 4.249, 4.249f Rosette cataract, 4.154, 9.294f Cataract surgery in patient with, 11.172–173 for upper eyelid pedicle flap, 5.22 for lower eyelid defects, 7.224 for wound closure after pterygium excision, 8.354f Rotation/rotational flap for lower eyelid defects, 7.224 for wound closure after pterygium excision, 8.354f Rotational corneal autograft, 8.451 Rotational upper eyelid pedicle flap, 7.227f Rotations, ocular definition of, 6.31 horizontal, 6.31 torsional, 6.31 vertical, 6.31 Rotavirus, 1.230 Roth spots, 4.154, 9.294f Rothmund-Thomson syndrome, 8.192t Rotigotine, 1.205 Rotterdam Study, 10.82, 10.83
Rowland-Payne syndrome, Horner syndrome and, 5.260
RP. See Retinitis pigmentosa
RPCD. See Reticular peripheral cystoid degeneration
RPD. See Reticular pseudodrusen
RPE. See Retinal pigment epithelium
RPE65
description of, 2.324, 2.333
  gene therapy trials with, 2.196
  Leber congenital amaurosis caused by, 2.196, 2.333
RPE65 gene, 6.337, 12.266
RPE65 mutation–associated retinal dystrophy, 9.58
RPED. See RPE65 gene
RPE65, 6.342, 12.279
RRD. See Rapid plasma reagin (RPR) test
RPR. See RPE65 mutation–associated retinal dystrophy
RPE65. See RPE65 gene
RPE65 gene
RPE65, 6.337, 12.266
RPE65, 6.342, 12.279
RSB. See Residual stromal bed
RT. See Radiation therapy
RT-PCR. See Real-time quantitative polymerase chain reaction
RTIA. See Retinal transient ischemic attack
rPA (recombinant tissue plasminogen activator). See Tissue plasminogen activator
Rubella
congenital (CRS), 8.240, 8.240t
  aphakia and, 4.117
  cataracts and, 11.38–39
  glaucoma and, 10.150t
description of, 6.410t, 6.410–411, 9.258–261
Rubella virus, 8.239, 8.240t. See also Measles
ocular infection caused by, 8.239, 8.240t
Rubebis iridis (iris neovascularization), 2.22, 2.72, 4.188, 4.189f
in diabetes mellitus, 4.159, 4.160f
  glaucoma and, 4.188, 10.32, 10.39, 10.132f,
  10.133, 10.133f, 10.135f. See also Neovascular glaucoma
  in children and adolescents, 10.149f
  incisional surgery contraindicated in, 10.198
  laser iridotomy contraindicated in, 10.191
  in retinoblastoma, 4.174, 4.174f, 4.292
Rubinstein-Taybi syndrome, congenital corneal keloids in, 8.107
Ruby laser. See Laser(s)
Ruiz procedure, 13.8t
“Rule-1” test, for accommodative control, 3.35
Run charts, 1.28, 1.30f
Rundel’s curve, 7.58, 7.58f
Rush disease, 12.177, 12.178t. See also Aggressive posterior retinopathy of prematurity (AP-ROP)
Russell bodies, 4.9
“Rust ring,” iron foreign body causing, 8.399, 8.400f
Ruthenium 106
for retinoblastoma, 4.301
for uveal melanoma, 4.275
RVF. See Rift Valley fever
RVO. See Retinal vein occlusion

S
S-100 protein, in immunohistochemistry, 4.33
in adenoid cystic carcinoma, 4.231
S-antigen, in experimental autoimmune uveoretinitis, 9.61
S-cone (blue-cone) monochromatism, 2.232t, 6.337–338, 12.46, 12.47f, 12.250, 12.250t
S cones, 2.312, 12.54
SA. See Sideroblastic anemia
SA node. See Sinoatrial (SA) node
Sabin’s tetrad, 9.277
Saccades/saccadic system, 5.32–33, 5.38, 5.212, 5.212t,
  5.219–223, 5.220f, 6.40
in diplopia, 5.186
dysfunction of, 5.221–223. See also Saccadic intrusions/oscillations
in internuclear ophthalmoplegia, 5.189
ocular motor apraxia and, 5.221, 5.222–223
in progressive supranuclear palsy, 5.214, 5.221
dysmetric saccades and, 5.222
hallucinations and, 5.175
hypermetric saccades and, 5.221, 5.222, 5.248, 5.248f
hypometric saccades and, 5.221, 5.222
inability to initiate/ocular motor apraxia, 5.221,
  5.222–223
velocity of, 5.219–220, 5.221
Saccadic initiation failure (ocular motor apraxia), 5.221, 5.222–223
Saccadic interval, intrusions and
  normal, 5.247–248, 5.248f
  not normal, 5.248f, 5.248–249
Saccadic intrusions/oscillations, 5.214, 5.221, 5.233,
  5.247–250, 5.248f
  intersaccadic intervals and
  normal, 5.247–248, 5.248f
  not normal, 5.248f, 5.248–249
macrosaccadic, 5.248, 5.248f
in multiple sclerosis, 5.319
ocular flutter and, 5.243f, 5.248, 5.248f, 5.249
voluntary flutter/”nystagmus” and, 5.249–250
Saccadic latency, 1.210
Saccadic (cogwheel) pursuit, 5.219, 5.224, 5.225, 5.226
Saccadic velocity, 6.73
Saccodomaina (opsoclonus), 5.248–249
in neuromyelitis optica, 5.322
Saccomanno fixative, for tissue preservation, 4.26t
Saccular (berry) aneurysm
description of, 5.338
subarachnoid hemorrhage caused by, 1.121
Saccule, 5.38, 5.39f, 5.214, 5.215, 6.40
Sacroiliitis, in reactive arthritis syndrome, 9.132
Saethre-Chotzen syndrome, 6.207, 6.208f
Safinamide, 1.205
SAG
Sagittal depth or vault, of contact lenses, 3.205, 3.215f,
  3.216
Sagittal plane, 7.27
Sagittal sinus
  inferior, 5.22f
Sagittal separation, posterior, 4.188
Sagittal surface, posterior, 4.188
Sagittal sulcus
  posterior, 4.188
Sagittal sinus
  posterior, 4.188
Sagittal sinus
  anterior, 4.188
Sagittal sinus
  posterior, 4.188
Sagittal vault, of contact lenses, 3.205, 3.215f,
  3.216
superior (SSS), 5.22, 5.22f
thrombosis in, 5.346
Sagittal suture, 5.5
SAH. See Subarachnoid hemorrhage
SAF. See Subarachnoid hemorrhage
SAL,F. See Subarachnoid hemorrhage
Saline solution, for contact lens, 3.229
Salisbury Eye Evaluation project, 11.6
Salivary glands
biopsy of, for Sjögren syndrome, 1.166
in Sjögren syndrome, 8.57, 8.58f
Salivary (salivary) nucleus
description of, 5.51f, 5.55, 5.276–277f
superior, 8.5f
Salmeterol, 1.128
Salmon patch
description of, 6.269
in syphilitic keratitis, 8.107, 8.308, 8.309f
Salmon- patch hemorrhage, 12.150, 12.150f
Salmon- patch subconjunctival lesion, 7.94f
Salmonella, 8.247
Salzmann nodular degeneration, 4.81, 4.82f, 8.124f, 8.124–125, 8.125f
Sampaolesi line
in pigment dispersion syndrome/pigmentary glaucoma, 10.94
in pseudoexfoliation/exfoliation syndrome, 10.39, 10.93
Sample size
evaluation of, 1.5
power and, 1.5
power calculations to determine, 1.26
Sandhoff disease, 2.204f, 6.389
Sanfilippo syndrome (MPS III A–D), 2.204f, 6.388f, 8.175f, 12.282f, 12.291
Sanger sequencing, 2.189
SAP . See Standard automated perimetry
Sarcoid granuloma/nodule, 5.126f, 5.327, 8.347
angiotensin-converting enzyme levels in, 9.198
anterior uveitis in, 9.195–196
biomicroscopic findings in, 9.196, 9.196f
chest radiograph findings in, 9.198
in children, 9.194–195
conjunctival involvement by, 9.195, 9.195f
conjunctivitis and, 4.52, 4.52f
corneal involvement in, 9.198
cranial nerve VII (facial) involvement and, 5.280, 5.327
definition of, 9.194
diagnosis of, 5.327–328, 9.197–198
early-onset, 9.194, 9.197
epidemiology of, 9.194
etiology of, 9.195
eyelid manifestations of, 4.207f
granulomas associated with, 9.195, 9.195f, 9.197f
histologic findings, 9.194, 9.194f
human leukocyte antigen association with, 9.65f
imaging of, 9.198
intraocular manifestations of, 5.327
laboratory tests for, 9.125f
neuro-ophthalmologic manifestations in, 5.327
optic nerve involvement and, 4.187, 4.245, 4.245f, 5.115, 5.126f, 5.327
panuveitis in, 9.194–199
posterior segment involvement in, 9.196–197
retinal vascular sheathing in, 9.197, 9.198f
treatment of, 5.327–328, 9.199
uveal tract affected in, 4.186–187
Sarcoidosis-associated uveitis, 9.148
Sarcoma, 4.10, 4.10f, 4.11f
Ewing, retinoblastoma associated with, 4.302f
granulocytic (chloroma), 4.316, 6.218
Kaposi. See Kaposi sarcoma
reticulum cell. See Primary central nervous system/intraocular/vitreoretinal/retinal lymphoma retinoblastoma associated with, 4.302, 4.302f
Satellite lesion, 6.409
Satellites, 2.177
Sattler layer, 2.76, 2.77f, 12.19
Sattler veil, 3.232
SBE. See Subacute bacterial endocarditis
SC. See Sickle cell hemoglobin C; Superior colliculus
SCA. See Superior cerebellar artery
Scanning, in ophthalmic examination, 8.20–24, 8.21f, 8.22f, 8.23f, 8.24f. See also specific type
Scanning laser ophthalmoscopy/ophthalmoscope (SLO), 3.282, 3.301–303
angiography versus, 12.24
blue excitation light used by, 12.31
choroidal nevi on, 12.24
description of, 3.301–303
digital resolution of, 12.24
ellipsoidal mirror in, 12.24
epiretinal membrane on, 12.334f
in optic nerve/nerve head/disc evaluation, 10.56
pseudodrusen on, 12.24
resolution of, 12.24
retinal disease evaluations, 12.24
wavelengths in, 12.24
Scanning laser polarimetry/polarimeter (GDx/SLP), 3.99, 3.303
in optic nerve/nerve head/disc evaluation, 10.56
Scanning-slit confocal microscope, 8.24. See also Confocal microscopy
Scanning-slit lasers, for photoablation, 13.30–31, 13.31
Scanning-slit technology, 8.35f
for corneal tomography, 13.19
for pachymetry, 13.45. See also Pachymetry/ pachymeter
with Placido disk–based topography, 8.34
Scanning training, 3.310, 3.325
Scaphocephaly, 6.205
Scars
keloid
congenital, 8.125
congenital, 8.107–108, 8.125
refractive surgery in patient with history of, 13.77
retinal, 4.17
wound repair and, 4.13, 4.14f
Scatter diagrams
description of, 1.28, 1.29f
for flow cytometry results, 4.37f
Scatter laser treatment/photocoagulation. See also Panretinal photocoagulation; Photocoagulation branch retinal vein occlusion treated with, 12.128–130
sickle cell retinopathy treated with, 12.155
vitreoretinal surgery for, 12.155
Scattering, of light
age-related increase in, 3.98
definition of, 3.96–97
geometric, 3.91, 3.97–98
Mie, 3.92, 3.97–98
Rayleigh, 3.92, 3.97
for slit-lamp biomicroscopy, 8.17f, 8.19
Tyn dall effect and, 3.97
Scavenging macrophages, 9.13
SCE. See Squamous cell carcinoma
SCD. See Schnyder corneal dystrophy; Sickle cell anemia/sickle cell disease; Sudden cardiac death
Seccosporium, 8.251
Schachar theory of accommodation, 13.160–162, 13.161f
Schaumann bodies, in sarcoidosis, 4.187
Scheie stripe, 10.94, 10.95
Scheimpflug principle, 3.282, 3.289
Scheimpflug camera systems
in corneal biomechanics evaluation, 8.43
for corneal tomography, 8.34, 8.34f, 8.35f, 8.35t, 13.19, 13.21f
in keratoconus, 8.165f, 8.165–166
description of, 3.248, 3.289
Scheimpflug principle, 3.282, 3.289
Scheiner, Christopher, 3.285
Scheiner disk, 3.285, 3.289
Scheiner principle, 3.282, 3.285, 3.286f
Schematic eye, 3.125–128, 3.126f, 3.127t, 3.128f
description of, 3.244f
reduced, 3.124, 3.126
Schietz (indentation) tonometry, 10.19, 10.26
Schirmer tests, 8.38–39, 8.57f
type I, 8.38–39
type II, 8.39
Schissis, macular, 12.328
Schizo-affective disorder, 1.195
Schizophrenia
antipsychotic drugs for, 1.200
description of, 1.194–195
drugs for (antipsychotic drugs), oculogyric crisis caused by, 5.231
Schizophreniform disorder, 1.195
Schlaegel lines, 12.225
Schlemm canal, 2.161, 4.98, 6.286, 6.286f, 10.5f, 10.13, 10.18, 10.18f
anatomy of, 2.61, 2.64
collector channels from, 2.64, 2.67f
endothelial lining of, 2.66f
gonioscopic visualization of, 10.38, 10.38f
juxtaocular trabecular meshwork and, 2.65f
schematic representation of, 2.67f
Schlichting dystrophy. See Posterior polymorphous corneal dystrophy
Schmidt sign, 2.232f
Schnabel, cavernous optic atrophy of, 4.246, 4.247f
Schnyder corneal dystrophy (SCD), 6.270, 6.387f, 8.135t, 8.136f, 8.145f, 8.151–152, 8.152f
crystalline form of, 8.151, 8.152f
hyperlipoproteinemia and, 8.151, 8.179
Schocket procedure, 10.214
School-aged children. See also Children
eye examination in, glaucoma and, 10.157, 10.157f
Schwabline, 2.55, 2.59f, 2.61, 2.63, 2.99, 4.97, 4.97f, 4.98f, 6.255, 8.9, 8.101, 10.33t, 10.34f, 10.36
gonioscopic appearance of, 10.33t, 10.34f, 10.36
prominent (posterior embryotoxon), 4.99, 4.99f, 4.100f, 8.97f, 8.101–102, 8.102f
in Axenfeld-Rieger syndrome, 4.99, 4.99f, 4.100f, 8.97t, 8.102, 10.31, 10.153
isolated, Axenfeld-Rieger syndrome differentiated from, 10.154f
Schwann cells, 2.157
Schwannoma (neurilemoma/neurinoma), 6.223
conjunctival/ocular surface, 8.345
of orbit, 4.238, 4.239f
of uveal tract, 4.199
vestibular, Bruns nystagmus and, 5.243
Schwannomin, 2.228
Schwartz (Schwartz-Matsuo) syndrome, 9.311, 10.109
Schwinger, Julian, 3.96
Scintigraphy. See Radionuclide scintigraphy and scans; specific type
Scintillating scotomata/scintillating scotoma with fortification spectrum. See also Scotomata in arteriovenous malformation, 5.343
in migraine headache, 5.161, 5.177, 5.290
in arteriovenous malformation, 5.343
in migraine headache, 5.161, 5.177, 5.290f, 5.290–291, 5.291
Scissors reflex, 3.159
sCJD. See Sporadic Creutzfeldt-Jakob disease
Sclera, 4.107f, 4.107–112, 4.108f, 4.113f, 5.17f. See also Episcleira
aging of, 4.111, 4.111f
anatomy of, 2.48, 2.48f, 2.56–59, 2.265f, 4.107f, 4.107–108, 4.108f, 5.17f, 12.20
avascular nature of, 2.57, 2.57f
bare, wound closure after pterygium excision and, 8.351, 8.353f, 8.353–355, 8.354f
recurrence rate and, 8.353f
biopsy of, indications for, 9.91
blue, 8.193f
in Ehlers-Danlos syndrome, 8.191f, 8.193
in keratoglobus, 8.171
in Marfan syndrome, 8.194
in osteogenesis imperfecta, 8.194, 8.194f
collagen fibers of, 2.58–59
composition of, 2.265f
congenital anomalies of, 4.108–109, 8.95–109, 8.96–98
degenerations of, 4.111f, 4.111–112, 4.112f, 8.128, 8.129f
development of, 2.162
disorders of, 4.107–112, 4.113f, 8.46f. See also Episcleitis; Scleritis; specific type
common clinical findings in, 8.46f
immune-mediated, 8.318–326
ionizing radiation causing, 8.386
neoplastic, 4.112, 4.113f
edema, hyperemia in, 9.117
emissaria of, 2.58
episcleral vessels of, 2.57, 2.57f
in glaucoma, 10.31
healing/repair of, 4.16
immunologic microenvironment of, 9.52f
indentation of, 12.310f
infection/inflammation of, 4.109–110, 4.110f, 4.111f, 8.282–283, 8.283f. See also Episcleritis; Scleritis
laceration/penetrating wound of, 12.359. See also Corneoscleral lacerations
magnetic resonance imaging of, 2.459f
melanoma involving, 4.194, 4.195f
in pathologic myopia, 12.20, 12.216
perforation of, repair of. See Corneoscleral lacerations
permeability of, 12.20
pigment spot of, 8.338
infection/inflammation of, 4.109–110, 4.110f, 4.110–112, 4.110f
indentation of, 12.310
necrotizing, 4.110–112, 4.110f
perforation of, repair of. See Corneoscleral lacerations
posterior, 12.351, 12.351f
posterior, 12.351, 12.351f
pigment spot of, 8.338
infection/inflammation of, 4.109–110, 4.110f, 4.110–112, 4.110f
indentation of, 12.310
necrotizing, 4.110–112, 4.110f
perforation of, repair of. See Corneoscleral lacerations
permeability of, 12.20
pigment spot of, 8.338
rupture of, 2.57, 12.352, 12.358f
pigment spot of, 8.338
infection/inflammation of, 4.109–110, 4.110f, 4.110–112, 4.110f
indentation of, 12.310
necrotizing, 4.110–112, 4.110f
perforation of, repair of. See Corneoscleral lacerations
permeability of, 12.20
pigment spot of, 8.338
rupture of, 2.57, 12.352, 12.358f
stoma of, 2.58, 4.107f, 4.107–108, 4.108f
surgical perforation of, 6.30, 6.170
thickness of, 12.20, 12.216
thickness of
in infectious uveitis, 9.96
from primary congenital glaucoma, 6.283
in scleritis, 8.321–322, 8.323
topography of, 4.107f, 4.107–108, 4.108f
traumatic injuries to, 12.352, 12.358f
uveal attachment to, 2.66
incidence of, 9.117–124
mortality rates for, 9.119
vision loss risks, 9.128
rhegmatogenous retinal detachment, 12.324,
12.398–400, 12.399f
Scleral contact lenses. See also Contact lenses, scleral
for dry eye, 8.61f, 8.63
for graft-vs-host disease, 8.304, 8.305f
for limbal stem cell deficiency, 8.94
Scleral expansion bands, for presbyopia, 13.162,
13.163f
Scleral-fixated posterior chamber intraocular lenses
after ICCE, 11.200
insertion of, 11.116–117
after keratoplasty, 11.176
ocular trauma and, 11.193
uveitis and, 11.188
Scleral fixation, 12.393
Scleral flap, for trabeculectomy, 10.200–201, 10.203f
closure of, 10.202–204, 10.205f
management of, 10.207–208
Scleral grafting, for scleritis, 9.127, 9.128f
Scleral plaques
senile (Cogan), 8.128, 8.129f
senile/senile calcific, 4.111, 4.111f
Scleral spur, 2.159f, 4.97–98, 4.98f, 6.181, 10.33f, 10.34f, 10.36
anatomy of, 2.59f
cells of, 2.62
formation of, 2.161
Scleral sulcus, internal, 2.61, 4.98
Scleral support ring, for ICCE, 11.199
Scleral surgery. See also specific procedure
for presbyopia, 13.162–163, 13.163f
Scleral tunnel incisions, for cataract surgery, 11.107f,
11.107–108
after radial keratotomy, 11.177, 13.53
Sclerectomy, for glaucoma, deep (nonpenetrating),
10.217–219
Scleritis, 4.109–110, 4.110f, 4.111f, 7.68, 8.282–283,
8.283f, 8.319–326, 8.320f, 8.320f, 8.321f, 8.322f,
8.323f, 8.324f, 8.325f
anterior, 8.320, 8.320f, 8.320f, 8.321f
diffuse, 9.116, 9.118
nodular, 9.116, 9.118–119, 9.119f
subtype of, 9.116f
bisphosphonates and, 1.190
brawny, 4.110, 4.110f
infectious uveitis, 9.120–121
surgically induced (SINS), 8.282
after cataract surgery, 11.170–171
infectious
after radial keratotomy, 11.177, 13.53
after cataract surgery, 11.170–171
classification of, 9.115–116, 9.116f
clinical presentation of, 8.319–323, 8.320f, 8.320f,
complications of, 8.323
methylprednisolone for, 9.126–127
diffuse anterior, 8.320, 8.320f, 8.321f, 8.325f
epidemiology of, 9.117
episcleritis versus, 9.117
in herpes zoster, 8.227, 8.282
hyperemia in, 9.117, 9.117f
immune-mediated, 8.319–326, 8.320f, 8.320f,
8.321f, 8.322f, 8.323f, 8.324f, 8.325f
immunomodulatory therapy for, 9.126
incidence of, 9.117
infectious
actinomycetes as cause of, 9.119f
clinical presentation of, 9.124
description of, 8.282–283, 8.283f, 9.116
microbiological examination for, 9.125
pathophysiology of, 9.123–124
treatment of, 9.127
vision loss risks, 9.128
laboratory evaluation of, 8.323–324, 8.324f
management of, 8.324–326, 8.325f
manifestations of, 9.115
methylprednisolone for, 9.126–127
necrotizing, 4.110, 4.110f, 8.46f, 8.320f, 8.320–322,
8.321–322f, 8.325f
anterior, 9.118f
clinical presentation of, 9.118f, 9.119–122
delayed hypersensitivity response in, 9.116
description of, 9.115
granulomatous, 9.120f, 9.120–121
with inflammation, 8.320f, 8.320–321, 8.321f,
9.120–121, 9.120–121f
laboratory tests for, 9.124
mortality rates for, 9.119
pathophysiology of, 9.116
postsurgical, 9.121
surgically induced (SINS), 8.282
vaso-occlusive, 9.120, 9.121
vision loss risks, 9.128
without inflammation (scleral perforation), 4.110, 8.320t, 8.292–322, 8.322f, 9.121–122, 9.123t
nodular anterior, 8.320, 8.320t, 8.321f, 8.325t, 9.116, 9.118–119, 9.119f
noninfectious, 9.116
nonnecrotizing, 4.110, 8.46t
nonsteroidal anti-inflammatory drugs for, 9.126
pain and, 5.295, 8.319, 8.320, 8.322
pathogenesis of, 8.319
pathophysiology of, 9.116
posterior, 8.319, 8.320t, 8.322f, 8.322–323
B-scan ultrasonography for, 9.124
clinical presentation of, 9.123
optical coherence tomography of, 9.123f
spectral-domain optical coherence tomography of,
9.124–125
subtype of, 9.116t
vision loss risks, 9.128
prognosis for, 9.127–128
ciliary grafting for, 9.127, 9.128f
staphylomas and, 4.110, 4.111f, 4.112, 8.322
subtypes and prevalence of, 8.319, 8.320t
surgical treatment of, 9.127
systemic diseases associated with, 9.115
topical therapy for, 9.126
treatment of, 9.126–127
ultrasonography in identification of, 5.95
vision loss risks, 9.128
Sclerocornea, 6.257, 8.98, 6.260, 8.98t, 8.100, 8.105
scleral flap and, 8.96f, 8.98t, 8.100, 8.105
in Peters anomaly, 4.74, 4.75f
Scleroderma. See Systemic sclerosis
Sclerokeratitis, 8.323
Scleromalacia perforans, 4.110, 8.320t, 8.321–322, 8.322f, 9.121–122, 9.123f
Sclerosants
for distensible venous malformations, 7.75
for lymphatic malformations, 7.74
Sclerosis (morpheaform) basal cell carcinoma,
4.212–213, 4.213f. See also Basal cell carcinoma
Sclerosing non-specific orbital inflammation, 7.70.
See also Non-specific orbital inflammation
Sclerosis
multiple. See Multiple sclerosis
nuclear, 11.43, 11.45f, 11.48f, 11.50f
smoking and, 11.6–7
systemic. See Systemic sclerosis
tuberous (TS/Bourneville disease/syndrome), 5.330, 5.333f, 5.334f
glaucoma associated with, 10.30
Sclerotic (gliotic) lesions, in multiple sclerosis, 5.316, 5.316f
Sclerotic scatter, 3.292–293, 3.293f
for slit-lamp biomicroscopy, 8.17f, 8.19
Sclerotomy
anterior ciliary (ACS), for presbyopia, 13.162
for suprachoroidal hemorrhage, 11.160
Sclerouveitis, 9.70
SCLO. See Confocal scanning laser ophthalmoscopy/ophthalmoscope
Sclerotectasia, 4.22
chorioretinitis, 4.22
Scopolamine hydrobromide, 2.380t
Scotomas. See also Scotoma
absolute, 12.327
central, 12.86, 12.265
central suppression, 4A base-out prism test for, 6.79
foveal-sparing, 3.314, 3.315f
paracentral, 12.228, 12.367
pictorial representation of, 3.318f
retinoschisis as cause of, 12.327
suppression
description of, 6.49
4A base-out prism test for, 6.79
Worth 4-dot test for, 6.80f, 6.80–81
variations in, 3.317
vision rehabilitation and, 3.317
Scotoma, 5.105f
arcuate (Bjerrum), 5.103, 5.105f, 5.106f, 10.68, 10.68f
in arteriovenous malformation, 5.343
arteriovenous malformations causing, 5.291, 5.343
centrifugal, 5.105f, 5.106f
central, 5.103, 5.105f, 5.106f
in glaucoma, 10.68, 10.68f, 10.70f, 10.86
“junctional,” 5.146–147, 5.148f, 5.151f
in migraine aura without headache, 5.291
in migraine headache, 5.161, 5.171–172, 5.177, 5.290f,
5.290–291, 5.291
as nonorganic disorders, 5.306–308, 5.307f, 5.308f, 5.309f
papillomacular fiber lesions causing, 5.103, 5.106f
peripheral, 5.105f
physiologic (blind spot), 5.24
cortical area corresponding to, 5.29f
enlargement of, 5.103, 5.106f
acute idiopathic (AIBSE), 5.100–101, 5.101f
systemic hypoperfusion causing, 5.157–158, 5.159f
Scopotic spectral luminous efficiency function, 3.109
Scrapie, 5.357
Scrapping, for specimen collection, 8.210
Screen reading, 3.323, 3.324f
Screening. See also specific test or disorder
for atherosclerosis, 1.215
for bladder cancer, 1.221
for breast cancer, 1.215–217, 1.216t
for cancer, 1.215–221
for cervical cancer, 1.216
for colorectal cancer, 1.218–219
for coronary heart disease, 1.215
costs of, 1.214
for depression, 1.189
for endometrial cancer, 1.216t
for gastric cancer, 1.219
for gastrointestinal cancer, 1.219–220
for glaucoma, 1.184
for hypertension, 1.214
for infectious diseases, 1.222–223
for lung cancer, 1.216f, 1.220
for melanoma, 1.216–218
for pancreatic cancer, 1.220
for prostate cancer, 1.216t, 1.221
relative risk of, 1.213
sensitivity of, 1.15–16, 1.17f, 1.214
specificity of, 1.15–16, 1.17f, 1.213
for syphilis, 1.222–23
for tuberculosis, 1.222
for urologic cancer, 1.221
Sculpting, in phacoemulsification, settings for, 1.111
Scurf, in seborrheic blepharitis, 8.289f, 8.291f
Scurvy, 1.140
SD-OCT. See Spectral-domain optical coherence tomography
SDH. See Shape-discrimination hyperacuity
SE (spin echo) technique, 5.62, 5.75
Sea-blue histiocytosis syndrome (chronic Niemann-Pick disease), 12.291. See also Niemann-Pick disease
Sea fan neovascularization, 12.151, 12.153
Secondary diagnosis position of gaze, 6.31
Secondary deviation versus, 6.115
Secondary deviation
definition of, 6.39
primary deviation, 6.115
Secondary glaucoma. See Angle-closure glaucoma, secondary; Glaucoma; Open-angle glaucoma, secondary
Secondary hypercoagulable states, 1.146, 1.148
Secondary hypertension causes of, 1.53–54, 1.55f
in children, 1.68
laboratory tests for, 1.55
Secondary hypothyroidism, 1.45
Secondary immune response, 9.37–38
Secondary lens fibers, development of, 11.27f, 11.27–28
microspherophakia and, 11.33
Secondary lipid keratopathy, 8.125, 8.126f
Secondary megalocornea, 6.254
Secondary aphakia, 4.117f, 11.30
Secondary anophthalmia, 7.35
Secondary acquired melanosis, 4.65–66
Secondary antipsychotics, 1.199, 1.200
Secondary apathy, 1.212
Secondary benign intracranial hypertension, 11.111
Secondary bone tumors, 2.280
Secondary burn injuries, 2.231–232
Secondary corneal apex, 3.272
Secondary cranial nerve. See also Cranial nerves
Secondary data, 1.11
Secondary detachment, 11.11
Secondary deviation, 5.230
Secondary diabetic retinopathy, 12.266
Secondary diagnosis position of gaze, 6.31
Secondary deviation versus, 6.115
Second- order wavefront aberrations, 3.276f
Second- order neuron, 5.52, 5.53
Second- order aberrations, 13.11, 13.11
Second- order aberrations, 5.260, 5.261f
Second- order aberrations, 5.260f, 5.261f
Second- order aberrations, 3.276f
Second- order aberrations, 5.154, 5.154
Second cranial nerve. See also Cranial nerves
Second cranial nerve. See also Optic nerve
Secondary csf abnormality, 1.199
Secondary data, 1.11
Secondary data, 1.11
Secondary deviations, 11.31
Secondary deviation, 5.230
Secondary deviation, 11.11
Secondary deviation, 5.230
Secondary deviations, 11.31
Secondary deviation, 5.230
Secondary deviations, 11.31
Secondary deviations, 11.31
Secondary deviations, 11.31
Secondary deviations, 11.31
Secondary deviations, 11.31
Self-sealing incision, for cataract surgery, 11.118
   beveled/biplanar, clear corneal incision and, 11.106f,
   11.106–107
Self-tolerance, 9.34
Sella turcica, 2.106
Semi-scleral contact lenses, 3.227
Semicircular advancement flaps, for lower eyelid defects, 7.224
Semicircular canals, 6.40
   hair cells of, 5.38, 5.39f
   vestibular-ocular reflex and, 5.214–215
   peripheral vestibular nystagmus and, 5.215, 5.216,
   5.241, 5.242
Semicircular flap, for lower eyelid defects, 7.223f
Semilunar ganglion (gasserian/trigeminal ganglion), 2.131, 5.42f,
   5.48, 5.48f
   herpes simplex/varicella zoster virus latency and,
   8.205, 8.207, 8.212, 8.213, 8.226
Senile furrow degeneration, 8.122
Senile lentigo, 7.197
Senile macular degeneration. See Age-related macular
degeneration/maculopathy
”Senile” ptosis, 5.273
   See Senile macular degeneration.
Senile macular degeneration. See Age-related macular
degeneration/maculopathy
Senile macular degeneration. See Age-related macular
degeneration/maculopathy
“Senile” ptosis, 5.273
Senile/senile calcific/Cogan plaques, scleral, 4.111,
   8.128, 8.129f
Senior- Løken syndrome, 6.391
Sensation, in cornea, 8.8
   esthesiometry in evaluation of, 8.42–43
   reduction/absence of
   congenital, 8.108
   in herpes simplex epithelial keratitis, 8.217–218,
   8.226f
   in herpes zoster, 8.226f, 8.228
   keratoplasty and, 8.418, 8.424
   in neurotrophic keratopathy/per sistent corneal
   epithelial defects, 8.80, 8.224
Sensitivity, of diagnostic and screening test, 1.15–16,
   1.17f
Sensitivity threshold, in perimetry, 5.86. 5.87f, 5.91.
   See also Threshold stimulus/testing (perimetry)
Sensocaine. See Bupivacaine
Sensory adaptation testing
afterimage test, 6.79, 6.79f
   amblyoscope testing, 6.79–80
Bagolini lenses, 6.77f, 6.77–78
   description of, 6.75
   4Δ base-out prism test, 6.78f, 6.78–79
   red-glass test, 6.75–76, 6.76f
   Worth 4-dot test, 6.80f, 6.80–81
Sensory binocularity, 6.75
Sensory esotropia, 6.93–94
Sensory exotropia, 6.104
Sensory fusion, 6.43
Sensory nucleus, of cranial nerve V (trigeminal), 5.47,
   5.47f
Sensory nystagmus, 6.187
Sensory pathways, 5.47f, 5.47–49, 5.48f. See also Cranial
   nerve V
Sentinel bleed, before aneurysm rupture, 5.340
Sentinel lymph node (SLN) biopsy
   in conjunctival/ocular surface melanoma, 8.344
   for melanoma, 7.210
   for sebaceous carcinoma, 7.208
Sentinel T cells, 9.5
Sentinel vessels, 4.68, 4.69f, 4.262, 4.263f, 9.125, 10.31
Sepsis
   bacterial, pathophysiologic responses to, 9.7
   lipopolysaccharide in, 9.7
Septicemia
   keratoconjunctivitis caused by, 8.280
   Septate filamentous fungi, 8.249, 8.249f, 8.250f, 8.251.
   See also Filamentous fungi; Fungi
Septic emboli, 12.141
Septic shock, 1.301
Septic thrombosis
   cavernous sinus, 5.345
   orbital infection/cellulitis and, 5.345
   lateral (transverse) sinus, 5.345
Septo-optic dysplasia (de Morsier syndrome), 5.143–144, 6.361, 6.363f
Sequence, 6.183
Sequencing, DNA, next-generation (NGS/massively parallel), 4.39f
Seroconversion conjunctivitis, in HIV infection/AIDS,
   8.240f, 8.241
Serologic tests. See specific type
Seronegative spondyloarthropathies. See also
   Spondyloarthropathies/spondyloarthritis; specific
   type
   acute anterior uveitis associated with, 9.131–134,
   9.133–134f
   ankylosing spondylitis. See Ankylosing spondylitis
   definition of, 9.131
   Serotonin modulators, 1.203
   Serotonin-norepinephrine reuptake inhibitors, 1.203
   Serous choroidal detachment, melanoma differentiated
   from, 4.270–271
   Serous pigment epithelial detachment, 12.72–73, 12.74f
   Serous retinal detachment
   description of, 6.362
   in intraocular lymphoma, 12.234
   MEK inhibitors as cause of, 12.299
   tubercular multifocal choroiditis with, 9.236f
Serpiginous choroiditis
   acute posterior multifocal placoid pigment
   epiphielopathy versus, 9.171
   characteristics of, 9.162–164t
   course of, 9.175
   definition of, 9.174
   fluorescein angiography findings in, 9.163t, 9.175f
   fundus autofluorescence in, 9.163f, 9.176f
   imaging of, 9.174f
   indocyanine green angiography findings in, 9.163t,
   9.175
   manifestations of, 9.174–175
   multifocal, 9.177
   optical coherence tomography findings in, 9.164t,
   9.175, 9.176f
   retinal pigment epithelium findings in, 9.175
   treatment of, 9.176–177
   Serpiginous choroidopathy, 12.220f, 12.222–223, 12.223f
   Serpiginous-like choroiditis, 9.177, 9.236, 9.237f
   Serratia
   description of, 8.247
   marcescens, 1.251
   Serum, 1.131
Serum drops
  for dry eye, 8.61f, 8.63
  for neurotrophic keratitis/persistent corneal epithelial defects, 8.81, 8.224
  for superior limbic keratoconjunctivitis, 8.84
Sessile papillomas, conjunctival, 4.60
Setting sun sign, 5.231
Seventh cranial nerve. See Cranial nerve VII
Seventh nerve (facial) palsy. See Facial paralysis/weakness
Sex chromosomes
  See Seventh cranial nerve.
Setting sun sign, 5.231
Sessile papillomas, conjunctival, 4.60
SF6.
  See Seventh nerve (facial) palsy.
Setting sun sign, 5.231
Shiga toxin-producing
  See also Shigella, 8.207, 8.247
Shattuck’s superficial episcleral venous plexus, 12.335
Shield ulcer, 6.248, 6.249f
Shh, 2.166
Sherrington’s law of reciprocal innervation, 6.33
Sheehan syndrome (pituitary apoplexy), 1.49, 5.149, 5.150f
Shape-discrimination hyperacuity (SDH), 12.69
Shallow anterior chamber.
  See also Shallow anterior chamber.
Shagreen patch, in tuberous sclerosis, 5.334t
Shagreen, crocodile, 8.121
Shaffer gonioscopic grading system, 10.37f
Shafer sign, 12.320, 12.348
SFU.
  See Sulfur hexafluoride
Shiga toxin- producing
  See Shigella, 8.207, 8.247
shH, 8.290, 8.291f
Shield ulcer, 6.248, 6.249f, 8.290, 8.291f
Shiga toxin-producing Escherichia coli, 1.142
Shigella, 8.207, 8.247
  invasive capability of, 8.207
Shimmering, electroretinography findings in, 12.46
Shingles. See Herpes zoster
Shingrix, 1.227
Shock. See also specific type
  assessment of, 1.300
  classification of, 1.300–301
  definition of, 1.300
  respiratory gas exchange failure in, 1.301
  treatment of, 1.300–301
Short arm 11 deletion syndrome (11p13 syndrome/
PAX6 gene mutation), 2.225–226
in aniridia, 4.184, 10.150, 11.33
Short ciliary arteries, 2.22, 2.23f, 2.120f, 5.13f, 5.14f,
  5.15–17, 5.17f
  optic nerve supplied by, 10.44, 10.45f, 10.45–46
Short ciliary nerves, 2.16, 2.76, 5.55f
  Adie tonic pupil and, 5.263, 5.264, 5.264f, 5.265
Short interfering RNA (siRNA), 2.198
Short interspersed elements (SINEs), 2.177
Short-lasting unilateral neuralgiform headache attacks
  with conjunctival injection and tearing (SUNCT),
  5.289f, 5.294
Short posterior ciliary artery, 2.24f
Short posterior ciliary nerves, 7.12f
Short tau inversion recovery (STIR) technique, 5.62–65,
  5.63f, 5.75
Short-wave length automated perimetry (SWAP), 10.75
Short-wave length sensitive cones. See S cones
SHRM. See Subretinal hyperreflective material
Shunting, for idiopathic intracranial hypertension, 6.371
Shunting surgery.
  for glaucoma, 10.213–217, 10.214f, 10.218f, 10.219–
  220. See also Tube shunts
  for idiopathic intracranial hypertension, 5.112, 5.113
Sialic acid, in microbial adherence, 8.207
Sialidases
  description of, 6.388f
  dysmorphic (ML I), 8.178
Sickle cell anemia/sickle cell disease (SCD), 1.135–136,
  2.214
  hyphema/elevated intraocular pressure and, 8.395,
  8.395f, 8.396, 10.104, 10.105
  ophthalmic manifestations of. See also Sickle cell
  retinopathy
  traumatic hyphema and, 8.395f, 8.396
  elevated intraocular pressure and, 8.395, 8.395f,
  8.396
  surgery for, 8.395, 8.395f, 8.396
  proliferative sickle cell retinopathy complications in,
  12.150
Sickle cell hemoglobin C disease (SC)
  ocular findings in, 12.153f
  proliferative sickle cell retinopathy complications in,
  12.150
Sickle cell hemoglobinopathies, 2.229
  description of, 12.149
  incidence of, 12.149f
  ocular abnormalities in, 12.154
  racial predilection of, 12.149, 12.154
Sickle cell retinopathy
  hyphema/elevated intraocular pressure and, 10.104,
  10.105
  management of, 12.154–155
  nonproliferative
    branch retinal artery occlusions in, 12.152f
    characteristics of, 12.149–150
    imaging of, 12.150–12.152f
    retinal arteriolar occlusions in, 12.151f
    salmon-patch hemorrhage in, 12.150f
  proliferative
    complications of, 12.150
    proliferative diabetic retinopathy versus, 12.151
    scatter photocoagulation for, 12.155
    sea fan neovascularization associated with, 12.151,
    12.153f
    stages of, 12.150–151
    retinal detachment secondary to, 12.155
    scatter photocoagulation for, 12.155
    thalassemia as cause of, 12.149
Sickle cell trait/disease, 6.378
Sideroblastic anemia (SA), 1.137
Siderosis/siderosis (hemosiderosis) bulbi
  corneal deposits/pigmentation in, 8.118f
  description of, 4.103, 4.120, 11.58f, 11.58–59, 12.362,
  12.363f
  glaucoma and, 4.103, 10.103
Siegrist streaks, 12.123, 12.198
Siepser slipknot technique, for IOL decentration,
  8.395, 8.395f, 8.396
Sieckin effect, 3.139
Siegel’s syndrome, 6.388t
Sleep apnea.
  description of, 5.163
  with sleep disordered breathing, 5.163
Sleep apnea syndrome.
  description of, 5.163
  with sleep disordered breathing, 5.163
Sleep spindle, 3.139
Sleep spindles, 3.139
Sleeping sickness.
  description of, 3.315
SINEs.
See

Silver nitrate, for gonorrheal ophthalmia neonatorum,
Silver compounds, corneal deposits of/pigmentation
Silodosin, intraoperative floppy iris syndrome and,
Silicone rods, in frontalis suspension surgery, 7.251
Silicone plugs, for dry eye, 8.64–65, 8.65
Silicone oil, 2.360
Silicone foldable intraocular lenses, 11.120.
See also
Silicone foldable intraocular lenses
IOL opacification and, 11.83, 11.120, 11.190
IOL induced anisoptoria corrected using, 3.189–190

Sine-atrial (SA) node, in cardiac rhythm, 1.101
SINS. See Surgically induced necrotizing scleritis
Sinus(es). See
Sinus thrombosis
cavernous (CST), 5.345, 6.214, 7.48, 7.51
orbital infection/cellulitis and, 5.345
lateral (transverse), 5.69f, 5.345–346
superior sagittal, 5.346
Sinusitis
allergic aspergillosis, 5.353
in ethmoid sinus, 7.20
orbital cellulitis and, 7.46
paranasal, 6.213, 6.214f
sinus surgery for, 7.47
siRNA. See Short interfering RNA
Sirolimus, 2.405
SITA. See Swedish interactive thresholding algorithm
SITA Fast, 10.61
SITA Standard, 10.61, 10.62
SITE. See Systemic Immunosuppressive Therapy for Eye Diseases Cohort Study
Sixth cranial nerve. See Cranial nerve VI
Sixth nerve (abducens) palsy, 5.189, 5.200f, 5.200–201
carotid-cavernous fistula and, 5.201, 5.205–206
cavernous sinus thrombosis and, 5.345
in cryptococcosis, 5.356
description of, 6.95–97, 6.96f, 6.140, 6.176
diplopia and, 5.189, 5.200f, 5.200–201
divergence insufficiency/paralysis and, 5.200
isolated, 5.200, 5.201
lateral (transverse) sinus thrombosis and, 5.345–346
in Möbius syndrome, 6.135
multiple sclerosis and, 5.318
Sjögren syndrome (SS)
aqueous tear deficiency/dry eye and, 8.39, 8.55f, 8.56–58, 8.58f
cataract surgery in patient with, 8.39, 8.55f, 8.56–58, 8.58f
corneal melting/keratolysis and, 11.132
description of, 1.161, 1.166–167, 8.56–58, 8.58f
peripheral ulcerative keratitis and, 8.312
Sjögren Syndrome Foundation, 8.53
SJS. See Stevens-Johnson syndrome
SJS/SJS-TEN. See Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis)
overlap and toxic epidermal necrolysis)
SK. See Superficial keratopathy
Skeletal disorders. See also Connective tissue disorders
corneal changes in, 8.190–196, 8.191–192f, 8.193f, 8.194f, 8.195f, 8.195f
Skew, of retinal reflex, 3.156, 3.157f
Skew deviation, 5.216–217, 6.125
alternating, 5.216
fourth nerve (trochlear) palsy differentiated from, 5.198–199, 5.216
Skt.
Slow, nonorganic disorder evaluation and,
5.308
Silicono foldable intraocular lenses, 11.120. See also
Foldable intraocular lenses
Induced anisophoria corrected using, 3.189–190
leucoma for, 8.65f. See also
Lacrimal plugs
Silicone rods, in frontalis suspension surgery, 7.251f
Silicone stent, for intubation.
See
Silicone (physiologic/essential) anisocoria, 5.256f
Silicone (diffuse injection) episcleritis, 4.109, 8.318f
Silicone (simple diffusion) glucose transport into lens and, 11.17f
Silicone (simple [diffuse injection]) cysts of, orbit, 4.223–224. See also
Epithelial cysts
Silicone (simple hyperopic astigmatism, 5.102
Silicone (simple limbal epithelial transplantation (SLET), 8.356
Silicone (simple limbal epithelial transplantation (SLET), 8.356
Silicone (simple limbal epithelial transplantation (SLET), 8.356
Silicone (simple myopic astigmatism, 5.102
Silicone (simple partial seizures, 1.206–207
simple myopic astigmatism, 3.138, 3.138f
simple myopic astigmatism, 3.138, 3.138f
Simple pedicle flap, 8.359f, 8.359–360
Single-photon emission computed tomography (SPECT), 2.454, 5.70
in coronary heart disease diagnosis, 1.88
epilepsy diagnosis using, 1.207
Single vision reading glasses with lowered optical centers, 5.216–217
Single lens, 2.238
Single-lens electroretinogram, in
cone dystrophies, 5.102
Single base-pair mutations, 2.183
Single-base pair mutations, 2.183
Single-cell analysis

Skeletal disorders. See also Connective tissue disorders
corneal changes in, 8.190–196, 8.191–192f, 8.193f, 8.194f, 8.195f, 8.195f
Skew, of retinal reflex, 3.156, 3.157f
Skew deviation, 5.216–217, 6.125
alternating, 5.216
fourth nerve (trochlear) palsy differentiated from, 5.198–199, 5.216
SMILE. See Small-incision lenticule extraction

Sodium balance, in lens, pump-leak theory of maintenance of, 11.21, 11.22f
Sodium bicarbonate. See Bicarbonate
Sodium borate transporter, member 11 (SLC4A11) gene, in congenital hereditary endothelial dystrophy, 8.136f
Sodium chloride, 2.443
Sodium citrate, for chemical injuries, 8.383
Sodium fluorescein. See Fluorescein
Sodium hyaluronate, as viscoelastic, 11.95
Sodium hyaluronate/viscoelasticity
Sodium hydroxide (NaOH), ocular injury caused by, 8.376f
Sodium nitroprusside, 1.64
Sodium-potassium pump (Na⁺,K⁺-ATPase)
in aqueous humor secretion/suppression, 10.16–17 cold affecting, 8.385 corneal hydration and, 8.9 description of, 2.287, 2.307, 2.324 in Fuchs endothelial corneal dystrophy, 8.156 in lens active transport, 8.136f in lens transpant, 11.21 pump-leak theory and, 11.21, 11.22f
Sodium restriction congestive heart failure managed with, 1.100 hypertension managed with, 1.58f
Soemmering ring lens remnant/Soemmering ring cataract, 4.121, 4.122f, 11.152
Solar lentigo, 7.197–198, 7.198f, 7.200
Solar retinopathy. See Solar retinopathy
Solar retinopathy, 12.277, 12.367, 12.368f
Solexa technology, in next-generation sequencing. See Next-generation sequencing
Solid-state laser. See also Laser(s)
for photoablation, 13.29. See also Photoablation
Solitary fibrous tumor, 7.89, 7.90f
of orbit, 4.235, 4.235–236
Soluble guanylate cyclase activators, 1.64
Soluble proteins, in vitreous, 2.298
Soluble vascular endothelial growth factor receptor 1, 1.280
Solutes
low-molecular-weight, in vitreous, 2.298–299
pump–leak hypothesis of, in lens, 2.288f
Solutions, contact lens, 3.229, 3.229–230
t
Solutes
Solute carrier family 4, in congenital hereditary
endothelial dystrophy, 8.136t
Solutes
See Suborbicularis oculi fat
Sorbitol/sorbitol pathway
in cataract formation, 11.19, 11.60
description of, 2.289, 2.291
in lens glucose/carbohydrate metabolism, 11.18f, 11.19
Sorsby macular dystrophy, 12.19
Spectacle blur, 3.233
Spectacle lenses (spectacles). See also Lenses
absorptive. See Sunglasses
accommodation affected by, 3.178
accommodative demand through, 3.210t
anisometropia correction with, 3.139
antireflection coatings on, 3.103, 3.104f
aphakia correction using, 3.191f, 3.191–192
contact lenses versus, 3.206, 3.216t
convergence affected by, 3.178, 3.212f
cylindrical correcting. See Cylindrical lenses
dissatisfied wearers of, troubleshooting of, 3.198–199
glass, 3.195
history of use of, refractive surgery evaluation and,
13.38
for hyperopia, 3.211, 3.212f
materials for, 3.194–196
for myopia, 3.211, 3.212f
optical centers of, 3.198
prescription for, 3.198
prism incorporation into, 3.197, 3.285. See also Prism(s)
standard plastic, 3.195
Spectacle telescope, 3.322f
Spectrin, for gonococcal conjunctivitis, 8.259
Spectral bandwidth, coherence length and, 3.102, 3.103
Spectral-domain optical coherence tomography
(SD-OCT), 3.304, 8.22
adult-onset vitelliform maculopathy on, 12.67–68,
12.68f
alkyl nitrite findings, 12.300, 12.300f
Best disease on, 6.342, 6.343f
central retinal artery occlusion on, 12.144f
chloroquine toxicity monitoring uses of, 12.297
choroidal neovascularization on, 12.73–75, 12.75f
commotio retinae on, 12.353
diabetic macular edema on, 12.109f, 12.125
drusen on, 12.64f, 12.65
epiretinal membranes on, 12.335f
gaucher disease on, 12.291
juvenile retinoschisis on, 6.344, 6.344f
for multiple evanescent white dot syndrome, 9.188,
9.188f
in optic nerve/nerve head/disc/retinal nerve fiber
layer evaluation, 10.54–56, 10.55f, 10.56f, 10.57f,
10.58f
pathologic myopia on, 12.90f
for posterior scleritis, 9.124–125
Spheroidal degeneration (actinic/climatic droplet/ Labradord keratopathy), 4.83, 4.83f, 8.115–117, 8.116f
Spherophakia, 6.305
Spherule, 2.85
Splicer muscle (iris), 4.182, 4.182f
damage to, 4.18
Adie tonic pupil and, 5.256f, 5.263, 5.263f
anisocoria and, 5.256f, 5.262–263
cataract surgery in patient with, 11.191
in Horner syndrome, 5.258
pupil irregularity and, 5.255
traumatic mydriasis and, 8.388, 8.389f
innervation of, 5.52, 5.55
mydriatics affecting, 5.263
Sphingolipidoses, 8.176–178
corneal changes in, 8.176–178, 8.177f
Sphingomyelin, 2.284
SPIKES Healthcare Model of Communication, 3.326f
Spin echo (SE) technique, 5.62, 5.75
Spin-lattice (longitudinal) relaxation time (T1), 5.62,
5.63f, 5.76
Spin–spin (transverse) relaxation time (T2), 5.62, 5.63f,
5.76
Spinal cord lesions, Horner syndrome and, 5.260t
Spinal nucleus and tract, of cranial nerve V (trigeminal),
5.47, 5.47f
Spindle cell(s)
in choroidal/ciliary body melanoma, 4.192f,
4.192–193, 4.194, 4.195
in choroidal/ciliary body nevus, 4.191, 4.192f
in iris melanoma, 4.190
in iris nevus, 4.189
in neurilemoma, 4.238, 4.239f
in nodular fascitis, 4.112, 4.113f
in orbital neurofibroma, 4.237
in orbital rhabdomyosarcoma, 4.236
Spindle cell carcinoma, 4.61, 8.336
Spindle cell melanoma, 4.192f, 4.192–193, 4.194, 4.195
Spindle pattern, in pigment dispersion syndrome,
10.94
Spinocerebellar degeneration, 12.282t
Spiral CT scanners, 7.27
Spiral of Tillaux, 2.21, 2.99, 5.45, 6.22, 6.23f, 6.169
SPK. See Thygeson superficial punctate keratitis
Splenectomy, 1.134, 1.141
Splenic sequestration, 1.142
Spilicosomes, 2.179
Splicing
alternative, 2.179
definition of, 2.179
Split bifocal intraocular lens, 3.258, 3.259f
Spondylitis, ankylosing (AS), 1.154–155
cataract surgery in patient with, 11.171, 11.171f
Spondyloarthropathies/spondyloarthritis. See also
specific type
ankylosing spondylitis, 1.154–155
definition of, 1.154
enteropathic arthritis, 1.156
inflammatory bowel disease and, 1.156
reactive arthritis, 1.155–156f, 1.157
uveitis and, 1.157
Spongiform encephalopathies, transmissible, 5.357
Spontaneous cataract surgery, 11.191
Spontaneous eye movements, 5.233–251. See also
Nystagmus
Spontaneous hyphema, 8.393. See also Hyphema
ATP-binding cassette (ABC) transporter protein mutation causing, 4.168–169
development of, 12.269–270, 12.270f
description of, 12.31, 12.44
electroretinography findings in, 12.48f
fluorescein angiography findings, 12.269–270, 12.270f
fundus autofluorescence findings, 12.270
phenotype of, 12.269
retinal pigment epithelium findings in, 4.168–169f, 4.169–170, 12.270, 12.270f
visual acuity in, 12.269
STAT6 expression, in orbital solitary fibrous tumors, 8.8
human embryonic, 2.166
definition of, 2.166
corneal, 8.8, 8.92
conjunctival, 8.92, 8.362
Statin
verse efficacy of, 1.77
age-related macular degeneration and, 1.78–79
angina pectoris treated with, 1.91
cataracts and, 1.79, 11.53
dosing of, 1.75f
hypercholesterolemia treated with, 1.75f, 1.76–77
ischemic stroke prevention using, 1.115
stroke prevention using, 1.115
Stationary retinal disease. See specific disorder
Statistical tests
clinical significance of, 1.7
flow chart of, 1.7
Status epilepticus, 1.303–304
Status epilepticus amauroticus, 5.172
Steady fixation, 6.6
Steepening, in hyperopia surgery, 13.26, 13.79, 13.96
Steinert disease, 2.218, 12.282t
Stellate (sutural) cataracts, 11.37, 11.37f
Stem cells, 8.8, 8.10–11. See also Limbal stem cells
conjunctival, 8.92, 8.362
corneal, 8.8, 8.92
culture of, 8.365
definition of, 2.166
human embryonic, 2.166
induced pluripotent, 2.166
STEMI. See ST-segment elevation myocardial infarction
Stenopic slit effect, 3.130
Stenopic slit technique, 3.162, 3.162f
Stents. See also Lacrimal intubation
bicanalicular lacrimal, 7.293, 7.294f, 7.301f, 7.312
for cerebral aneurysm, 5.342
for congenital nasolacrimal duct obstruction, 6.234–235
lacrimal intubation, 7.292–294, 7.294f, 7.303
percutaneous coronary intervention with, 1.92
vertebrobasilar artery, 5.338
Step
gaze-evoked nystagmus and, 5.222, 5.240
saccadic eye movement and, 5.219, 5.220f, 5.222
Step innervation, 5.220
Stereo Fly test, 3.99
Stereoacuity. See also Stereopsis
development of, 6.182
testing
in monocular no light perception, 5.305
in monocular reduced vision, 5.305, 5.305f
in monofixation syndrome, 6.51
in nonorganic disorder evaluation
monocular no light perception and, 5.305
monocular reduced vision and, 5.305, 5.305f
sensory adaptation assessments using, 6.81
visual acuity relationship and, 5.305, 5.305f
Stereophotography, for recording optic nerve/nerve
head/disc evaluation, 10.53
Stereopsis
binocular indirect ophthalmoscopes for, 12.22
contour, 6.81
definition of, 6.43, 6.81
depth perception versus, 6.43
development of, 6.43
random-dot tests, 6.81
sensory tests for, 6.100
testing
linear polarizers used in, 3.99
in nonorganic disorder evaluation
monocular no light perception and, 5.305
monocular reduced vision and, 5.305, 5.305f
visual acuity relationship and, 5.305, 5.305f
Stereotactic navigation, 7.32, 7.33f
Stereotactic radiosurgery, for arteriovenous
malformations, 1.122
Sterile corneal infiltrates, 3.231f, 3.234
Sterile infiltrates, after surface ablation, 13.108, 13.108f
Sterile interface inflammation (diffuse lamellar keratitis/ DLK), after LASIK, 13.116f, 13.116–117, 13.117f
infectious keratitis differentiated from, 13.117–118, 13.118f, 13.118f
pressure-induced stromal keratopathy differentiated from, 13.119
Steroids. See Corticosteroid(s)
Stevens-Johnson syndrome (Stevens-Johnson
syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis/SJS-TEN), 1.208, 6.251–252, 6.252f, 7.237, 7.238f, 7.303, 8.285, 8.295–298, 8.296f, 8.297f
STGD4 gene, in Stargardt disease, 4.168
Stigmatic imaging, 3.42, 3.69, 3.274
Stimulus deprivation amblyopia, 6.55
Stimulus, perimetry results affected by, 10.60
Stimulatory hypersensitivity, 9.38
Stimulus, perimetry results affected by, 10.60
Stimulated absorption, 3.110
Stimulated emission, 3.111, 3.111f
Stimulated macrophages, 9.14–16, 9.15f
Stimulatory hypersensitivity, 9.38
Stimulus, perimetry results affected by, 10.60
Stimulus accommodation convergence/accommodation (AC/A) ratio, 6.71. See also Accommodative convergence/accommodation (AC/A) ratio
Stimulus deprivation amblyopia, 6.55
STIR (short tau inversion recovery) technique, 5.62–65, 5.63f, 5.75
Stocker-Holt variant Meesmann corneal dystrophy, 8.136f, 8.139
Stocker lines, 8.113, 8.118t. See also Iron lines
Stop and chop technique, in phacoemulsification, 11.114
Storiform pattern, in solitary fibrous tumor, 4.235, 4.235f

Strabismic amblyopia
  anisometropic amblyopia versus, 6.54–55
  clinical features of, 6.54
  critical period for, 6.45
  development of, 6.46–47
  eccentric fixation in, 6.54
  grating acuity associated with, 6.54, 6.56
  occlusion therapy for, 6.58
  pathophysiology of, 6.54
  visual acuity in, 6.54

Strabismus, 2.44. See also Deviations; Diplopia
  A-pattern. See A-pattern strabismus
  abbreviations for, 6.17
  abnormal visual experience caused by, 6.44
  accommodative convergence/accommodation ratio abnormalities as cause of, 6.39
  acquired, 6.16
  acute paralytic, 6.175
  age at onset, 6.16
  amblyopia treatment as cause of, 6.59–60
  animal models of, 6.46
  in Apert syndrome, 6.208, 6.209
  in Brown syndrome. See Brown syndrome
  after cataract surgery, 6.304
  classification terms for, 6.16–17
  comitant/incomitant deviations in, 5.184, 5.186, 5.187
  congenital, 6.16
  congenital nystagmus and, 5.235
  consecutive, 6.16
  convergent, 6.15
  in craniosynostosis, 6.208
  cyclic, 6.93
  cyclovertical, 6.162
  definition of, 6.15
  dissociated strabismus complex, 6.17, 6.105f
  divergent, 6.15
  early-onset, 6.154
  extraocular muscle surgery and. See Strabismus surgery
  fixus, 5.208
  in Graves eye disease. See Strabismus, in thyroid eye disease
  history-taking for, 6.63
  incomitant
    abnormal head position caused by, 6.83
    prism alternate cover test for, 6.66
  infantile
    description of, 6.16
    dissociated vertical deviation associated with, 6.129
    fusion maldevelopment nystagmus syndrome associated with, 6.151, 6.154
    primary inferior oblique muscle overaction associated with, 6.117
  intermittent, 6.182
  latent
    alternate cover test for, 6.65, 6.66f
    description of, 6.15
    exodeviation as, 6.99
  manifest
    alternate cover test for, 6.65, 6.66f
    description of, 6.15
    exodeviation as, 6.99
    monocular cover-uncover test for, 6.64, 6.65f
    normal retinal correspondence and, 6.48–49, 6.49f
    nystagmus associated with, 6.154, 6.156–157
    ocular surgery–related, 6.145–146
    paralytic
      extraocular muscle surgery for, 6.161
      Hering’s law of motor correspondence and, 6.38
    restrictive, 6.146
    in retinoblastoma, 4.291, 4.291f, 4.291t
    screening for, 6.56
    sensory adaptations in
      anomalous retinal correspondence, 6.50–51
      monofixation syndrome, 6.51–52
      suppression, 6.48–50, 6.49f
    sensory response to, 6.75
    small-angle, 6.89
    squinting associated with, 6.202
    suffixes associated with, 6.15–16
    suppression in, 5.186
    supranuclear causes of, 5.188
    surgical treatment of. See Strabismus surgery
    terminology related to, 6.15–17
    third nerve palsy. See Third nerve (oculomotor) palsy
    in thyroid eye disease, 5.206
    torticollis and, 6.63
    types of, 6.17
    V-pattern. See V-pattern strabismus
    vertical. See also Vertical deviations
      description of, 6.15–16
      diagnostic positions of gaze for, 6.64
      word origin of, 6.15
  Strabismus fixus, 6.135
  Strabismus surgery. See also Extraocular muscle surgery;
    specific type or disorder
  anomalous retinal correspondence after, 6.50
  diplopia after, 5.209
  esotropia treated with, 6.91
  infantile, monofixation syndrome after, 6.51
  pediatric glaucoma and, 10.166–167
  tightening procedures in, 6.164f
  weakening procedures in, 6.164t. See also Weakening procedures
  Straddling, 3.158, 3.158f
  Straight-line rays. See Ray(s)
  Straight sinus, 5.22, 5.22f
  Stratum album profundum, 5.33
  Stratum griseum profundum, 5.33
  Strawberry hemangioma. See Hemangiomas
  Strawberry tongue, 1.171
  Streak reflex. See Retinal reflex
  Streak retinoscopy, 3.273
  Streptococcus, 8.244f, 8.244–245, 8.245f
    α-hemolytic, infectious pseudocristalline/crystalline keratopathy caused by, 4.79, 8.268, 8.268f
    bacterial conjunctivitis caused by, 6.240
β-hemolytic. See Streptococcus, pyogenes
conjunctivitis caused by, 8.208t, 8.256, 8.257t
in children, 4.52
endogenous endophthalmitis caused by, 9.294
endophthalmitis caused by
bleb-associated, 12.391
endogenous bacterial, 12.238
postoperative, 11.161, 12.389
epidermidis, 2.422
Group A β-hemolytic. See Streptococcus, pyogenes
keratitis caused by, 8.208t
in children, 4.52
endophthalmitis caused by
bleb-associated, 12.391
endogenous bacterial, 12.238
postoperative, 11.161, 12.389
epidermidis, 2.422
group A β-hemolytic. See Streptococcus, pyogenes
keratitis caused by, 8.208t
after penetrating keratoplasty, 8.427
after photoablation, 13.106
as normal flora, 8.205, 8.206t, 8.244
ocular infection caused by, 8.208t. See also Specific type
pneumoniae (pneumococcus), 1.247–248, 2.422, 6.213, 6.240, 8.245f
carotid artery disease as cause of, 1.115–119
carotid occlusive disease, 1.115–119
cerebral arteriography for, 1.113
clinical manifestations of, 1.110–111
diagnosis of, 1.111–112
hemispheric transient ischemic attack and, 5.167
hypertension and, 1.66, 1.115
imaging studies for, 1.112–113
incidence of, 1.109
apoplectic form, 1.112
ischemic. See also Cerebral ischemia
blood pressure control for prevention of, 1.115
cardioaortic causes of, 1.118–119
carotid duplex ultrasonography for, 1.113
carotid occlusive disease as cause of, 1.115–119
cerebral arteriography for, 1.113
cerebrovascular disease, 5.177
clinical manifestations of, 5.177–180
diagnosis of, 5.177–180
hemispheric transient ischemic attack and, 5.167
hypertension and, 1.66, 1.115
imaging studies for, 1.112–113
magnetic resonance angiography for, 1.112
magnetic resonance imaging for, 1.112
mortality rates for, 1.109–110
nonarteriosclerotic causes of, 1.111
penumbra, 1.110
prevention of, 1.114–115
recombinant tissue plasminogen activator for, 1.113
reperfusion techniques, 1.114
risk factors for, 1.111
statis for prevention of, 1.115
thrombolytic agents, 1.113
transcranial Doppler ultrasonography for, 1.113
treatment of, 1.113–114
vestibular-ocular dysfunction and, 5.217
Stroke-like migraine attacks after radiation therapy (SMART), 5.358
Stroke/stroke length (phacoemulsification), 11.99, 11.100

Stroma
- choroidal, 2.77, 4.182
- ciliary body, 2.73
- conjunctival (substantia propria), 4.47, 4.48f, 8.7
- age-related changes in, 8.112
- in external eye defense, 8.13
- immune and inflammatory cells in, 8.13
- corneal, 4.73, 4.74f, 8.7f, 8.8–9, 8.9f
- anatomy of, 2.53, 8.7f, 8.8–9, 8.9f
- biomechanics and, 13.13–14
- collagen fibers in, 2.263, 2.264–265f
- composition of, 2.53, 2.58
- degenerations of, 8.120–126
- dystrophies of. See Stromal corneal dystrophies
- healing/repair of, 4.14, 4.15f
- inflammation of, 8.50f, 8.50–52, 8.51f
- in systemic infections, 8.279
- keratocytes, 2.263
- neovascularization of, 8.52
- pigmentation of deposits in, 8.118f
- drug-induced, 8.129f, 8.132
- refractive index of, 8.26
- glucose delivery to, 2.259
- iritis, 2.68–69, 4.18f
- healing/repair of, 4.16
- keratocytes of, 2.259
- scleral, 4.107f, 4.107–108, 4.108f
- Stromal bed
- preparation of, for LASIK, 13.84–90. See also LASIK (laser in situ keratomileusis), flap creation for
- with femtosecond laser, 13.87–90, 13.88f, 13.89f, 13.90f
- with microkeratome, 13.84–87, 13.85f, 13.86f, 13.87f
- residual (RSP), thickness of, LASIK and, 13.30, 13.45–46, 13.79–80
- calculation of, 13.46, 13.79
- corneal perforation and, 13.111
- ectasia and, 13.79, 13.124
- Stromal corneal dystrophies, 4.91, 4.92f, 8.135f, 8.149–156. See also Epithelial-stromal TGFBI dystrophies; specific type
- congenital/congenital hereditary (CHSD/CSCD), 8.135f, 8.136f, 8.152, 8.153f
- Fleck (FCD), 8.135f, 8.136f, 8.153, 8.154f
- macular (MCD), 4.91, 4.91f, 4.92f, 8.135f, 8.136f, 8.145f, 8.149–151, 8.150f
- posterior amorphous (PACD), 8.135t, 8.136f, 8.154f, 8.154–155
- pre-Descemet (PDCD), 8.135t, 8.136f, 8.154f, 8.154–155
- recurrence of after corneal transplantation, 8.425
- Schnyder (SCD), 8.135t, 8.136f, 8.145f, 8.151–152, 8.152f
- crystalline form of, 8.151, 8.152f
- hyperlipoproteinemia and, 8.151, 8.179

Stromal corneal infiltrates
- in epidemic keratoconjunctivitis, 8.234f, 8.234–235, 8.235f
- after surface ablation, 13.108, 13.108f
- Stromal edema, 8.42
- after cataract surgery, 11.128t, 11.128–130
- cold-induced, 8.385
- Stromal graft rejection, 8.429. See also Rejection
- Stromal interstitial keratitis, 9.220, 9.221f
- Stromal keratitis, 8.46f, 8.50t, 8.50–52, 8.51f
- CMV causing, 8.232
- in Cogan syndrome, 8.309–310
- Epstein-Barr virus causing, 8.230–231, 8.231f
- herpes simplex virus causing, 4.77f, 4.78, 8.219–222, 8.220f, 8.221f, 8.223f
- penetrating keratoplasty for, 8.225
- recurrence of in graft, 8.225
- in herpes zoster ophthalmicus, 8.228, 8.228f
- microsporidial, 8.280–281
- necrotizing, 8.52, 8.219, 8.220–221, 8.221f, 8.222, 8.223f
- nonnecrotizing, 8.51f, 8.219, 8.220f, 8.221f, 8.223f
- nonsuppurrative, 8.46f, 8.50, 8.50t, 8.51f, 8.52
- in rosacea, 7.80, 7.80f
- suppurrative, 8.46f, 8.50, 8.50t, 8.51f, 8.52
- syphillic, 8.308–309, 8.309f
- Stromal keratopathy, pressure-induced (PISK), after LASIK, 13.119, 13.120f
- Stromal nevi, 4.64, 8.338f, 8.340
- Stromal puncture, for recurrent corneal erosions, 8.79, 8.87
- Stromal thinning. See also Cornea, thinning of
- in ectatic disorders, 8.133
- microsporidial, penetrating keratoplasty for, 8.281
- STUMPED mnemonic, for corneal opacities, 6.257t, 6.257–258

Sturge-Weber syndrome (SWS/cerebrofacial/encephalotrigeminal/encephalofacial angiomatosis/hemangiomatosis)
- choroidal hemangioma in, 4.197, 4.281, 5.332f, 5.334t
- port-wine stain (nevus flammeus) in, 8.346
- glaucoma associated with, 5.332f, 5.334t, 10.30, 10.155
- in children, 5.332f, 10.155
- port-wine stain (port-wine nevus/nevus flammeus) in, 5.332f, 5.334f, 8.346, 10.30, 10.155
- Sty (external hordeolum), 4.203–204, 8.76, 8.76f
- Sub-tenon injection
corticosteroid, in cystoid macular edema, after cataract surgery, 11.165
lidocaine, for cataract surgery, 11.92
- lidocaine, for cataract surgery, 11.92, 11.92f
- of periocular corticosteroids, 9.95–96, 9.96f, 9.322
- Sub-tenon space, 7.124, 12.20
- Subacute bacterial endocarditis (SBE), 1.248t
- Subacute granulomatous thyroiditis, 1.45
- Subacute sclerosing panencephalitis (SSPE), 8.239, 9.262–263
- Subarachnoid hemorrhage (SAH), 1.121, 6.382, 12.173.
- See also Intracranial hemorrhage
arteriovenous malformations causing, 5.343
oculuar hemorrhage with, 5.340, 5.340f
ruptured aneurysm causing, 5.340
Subarachnoid ocular motor nerve course, 5.42f
cranial nerve palsies and, 5.192
Subarachnoid space, 2.114
optic nerve in, 4.241, 5.17f
Subarachnoid surgical space, 7.124
Subcapsular cataract
  anterior (subcapsular fibrous plaques), 4.120, 4.120f
  after posterior chamber phakic IOL insertion, 13.146
posterior (PSC), 2.283, 4.120f, 4.120–121, 4.121f, 6.297
  anterior, 11.46–48, 11.51f
  characteristics and effects of, 11.47, 11.70t
corticosteroids causing, 11.51–52
  ischemia causing, 11.68
  in myotonic dystrophy, 11.62
  race and, 11.6
  silicone oil use and, 11.190
  uveitis and, 11.64
  vitreectomy and, 11.55, 11.190
Subclavian artery, 5.13f, 5.19
Subclavian steal, 5.337–338, 5.19
Subclinical depression, 1.189
Subclinical hypothyroidism, 1.45
Subclinical keratoconus. See Forme fruste (subclinical keratoconus)
Subclinical retinal detachment, 12.319–320
Subconjunctival disorders, 6.250–252
Subconjunctival fibrosis, medications causing, 8.91
Subconjunctival hemorrhage, 8.115t, 8.387–388, 8.388f
Subconjunctival lymphomas, 9.308
Subconjunctival nodules, 7.65, 7.65f
Subcortical structures. See also specific structure
Subconjunctival nodules, 7.65, 7.65f
Subconjunctival lymphomas, 9.308
Subconjunctival nodules, 7.65, 7.65f
Subcortical structures. See also specific structure
in ocular motility, 5.33–34
in sarcoidosis, 4.187, 4.187f
Subdural hematoma, 6.382
Subepithelial keratitis, in reactive arthritis syndrome, 8.234
  in epidemic keratoconjunctivitis, 8.234–235, 8.235f
Subepithelial corneal dystrophies, epithelial and subepithelial
Subepithelial corneal dystrophies. See Epithelial dystrophies, epithelial and subepithelial
Subepithelial corneal infiltrates, 8.46t
in epidemic keratoconjunctivitis, 8.234f, 8.234–235, 8.235f
Subepithelial fibrosis, in mucous membrane pemphigoid, 8.299, 8.300f, 8.302f
Subepithelial graft rejection, 8.428–429, 8.429f. See also Rejection
Subepithelial keratitis, in reactive arthritis syndrome, 9.133
Subepithelial mucinous corneal dystrophy (SMCD), 8.135t
Subepithelial nevi, 4.64, 8.338f, 8.340
Subfoveal pigment epithelial detachment, 12.74–12.75f
Subhyaloid hemorrhage, 12.173
Subjective refraction, 3.155
  astigmatic dial technique in, 3.160–162, 3.161f, 3.166
  binocular balance, 3.167–168, 3.168f
cross cylinder technique, 3.163–165, 3.164f, 3.165t
cylinder power refinement for, 3.164–165
description of, 3.160
Jackson cross cylinder for, 3.163–165, 3.164f
  refining the sphere for, 3.165–167, 3.167f
  stenopeic slit technique in, 3.162, 3.162f
Subluxation, IOL, 11.144f, 11.144–147, 11.146f, 11.147f.
  See also Decentration/dislocation
Subluxed/subluxated lens, 10.129–130, 10.130f, 10.130t, 11.39–40, 11.40f. See also Ectopia lentis
angle closure/pupillary block and, 10.119, 10.129–130, 10.130f, 10.130t
cataract surgery in patient with, 11.181–183, 11.182f, 11.183f
in megalocornea, 8.100
  traumatic, 11.40, 11.54f, 11.54–55
Submacular hemorrhage
  in neovascular age-related macular degeneration, 12.85, 12.385
  posttraumatic, 12.354f
  vitrectomy for, 12.385, 12.386f
Submandibular ganglion, 5.276–277f
Submental liposuction, 7.275f
Suborbicular fat pads, 7.168
Suborbicularis oculi fat (SOOF), 2.28f
anatomy of, 7.168
  lift/elevation of, 7.224, 7.272
Subperiosteal abscesses (SPAs), 6.213, 6.214f, 7.47
Subperiosteal fluid, 7.11
Subperiosteal midface-lift, 7.272, 7.273f
Subperiosteal surgical space, 7.123, 7.123f
Subretinal drusenoid deposits (reticular pseudodrusen/RPD), 4.162, 4.163, 4.163f, 4.171f, 12.65, 12.65f, 12.200
Subretinal fibrosis
  in Coats disease, 6.360
  in multifocal choroiditis, 12.226, 12.226f
Subretinal fibrosis and uveitis syndrome (SFU) characteristics of, 9.162–164t
definition of, 9.184
differential diagnosis of, 9.184
fluorescein angiography findings in, 9.163t, 9.184
manifestations of, 9.184, 9.184f
optical coherence tomography findings in, 9.164t, 9.184
  treatment of, 9.185
Subretinal fluid
  in central serous chorioretinopathy, 12.76
  in choroidal neovascularization, 12.71
  in exudative retinal detachment, 12.326
  optic pit and, 12.329f
Subretinal hemorrhage
  choroidal neovascularization versus, 12.211
description of, 6.373
in polypoidal choroidal vasculopathy, 12.76
Subretinal hyperreflective material (SHRM), 12.75
Subretinal infiltrates/subretinal pigment epithelium infiltrates, in primary central nervous system/intraocular/vitreoretinal/retinal lymphoma, 4.135, 4.135f, 4.136–137, 4.311, 4.311f
Subretinal neovascularization, 12.162, 12.164
Subretinal space, 2.330–331
  biopsy of, in intraocular lymphoma, 4.135–136, 4.312
  fluophore accumulation in, 12.32
  immunologic microenvironment of, 9.52t
  retinal pigment epithelium-mediated dehydration of, 12.18
Substance abuse disorders, 1.198–199. See also specific substance
Substance P, 9.24f
Substantia nigra, 2.107, 5.41
  See also specific structure
Substrate abuse disorders, 1.198–199. See also specific substance
Substance P, 9.24f
Substantia nigra, 2.107f, 5.41f
in Benedikt syndrome, 5.191
Sulfuric acid (H₂SO₄), ocular injury caused by, 8.376
Sulfurous acid (H₂SO₃), ocular injuries caused by, 8.376
Sunlight. See Sunglasses
“Sunflower” cataract, in chalcosis/Wilson disease, 8.189,
SUNCT (short-lasting unilateral neuralgiform headache syndrome, 7.310, 7.310
Sumatriptan, refractive surgery in patient taking, 13.37
Sulindac, 2.409
Sulfur hexafluoride (SF₆), 12.382
Sulfonamides, 2.361, 2.423–424. See also specific agent
Sulfite oxidase deficiency, 2.204
Sulfatase deficiency, multiple, 8.177
Sulfasalazine, 1.179
Sulfacetamide sodium, 2.421f
Sulfacetamide ophthalmic solutions, 2.423
Sulcus
See specific antibiotic combination
Sulbactam.
Sulamyd. See
Suicide
Sugiura sign, 9.206, 9.207
“Sugar” cataracts
Sufentanil, 1.289
Sudden cardiac death (SCD)
Suction ring
for femtosecond laser flap creation, 13.88f, 13.89, 13.89f
after glaucoma surgery, 13.182
for microkeratome flap creation, 13.84–85, 13.85f, 13.86, 13.86f
Sudden death (SCD)
implantable cardioverter-defibrillator for prevention
of, 1.86, 1.105
Sudden cardiac death (SCD)
timing of, 1.85–86
Sufentanil, 1.289
Sugris, 6.185
Superficial basal cell carcinoma. See Basal cell carcinoma
Superficial keratectomy (SK), 8.366–367, 8.412f
layer-based approach to use of, 8.417f
Superficial mimetic muscles, 7.153
Superficial musculopneuropetetic system (SMAS), 2.134
description of, 7.151–153, 7.152f
rhytidectomy of, 7.273, 7.274f
Superficial nerve fiber layer, 2.111, 2.113f
Superficial petrosal nerve, greater, 5.276–277f, 5.277
Superficial plexus, 2.57
Superficial punctate keratitis of Thyeson (SPK), 8.306–307, 8.307f
Superficial spreading melanoma, 4.220, 4.221f
Superficial temporal artery, 2.38, 5.12, 5.15f
Superficial vascular plexus, 12.16
Superior cantholysis, 7.223
Superior cerebellar artery (SCA), 2.107f, 5.18f, 5.19f, 5.20
cranial nerve relationship and, 5.42f
Superior cervical ganglion, 5.53f, 5.54
Horner syndrome caused by lesions of, 5.260f
Superior corillicus (SC), 5.18f, 5.33–34
saccadic control and, 5.219
Superior conchae, 7.19
Superior eyelid crease, 2.27
Superior limbic keratoconjunctivitis (SLK), 8.83–85, 8.84f
Superior marginal arcade, 5.13f
Superior muscular artery, 5.14–15
Superior oblique (SO) muscle, 5.8f, 5.36f
A-pattern strabismus associated with, 6.107, 6.111
bilateral, 6.118f
description of, 6.17
horizontal deviation associated with, 6.118
overdepression in adduction caused by, 6.118, 6.118f, 6.137
palsy of, 6.17
bilateral, 6.122–124
causes of, 6.119
clinical features of, 6.119–122
congenital versus acquired, 6.119
description of, 6.69
hypertropia associated with, 6.123
inhibition palsy of contralateral antagonist, 6.120–121, 6.121f
action of, 6.34f, 6.37f
anatomy of, 2.8, 2.17f, 2.20f, 2.28f, 2.107f, 5.8f, 5.36f, 5.46f, 5.46f
characteristics of, 2.19f, 6.21f
congenital palsy of, 6.69
depressor function of, 6.73
field of action for, 6.33
innervation of, 2.21, 5.40, 5.44, 6.19
magnetic resonance imaging of, 2.460f
myokymia affecting, 5.250–251
origin of, 2.18, 6.20, 6.21f
overaction of
A-pattern strabismus associated with, 6.107, 6.111
bilateral, 6.118f
description of, 6.17
horizontal deviation associated with, 6.118
overdepression in adduction caused by, 6.118, 6.118f, 6.137
palsy of, 6.17
bilateral, 6.122–124
causes of, 6.119
clinical features of, 6.119–122
congenital versus acquired, 6.119
description of, 6.69
hypertropia associated with, 6.123
inhibition palsy of contralateral antagonist, 6.120–121, 6.121f
management of, 6.122–124, 6.123f
masked bilateral, 6.122
neuroimaging evaluations, 6.119
right, 6.120–121f
surgical management of, 6.122–124, 6.123f
3-step test for, 6.120
unilateral, 6.119–121, 6.120–121f, 6.122–123, 6.123f
V-pattern strabismus associated with, 6.109
paralysis of, inferior oblique muscle overaction secondary to, 6.166
right, palsy of, 6.120–121f
surgery of, for superior oblique myokymia, 5.251
stenotomy, 6.112, 6.138
tightening of, 6.123, 6.123f, 6.167
weakening of
for Brown syndrome, 6.138, 6.166
for lambda-pattern strabismus, 6.113
for nystagmus, 6.156
surgical procedures for, 6.164f, 6.166
tenotomy for, 6.166
unilateral, 6.166
weakness of, 6.119
Superior oblique myokymia (SOM), 5.250–251, 6.145
Superior oblique tendon, 2.17f, 7.6
anatomy of, 6.19f
tightening of, 6.167
Superior oblique tenotomy, for superior oblique myokymia, 5.251
Superior ophthalmic vein, 2.26f, 5.8f, 5.21f, 5.21f, 5.22f, 5.23, 5.23f, 7.12f, 7.14
Superior orbital fissure, 5.5, 5.6f, 5.7f, 5.9f, 5.11, 7.6, 7.7f, 7.9, 7.130f
anatomy of, 2.6f, 2.11, 2.106f, 2.132
computed tomography of, 2.11f
ophthalmoplegia caused by lesions of, 5.203
Superior orbital vein, 6.23
Superior orbitotomy
transconjunctival incisions for, 7.125
transcutaneous incisions for, 7.124–125, 7.125f
vertical eyelid splitting, 7.125–126
Superior palpebral artery, 5.13f
Superior palpebral vein, 5.21f
Superior petrosal sinus, 5.22, 5.23f
Superior punctum, 2.27. See also Punctum
Superior rectus (SR) muscle, 5.8f, 5.36f, 5.45, 5.46f, 7.12, 7.13f
action of, 6.34f, 6.35, 6.36f
anatomy of, 2.17f, 2.20f, 2.28f, 2.107f, 5.8f, 5.36f, 5.45, 5.46f
characteristics of, 2.19f, 6.21f
computed tomography of, 2.456f
elevator function of, 6.73
innervation of, 5.44, 5.44f, 6.19
interson of, 6.34
Knapp procedure, 6.127
magnetic resonance imaging of, 2.460f
origin of, 6.20, 6.21f, 6.22f
recession of, 6.30, 6.128, 6.130
resection of, 6.30
surgery considerations for, 6.29–30
transposition of, 6.167
Superior rectus subnucleus, 5.44
Superior rectus tendon, 2.17f, 6.19f
Superior retinal arcade, 5.14
Superior sagittal sinus (SSS), 5.22, 5.22f
thrombosis in, 5.346
Superior salivary (salivary) nucleus, 5.51f, 5.55, 5.276–277f, 8.5f
Superior segmental hypoplasia, 5.144
Superior sulcus deformity, 7.141f
Superior tarsal muscle of Müller, 4.202, 8.3, 8.4f
innervation of, 5.53, 5.53f, 5.54
Superior turbinate, 2.14f
Superior vena cava syndrome, glaucoma associated with, 10.30
Superoxide anion, 2.337f, 9.16
Superoxide dismutase (SOD), 2.342
in lens, 11.20
Supertraction crescent, 12.210
Supplemental intraocular lenses (piggybacking), refractive lens exchange and, 13.150
Supplemental oxygen, retinopathy of prematurity risks secondary to, 6.326–327
Supplementary eye fields (SEFs), 5.32f, 5.33
Suppression, 5.186
alternating, 6.49
central, 6.48
constant, 6.49
definition of, 6.48
facultative, 6.49
management of, 6.50
nonalternating, 6.49
orthoptic exercises for, 6.50
pathologic, 6.48
peripheral, 6.48
physiologic, 6.48
red-glass test findings in, 6.76f
as strabismus adaptation, 6.48–50, 6.49f
Suppression scotoma
description of, 6.49
4Δ base-out prism test for, 6.79
Worth 4-dot test for, 6.80f, 6.80–81
Suppressor (regulatory/Treg) T cells. See also T cell(s)
Suprachoroidal effusion. See also Suprachoroidal hemorrhage/choroidal hemorrhage
Suprachoroidal shunts, 10.220
Supranuclear (cortical) pathways, 5.32f
Supranuclear palsy, progressive (PSP)
Supranuclear control systems, for eye movements, 6.40
Supramarginal gyrus, 5.32f
See also, 13.30, 13.73, 13.74–76.
Surface ablation, 13.8
Supraventricular tachycardias, 1.102–103
Supratrochlear vein, 5.21
Supratrochlear artery, 2.23f, 2.38f, 5.12, 5.13f, 5.14f, 5.15f
Supraorbital ethmoids, 7.20
Supraorbital foramen/notch, 2.7f, 2.8, 2.10–11, 5.9f, 7.6, 7.7f
Supraorbital nerve, 5.48, 5.48f
Supraorbital vein, 2.26f, 5.21f
Supratarsal corticosteroid injections, for vernal keratoconjunctivitis, 8.291
Supratrochlear artery, 2.23f, 2.38f, 5.12, 5.13f, 5.14f, 5.15f
Supratrochlear nerve, 2.131, 5.48
Supratrochlear vein, 5.21f
Supraventricular tachycardias, 1.102–103
necrotizing fasciitis treated with, 7.49f
neovascular age-related macular degeneration treated with, 12.85–86
open-globe injuries managed with, 12.359–360
optic nerve glioma treated with, 7.82
orbital fractures treated with, 7.117
primary congenital glaucoma treated with, 6.285–288, 6.286f, 6.288f
ptosis treated with. See Ptosis, surgical repair of rhegmatogenous retinal detachment treated with, 12.397–401, 12.398–400f
scleritis treated with, 9.127
sympathetic ophthalmia secondary to, 12.233
uveitis treated with, 9.113
vitreous loss during, 12.349
Surgical instruments
for arcuate keratotomy, 13.55
for intrastromal corneal ring segment placement, 13.63
for limbal relaxing incisions, 13.55, 13.56f
for phacoemulsification, 11.98
for limbal relaxing incisions, 13.55, 13.56
for intrastromal corneal ring segment placement, 13.63
for arcuate keratotomy, 13.55
for intrastromal corneal ring segment placement, 13.63
for limbal relaxing incisions, 13.55, 13.56f
for phacoemulsification, 11.98
for limbal relaxing incisions, 13.55, 13.56
for intrastromal corneal ring segment placement, 13.63
for arcuate keratotomy, 13.55
for corneal transplant, 11.145
for penetrating keratoplasty, 8.419f
for penetrating keratoplasty, 8.419f
corneoscleral laceration repair and, 8.406, 8.407f, 8.408f
postoperative problems and, 8.426f, 8.426–427, 8.431–432, 8.432f
removal/adjustment of
for corneal transplant, 8.419f, 8.419f
in children, 8.451
for penetrating and perforating trauma repair, 8.409
for trabeculectomy, laser lysis of, scleral flap closure and, 10.202–203, 10.207–208
Swabbing, for specimen collection, 8.210–211, 8.211
Swan-neck deformity, 1.152, 1.152f
SWAP. See Short-wavelength automated perimetry
Sweat glands, of eyelid, 4.201, 4.202, 8.4
for acid burn causing, 8.381, 8.381f
for cataract surgery in patient with, 11.173
in mucous membrane pemphigoid, 8.299, 8.300, 8.300f
in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis), 8.297, 8.297f
Symbol charts, 6.7
Symmetric convergence, 6.41
Sympathetic fibers, lacrimal functional unit innervated by, 8.5f
Sympathetic ganglia/nerves/pathway, 5.52–54, 5.53f
Sympathetic ophthalmia (SO), 4.185, 4.186f, 7.136–138
anteri segment findings in, 9.200
characteristics of, 12.233
Dalen-Fuchs nodules in, 9.200, 9.202
features of, 9.45–46
diagnosis of, 9.203
enucleation in prevention of, 8.404
fluorescein angiography findings in, 9.200, 9.201f
glaucoma/glaucoma surgery and, 10.195, 10.196, 10.198
histologic features of, 9.202
histologic/histopathologic features of, 4.185, 4.186f
human leukocyte antigen association with, 9.65f
incidence of, 9.199–200
indocyanine green angiography findings in, 9.201, 9.202f
manifestations of, 9.200–202, 9.201–202f
ocular trauma as cause of, 9.199
optical coherence tomography findings in, 9.201–202, 9.202f
panuveitis in, 9.199–203
after pars plana vitrectomy, 9.199–200
posterior segment findings in, 9.200, 9.201f
surgical procedures/injuries leading to, 4.185
trauma as cause of, 12.364–365
treatment of, 9.203
Sympathizing eye, 4.185, 9.199–200. See also
Sympathetic ophthalmia
Symporters, 2.271
Symptomatic retinal breaks, 12.318
Synaptic body, 2.85
Synaptophysin, in immunohistochemistry, 4.34
Synchysis, in cholesterolosis (synchysis scintillans), 4.133
Synchysis scintillans, 4.133, 12.348
Syncope, 1.299
Syndactyly, in Apert syndrome, 6.206, 6.207
Syndrome, 6.183. See also specific syndrome
Syndromic congenital craniofacial anomalies. See
Craniofacial malformations; specific type
Syndromic craniosynostosis, 7.39, 7.39
Syndromic panretinal dystrophies, 12.259
Synechiae
anterior, 9.318
angle closure and, 10.117, 10.121
in glaucoma
angle closure and, 10.117, 10.121
inflammation and, 10.138, 10.139
anterior segment/iris neovascularization and, 10.39, 10.39f, 10.133, 10.133f, 10.134f
chamber deepening/goniosynechialysis in management of, 10.220
flat anterior chamber and, 10.144
gonioscopy in identification of, 10.34f, 10.39, 10.39f
iriticcorneal endothelial syndrome and, 4.100–101, 4.101f, 10.136, 10.136f
plateau iris and, 10.128
traumatic hyphema and, 8.394, 8.395f
posterior
in anterior uveitis, 9.77, 9.80f
in glaucoma
inflammation and, 10.138, 10.138f
pupillary block/angle closure and, 10.119
pupillary block/angle closure and, 10.119
in uveitis, lens changes/cataract and, 11.64
pupil irregularity and, 5.255
Synergism, 4.128, 4.129f
posterior vitreous detachment and, 4.128–129, 4.129f
vitreous, 12.307, 12.316
vitreous hemorrhage and, 4.133
Systemic diseases
ataxia-telangiectasia, 6.393f, 6.403f, 6.405f, 6.403–404
chromosomal abnormalities, 6.385, 6.386f
diabetes mellitus, 6.408–409
familial ocurolenal syndromes, 6.391–392, 6.391–392f
inborn errors of metabolism. See Inborn errors of metabolism
intrauterine infections, 6.409–413
intrauterine/perinatal infections, 6.409–413
Leber congenital amaurosis–like phenotypes in, 6.336
leukemia, 6.413–414
malignant, 6.413–415
neuro-oculocutaneous syndromes. See Neuro- oculocutaneous syndromes
neuroblastoma, 6.414–415, 6.415f
ocular manifestations of, 6.385–415
von Hippel–Lindau syndrome, 6.393t, 6.399–401, 6.400t, 6.400f
Systemic fibrosis, nephrogenic (NSF), 2.458
gadolinium causing, 5.60
Systemic Immunosuppressive Therapy for Eye Diseases Cohort Study (SITE), 9.100f, 9.105, 9.150
Systemic lupus erythematosus (SLE)
  antinuclear antibody testing for, 1.160, 1.160t, 9.156
  articular disease associated with, 1.158
  autoantibodies in, 1.161, 9.154
  cardiac manifestations of, 1.159–160
  cutaneous manifestations of, 1.158, 1.159f
  definition of, 1.158, 9.153
  description of, 9.125, 12.134
  diagnosis of, 1.160t, 1.160–161
  eyelid manifestations of, 4.207t
  gastrointestinal manifestations of, 1.160
  gender predilection of, 1.158
  keratoconjunctivitis sicca in, 1.161
  lupus choroidopathy in, 9.154, 9.155f
  lupus retinopathy in, 9.154, 9.155f
  malar rash associated with, 1.158, 1.159f
  manifestations of, 9.154–156
  ocular manifestations of, 1.161
  optic neuritis and, 5.115
  pathogenesis of, 9.153–154
  procainamide as cause of, 12.300
  racial predilection of, 1.158
  Raynaud phenomenon associated with, 1.159, 1.159f
  refractory, 1.161
  renal disease associated with, 1.158
  retinal vascular occlusive disease in, 9.154, 9.155f
  signs and symptoms of, 1.158–160, 1.159f
  thromboembolism in, 1.160
  treatment of, 1.161–162, 9.156
  vasculitis associated with, 12.230–231, 12.231f
  manifestations of, 9.154–156
  signs and symptoms of, 1.158–160, 1.159f
  thromboembolism in, 1.160
  treatment of, 1.161–162, 9.156
  Raynaud phenomenon associated with, 1.159, 1.159f
  refractory surgery contraindicated in, 13.191
  refractory, 1.161
  renal disease associated with, 1.158
  retinal vascular occlusive disease in, 9.154, 9.155f
  signs and symptoms of, 1.158–160, 1.159f
  thromboembolism in, 1.160
  treatment of, 1.161–162, 9.156
  vasculitis associated with, 12.230–231, 12.231f
  Systemic (visceral/nodal) lymphoma. See also Lymphomas
  secondary eye involvement and, 4.135f, 4.135–137, 4.136f, 4.314
  prognosis for, 4.314
  Systemic sarcoidosis. See Sarcoidosis
  Systemic sclerosis (SSc/scleroderma)
  description of, 1.164–166, 1.165f
  eyelid manifestations of, 4.207t
  Systolic blood pressure, 1.52, 1.56, 1.214
  Systolic dysfunction, 1.98–99
  T.
  See Transducin
  T1 (spin-lattice/longitudinal relaxation time), 5.62, 5.63f, 5.76
  T1-weighted images, 2.457, 2.460f, 5.58f, 5.62, 5.62f, 5.63f, 5.64f, 5.65f, 5.66f, 5.67f, 7.28f, 7.30f
  T2 (spin-spin/transverse relaxation time), 5.62, 5.63t, 5.76
  T2 “shine through” artifact, 5.64f, 5.66
  T2-weighted images, 2.457–458, 2.460f, 5.58f, 5.62, 5.62f, 5.63f, 5.64f, 5.66f, 5.67f, 5.76, 7.28f, 7.30f
  T3, See Triiodothyronine
  T4/T8 ratio, 1.267
  in HIV infection/AIDS. See CD4+ T cell(s); CD8+ T cell(s)
  T cell(s), 4.9
  in anterior uvea, 9.56
  in B cell activation, 9.35
  CD4+. See also Helper T cells; T cells
  in AIDS, 9.327
  in cytomegalovirus retinitis, 12.235
  description of, 12.235
  development of, 9.43f
  in external eye defense, 8.12f
  in HIV infection/AIDS, 8.241
  in immune processing, 9.30–31
  in sympathetic ophthalmia, 9.45
  in tubulointerstitial nephritis and uveitis syndrome, 9.135
  CD8+ cytotoxicity mechanisms of, 9.47f
  in external eye defense, 8.12f
  major histocompatibility class I molecules and, 9.30
  regulatory (suppressor). See Regulatory (Treg/suppressor) T cells
  in sympathetic ophthalmia, 9.45
  in cell-mediated/cellular immunity. See Adaptive immune response, lymphocyte-mediated immune effector responses
donald expansion of, 9.37
  in corneal transplant rejection, 8.316, 8.317
  cytotoxic apoptosis inducement by, 9.46
  assassination by, 9.46
  autoimmunity and, 9.44
  CD8 expression by, 9.36, 9.44
cytotoxicity mechanisms of, 9.46, 9.47f
description of, 9.44, 9.46
precursor, 9.46
in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis), 8.296
suicide induction by, 9.46
delayed hypersensitivity
description of, 9.36, 9.42–44
inflammatory diseases mediated by, 9.44f
in sympathetic ophthalmia, 9.45–46
T helper-cell 2, 9.43
in toxocara granuloma, 9.45
description of, 9.21
effector (Teff), in external eye defense, 8.12–13f
gamma-delta, 9.5
helper. See Helper T cells; T helper cells
in HIV infection/AIDS, 8.241
homing of, 9.38
inhibitors of, for uveitis, 9.108–109
interleukin-2 synthesis and release by, 9.31
killer. See Killer cells
in multifocal choroiditis and panuveitis syndrome, 9.179
in posterior segment, 9.57
priming of, 9.30
receptors on. See T-cell antigen receptor regulatory (Treg/suppressor). See T regulatory (Treg) cells
in resting state, 9.37
sentinel, 9.5
in Sjögren syndrome, 8.57
subsets of, 9.34–35, 9.42
tuberculosis response by, 9.28
T-cell antigen receptor, in human leukocyte antigen–disease association, 9.66
T-cell inhibitors, 2.404
T-cell lymphomas
  central nervous system/intraocular. See Primary central nervous system/intraocular/vitreoretinal/retinal lymphoma orbital. See also Intraocular Lymphomas
T helper cell(s). See also T cell(s); specific T helper cell; specific type
  accessory molecules expressed by, 9.31
  in adaptive immune response, 9.30, 9.32
  antigen receptor on, 9.30
  classification of, 9.32
  differentiation of, 9.32–35
  priming of, 9.31
 subtype of, 9.32
T helper cell-1
  in conjunctiva, 9.53
  delayed hypersensitivity mechanisms mediated by, 9.42, 9.44, 9.53
  description of, 9.32–33
  interferon-gamma produced by, 9.35
  macrophage activation by, 9.42
T helper cell-2
  in conjunctiva, 9.53
  cytokines secreted by, 9.43
  description of, 9.32
T helper cell-17
  in birdshot chorioretinopathy, 9.34
  in delayed hypersensitivity, 9.44
  description of, 9.33–34
  interleukins produced by, 9.34
T lymphocyte lymphoma. See T-cell lymphomas
T lymphocytes. See also T cell(s)
  “T” molecules, antiangiogenic, for corneal transplantation rejection, 8.317
T-PRK. See Topography-guided photorefractive keratectomy
T regulatory (Treg) cells. See also T cell(s)
  adaptive, 9.34
  in CD4+ T cell development, 9.43
  in corneal transplant tolerance and, 8.316
  description of, 9.33
  in external eye defense, 8.12–13, 8.13, 8.14
  immune responses suppressed by, 9.35
  inducible, 9.34
  naturally occurring, 9.34
  in peripheral tolerance to self-antigens, 9.35
T-VEC. See Laherparepvec
T waves, in coronary heart disease, 1.86
TAB. See Temporal artery biopsy
Taches de bougie, 9.196
Tachyarrhythmias
  atrial fibrillation, 1.102–103, 1.103
  atrial flutter, 1.102
  in congestive heart failure, 1.99
  definition of, 1.102
  implantable cardioverter-defibrillators for, 1.104–106
  supraventricular tachycardias, 1.102–103
  ventricular, 1.104
  ventricular fibrillation, 1.104
Tachycardia
  narrow complex, 1.102
  supraventricular, 1.102–103
  ventricular, 1.104
  wide complex, 1.102
Tachyphyllaxis, 2.389
  with α-agonists, 10.178
  with β-blockers, 10.177
Tachyzoites, 9.275
Tacrolimus, 1.179, 2.405
  for atopic dermatitis, 8.287
  for atopic keratoconjunctivitis, 8.294
  for contact dermatoblepharitis, 8.287
  for corneal graft rejection prophylaxis, 8.430
  for graft-vs-host disease, 8.304
  for scleritis, 8.324
  for Thygeson superficial punctate keratitis, 8.307
  for uveitis, 9.108
  for vernal keratoconjunctivitis, 8.290, 8.291
TACs. See Trigeminal autonomic cephalgias
TACSTD2 gene, in gelatinous droplike corneal dystrophy, 8.136
Tactile tension, for intraocular pressure estimation, 10.26
Tadalafil, 1.309
  for aphrodisiacs, 12.304
Tadpole pupil, 5.255
Taenia solium (pork tapeworm), 7.53, 9.285
orbital infection caused by, 4.228
Tafluprost, 2.363, 2.393, 2.394
  for glaucoma, 10.170–176, 10.175
Takayasu arteritis (aortic arch arteritis/aortitis syndrome/pulseless disease)
cataract caused by, 11.68
descrition of, 1.170, 9.125
Talc emboli, 12.141, 12.303
Tamoxifen, 1.309
  for cataract risk, 11.53
  corneal verticillata caused by, 8.130
  maculopathy caused by, 11.53
Tamsulosin, for keratorefractive surgery, 13.27, 13.27
  coupling and, 13.27, 13.27, 13.54
Tangential (transverse) keratotomy, for astigmatism, 13.53, 13.54
  for astigmatism, 13.53
  for astigmatism, 13.54
  for astigmatism, 13.54
  for astigmatism, 13.54
Tangential curvature, 8.29
Tangential incisions, for keratorefractive surgery, 13.27, 13.27
  coupling and, 13.27, 13.27, 13.54
Tangential (transverse) keratotomy, for astigmatism, 13.53, 13.54
Tangential map, 8.28, 8.29
  See also Cornea, topography
Tangential power (instantaneous radius of curvature), 13.16–17, 13.17
  for keratorefractive surgery, 13.27, 13.27
  coupling and, 13.27, 13.27, 13.54
Tangential (transverse) keratotomy, for astigmatism, 13.53, 13.54
  for astigmatism, 13.53
  for astigmatism, 13.54
  for astigmatism, 13.54
  for astigmatism, 13.54
Tangential map, 8.28, 8.29
  See also Cornea, topography
Tangential power (instantaneous radius of curvature), 13.16–17, 13.17
  for keratorefractive surgery, 13.27, 13.27
  coupling and, 13.27, 13.27, 13.54
Tangential (transverse) keratotomy, for astigmatism, 13.53, 13.54
  for astigmatism, 13.53
  for astigmatism, 13.54
  for astigmatism, 13.54
  for astigmatism, 13.54
Tangential map, 8.28, 8.29
  See also Cornea, topography
Tap/biopsy of vitreous. See Vitreous, biopsy of
Tapeworms
  dog (Echinococcus granulosus), orbital infection caused by, 4.228
  pork (Taenia solium), orbital infection caused by, 4.228
Taq polymerase, 2.186
Tarantula hairs, ocular inflammation caused by, 8.387
Tardive dyskinesia, 1.200
blepharospasm and, 5.281
facial movements and, 5.285
Target, in microarray, 4.41
Target recognition/selection, smooth pursuit movements and, 5.33, 5.224, 5.225, 5.225f
Tarsal conjunctiva, 8.6. See also Conjunctiva
in superior limbus keratoconjunctivitis, 8.83, 8.84
Tarsal ectropion, 7.232
Tarsal fracture operation, 7.237, 7.238f
Tarsal glands. See Meibomian (tarsal) glands
Tarsal kink
congenital, 6.194–195
description of, 7.179, 7.179f
Tarsal muscles
in Horner syndrome, 5.257
superior (Müller), 4.202, 8.3, 8.4f
innervation of, 5.53, 5.53f, 5.54
Tarsal plates/tarsus, 2.34f, 2.35, 4.201, 4.201f, 4.202, 8.3, 8.4f
sebaceous adenocarcinoma arising in, 4.215
Tarsococonjunctival flaps
description of, 7.218
lower eyelid defects reconstructed with, 7.223f, 7.224
Tarsococonjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
Tarsoconjunctival grafts, 7.221
for chemical injuries, 8.383–384
Tarsorrhaphy, 6.207–208, 7.255, 7.255,
production of evaluation of, 8.38–41, 8.40f
medications affecting, 8.61–62, 8.62t
pharmacologic stimulation of, 8.64
properties of, 2.249t
proteins in, 2.252
refractive index of, 8.26
secretion of, 2.252–255
solutes of, 2.252
steroid hormones in, 2.255
thickness of, 2.248, 2.249
Tear function tests. See specific test
Tear lens
definition of, 3.206, 3.211
power of, 3.220
refractive index of, 3.220
Tear meniscus (marginal tear strip)
description of, 2.247, 7.296
Tear reflex pathway, 2.135
Tear sac. See Lacrimal sac
Tear secretion. See Tear film (tears), secretion of
"Tear star, " 8.117
Tear substitutes, for dry eye syndrome, 2.258
Tearing/epiphora, 8.46
.T. See also Epiphora; specific cause
chewing causing (crocodile tears), 5.277
in primary congenital glaucoma, differential
diagnosis and, 10.151, 10.152t
reflex, parasympathetic nerves and, 5.56
Tecfidera. See Dimethyl fumarate
Technetium-99m, 1.88
Technosphere insulin, 1.37
TECNIS Symfony intraocular lens, 3.263, 13.166
Tectonic penetrating keratoplasty
for herpetic eye disease, 8.225
for keratoglobus, 8.171
for peripheral ulcerative keratitis, 8.313
TED. See Thyroid eye disease
TEE. See Transesophageal echocardiography
Teenagers. See Adolescents
Teff cells. See Effector T (Teff) cells
Teichoic acid, in bacterial cell wall, 8.244
Techoptasia, 5.177
Teicoplanin, 1.274
Telangiectasias. See also Macular telangiectasia
aneurysmal, 12.161
in ataxia-telangiectasia (Louis-Bar syndrome), 5.332f,
5.334f, 8.115f, 8.346
conjunctival, 5.332f, 5.334f, 8.115f, 8.346
juxtapfoveal, 12.161
retinal. See Coats disease
in rosacea, 8.70, 8.71
Telecanthus, 6.203, 7.23, 7.169, 7.169f
Telemedicines, 6.331
Telemicroscopes, 3.322
Teleopsia, 5.175
Telescopes
astronomical. See Telescopes, Keplarian
Galilean, 3.40, 3.83–84, 3.844, 3.140, 3.166, 3.255,
3.292, 3.298, 3.322
Keplerian, 3.40, 3.83–84, 3.844, 3.322
low vision managed with, 3.322t, 3.322f, 3.322–323
spectacle, 3.322f
Teller Acuity Cards II, 6.8, 6.9f, 6.56, 6.154, 6.187
Telomeric DNA, 2.178
Telophase, 2.174, 2.174f
Telorbitism, 7.23
Temperature, anterior segment injury and, 8.384–385,
8.385f
Tempering, 3.195
Temporal (giant cell) arteritis. See Giant cell arteritis
Temporal artery deep, 5.15f
posterior, 5.16f, 5.19f
superficial, 5.12, 5.15f
Temporal artery biopsy (TAB), in giant cell arteritis/
AAION, 4.244f, 4.244–245, 5.121, 5.314
Temporal bone, 5.5
Temporal coherence, 3.100f, 3.101
Temporal crescent, 5.29f, 5.30, 5.156
Temporal flare, 7.253
Temporal fossa, 5.8, 5.10f
Temporal lobe, 2.460f, 5.24f
lesions of, 5.147f, 5.155, 5.155f
hallucinations and, 5.155, 5.176–177
resection of, for seizures, visual field defects and,
5.155
Temporal nerve, 5.51f, 5.52, 5.276–277f
Temporal occipital parietal pontine pathway, 5.34f
Temporal retina, 5.24f, 5.25
Temporal wedge, 5.103
in glaucoma, 10.69
Temporalis muscle, 7.152f
"Temporary tarsorrhaphy," 7.255
Temporoparietal fascia, 7.151, 7.153
TEN. See Toxic epidermal necrolysis
Tenacious proximal fusion
definition of, 6.100
in intermittent exotropia, 6.71, 6.100
Tendency-oriented perimeter (TOP) algorithm, 10.61
Tendons–trocchlea complex, 6.20
Tenectomy, 6.164
Tenenovir–emtricitabine, 1.268
Tenon capsule, 8.6
Tenon capsule, 8.6
Tenotomy
definition of, 6.164t
superior oblique, for superior oblique myokymia,
5.251
superior oblique muscle, 6.112, 6.138
Tension rings, capsular (CTRs), for zonular
incompetence, 11.180, 11.181f, 11.183
Tension-type headache, 5.292
Tentation of, 5.292–293
Tensile test, 5.48
Tennis elbow, 5.48
Tennis elbow, 5.48
Tennis elbow, 5.48
amblyopia with, 6.138
anisocoria and, 5.256f, 5.265–266
clinical features of, 6.138
complete, 6.139
congenital, 6.138
diplopia and, 5.188, 5.191, 5.193f, 5.193–198, 5.194f, 5.195f, 5.196f, 5.196
divisional, 5.197
incomplete, 6.139
isolated, 5.192, 5.194, 5.197
in multiple sclerosis, 5.318
in younger patients, 5.197
isolated, 5.192, 5.194, 5.197
in multiple sclerosis, 5.318
management of, 6.138–140
neuroimaging in evaluation of, 5.70
partial, 5.193, 5.193f, 5.195–196, 5.196f
pupil-involving, 5.193, 5.194f, 5.194–195, 5.265
in younger patients, 5.197
pupil-sparing, 5.195–196, 5.196f
complete, 5.195
partial, 5.195–196, 5.196f
spontaneous recovery of, 6.138
surgical management of, 6.139–140
upper eyelid ptosis associated with, 6.138, 6.139
in younger patients, 5.197
pupil-sparing, 5.195–196, 5.196f
complete, 5.195
partial, 5.195–196, 5.196f
spontaneous recovery of, 6.138
surgical management of, 6.139–140
upper eyelid ptosis associated with, 6.138, 6.139
in younger patients, 5.197
Horner syndrome caused by lesions of, 5.258, 5.259, 5.260, 5.260
Horner syndrome caused by lesions of, 5.258, 5.259, 5.260, 5.260
Third-order aberrations, 13.12, 13.12
Third-order neuron dysfunction, 7.243–244
Third-order neurons, 5.52, 5.53
Third-order wavefront aberrations, 3.276
Third-order Zernike polynomials, 3.73
30° test, 5.95
Three cone opsins. See Color vision
Three-dimensional CT, 7.27, 7.27f
3-dimensional navigation, 7.33f
3-mirror lens, 12.22
3-o'clock staining, 3.233, 3.233f
3-piece foldable intraocular lens, insertion of, 11.116
3-step test
description of, 6.73–75, 6.74f
in fourth nerve (trochlear) palsy, 5.198–199
unilateral superior oblique muscle palsy diagnosis using, 6.120
3' untranslated region, 2.176
Three-zone multifocal intraocular lens, 3.259, 3.259f
Threshold, sensitivity, 5.86, 5.87f, 5.91
Threshold disease (retinopathy of prematurity), 12.177, 12.178t, 12.179, 12.180f, 12.181, 12.185
Threshold stimulus/testing (perimetry), 5.86, 10.61f, 10.61–62, 10.63f
Thrombi/thrombus. See Thrombosis/thrombotic disorders
Thrombin, 1.138, 2.446, 9.18
Thromboangiitis obliterans (Buerger disease), cataract caused by, 11.68
Thrombocytopenia
idiopathic thrombocytopenic purpura, 1.141–142
nonimmunologic, 1.142
thrombotic thrombocytopenic purpura, 1.142
Thrombocytosis, 1.142–143
Thromboembolism. See also Deep venous thrombosis in systemic lupus erythematosus, 1.160
venous. See Venous thromboembolism
Thrombolytic therapy
bleeding complications of, 1.94–95
indications for, 1.150
myocardial infarction treated with, 1.94–95
stroke treated with, 1.113
Thrombophilia, 1.146, 1.147–148. See also Hypercoagulable states
Third- order aberrations, 13.12, 13.12f
Third- order neuron dysfunction, 7.243–244
Third- order neurons, 5.52, 5.53f, 5.54
Horner syndrome caused by lesions of, 5.258, 5.259, 5.260, 5.260f
Three-dimensional CT, 7.27, 7.27f
3-dimensional navigation, 7.33f
3-mirror lens, 12.22
3-o'clock staining, 3.233, 3.233f
3-piece foldable intraocular lens, insertion of, 11.116
3-step test
description of, 6.73–75, 6.74f
in fourth nerve (trochlear) palsy, 5.198–199
unilateral superior oblique muscle palsy diagnosis using, 6.120
3' untranslated region, 2.176
Three-zone multifocal intraocular lens, 3.259, 3.259f
Threshold, sensitivity, 5.86, 5.87f, 5.91
Threshold disease (retinopathy of prematurity), 12.177, 12.178t, 12.179, 12.180f, 12.181, 12.185
Threshold stimulus/testing (perimetry), 5.86, 10.61f, 10.61–62, 10.63f
Thrombi/thrombus. See Thrombosis/thrombotic disorders
Thrombin, 1.138, 2.446, 9.18
Thromboangiitis obliterans (Buerger disease), cataract caused by, 11.68
Thrombocytopenia
idiopathic thrombocytopenic purpura, 1.141–142
nonimmunologic, 1.142
thrombotic thrombocytopenic purpura, 1.142
Thrombocytosis, 1.142–143
Thromboembolism. See also Deep venous thrombosis in systemic lupus erythematosus, 1.160
venous. See Venous thromboembolism
Thrombolytic therapy
bleeding complications of, 1.94–95
indications for, 1.150
myocardial infarction treated with, 1.94–95
stroke treated with, 1.113
Thrombophilia, 1.146, 1.147–148. See also Hypercoagulable states
Hypercoagulable states
atrial, 1.102
cerebral venous (CVT), 5.345–346
in idiopathic intracranial hypertension, 5.111
neuroimaging in, 5.69, 5.69f, 5.72f, 5.346
comma-shaped, 12.154
in NAION, 5.123
retinal vasculitis versus, 12.156
Thrombospondin 1, 2.301
Thrombotic disorders
activated protein C resistance, 1.146–147
description of, 1.146
hypercoagulable states, 1.146–148
primary hypercoagulable states, 1.146–148
Thrombotic thrombocytopenic purpura (TTP), 1.136, 1.142, 12.195
ThT (thioflavin T) stain, 4.31
"Thunderclap headaches," 5.346
Thygesen superficial punctate keratitis (SPK), 6.269, 8.306–307, 8.307f
Thymectomy, for myasthenia gravis, 5.326
Thymidine kinase, 2.434
Thymine, 2.176
Thymoma, in myasthenia gravis, 5.326
Thymoxamine hydrochloride, 2.387
Thyroglobulin, antibodies to, 1.42
Thyroid adenomas, 1.46
Thyroid antibody tests, 1.42–43
Thyroid-associated ophthalmopathy/orbitopathy. See Thyroid eye disease
Thyroid cancer
medullary, 1.46, 1.50
papillary, 1.46
types of, 1.46, 1.50
Thyroid carcinoma, retinoblastoma associated with, 4.302f
Thyroid disease. See also Thyroid eye disease
hyperthyroidism, 1.43–44
hypothyroidism, 1.44–45
physiology of, 1.41
superior limbic keratoconjunctivitis and, 8.83, 8.84
thyroiditis, 1.45–46
toxic nodular goiter, 1.44
tumors, 1.46
Thyroid eye disease (TED), 2.476f, 4.226, 4.227f, 5.131, 5.132f, 5.326–327, 6.140–141, 6.141f, 6.143f, 6.175, 6.215
asymmetric, 7.54f
autoimmune hyperthyroidism associated with, 7.57
Clinical Activity Score for, 7.58
Thyroid follicles, 1.41
Thyroid function tests
description of, 1.41
in subacute thyroiditis, 1.45
thyrotropin-releasing hormone, 1.42
Thyroid gland
biopsy of, 1.43
lymphoma of, 1.46
parafollicular cells of, 1.41
physiology of, 1.41
scanning of, 1.43
tumors of, 1.46
ultrasonography of, 1.43
Thyroid hormones
function of, 1.41
secretory suppression of, 1.44
T₆, See Triiodothyronine
t₆, See Thyroxine
Thyroid ophthalmopathy/orbitopathy/thyroid-related
immune orbitopathy. See Thyroid eye disease
Thyroid peroxidase antibody, 1.42
Thyroid-stimulating hormone (TSH), 7.34, 7.56
Thyroid-stimulating immunoglobulins (TSIs), 1.42, 6.140
Thyroid storm, 1.43
Thyroiditis, 1.45–46. See also specific type
Thyrotoxicosis, 1.43. See also Hyperthyroidism
Thyrotropin-binding inhibitory immunoglobulin (TBII)
test, 7.56
Thyrotropin-releasing hormone (TRH)
secretion of, 1.41
serum levels of, 1.42
tests of, 1.42
Thyroxine (T₄)
deiodination of, 1.41
levels of during pregnancy, 1.42
secretion of, 1.41
serum, measurement of, 1.42
structure of, 1.41
total, 1.42
Thyroxine-binding globulin (TBG), 7.34, 7.56
Thyrotropin-binding globulin (TBG), 1.41
TI (interpulse time), 5.75
TIAs. See Transient ischemic attacks
Tibia bone tissue keratoprosthesis (TKPro), 8.452
Tic
facial (habit spasm), 5.285
ocular, 6.201–202
Tic douloureux (trigeminal neuralgia), 5.289
Ticaricillin sodium, 2.418, 2.419
Ticks
Lyme disease transmitted by, 8.249
tick-borne diseases, 12.245–246
tick-borne encephalitis, 1.232
Tight junctions, 2.51, 2.52
in corneal epithelium, 8.8
Tightening procedures
for inferior oblique muscle, 6.166
for oblique muscles, 6.164–165, 6.166
for rectus muscles, 6.163–164, 6.164
for superior oblique muscle, 6.167
TIGR/myocilin (TIGR/MYOC) gene, 8.108
TIGR protein, 10.10
Tilt
definition of, 3.42
intraocular lenses, 3.250
Tilted disc syndrome, 12.217
congenital, 5.144, 5.145
description of, 6.365–366, 6.366
Time-domain optical coherence tomography (TD-OCT), 3.303–304, 3.304
“Time out”
before ECCE, 11.196
before phacoemulsification, 11.104–105
preoperative, 13.82
Time to echo (TE), 5.62, 5.75, 5.76
Time to repetition (TR), 5.62, 5.76
Timentin, 1.273
Timolol, 2.389, 10.174–175
in children, 10.165
in combination preparations, 10.175
for glaucoma, 10.175
for infantile hemangiomas, 7.72
Timolol hemihydrate, 2.389
Timoptic, 2.389
in primary congenital glaucoma evaluations, 6.281–282
LASIK, 13.105
surface ablation, 13.105
Schiötz (indentation), 10.19, 10.26
sources of error in, 10.23–24, 10.24
TOP algorithm. See Tendency-oriented perimeter (TOP) algorithm
Topical anesthesia/anesthetics. See also Anesthesia (anesthetics), local
absorption of, 2.355–356
binding of, 2.358
for cataract surgery, 11.92
concentration of, 2.356–357
description of, 2.441–442
eyedrops, 2.352–358
ionic charge of, 2.358
lipid solubility of, 2.357
ointments, 2.358–359
for penetrating and perforating trauma repair, 8.403–404
pH, 2.358
for phakic IOL insertion, 13.141
pharmacokinetics of, 2.355
for photoablation, 13.82
reflex tearing and, 2.358
retention of, 2.352–355
solubility of, 2.356–357
surfactants, 2.358
viscosity of, 2.357
Topiramate, 1.207–208, 1.308
choroidal swelling caused by, 12.201
glaucoma caused by, 6.284
for idiopathic intracranial hypertension, 5.112, 6.371
for migraine prophylaxis, 5.293
myopia caused by, 12.305
ophthalmic/retinal side effects of, glaucoma and, 10.145, 10.145–146
Topographic maps, 8.28–33, 8.29–33f, 13.14–19, 13.15f, 13.17f, 13.19f, 13.44–45, 13.45f. See also Cornea, topography of
interpretation of, 8.28–31
in keratoconus, 8.165, 8.165f, 8.167f
in pellucid marginal degeneration, 8.31, 8.33f, 8.169, 8.170f
postoperative, 13.23, 13.24f
Topography, 4.6, 4.12f
anterior chamber, 4.97f, 4.97–98, 4.98f
choroidal, 4.181f, 4.182–183, 4.183f
ciliary body, 4.181f, 4.182, 4.183f
conjunctival, 4.47, 4.48f
corneal, 4.73, 8.15, 8.28–36, 8.29–33f, 8.35f, 13.14–19, 13.15–19f, 13.44–45, 13.45f, 13.79f. See also Cornea, topography of
before cataract surgery, 11.84, 11.86, 11.174
Placido-based, 13.7–9, 13.14–17, 13.15f, 13.20–21f, 13.25f
eyelid, 4.201f, 4.201–202
iris, 4.181–182, 4.181–182f
d lens, 4.115f, 4.115–117, 4.116f
optic nerve/nerve head/disc, 4.241, 4.242f, 10.53
orbital, 4.223
Placido-based. See Placido-based topography/Placido disk
retinal, 4.139–140, 4.140f, 4.141f, 12.9f, 12.9–10
retinal pigment epithelium, 4.140f, 4.141, 4.141f
ciliary, 4.107f, 4.107–108, 4.108f
trabecular meshwork, 4.97f, 4.97–98, 4.98f
uvea, 4.181f, 4.181–183, 4.182f, 4.183f, 4.183f
vitreous, 4.125
Topography-guided photoablation, 13.32, 13.77
outcomes of, 13.97
Topography-guided photorefractive keratectomy (T-PRK), corneal crosslinking and, 13.206–207
Topoisomerase inhibitors, 1.240
TORCH syndrome, 9.260
Torcular Herophili, 5.22, 5.22f
Toric contact lenses, soft
 discontinuing use of before refractive surgery, 13.38
for radial keratotomy, 13.200
astigmatism correction using, 3.257
complications of, 11.151, 13.153
contraindication for, capsular decentration and, 11.183
corneal crosslinking with, 13.134, 13.207–208
definition of, 3.4, 3.15
dry eye therapy before use of, 11.173
meridians, 3.78f
outcomes of, 13.152–153
overrefraction with, 3.169
paraxial power of, 3.79
patient selection for, 13.151
after penetrating keratoplasty, 8.432, 13.179
planning/surgical technique for, 13.151–152
plate-haptic, 3.257
power-cross representation of, 3.77
power-versus-meridian graph of, 3.79f
properties of, 3.74
soft, 3.222–223
spherical equivalent of, 3.76
Toric surface
curvature variation of, along meridian, 3.16f
definition of, 3.42, 3.71
formation of, 3.15f
methods of describing, 3.18
nonocular objects with, 3.15
normal plane and, intersection between, 3.15f
Torsades de pointes, 1.104
Torsional deviations, dissociated, 6.17, 6.129
Torsional fusional vergence, 6.72
Torsional nystagmus, 5.245
Torsional phacoemulsification, 11.101
Torticollis
abnormal head position associated with, 6.82
differential diagnosis of, 6.82–84
evaluation of, 6.84
facial asymmetry and, 6.82
history-taking for, 6.63
ocular, 6.82–84, 6.83f
spasmus nutans and, 5.239
strabismus and, 6.63
Toxicity, 2.350–351
Total cataract, 11.38
Total exenteration, 7.146, 7.147f
Total internal reflection (TIR), 3.42, 3.50, 3.50f
Toiture syndrome, 6.202
facial twitching and, 5.285
Touton giant cells, 4.7, 4.9f, 6.271, 9.309
in juvenile xanthogranuloma, 4.187, 4.188f
Toxemia of pregnancy. See Eclampsia; Preeclampsia
Toxic anterior segment syndrome (TASS), 2.360, 11.129,
11.133–134
Toxic conjunctivitis, 3.232
Toxic epidermal necrolysis (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis/SJS-TEN), 1.208, 6.251–252,
6.252f, 7.237, 7.238f, 7.303, 8.285, 8.295–298, 8.296f,
8.297f
Toxic keratoconjunctivitis, medications causing,
See also Toxic keratoconjunctivitis
Toxic keratoconjunctivitis, 8.91. See also Toxic keratoconjunctivitis
Toxic keratoconjunctivitis, medications causing,
8.80–81, 8.81f, 8.90f, 8.90–91
Toxic keratopathy
central, after photoablation, 13.105f, 13.105–106
ulcerative, 8.80–81, 8.81f. See also Toxic keratoconjunctivitis
Toxic nodular goiter, 1.44
Toxic optic neuropathy, 1.199, 5.107f, 5.137–139
Toxic solutions, exposure to during cataract surgery,
toxic optic neuropathy, 1.199, 5.107f, 5.137–139
Toxoplasma gondii, as cause of, 9.275–277, 9.276f, 9.331
Tourette syndrome, 6.202f
Total internal reflection (TIR), 3.42, 3.50, 3.50f
Total exenteration, 7.146, 7.147
Total cataract, 11.38
Tortuosity, conjunctival vascular, 8.114, 8.115f
Toxoplasma canis, 9.283–284, 9.283–285, 12.244–245,
12.245f
Toxoplasma gondii
definition of, 12.243
retinocortioriditis caused by, 12.243–244, 12.244f,
ine HIV infection/AIDS, 5.352
ocular infection/inflammation caused by, 4.147–148,
4.148f
retinal, 4.147–148, 4.148f
uveitis in, 4.147
Toxoplasmosis, 1.258–259
ocular
in AIDS patients, 9.331
congenital, 9.276–277, 9.277f, 9.281
diagnosis of, 9.280
Goldmann-Witmer coefficient for, 9.91
manifestations of, 6.409–410, 6.410f
punctate outer retinal, 9.279, 9.279f
pyrimethamine for, 9.281
retinocortioridotic scar caused by, 9.278, 9.278f
retinocortioriditis caused by, 9.278, 9.278f, 9.280,
sulfadiazine for, 9.281
Toxoplasma gondii as cause of, 9.275–277, 9.276f,
9.331
treatment of, 9.280–282
TP-PA. See Treponema pallidum particle agglutination assay
tPA. See Tissue plasminogen activator
TPCD. See Typical peripheral cystoid degeneration
TPMT. See Thiopurine-S-methyltransferase
TR. See Repetition time
TR (time to repetition), 5.62, 5.76
Trabecular meshwork inducible glucocorticoid 
display of, 10.19, 10.209–211, 10.210
complications of, 10.209
in children, 10.161, 10.163
with cataract surgery, 10.211–213
failed, tube shunt implantation after, 10.215
flap management in, 10.207–208
indications for, 10.197
limbus-based, 2.56
antifibrotic agents used with, 10.205–207, 10.207f,
10.208f
bleb-related endophthalmitis and, 10.205–207, 10.207f,
10.208f
for open-angle glaucoma, 10.113–115
postoperative considerations in, 10.208–209
preoperative evaluation for, 10.198–199
technique for, 10.199–205
for conjunctival incision/flap, 10.200, 10.201f, 10.202f
closure and, 10.204, 10.206f
management and, 10.207–208
for exposure, 10.199, 10.200f
for iridectomy, 10.202, 10.204f
for keratectomy, 10.201–202, 10.204f
for paracentesis, 10.201, 10.203f
for scleral flap, 10.200–201, 10.203f
closure and, 10.202–204, 10.205f
management and, 10.207–208
Trabeculitis, in glaucomatocyclitic crisis (Posner-Schlossman syndrome), 10.101
Trabeculocytes, 2.63
Trabeculoplasty, 10.161, 10.162f
Trabeculotomy
description of, 10.160, 10.161–162, 10.162f, 10.163 for primary congenital glaucoma, 6.286f, 6.286–287
Tracheotomy, 1.302
Trachilemmal cell, 2.342
Trachoma, 6.241, 8.260–263, 8.261f, 8.262f
Traumatic retinal detachment, 6.348f, 6.360, 9.237.
See also Retinal detachment
description of, 12.286
diagnostic features of, 12.321f, 12.325
in familial exudative vitreoretinopathy, 12.343
imaging of, 12.387f
management of, 12.325
pathophysiology of, 12.387
in proliferative diabetic retinopathy, 12.103, 12.108, 12.387–388
rhegmatogenous retinal detachment versus, 12.325
vitrectomy for, 12.325, 12.387–388
Tractus solitarius, nucleus of, 5.55
Trade magnification, 3.321–322
Trait
definition of, 2.202
dominant, 2.202–203
recessive, 2.202
syntenic, 2.217
Tram-tracking/tram-track sign, 7.86
in optic nerve sheath meningioma, 5.127f, 5.128f
Tranexamic acid, 2.446–447
for hyphema, 8.395
Transconjunctival cryopexy, 12.398
Transconjunctival incisions
for inferior orbitotomy, 7.126–127, 7.127f
for medial orbitotomy, 7.128
for superior orbitotomy, 7.125
Transcranial Doppler ultrasonography
carotid stenosis diagnosis using, 1.116
stroke evaluations using, 1.113
Transcription factor 4 (TCF4) gene, in Fuchs endothelial corneal dystrophy, 8.136t, 8.156
Transcription factors, 2.179
Transcutaneous incisions
for inferior orbitotomy, 7.126, 7.126f
for medial orbitotomy, 7.128
for superior orbitotomy, 7.125
Transducin, 2.308
Transendothelial osmotic force, 8.9
Transepithelial ablation, debridement for, 10.160, 10.161–162, 10.162f
description of, 10.160, 10.162f
for pigmentary glaucoma, 10.96
selective (SLT), 10.188, 10.189, 10.190, 10.190f
closure and, 10.202, 10.204, 10.205f
Management and, 10.207–208
for conjunctival incision/flap, 10.200, 10.201f
for keratectomy, 10.201–202, 10.204f
for paracentesis, 10.201, 10.203f
for scleral flap, 10.200–201, 10.203f
closure and, 10.202–204, 10.205f
management and, 10.207–208
Trabeculitis, in glaucomatocyclitic crisis (Posner-Schlossman syndrome), 10.101

monocular (TMVL), 5.161, 5.163r, 5.163–171.
See also Monocular transient visual loss
pattern of, 5.162
recovery pattern and, 5.162
Transillumination, 4.28f, 4.28–29
in choroidal melanoma/ciliary body melanoma
diagnosis, 4.267, 4.267f
iris, 6.265
in albinism, 4.142, 4.142f
in pathologic examination, 4.28f, 4.28–29
Transit amplification, in stem cell differentiation, 8.92
Transitional zone (peripheral zone), corneal, 8.25, 8.25f
Transketolase, 2.260
Transitional zone (peripheral zone), corneal, 8.25, 8.25f
Transillumination, 4.28f, 4.28–29
Transplantation. See also specific type
Transplant rejection. See
Transmissible spongiform encephalopathies, 1.211, 5.357
Transplant (window) defect
of fluorescence. See Hyperfluorescence
hyperfluorescence in, 12.36
Transplantation. See also specific type
amniotic membrane. See Amniotic membrane
transplantation (AMT)/graft
cardiac, 1.100
conjunctival, 8.351t, 8.353t, 8.353–355, 8.354f, 8.356
autografts/autologous, 8.351t, 8.353t, 8.353–355, 8.354f, 8.356
for chemical injuries, 8.383
indications for, 8.351t, 8.353, 8.356
for limbal stem cell deficiency, 8.94
in pterygium surgery, 8.351, 8.353
for limbal, 8.94, 8.351t
rejection and, 4.84, 4.85f, 8.354, 8.356
for chemical injuries, 8.380, 8.384
for metastatic eye disease, 4.310
for retinoblastoma, 4.300
11-trans-retinal, 12.31
11-trans-retinaldehyde, 12.17
Transcendal cryopexy, 12.398
Transscleral cyclophotocoagulation (cyclodestruction), 10.194, 10.195–196, 10.196
for pediatric glaucoma, 10.163–164
Transhepatic echocardiography (TTE), 1.118
Transhyretin (TTR/prealbumin), 2.326
amyloidosis/amyloid deposits and, 4.134, 4.135, 4.206, 8.187
Transstachael ventilation, 1.299
Transverse (spin-spin) relaxation time (T2), 5.62, 5.63
Transverse (spin-spin) relaxation time (T2), 5.62, 5.63
transverse sinus, 5.22, 5.22f
Transverse scans, 2.464–467, 2.466–467f
Transverse sinus, 5.22, 5.22f
endovascular stenting of, for idiopathic intracranial
hypertension, 5.113
thrombosis in, 5.69f, 5.345–346
“Trapdoor”-type fractures, 2.9
Traquair, junctional scotoma of, 5.146–147
Transthyretin, 4.13
Transthyretin (TTR/prealbumin), 2.326
amyloidosis/amyloid deposits and, 4.134, 4.135, 4.206, 8.187
Transthyretin, 4.13
endovascular stenting of, for idiopathic intracranial
hypertension, 5.113
thrombosis in, 5.69f, 5.345–346
“Trapdoor”-type fractures, 2.9
Traquair, junctional scotoma of, 5.146–147
Transthyretin, 4.13
Transthyretin (TTR/prealbumin), 2.326
amyloidosis/amyloid deposits and, 4.134, 4.135, 4.206, 8.187
Transthyretin, 4.13
endovascular stenting of, for idiopathic intracranial
hypertension, 5.113
thrombosis in, 5.69f, 5.345–346
“Trapdoor”-type fractures, 2.9
Traquair, junctional scotoma of, 5.146–147
Transthyretin, 4.13
chemical injuries, 6.376, 8.375–384, 8.376f
chiasmal injury caused by, 5.152
in children, 12.316–317
choroidal rupture, 12.354–12.356f, 12.354–355
classification of, 12.351
closed-globe, 12.351–352
commotio retinae, 12.353, 12.354f
concussive (blunt), 8.387–396, 8.388f, 8.389f, 8.390f, 8.391f, 8.392f, 8.393f, 8.394f, 8.395f. See also Blunt (concussive) trauma
correction insufficiency caused by, 5.227
corneal abrasion, 6.376
corneal blood staining and, 8.394, 8.394f, 8.395, 8.395f, 10.104, 10.104f, 10.105
Descemet membrane rupture and, 4.17, 4.18f
diplopia after, 5.186, 5.206
ectopia lentis caused by, 11.40
depthnathritis after, 12.362–363
evaluation of patient after, 12.351–353, 12.352f
eylid. See Eyelid(s), surgery/reconstruction of; Eyelid(s), trauma to
fibrocellular proliferation secondary to, 4.20–22, 4.21f, 12.315
fourth nerve (trochlear) palsy caused by, 5.199, 5.200
funeral keratitis associated with, 4.78
glaucoma associated with, 4.103–104, 4.104f, 10.39–40, 10.40f, 10.41f, 10.98, 10.103–108, 10.104f, 10.106f, 10.107f
angle closure/angle-closure glaucoma and, 10.142
fibrous ingrowth and, 10.142, 10.143f
angle recession and, 4.18, 4.103–104, 10.39–40, 10.40f, 10.41f, 10.106–108, 10.107f
in children and adolescents, 10.149f
lens particle glaucoma and, 10.98, 11.67
open-angle glaucoma and, 10.40f, 10.40–41, 10.41f, 10.106–108, 10.107f
phacoantigenic glaucoma and, 10.98
handheld laser-pointer injury, 12.369
histologic sequelae of, 4.17–23, 4.18f, 4.19f, 4.20f, 4.21f, 4.22f, 4.23f
hyphema, 6.378f, 6.378–379
incidence of, 6.375
in infants, 12.316–317
intraocular pressure evaluations, 12.352
lacrimal sac, 7.312
laser-pointer injury, 12.369
LASIK flap dislocation and, 13.115–116
lens damage/cataracts caused by, 4.18, 11.53–59, 11.54f, 11.55f, 11.56f, 11.58f, 11.59f, 11.190–193, 11.192f
lenticula and, 10.98, 11.67
phacoantigenic uveitis and, 4.118–119, 4.119f, 11.66, 11.191
surgery for, 11.192
macular hole caused by, 12.355–357, 12.356f
management of, 6.375
microsurgery for, 12.351
Moore’s ulcer and, 8.314
nasolacrimal duct, 7.306, 7.312
neuroimaging in evaluation of, 5.72f, 5.73f, 5.139f, 5.140f
nonaccidental abusive head trauma, 6.381–384, 6.382–383f, 12.365–366, 12.366f
ocular injury secondary to, 6.384
occupational light toxicity, 12.369
ocular infection and, 8.247, 8.403
ocular surface, 8.375–409
Ocular Trauma Score, 12.364, 12.364f
open-globe description of, 12.351–352
traumatic foreign bodies, 12.351–352, 12.360–362, 12.361f
lacerating injuries, 12.358
needle perforation/perenetrating, 12.358, 12.395f, 12.395–396
penetrating injuries, 12.358
prognosis for, 12.363–364
scleral rupture, 12.358
optic nerve head avulsion caused by, 12.365, 12.365f
optic neuropathy caused by, 5.107f, 5.139f, 5.139–140, 6.381
orbital. See Orbital trauma
orbital roof fractures, 6.380, 6.380f
penetrating and perforating, 6.376–378, 6.377f, 8.396–409. See also Penetrating and perforating ocular trauma; Trauma
phototoxicity from ophthalmic instrumentation, 12.366–369
prognosis after, 12.363–364
ptosis caused by, 5.273f, 5.274
pupil irregularity caused by, 5.255
restricted conditions caused by, 5.186, 5.206
retinal breaks caused by, 12.315–316, 12.316f
retinal detachments caused by, 12.317
retinal scotopetria, 12.356–358, 12.357f
scleral rupture, 12.352
seventh nerve (facial) palsy caused by, 5.278f, 5.280
sixth nerve (abducens) palsy caused by, 5.201
spheroideal degeneration and, 8.116–117
subconjunctival hemorrhage caused by, 8.387–388, 8.388f
submacular hemorrhage secondary to, 12.354f
surgical, open-angle glaucoma and, 10.108–109
sympathetic ophthalmia and, 4.185, 12.364–365
temperature and radiation causing, 8.384–386, 8.385f
thermal injury, 6.376
uveal tract, 4.18, 4.19f
vitreous hemorrhage secondary to, 12.357
whiplash, 12.356–357
in young patients, 12.316–317
Traumatic anterior uveitis, 8.389–390
Traumatic brain injuries (TBIs), 1.191
Traumatic breaks in Descemet membrane, 6.262, 6.262f
Traumatic corneal endothelial rings, 8.388
Traumatic hyphema, 8.391–396, 8.392–394f, 8.395f
glaucoma/elevated intraocular pressure and, 8.394, 10.104f, 10.104–105
medical management of, 8.394–395
rebleeding after, 8.394, 8.394f, 10.104, 10.105
sickle cell disease/retinopathy/elevated intraocular pressure and, 8.395, 8.395f, 8.396, 10.104, 10.105
surgery for, 8.395f, 8.395–396, 8.396, 10.105
Trichinosis, 7.53, 8.389
Trichinella spiralis, 7.194
Trichilemmomas, 4.210
Trichilemmal cyst, 7.189
Trichiasis, 7.235, 7.239, 7.239–240, 8.88
See TRH.
Treponemal antigen tests, 1.223, 1.253
Treponema pallidum
Treg cells. See T regulatory (Treg) cells
Trefoil, 3.275–276, 13.103, 13.9, 13.12, 13.13, 13.103f
Tree sap, ocular injuries caused by, 8.387
Treacher Collins/Treacher Collins–Franceschetti syndrome (mandibulofacial dysostosis), 6.196, 6.211, 6.211f, 7.38f, 8.192t
eyelid manifestations of, 4.207t
Tree sap, ocular injuries caused by, 8.387
Trefoil, 3.275–276f, 13.9, 13.12, 13.13f, 13.103f
after LASIK, 13.103f
Treg cells. See T regulatory (Treg) cells
Tremor, in Parkinson disease, 1.204, 2.407, 2.444
Triamcinolone, 1.175, 2.371, 2.360f
Trial lens, 3.164f
Trial lens fitting. See Fitting (contact lens)
Trial frames. See also Phoropter Fitting (contact lens)
for nonorganic disorder evaluation, 5.306
Triamcinolone, 1.175, 2.370f, 2.371t, 2.407, 2.444
branch retinal vein occlusion treated with, 12.137f
for chalazion, 8.77f
for corneal graft rejection, 8.430
for corneal graft rejection, 8.430
for diabetic macular edema treated with, 12.113
intravitreal (IVTA), for macular edema/diabetic macular edema, 4.152
for scleritis, 9.127
uveal effusion syndrome treated with, 12.203
for uveitis
inferior transseptal injection of, 9.96, 9.97f
intravitreal injection of, 9.96f, 9.97f
posterior sub-Tenon injection of, 9.95, 9.96f
for vernal keratoconjunctivitis, 8.291t
Triamcinolone, 1.175, 2.370f, 2.371t, 2.407, 2.444
branch retinal vein occlusion treated with, 12.137f
for chalazion, 8.77f
for corneal graft rejection, 8.430
for corneal graft rejection, 8.430
for diabetic macular edema treated with, 12.113
intravitreal (IVTA), for macular edema/diabetic macular edema, 4.152
for scleritis, 9.127
uveal effusion syndrome treated with, 12.203
for uveitis
inferior transseptal injection of, 9.96, 9.97f
intravitreal injection of, 9.96f, 9.97f
posterior sub-Tenon injection of, 9.95, 9.96f
for vernal keratoconjunctivitis, 8.291t
Trizol, 1.277, 2.429–431, 2.430f
for Acanthamoeba keratitis, 8.278
Trichiasis, 7.235, 7.239f, 7.239–240, 8.88
in staphylococcal blepharitis, 8.74
Trichilemmal cyst, 7.189
Trichilemmomas, 4.210t, 7.194
Trichinella spiralis, 7.53
Trichinosis, 7.53
Tricholemmomas, 4.210, 7.194
Trichophithelioma, 6.201, 6.201f, 7.186, 7.186f
Trichomiasis, 12.249
Tricyclic antidepressants, 1.203t
apraclonidine/brimonidine interactions and, 10.179
Trifluridine, 2.432, 2.433, 8.215f
for herpes simplex virus infections, 8.215f, 8.219, 8.222, 8.223t
epithelial keratitis, 8.219
stromal keratitis, 8.222, 8.223t
for vaccinia infection, 8.238
Trifocal lenses, 3.180–182
Trifocal optics, for multifocal IOL, 13.166
Trigeminal autonomic cephalgias (TACs), 5.293–294
Horner syndrome and, 5.260f, 5.261
Trigeminal ganglion (gasserian/semilunar ganglion), 2.131, 5.42f, 5.48, 5.48f, 7.14
herpes simplex/varicella-zoster virus latency and, 8.205, 8.207, 8.212, 8.213, 8.226
Trigeminal lemniscus, 5.47f
Trigeminal nerve. See Cranial nerve V
Trigeminal neuralgia (tic douloureux), 5.289, 5.297
Trigeminal nucleus, 5.47. See also Cranial nerve V
Triglycerides
lipoprotein transport of, 1.72
lowering levels of. See Lipid-lowering therapy nonpharmacologic management of, 1.75
Trihexyphenidyl, 1.205
Triiodothyronine (T3)
serum, measurement of, 1.41
secretion of, 1.41
sodium, measurement of, 1.42
Trilateral retinoblastoma, 4.298
Trimethoprimsulfamethoxazole (TMP-SMX), 1.276
for granulomatosis with polyangiitis, 7.64
for ocular toxoplasmosis, 9.281–282
for Pneumocystis jirovecii choroiditis, 9.332
for toxoplasmic retinochoroiditis, 12.243–244
for Whipple disease, 9.245
Trimethoprim with sulfonamides. See Trimethoprim-sulfamethoxazole
Trinucleotides, 2.176, 2.178
TRIO (thyroid-related immune orbitopathy). See Thyroid eye disease
Triple procedure, 11.175–176
Trisomy, 2.222
Trisomy 8, in choroidal/ciliary body melanoma, 4.197
Trisomy 13, 6.368t
Trisomy 18, 6.368t
Trisomy 21 (Down syndrome). See also Down syndrome genetic errors in, 2.223
mosaicism, 2.225
pharmacogenetics and, 2.233–234
Tristanomalous dichromatism, 12.250f
Tristanomalous trichromatism, 12.250f
Tristanopia (tritan defects/blue-yellow color confusion) in optic atrophy, 5.135
tests for, 5.78–79
Trivariant color vision, 2.312. See also Color vision
Trivex, 3.196
tRNA. See Transfer RNA
Tropheryma whipplei, 5.251, 9.311
Trophicapparatus, 5.46
Trophic dysfunction, 5.46
Trophic germ, 5.46
Trophicophore, 5.46
Trophic ornament, 5.46
Trophic processes, 5.46
Trophic region, 5.46
Trophic structures, 5.46
Trophic system, 5.46
Trophic cells, 5.46
Trophic complexes, 5.46
Trophic glands, 5.46
Trophic group, 5.46
Trophic processes, 5.46
Trophic regions, 5.46
Trophic structures, 5.46
Trophic system, 5.46
Trophic zone, 5.46
Trophicul synthesis, 5.46
Trophicul transcription, 5.46
Trophicul translation, 5.46
ocular surface, 8.327–350. See also Ocular surface, tumors of
optic nerve/nerve head/disc, 4.248f, 4.248–250, 4.249f, 4.250f
orbital, 4.228–240
ciliary, 4.112, 4.113f
secondary, 4.303–310. See also Metastatic eye disease
orbital, 4.228, 4.240
retinoblastoma and, 4.302, 4.302f
thyroid, 1.46uveal tract, 4.189–199, 4.200f
vitreous, 4.135f, 4.135–137, 4.136f
Tumor-associated calcium signal transducer 2 (TACSTD2) gene, in gelatinous droplike corneal dystrophy, 8.136f
Tumor necrosis factor (TNF) α characteristics of, 9.23f
in dry eye, 8.53f
immune response suppression by, 9.25
inhibitors of, 1.180, 2.405t
description of, 6.322
optic neuropathy caused by, 5.137
for scleritis, 8.324, 8.325f
tumor necrosis factor (TNF) α inhibitors of
for Behçet disease, 9.217–218
side effects of, 9.139–140
in mucous membrane pemphigoid, 8.299
β, 9.23f
in external eye defense, 8.11–13
Tumor suppressor genes, 1.235. See also specific type
definition of, 2.183
elements of, 2.183
examples of, 2.183–184
in ocular surface squamous neoplasia, 4.60
in pinguecula/pterygium, 4.57f
Tunica vasculosa lentis, 2.154, 2.158f, 11.29, 11.29f, 12.186, 12.340–341
remnant of epicapsular star, 11.31, 11.32f/Mittendorf dot, 4.126, 11.29, 11.31, 11.32f
Turbin tumors, 7.193
Turbinates
anatomy of, 7.19
infrastructure of, 7.294
Turner syndrome, 2.225, 6.386t
TVL. See Transient visual loss
Twin studies
in age-related cataract, 11.41–42
in glaucoma, 10.10
TWIST gene, 6.206
2-hit hypothesis, 2.184
Two-sided lenses
depth of field, 3.57, 3.58f
depth of focus, 3.57, 3.58f
description of, 3.54–57
principal planes, 3.56–57, 3.57f
“thick-lens formula” for, 3.54–55
Tympanic segment of cranial nerve VII (facial), 5.52
Tyndall effect
definition of, 3.97
scattering of light and, 3.97
Type 1 diabetes mellitus. See Diabetes mellitus, type 1
Type 2 diabetes mellitus. See Diabetes mellitus, type 2
Typhoid fever vaccination, 1.232
Typical degenerative retinoschisis, 4.148, 12.326
Typical peripheral cystoid degeneration (TPCD), 4.148, 4.149f, 12.326
Tyrosine aminotransferase, defective, 8.183
tyrosinemia, 2.204, 8.183f, 8.183–184, 8.184f
alkaptonuria and, 8.184
conalbumin and, 8.184f
types II, 6.270
Tyrosinuria, 8.183f, 8.183
Tysabri. See Natalizumab
U
UbiA prenyltransferase domain-containing protein 1 (UBIAD1) gene, in Schnyder corneal dystrophy, 6.270, 8.136f
UMB. See Ultrasound biomicroscopy
UC. See Unilateral (UC) fixation
UC fixation. See Unilateral (UC) fixation
UCVA/UDVA. See Uncorrected/uncorrected distance visual acuity
UDAd. See Underdepression in adduction
UDP (uridine diphosphate) galactose 4-epimerase deficiency, galactosemia/cataract formation and, 11.61
UEAd. See Underelevation in adduction
UFH. See Unfractionated heparin
UGH syndrome. See Uveitis-glaucoma-hyphema (UGH) syndrome
Uthoff phenomenon, 5.162, 5.317
UKPDS (United Kingdom Prospective Diabetes Study), 12.96–97
Ulcera(s)
concentrative, 8.47t
corneal. See Corneal ulcers; Keratitis
eyelid, 8.45t
Mooren, 8.313–316, 8.315f
neurotrophic. See Neurotrophic keratopathy/ulcers
Ulcereat basal cell carcinoma. See Basal cell carcinoma
Ulcereative colitis, 1.156
Ulcereative keratitis/peripheral ulcerative keratitis (PUK), 8.51f, 8.311f, 8.311–313, 8.312f. See also Keratitis differential diagnosis of, 8.311, 8.311f
in rosacea, 8.71f
in systemic immune-mediated diseases, 8.51f, 8.311t, 8.311–313, 8.312f
Ulcereative keratopathy, toxic, 8.80–81, 8.81t. See also Toxic keratoconjunctivitis
ULE. See Upper eyelid(s), excursion
Ultrafiltration, 2.271
in aqueous humor dynamics/formation, 10.16
Ultrashort laser pulses, 3.117–118
Ultrasonography/ultrasound (echography), 5.72f
A-scan, 2.463f, 2.463t, 2.463–464, 3.244–245, 3.245–246f, 7.31. See also A-scan
ultrasonography/echography
for axial length measurement
   in IOL power determination/selection, 11.82–83, 11.83f, 11.85, 11.87
   in primary congenital glaucoma, 10.160
   anterior segment (ultrasound biomicroscopy/UBM), 4.265, 8.20–21, 8.21f
   in choroidal/ciliary body melanoma, 4.265
   before corneal transplantation, 8.418
   in glaucoma, 10.77, 10.124f
   pediatric glaucoma and, 10.160
   applanation, 3.245, 3.245f
   applications of, 12.40
   for axial length measurement, 3.244–246, 3.245–3.246f
   in IOL power determination/selection, 11.82–83, 11.83f, 11.85, 11.87
   hypotony affecting, 11.185
   in primary congenital glaucoma, 10.160
   B-scan, 7.31. See also B-scan ultrasonography/echography
   axial scans, 2.464–465, 2.464–465f
   contact, 12.39, 12.39f
   dynamic, 2.467–468, 2.469f
   in glaucoma, 10.77
   pediatric glaucoma and, 10.160
   longitudinal scans, 2.464, 2.466f, 2.468–469f
   probe for, 2.463f
   tissue-specific gain setting for, 2.469f
   transverse scans, 2.464–467, 2.466–467f
   types of, 2.464, 2.465f
   cardiac emboli identification and, 5.168
   in carotid artery evaluation, 5.70, 5.167
   before cataract surgery, 11.81, 11.82–83, 11.83f, 11.87
   hypotony and, 11.185
   in choroidal hemangiomia, 4.281, 4.282f
   in choroidal melanoma/ciliary body melanoma, 4.265–267, 4.266f
   in corneal topography/tomography, 8.35f
   before corneal transplantation, 8.418
   definition of, 2.462
   devices for, 2.462, 2.463f
   disease-/disorder-specific findings, 2.470–471f
   Doppler, 5.70, 7.31
   high-frequency, 2.462
   immersion, 3.245, 3.246f
   indications for, 2.462
   intraocular foreign-body evaluations, 12.352
   in IOL power determination/selection, 11.82–83, 11.83f, 11.87f
   in iris melanoma, 4.260, 4.261f
   low-frequency, 2.462
   in low vision evaluation, 5.95
   in lymphoma, 4.311–312
   macula imaging on, 2.469f
   in metastatic eye disease, 4.307, 4.307f
   in optic nerve/head/disc drusen, 5.95, 5.141f, 5.142
   versus papilledema, 5.141f, 5.142–143
   orbital disorders evaluated using, 7.31
   in orbital evaluation, 5.70–71, 5.72f
   orbital foreign bodies on, 7.117
   for pachymetry, 8.41. See also Pachymetry/pachymeter
   for intrastromal corneal ring segment placement, 13.64
   before refractive surgery, 13.45
   for phacoemulsification, 11.98
   terminology related to, 11.99–100
   in posterior scleritis, 8.322, 8.322f
   retinal disease evaluations using, 12.39–40
   in retinoblastoma, 4.292
   of thyroid gland, 1.43
   in uveal lymphoid proliferation/infiltration, 4.314
   in uveitis evaluations, 9.89–90
   for vitreous hemorrhage, 12.347
   Ultrasonic biomicroscopy (UBM), 4.265, 8.20–21, 8.21f
   of anterior chamber, 2.60f
   anterior chamber evaluations, 12.40
   axial scans, 2.468, 2.471f
   characteristics of, 2.468
   in choroidal/ciliary body melanoma, 4.265
   ciliary body evaluations, 12.40
   before corneal transplantation, 8.418
   in glaucoma, 10.77, 10.124f
   pediatric glaucoma and, 10.160
   ocular anatomy on, 2.471–472f
   radial scans, 2.468–469, 2.472f
   Ultrathin Descemet stripping endothelial keratoplasty (ultrathin DSEK), 8.439–440
   Ultraviolet-A (UVA) light, 3.114, 3.118, 3.193
   Ultraviolet-absorbing chromophores/filters, IOLs with, 11.120
   Ultraviolet-absorbing lenses, 3.193–194. See also Sunglasses
   cataract prevention and, 11.58
   Ultraviolet-B (UVB) light, 3.118, 3.193–194
   Ultraviolet-C (UVC) light, 3.193–194
   Ultraviolet (UV) light (ultraviolet [UV] radiation)
   blockage of, 2.288f, 2.338
   in corneal crosslinking, 13.130–131, 13.132, 13.134
   definition of, 2.286
   eye disorders/injury associated with. See also Light toxicity/photic damage/phototoxicity
   actinic keratopathy, 4.83, 4.83f, 8.116
   actinic keratosis, 4.210
   anterior segment injury, 8.385–386
   basal cell carcinoma, 4.212f, 4.212–213, 4.213f
   cataracts, 11.57–58
   corneal haze after surface ablation and, 13.109
   eyelid tumors, 4.210, 4.212f, 4.212–213, 4.213, 4.213f
   ocular surface squamous neoplasia, 4.60
   pinguecula, 4.56, 4.56f, 8.112
   pseudexfoliation, 11.65f, 11.65–66
   pterygium, 4.57, 4.57f, 8.112
   spheroidal degeneration (actinic/climatic droplet/Labrador keratopathy), 4.83, 4.83f, 8.116
   squamous cell carcinoma and, 4.213, 4.214f
   lenses absorbing. See also Sunglasses
   cataract prevention and, 11.58
   for light-adjustable IOLs, 13.153–154, 13.154f
   melanomas caused by, 1.220
   reactive oxygen species from, 2.339
   UM. See Unmaintained (UM) fixation
   Umbo (clivus), 5.5
   anatomy of, 12.9, 12.9f
   characteristics of, 12.10f
Unasyn, 1.273
Uncentral, unsteady, and unmaintained fixation, 6.6
Uncentral (UC) fixation, 6.6
Uncorrected distance visual acuity (UDVA), 13.39–40
Uncrossed diplopia, 6.75
Uncus, 5.45
Uncorrected, with photoablation, 13.102, 13.108
Uncerebral in adduction (UDAd), 6.17
Underelevation in adduction (UEAd), 6.17
Undifferentiated anterior uveitis, 9.146–147
Undifferentiated anterior ulceris, 9.146–147
Undifferentiated uveitis, 9.84
Unformed hallucinations, 5.158, 5.175, 5.176. See also Hallucinations
Unfractionated heparin (UFH), 1.149. See also Heparin
Unilateral eosinophilic granuloma, 6.219, 6.219f
Unilateral aphasis, 3.140, 3.207
Unilateral vision loss, 5.161, 5.163f, 5.163–171. See also Monocular transient visual loss
in low vision evaluation, 5.77
in nonorganic disorders, 5.305, 5.305f
in optic neuritis, 5.113
in plexiform neurofibromas, 6.395–396
in thyroid eye disease, 6.140, 6.141f, 7.58
Ureaphil. See Urea
Ureaplasma urealyticum, 9.132
Urethritis, 1.255
Uric acid
description of, 2.236
in gout, 8.188
Uridine diphosphate (UDP) galactose 4-epimerase deficiency, galactosemia/cataract formation and, 11.61
Urinary sphincter disturbances, in multiple sclerosis, 5.317
Urinary stones, 2.392
Urinary tract infections, Escherichia coli as cause of, 12.238
Urine alkalinization, 2.392
Urokinase, 2.445
extraocular muscles controlling, 5.36f, 5.46f
inferior oblique muscle, 5.36f, 5.46f
superior rectus muscle, 5.36f, 5.46f
Upper eyelids. See also Eyelid(s); specific disorders
anatomy of, 2.26, 7.160
anophthalmic ptosis of, 7.145f
blepharoplasty of brow ptosis and, 7.264
description of, 7.259
preoperative evaluation, 7.260
retraction caused by, 7.253f, 7.254
technique for, 7.261, 7.261f
crise incision of, 7.125, 7.165
crise of, 7.160, 7.242, 7.244
defects involving, reconstruction of, 7.220–221, 7.222f
dermatochalasis of, 7.259
development of, 2.163, 2.164f
drooping of. See Ptosis
tropion of, 7.234
everson of, 7.174, 7.176f
eversion of, 7.242
defire of, 7.160–161
hematoma of, in orbital roof fractures, 6.380, 6.380f
laceration of, 7.214f
laceration of, 7.214f
measurements of, 7.242
milia of, 7.189, 7.189f
muscles of, 2.33–35
orbital septum, 7.163
paralysis of, 7.255–256
in plexiform neurofibromas, 6.395–396
ptosis of, 7.240
in third nerve palsy, 6.138, 6.139f
retraction of
clinical features of, 7.253, 7.254f
in thyroid eye disease, 6.140, 6.141f, 7.58
trichiasis of, 7.239f
vertical splitting of, 7.125–126
von Graeef sign of, 7.25
Urate crystal deposition, in gout, 8.119, 8.188
Urate keratopathy/band keratopathy, 8.119, 8.188
Urea
in aqueous humor, 2.275
therapeutic uses of, 2.397–398, 2.398t
Urea-insoluble (membrane structural) lens proteins, 11.15f, 11.16–17
Urea-soluble (cytoskeletal) lens proteins, 2.285, 11.15f, 11.16–17
Ureaphil. See Urea
Ureaplasma urealyticum, 9.132
Uretithritis, 1.255
Uric acid
description of, 2.216
in gout, 8.188
Uridine diphosphate (UDP) galactose 4-epimerase deficiency, galactosemia/cataract formation and, 11.61
Urinary sphincter disturbances, in multiple sclerosis, 5.317
Urinary stones, 2.392
Urinary tract infections, Escherichia coli as cause of, 12.238
Urine alkalinization, 2.392
Urokinase, 2.445
Urologic cancer screening, 1.221
Uroporphyrinogen decarboxylase deficiency, in porphyria, 8.190
Urethral–Zavalia syndrome, 5.263
Urticating hairs, ocular inflammation caused by, 8.387
Uterine, 5.38, 5.39, 5.214, 5.215, 6.40
Ustekinumab, 1.180
Usher syndrome, 2.234, 2.313
US Preventive Services Task Force mammography recommendations, 1.217
US Pharmacopeia (USP), 2.372
Urticating hairs, ocular inflammation caused by, 8.387
Urrets-Zavalia syndrome, 5.263
Uroporphyrinogen decarboxylase deficiency, in
Urologic cancer screening, 1.221
Ultraviolet-A light
Ultraviolet-B light
Ultraviolet-C light
Uvea (uveal tract), 2.157, 2.269, 4.181–199, 4.200
types of, 12.284
genes and loci associated with, 12.257
topography of, 4.181–183, 4.182f, 4.183f
traumatic injury of, 4.18, 4.19f
tumors of, 4.189–199, 4.200f. See also specific tumor metastatic, 4.197, 4.198f, 4.303, 4.304–306, 4.305f, 4.306f, 4.307f, 4.308f, 4.309f
prognosis of, 4.309–310
miscellaneous, 4.197–199, 4.198f, 4.200f
pigmented, 4.279–280, 4.280f
Uveal (posterior) bleeding syndrome (polypoidal choroidal vasculopathy/PCV), 4.166f, 4.166–168, 4.167f
Uveal effusions/uveal effusion syndrome
angle-closure glaucoma and, 10.138–139
description of, 12.203, 12.204f
Uveal lymphoid hyperplasia, 9.308
Uveal lymphoid proliferation/infiltration/lymphoma (primary choroidal lymphoma), 4.199, 4.199f,
Uveal melanoma, 4.277–279
Uveal melanocytic proliferation, bilateral diffuse, 9.309
Uveal melanoma, 9.308
Uveal thickening, 12.234, 12.235f
Uveal trabecular meshwork, 2.63, 10.17, 10.18f
Uveitic glaucoma
angle-closure, 10.134, 10.139, 10.139f
in infants and children, 10.149f
after laser trabeculoplasty, 10.190
open-angle, 10.100–102, 10.102f
tube shunt/drainage device implantation for, 10.214
Uveitis, 4.185–187. See also Endophthalmitis; specific type acute
anterior. See Anterior uveitis, acute
definition of, 9.75
signs and symptoms of, 9.71f
ancillary testing for, 9.84–92, 9.86–87f, 9.88–89f
animal models of, 9.61–62
anterior. See Anterior uveitis
anterior chamber paracentesis for, 9.61–62
autoimmune. See Uveitis, noninfectious/autoimmune
bacterial. See Bacterial uveitis
band keratopathy caused by, 6.322
in Behçet disease, 12.230
biologic drugs for, 6.322
birdshot
characteristics of, 12.220f, 12.224–225, 12.225f
uveal lymphoma and, 12.234
blindness caused by, 9.68
cataract surgery in, 6.323, 11.139–140
cataracts and, 11.64f, 11.64–65, 11.188
after cataract surgery, 11.139–140
surgery in patients with, 11.64–65, 11.75, 11.140, 11.170–171, 11.188, 11.188f
in children, 9.320
chronic
calcific band keratopathy associated with, 9.313
definition of, 9.75–76
signs and symptoms of, 9.72f
systemic corticosteroids for, 9.102–103
classification of, 2.66, 6.311
anatomical, 9.68–75
clinical features, 9.75–76
Standardization of Uveitis Nomenclature system, 9.68–69, 9.69–70, 9.77, 9.80f, 9.147
clinical features of, 9.75–76
CMV, 8.231–232, 8.232
complications of. See also specific type
calculic band keratopathy, 9.143
f, 9.313
f, 9.143
f, 9.313–317
choroidal neovascularization, 9.324–325
epiretinal membranes, 9.323
glaucoma, 9.317–321
hypotony, 9.321
macular edema. See Uveitis, macular edema caused by
macular hole, 9.323
retinal neovascularization, 9.324–325
rhegmatogenous retinal detachment, 9.323–324
surgical treatment for, 6.322–323
vitreous opacification, 9.323–324
vitritis, 9.323–324
corticosteroids for, 6.320–321
adverse effects of, 9.94, 9.103, 9.143, 9.150
in children, 9.143
dose and duration of, 9.94, 9.102
intermediate, 9.149–150
intravitreal, 9.97–98, 9.102
local, 9.95
phacoantigenic, 9.137
sustained-release, 9.95
systemic, 9.102–103, 9.150
tapering of, 9.94
topical, 9.94–95, 9.130
definition of, 6.311, 9.67
descriptors of, 9.69f
diagnosis of, 6.319
ancillary testing in, 9.84–92, 9.86–87f, 9.88–89f
cytology, 9.91–92
fluid and tissue sampling tests, 9.90–91
history-taking for, 9.67, 9.83–84
imaging for, 9.67–68, 9.85–90, 9.88–89f
laboratory tests, 9.86–87f
patient factors in, 9.83f, 9.83–84
physical examination in, 9.67
signs, 9.77–83
differential diagnosis of, 6.312f, 9.84
diffuse. See Panuveitis
drug-induced, 9.139–140f, 9.139–141
Ebola virus as cause of, 1.264
endotoxin-induced, 9.8, 9.62
epidemiology of, 6.311, 9.68
equine recurrent, 9.62
evaluation of, 6.319, 9.71–74f
fluid and tissue sampling tests
antibody production, 9.91
ocular serology, 9.91
polymerase chain reaction tests, 9.90–91
Fuchs heterochromic (FHV/Fuchs heterochromic iridocyclitis/uveitis syndrome)
cataracts/cataract surgery and, 11.64f, 11.64–65
description of, 9.145–146, 9.146f
glaucoma and, 10.101–102, 10.102f
Goldmann-Witmer coefficient for, 9.41–42
keratic precipitates in, 9.248
medical management of, 9.93
glaucoma and, 10.100–102, 10.102f, 10.134, 10.139, 10.139f, 10.149f. See also Uveitic glaucoma;
Uveitis-glaucoma-hyphema (UGH) syndrome in children and adolescents, 10.149f
after laser trabeculoplasty, 10.190
tube shunt/drainage device implantation for, 10.214
NHL surgery in, 6.323
granulomatous, 9.76
HLA associations in, 9.63–66
HLA-B27 association with, 9.64
imaging tests for, 6.321f, 9.67–68, 9.85–90, 9.88–89f
color photography, 9.89
electroretinography, 9.90
enhanced depth imaging optical coherence tomography, 9.85, 9.88f
fluorescein angiography, 9.88, 9.89f
fundus autofluorescence, 9.89
indocyanine green angiography, 9.89
optical coherence tomographic angiography, 9.87
optical coherence tomography, 9.85, 9.88f
perimetry, 9.90
ultrasonography, 9.89–90
visual field testing, 9.90
immune recovery, 9.329, 12.235
immunomodulatory medications for, 2.404–406f
immunosuppressive therapy for, 6.321–322
indocyanine green angiography of, 12.38–39
infectious. See Infectious uveitis; specific causative agent
inflammation in, 6.320–322
intermediate. See Intermediate uveitis
intraocular lens–associated, 9.137–139, 9.138f
intraocular lymphoma and, 4.311, 12.233–234
ischemic, 5.170
laboratory tests for, 6.321f
lens-associated/phacoantigenic/phacoalytic, 4.103, 4.103f, 4.118–119, 4.119f, 4.122, 11.66
hypopyon in, 9.6
types of, 9.136f, 9.136–137
in Lyme disease, 12.245
macular edema caused by
description of, 9.19, 9.321–322
fluorescein angiography of, 9.88, 9.89f
optical coherence tomography of, 9.85, 9.88f, 9.321
in phacoemulsification, 9.316
postoperative, 9.316
smoking as risk factor for, 9.321
treatment of, 9.322
masquerade syndromes for, 6.319, 6.320f
methotrexate for, 6.322
in multiple sclerosis, 5.318
Mycobacterium tuberculosis, 12.240
nongranulomatous, 9.76
noninfectious/autoimmune, 4.127, 4.128f. See also specific cause
vitreous infiltrate in, 4.127, 4.128f
ocular hypertension associated with, 9.317
panuveitis, 6.318f, 6.318–319
pediatric, 9.320
peripheral. See Pars planitis
phacoantigenic, 9.136–137
phacolytic, 9.136f, 9.136–137
posterior. See Posterior uveitis
postoperative
after cataract surgery, 11.139–140
infectious endophthalmitis. See Postoperative endophthalmitis
prevalence of, 9.68
Propionibacterium acnes causing, 11.162
prostaglandin analogues causing, 10.166
in reactive arthritis syndrome/Reiter syndrome, 8.305–306
recurrent, 9.76
sarcoidosis-associated, 4.186–187, 9.148
sclerosis and, 8.323
signs of, 9.77–83, 9.78t, 9.79–82f, 9.80f, 9.82f
spondyloarthritides associated with, 1.157
Standardization of Uveitis Nomenclature system for, 9.68–69, 9.69–70f, 9.77, 9.80f, 9.147
sympathetic ophthalmia and, 4.185
scleritis and, 8.323
symptoms of, 9.76, 9.77f
syndromes masquerading as, 9.84, 9.303–309. See also Masquerade syndromes
syphilitic, 9.84–85, 9.148, 12.241
in toxocariasis, 12.245
in toxoplasmosis, 4.147
traumatic, 8.389–390
V.-pattern strabismus
bilateral superior oblique palsy and, 6.122
in Brown syndrome, 6.137
clinical features of, 6.109
clinically significant, 6.109
craniofacial anomalies and, 6.107
in craniostenosis, 6.208
definition of, 6.107
etiology of, 6.107–109, 6.108f
exotropia with, 6.108f, 6.111
extension as cause of, 6.107, 6.110
heterotopy as cause of, 6.28
identification of, 6.109
infantile esotropia associated with, 6.109, 6.112
inferior oblique muscle overaction associated with, 6.107
palpebral fissure slanting associated with, 6.196
superior oblique palsy and, 6.122
surgical treatment of, 6.111–112, 6.112f
VA. See Vertebral artery
Vaccines/vaccinations. See also Immunizations; specific type
anterior uveitis caused by, 9.140
anterior uveitis caused by, 9.140
bilateral superior oblique palsy and, 6.122
Brown syndrome, 6.137
clinical features of, 6.109
clinically significant, 6.109
craniofacial anomalies and, 6.107
craniosynostosis, 1.157
definition of, 6.107
etiology of, 6.107–109, 6.108f
exotropia with, 6.108f, 6.111
extension as cause of, 6.107, 6.110
heterotopy as cause of, 6.28
identification of, 6.109
infantile esotropia associated with, 6.109, 6.112
inferior oblique muscle overaction associated with, 6.107
palpebral fissure slanting associated with, 6.196
superior oblique palsy and, 6.122
surgical treatment of, 6.111–112, 6.112f
V.-neck sign, 1.167
Vascularized pannus, 8.52, 8.52f. See also Pannus/micropannus
Vasculature, retinal, 12.16f, 12.16–17
Vasculitis/vasculitides. See also Arteritis; specific type antineutrophil cytoplasmic antibody-associated, 1.169f, 1.171–173
Behçet disease, 1.173–174, 4.187
choroidal, 1.171
classification of, 1.169t
Cogan syndrome, 1.174
eosinophilic granulomatosis with polyangiitis, 1.172
giant cell arteritis. See Giant cell arteritis granulomatosis with polyangiitis, 1.171–172, 7.63–64, 7.64f
inflammatory, 12.230f, 12.230–231, 12.231f
Kawasaki disease, 1.171
large-vessel, 1.169f, 1.170
lupus, 12.230–231, 12.231f
medium-sized–vessel, 1.169t, 1.170–171
microscopic polyangiitis, 1.172–173
optic neuritis and, 5.115
overview of, 1.169–170
polyarteritis nodosa, 1.170–171, 7.65
retinal, 12.153f, 12.155–156
in uveitis. See Posterior uveitis
small-vessel, 1.169t, 1.171–173
Takayasu arteritis, 1.170, 9.125f, 11.68
transient visual loss caused by, 5.163t,
1.169–170
variable-vessel, 1.169t, 1.173–174
Vasculopathy
polypoidal choroidal (PCV/posterior uveal bleeding syndrome), 4.166f, 4.166–168, 4.167f
retinal vasculitis versus, 9.75
Vasculotropin, 2.49. See also Vascular endothelial growth factor
Vaso-occlusive necrotizing scleritis, 9.120, 9.121f
Vasoactive intestinal peptide, 9.24t
Vasoactive intestinal polypeptide (VIP), 2.249
in external eye defense, 8.12f
Vasocidin. See Prednisolone sodium phosphate/sulfacetamide sodium
Vasoconstrictors
for hay fever conjunctivitis, 8.288
for ocular allergies, 6.247t
Vasogenic edema, 2.461t
Vasopressin, 1.47, 1.301
Vasopressor drugs, 1.301
Vasospasm, retinal, transient visual loss and, 5.161, 5.162, 5.171
Vasovagal episodes. See Syncope
Vaughan Williams classification, of antiarrhythmic drugs, 1.102, 1.102t
VCAID. See Vitreous cavity–associated immune deviation
VCAN gene, 2.297
vCJD. See Variant Creutzfeldt-Jakob disease
VDA (Visual Disability Assessment), 11.71
VDRL. See Venereal Disease Research Laboratory
VECP (visual evoked cortical potential). See Visual evoked potential/cortical potential/response
Vecuronium, 2.382
Vegetation/plants, ocular injuries caused by, 8.387
corneal abrasions, 8.399
corneal foreign body, 8.387, 8.399
fungal keratitis and, 4.78, 8.273, 8.387, 8.399
VEGF. See Vascular endothelial growth factor(s)
VEGF Trap. See Aflibercept
VEGFR1 gene, 12.82
VEGFR2 gene, 12.82
VEGFRs. See Vascular endothelial growth factor receptors
Vein of Galen, 5.22
Vein of Labbé, 5.22
Veins, 5.21f, 5.21–23, 5.22f, 5.23f. See also specific vein
Venocytosis, 12.165
Venous disease, retinal, 12.165
Venous occlusive disease, retinal. See Retinal vein occlusion
Venous stasis retinopathy, 12.100
Venous malformations
cavernous, 7.75–77, 7.76f
combined lymphatic, 7.74
distensible, 7.74–75, 7.75f
orbital
description of, 6.222
glaucoma associated with, 10.30
Venous occlusive disease, retinal. See also Retinal vein occlusion
branch retinal vein occlusion, 4.158–159
central retinal vein occlusion, 4.156–158, 4.158f
angle-closure glaucoma and, 10.143–144
neovascularization and, 10.134–135
open-angle glaucoma and, 10.84
Venous retrobulbar hemorrhage, 11.158. See also Retrobulbar hemorrhage
Venous sinus, 2.136, 2.138, 2.138f
imaging in thrombosis of, 5.69, 5.69f
Venous stasis retinopathy (VSR), 5.170
Venous system, 5.21–23, 5.22f
Venous thromboembolism
protein C deficiency in, 1.147
protein S deficiency in, 1.147
prothrombin G20210A and, 1.147
Venous thrombosis. See also Thrombosis/thrombotic disorders
cerebral (CVT), 5.345–346
in idiopathic intracranial hypertension, 5.111
neuroimaging in, 5.69, 5.69f, 5.72f, 5.346
Ventral uvula, 5.39
Ventricular contractility, 1.81
Ventricular dysfunction, 1.65
Ventricular fibrillation (VF), 1.104
Ventricular tachyarrhythmias, 1.104
Ventricular tachycardia, 1.104–105
Ventriculography, 1.89
Ventriculoperitoneal shunting, for idiopathic intracranial hypertension, 5.112, 5.113
Venturi pump, for phacoemulsification aspiration, 11.103, 11.104
VEP/VECP/VER. See Visual evoked potential/cortical potential/response
VEPs. See Visual evoked potentials
Vergence equation definition of, 3.4, 3.42
for dense media, 3.12
derivation of
for mirrors, 3.81, 3.88–89, 3.89
negative numbers in, 3.10
positive numbers in, 3.10
problems involving, 3.53
relocation of images and, 3.62
schematic diagram of, 3.10
Vergences/vergence system (eye movements), 5.212, 5.212t, 5.226–228, 6.40. See also specific type
convergence, 6.39–40
definition of, 3.4, 3.10, 3.42, 6.37, 6.39, 6.72
description of, 3.9–10
divergence, 6.40
dysfunction of, 5.227–228
fusional, 6.72, 6.72t
image, 3.51
object, 3.51
reduced, 3.41, 3.51
Verhoeff–van Gieson stain, 4.31t
Vermis, 5.33, 5.34f, 5.40
Vernal conjunctivitis, 2.252
Vernal keratoconjunctivitis (VKC), 6.248–249, 6.248–249f, 8.289–292, 8.290f, 8.291f
atopic keratoconjunctivitis differentiated from, 8.292–293, 8.293f
Vernier acuity, 3.131
Verruca/verruca vulgaris (wart), 7.188, 7.188f
of eyelid, 4.204, 4.205f
papillomavirus causing, 4.204, 4.205f, 8.238
Vesicula, 2.297
Versions, 5.34–35, 5.35f. See also specific type
deinition of, 6.37
deorsumversion, 6.37
dextrocyloversion, 6.38
dextroversio, 6.37
in diplopia, 5.184
in infantile esotropia, 6.37
levocyloversion, 6.38
levoversion, 6.37
smooth-pursuit system and, 5.224
sursumversion, 6.37
Vertebral artery (VA), 2.108f, 5.12, 5.13f, 5.19, 5.19f
aneurysms of, 5.339f
dissection of, 5.342
Vertebrobasilar system, 5.19f, 5.19–20. See also Basilar artery; Vertebral artery
arterial dissections in, 5.342
disorders of, 5.336–338, 5.337f
transient visual loss caused by, 5.162, 5.336–337
Verteporfin. See also Photodynamic therapy
central serous chorioretinopathy treated with, 12.194
complications of, 12.380
neovascular age-related macular degeneration treated with, 12.79
polypoidal choroidal vasculopathy treated with, 12.76
von Hippel–Lindau (VHL) disease/syndrome treated with, 12.167
Vertex, corneal, 8.25, 8.26f
measurement of before refractive surgery, 13.40
Vertex normal, 13.15
Vertexometer, 3.171, 3.171f
Vertical chopping techniques, in phacoemulsification, 11.114
Vertical deviations. See also specific type and cause
classifications of, 6.116
clinical approach to, 6.115–116
dissociated
age at onset, 6.129
clinical features of, 6.129, 6.129f
definition of, 6.129
description of, 6.17, 6.105, 6.111, 6.115–116
hypertropia and, 6.115
inferior oblique anterior transposition for, 6.166
inferior oblique muscle overaction versus, 6.129–130
management of, 6.130
with horizontal comitance, 6.125–128
with horizontal incomitance, 6.116–125
inferior oblique muscle palsy Brown syndrome versus, 6.124, 6.125t
clinical features of, 6.124, 6.124f, 6.125t
management of, 6.124–125
monocular elevation deficiency, 6.125–127, 6.126f
orbital floor fractures, 6.127–128, 6.128f
overdepression in adduction
causes of, 6.17, 6.116f, 6.116–118
description of, 6.17
pattern strabismus and, 6.107, 6.108f, 6.109
superior oblique muscle overaction as cause of, 6.118, 6.118f
overelevation in adduction
causes of, 6.17, 6.116f, 6.116–118
description of, 6.17
inferior oblique muscle overaction as cause of, 6.117f, 6.117–118
pattern strabismus and, 6.107, 6.108f, 6.109
skew deviation, 6.125
superior oblique muscle palsy
bilateral, 6.122–124
causes of, 6.119
clinical features of, 6.119–122
congenital versus acquired, 6.119
description of, 6.69
ocular infection/inflammation caused by, 8.208f, 8.211e–214
corneal opacity and, 8.16f
isolation techniques for diagnosis of, 8.211
specimen collection for diagnosis of, 8.209
optic nerve infection caused by, 4.244
retinal infection caused by, 4.145, 4.146f
RNA, 1.236, 1.237f
treatment of infection caused by. See Antiviral agents
Visceral larval/larvae migrans (VLM), 6.317, 8.253, 12.244. See also Toxocara (toxocariasis)
Visceral toxocariasis, 9.283
Viscocanalostomy, 9.319, 10.217e–219
Viscodissection, 11.115. See also Viscoelastic agents
in zonular dehiscence with lens subluxation or dislocation, 11.182
Viscoelastic agents (ophthalmic viscosurgical/OVDs), 8.405f, 8.406, 11.95e–97
for cataract surgery, 11.95e–97
advanced cataract and, 11.180
aniridia and, 11.184
capsular block syndrome and, 11.148
capsular rupture during surgery and, 11.142e–143
ECCE, 11.197
high hyperopia and, 11.185
ICCE, 11.200
inflamed eye and, 11.191
intumescent cataract and, 11.179e–180
IOL implantation and, 11.116, 11.117e–118
in keratoconjunctivitis sicca, dry eye therapy before use of, 11.173
posterior polar cataract and, 11.181
pupil expansion and, 11.178
selection of, 11.97
traumatic cataract and, 11.191, 11.192
uveitis and, 11.191
zonular dehiscence with lens subluxation or dislocation and, 11.182
elevated intraocular pressure and, 10.108, 11.136
for goniotomy and trabeculotomy, in children, 10.162e–163
phakic IOL implantation and, 13.141
posterior chamber lenses, 13.143
physical properties of, 11.96
toric IOL implantation and, 13.152
Viscoelasticity, of ophthalmic viscosurgical device, 11.96
Viscomydriasis, 11.97
Viscosity, 2.357
of ophthalmic viscosurgical device, 11.96
Viscosurgical devices, ophthalmic (OVDs). See Viscoelastic agents (ophthalmic viscosurgical/OVDs)
Visine-A. See Naphazoline hydrochloride/pheniramine maleate
Vision
awareness of, disorders of, 5.178f, 5.180e–181
bicolor. See Binocular vision
color. See Color vision
defects in. See Color vision, defects in decreased. See also Low vision; Vision loss/impairment
evaluation of, 6.187e–188
development of
abnormal visual experience effects on, 6.44e–47, 6.45e–46f
amblyopia and, 6.53
description of, 6.44
in young infants, 6.185
difficulties in, 3.312
diurnal fluctuation in, after radial keratotomy, 13.51
double. See Diplopia
intraocular lens–related vision disturbances in, 3.255e–256, 3.256f
island of, in perimetry, 5.84
loss of/low. See Blindness; Low vision; Vision loss/impairment
neurophysiology of, 6.43e–52
VISION 2020, 11.6
Vision charts
Bailey-Lovie, 3.133, 6.8
for children, 3.38. See also Visual acuity, in children
distance from patient to, 3.149
Early Treatment Diabetic Retinopathy Study, 3.133, 3.133f, 6.8
ETDRS-type, with Sloan letters, 3.23f
pictorial representation of, 3.23f
Snellen
disadvantages of, 3.132e–133
letters on, 3.131e–134, 3.132f
optotypes, 3.133f, 3.134
Vision loss/impairment, 1.184. See also Blindness; Low vision; Visual acuity; Visual field defects; specific type
in acute idiopathic blind-spot enlargement, 5.100e–101, 5.101f
in acute zonal occult outer retinopathy, 5.101
amblyopia as cause of, 6.53, 6.56
arterial dissection and, 5.162, 5.342
arteritic causes of, 12.195
assessment of, 5.77e–97. See also Low vision, assessment of
nonorganic disorders and, 5.301e–311, 5.302f, 5.303f, 5.304f, 5.305f, 5.307f, 5.308f, 5.309f
awareness of, 5.178f, 5.180e–181
bilateral/binocular, 5.77, 5.171e–172
nonorganic disorders and, 5.306e–308, 5.307f, 5.308f, 5.309f
branch retinal vein occlusion as cause of, 12.128
in cancer-associated retinopathy, 5.102
carotid dissection and, 5.162, 5.342
cataract and, 11.5, 11.69e–71, 11.70f
indications for surgery and, 11.72e–73
causes of, 12.346
in central retinal artery occlusion, 5.161, 12.143e–144
in central retinal vein occlusion, 5.170
cerebral, 6.186e–187
chiasmal lesions causing, 5.146e–152
childhood glaucoma as cause of, 6.290
in children, 3.327
classification of, 5.99e–159. See also specific causative factor
in cone dystrophies, 5.102
cortical, 6.186
in Creutzfeldt-Jakob disease, 5.357
delayed visual maturation, 6.186–187
in diffuse unilateral subacute neuroretinitis, 12.246
after endothelial keratoplasty (DMEK/DSEK), 8.438–440
functional. See Vision loss/impairment, nonorganic
fungus endophthalmitis as cause of, 12.239
in glaucoma, 10.7, 10.82, 10.84, 10.117. See also
Visual field defects, in glaucoma
in children, 10.158, 10.166–167
race and, 10.82
after trabeculectomy, 10.199
hallucinations and (Charles Bonnet syndrome), 5.177–178
in idiopathic intracranial hypertension, 5.110–113, 5.111f
in infants, 6.186–187
in children and. See Low vision, in children
in leukemia, 4.315, 4.316
management of, 5.99–159. See also specific causative factor
media abnormality causing, 5.99, 5.164
monocular/unilateral, 5.77, 5.161, 5.163f, 5.163–171. See also Monocular transient visual loss
nonorganic disorders and, 5.302–305, 5.303f, 5.304f, 5.305f
in optic neuritis, 5.113
in multiple evanescent white dot syndrome, 5.101
in neuroretinitis, 5.118f, 5.118–119
nonorganic, 5.299f, 5.299–312
affect visual pathways and, 5.301–305, 5.302f, 5.303f, 5.304f, 5.305f
clinical profile of patient with, 5.300
examination techniques in, 5.301–311, 5.302f, 5.303f, 5.304f, 5.305f, 5.307f, 5.308f, 5.309f
eyelid position/function and, 5.310–311
malingering and, 5.299
management of, 5.311
ocular motility/alignment and, 5.309–310
organic disorders misdiagnosed as, 5.299, 5.299f
pupils/accommodation and, 5.301, 5.310
in nystagmus, 5.235–236, 5.243f, 5.247
ophthalmologist's role in, 3.311
in optic neuritis, 5.107f, 5.113–118, 5.114f, 5.117f, 5.317
in optic neuropathy, 5.103–146. See also Optic neuropathy
AION, 5.119
arteritic (AAION), 5.120, 5.121f
nonarteritic (NAION), 5.91f, 5.120f, 5.121f, 5.122, 5.123
infiltrative, 5.131
versus maculopathy, 5.99–103, 5.100f
traumatic, 5.139–140
in optic perineuritis, 5.119
orbital surgery as cause of, 7.133
in papilledema, 5.105–113, 5.107f, 5.108f, 5.109f, 5.110f, 5.111f
after parasellar tumor therapy, 5.150, 5.151
pregeniculate, 6.186–187
prevalence of, 3.311
pupillary abnormalities and, 5.253–267
quality of life affected by, 3.311
retinopathies causing. See specific type
retrochiasmal lesions causing, 5.152–158
retrogenticulate, 6.186
in reversible cerebral vasocostriction syndrome, 5.346
rhegmatogenous retinal detachment as cause of, 12.128
in sarcoidosis, 5.327
scleritis as cause of, 9.128
spousal effects of, 3.327
symptoms associated with, 5.78
in thyroid eye disease, 5.131, 5.132f
time course of, 5.77–78
in toxocariasis, 12.245
after trabeculectomy, 10.199
transient, 2.474f, 5.161–172. See also Transient visual loss
traumatic, 5.139–140
with clear media, 7.119, 7.121
unilateral/monocular, 5.77, 5.161, 5.163f, 5.163–171. See also Monocular transient visual loss
nonorganic disorders and, 5.302–305, 5.303f, 5.304f, 5.305f
in optic neuritis, 5.113
in uveitis, 9.325
training in, 3.325
resources for, 3.329
psychological counseling included with, 3.327
for blindness, 3.325
in cataracts, 11.71
ocular trauma and, 11.193
definition of, 3.310
for field loss, 3.325–326
low vision evaluations. See Low vision model of, 3.328f
ongoing eye care during, 3.328
patient's goals for, 3.312
psychological counseling included with, 3.327
resources for, 3.329
services added to, 3.327–329
in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis), 8.298
training in, 3.325
in uveitis, 9.325
visual function assessment and. See Low vision, assessment of
Vision Rehabilitation for Adults, 3.311
Vismodegib, 7.205
Vistech chart, 3.316f
Vision loss (see-saw) nystagmus, 5.235
in toxocariasis, 12.245
after trabeculectomy, 10.199
transient, 2.474f, 5.161–172. See also Transient visual loss
traumatic, 5.139–140
with clear media, 7.119, 7.121
unilateral/monocular, 5.77, 5.161, 5.163f, 5.163–171. See also Monocular transient visual loss
nonorganic disorders and, 5.302–305, 5.303f, 5.304f, 5.305f
in optic neuritis, 5.113
in uveitis, 9.325
training in, 3.325
resources for, 3.329
psychological counseling included with, 3.327
for blindness, 3.325
in cataracts, 11.71
ocular trauma and, 11.193
definition of, 3.310
for field loss, 3.325–326
low vision evaluations. See Low vision model of, 3.328f
ongoing eye care during, 3.328
patient's goals for, 3.312
psychological counseling included with, 3.327
resources for, 3.329
services added to, 3.327–329
in Stevens-Johnson syndrome (Stevens-Johnson syndrome/toxic epidermal necrolysis overlap and toxic epidermal necrolysis), 8.298
training in, 3.325
in uveitis, 9.325
visual function assessment and. See Low vision, assessment of
Vision Rehabilitation for Adults, 3.311
assessments of
for amblyopia diagnosis, 6.56
in children. See Visual acuity, in children
in nystagmus, 6.153–154
in cataract, 11.69–70, 11.70t
indications for surgery and, 11.72–73
preoperative evaluation and, 11.75–76, 11.76
after cataract surgery, 11.126
cystoid macular edema and, 11.163, 11.164
with ECCE, 11.198
derhophalmitis and, 11.161, 11.162
with ICCE, 11.201
incorrect lens power and, 11.85
with manual small-incision surgery, 11.198–199
multifocal IOLs and, 11.121–122
in central serous chorioretinopathy, 12.190
in children, assessment of
age-specific approaches, 6.5
alternative methods, 6.8–9
Central, Steady, and Maintained method of, 6.6
eye charts for, 6.6
fixation and following behavior for, 6.5
fixation behavior, 6.5–6
HOTV test, 6.6, 6.6t, 6.7f
induced tropia test, 6.6
in nystagmus, 6.8
occluders used in, 6.8
optotypes for, 6.6t, 6.6–8, 6.7f
preferential looking, 6.5, 6.8–9, 6.9f, 6.182, 6.300
preverbal children, 6.8–9, 6.154
sequence of, 6.8
symbol charts for, 6.7
visual evoked potential for, 6.9, 6.182, 6.300
clinical measurement of. See Refraction, clinical;
Visual acuity, testing
in congenital glaucoma, 10.158
corneal crosslinking and, 13.131
corneal inlays and, 13.61
description of, 3.131–134
development of, 6.182
dynamic, vestibular-ocular reflex evaluation and, 5.216
after endothelial keratoplasty (DMEK/DSEK), 8.438–440
femtosecond laser corneal intrastromal treatment and, 13.168
fold folds/striae and, 13.112, 13.113, 13.114t, 13.115
in giant cell arteritis/AION, 5.120, 5.120t
hard contact lens method for IOL power calculation and, 13.195
hyperopia correction and, 13.94
intrastromal corneal ring segment placement and, 13.64, 13.67
for keratoconus, 13.66
irregular astigmatism affecting, 13.17
after keratoprosthesis implantation, 8.452
LASIK and
for amblyopia/anisometric amblyopia, 13.186
in diabetes mellitus, 13.190
flap folds/striae and, 13.112, 13.113, 13.114t, 13.115
for hyperopia/hyperopic astigmatism, 13.97
for mixed astigmatism, 13.97
for myopia, 13.95, 13.97
after penetrating keratoplasty, 13.180
after retinal detachment surgery, 13.185
in Leber hereditary optic neuropathy, 5.133
in low vision, 5.78
photostress testing and, 5.88
with monovision, 13.39, 13.164–165
in morning glory disc anomaly, 6.363
with multifocal IOLs, 13.155–156
myopia correction and, 13.95
in neuromyelitis optica, 5.320
in neuroretinitis, 5.118
in newborn, 6.44
in nystagmus, 5.235
in optic atrophy, 5.135
in optic nerve hypoplasia, 5.143
in optic neuritis, 5.115
in optic neuropathy versus maculopathy, 5.99, 5.100t
patient expectations/motivations for refractive surgery and, 13.35–36, 13.36, 13.47
after penetrating and perforating ocular trauma, 8.401
with phakic IOLs, 13.144
photorefractive keratectomy and, 13.95
pinhole, 3.124, 3.130
positive visual phenomena and, 5.173
radial keratotomy and, 13.50–51, 13.51–52
ranibizumab effects on, 12.80
refractive lens exchange and, 13.150
after small-incision lenticule extraction, 13.205
Snellen, 3.124, 3.131, 3.132f, 3.134
stereoaucuity/stereopsis relationship and, 5.305, 5.305t
subnormal, 3.25
testing of. See also Refraction, clinical
cataract surgery and, 11.75–76, 11.76
in children, 3.38, 10.158
conversion chart for, 3.132t
eye charts for, 3.22, 3.23f
See also Eyecharts
fixation during, 3.313
in low vision evaluations, 3.313
in low vision/vision rehabilitation, 5.78
in manifest refraction process, 3.22–25
at near, 3.24
nonorganic disorders and, 5.306
photostress testing and, 5.88
pinhole occluder used in, 3.23–24, 3.24f
refractive surgery and, 13.39–40
amblyopia and, 13.185
Snellen chart for, 3.131, 3.132f
terminology used in, 3.131
toric IOL implantation and, 13.152–153
undercorrection after photoablation and, 13.102
wavefront-guided/wavefront-optimized ablation and, 13.32
Visual aids. See also Low vision aids
in nonorganic disorder evaluation, 5.306
Visual allosthesia, 5.180
Visual axis, 3.125, 6.41
Visual confusion, 6.47, 6.47f
Visual (calcarine/occipital/striate) cortex, 5.24f, 5.29f, 5.29–31, 5.30f, 5.32f, 5.34f, 6.46f
Visual field defects and, 5.178, 5.176–178
illusions and, 5.175
recognition disorders and, 5.178t, 5.179, 5.180f
vision/visual deficit awareness disorders and, 5.178t, 5.180–181
visual-spatial relationship disorders and, 5.178t, 5.180
oculomotor control and, 5.32f, 5.32–33, 5.34f
vascular supply of
arterial supply, 5.20, 5.20f
venous drainage, 5.22f, 5.22–23, 5.23f
Visual confusion, 6.47, 6.47f
Visual cycle, 2.326, 2.327f
Visual confusion, 6.47, 6.47f
Visual cycle, 2.326, 2.327f
Visual deficits. See also Low vision; Vision loss/impairment
disorders of awareness of, 5.178t, 5.180–181
Visual deprivation
abnormal visual experience caused by, 6.44
amblyopia
causes of, 6.55
congenital cataracts as cause of, 6.55
congenital nevocellular nevi as cause of, 6.200
corneal blood staining as cause of, 6.379
critical period for, 6.53
reverse amblyopia, 6.53–56
monocular, 6.44, 6.45f
Visual Disability Assessment (VDA), 11.71
Visual disorders, 1.191
Visual evoked potential/cortical potential/response (VEP/VECP/VER), 5.95
in low vision evaluation, 5.95
in nonorganic disorder evaluation, 5.302
Visual evoked potentials (VEPs)
albinism evaluations, 12.288
in children, 12.53
delayed, 12.52–53
demyelinating optic neuritis findings, 12.52
description of, 12.52
flash, 12.52
flash stimulation for, 12.53
in nystagmus, 12.53
optic nerve conduction delay diagnosis with, 12.52
pattern-appearance stimulation, 12.53
pattern electoretinography and, 12.45–46
pattern-reversal, 12.52, 12.55f
for visual acuity assessment in preverbal children, 6.9, 6.182, 6.300
Visual evoked response. See Visual evoked potential/cortical potential/response
Visual field. See also Visual field defects
central, 3.315, 3.317, 5.85, 5.85f
clinical evaluation of. See Visual field testing
cloverleaf, 10.66, 10.66f
cortical areas corresponding to, 5.28, 5.29f
normality/abnormality of, perimeter interpretation and, 10.62–65, 10.64f, 10.65f
peripheral, 3.318
quality/reliability of, perimeter interpretation and, 10.62
silent, nonorganic disorder evaluation and, 5.308
Visual field defects
in acute zonal occult outer retinopathy, 12.227
age/aging affecting, 10.81
in AION, 5.119
nonarteritic (NAION), 5.91f, 5.122, 5.123f
arteriovenous malformations causing, 5.291, 5.343, 5.344f
central, 5.85, 5.85f
chiasmal lesions causing, 5.146–147, 5.147f, 5.148f
in congenital tilted disc syndrome, 5.144, 5.144f
congruous, 5.29
retrochiasmal lesions producing, 5.153
occipital lobe lesions, 5.156, 5.157f
cortical areas/lesions and, 5.28, 5.29f
evaluation of, 5.83–88, 5.85f, 5.87f. See also Perimetry; Visual field testing
in glaucoma, 10.59
cataract/media opacities and, 11.186, 11.186f
evaluation of, 10.59–77
patterns of loss and, 10.67–69, 10.68f, 10.69f, 10.70f
serial fields/progression and, 10.71–75, 10.72f, 10.73f, 10.74f
single field and, 10.62–67, 10.64f, 10.65f, 10.66f, 10.67f
indications for surgery and, 10.197
normal-tension glaucoma and, 10.86
optic nerve/nerve head/disc changes correlated with, 10.74–75
primary open-angle glaucoma (POAG) and, 10.79–80
screening tests for, 10.62
incongruous, 5.29
retrochiasmal lesions producing, 5.153
lateral geniculate body lesions causing, 5.154, 5.154f
in Leber hereditary optic neuropathy, 5.133, 5.134f
in migraine aura without headache, 5.291
in migraine headache, 5.171–172, 5.290–291
in multiple sclerosis, 5.318
in neuromyelitis optica, 5.320
as nonorganic disorders, 5.306–308, 5.307f, 5.308f, 5.309f
occipital lobe lesions causing, 5.156–158, 5.157f, 5.158f, 5.159f
in optic atrophy, 5.135, 5.136f
in optic nerve hypoplasia, 5.143
optic nerve/nerve head/disc drusen causing, 5.141f, 5.141–142
in optic neuritis, 5.114, 5.114f, 5.123f
in optic neuropathy, 5.103, 5.104f, 5.105f, 5.106f versus maculopathy, 5.99, 5.100, 5.100t
optic tract lesions causing, 5.147f, 5.153
in papilledema, 5.107, 5.110, 5.110f
papial lobe lesions causing, 5.84, 5.156
perimetric terms and, 5.105f
in retrochiasmal lesions, 5.146, 5.153
in reversible cerebral vasodilatation syndrome, 5.346
in sarcoidosis, 5.327
in stroke, 5.153, 5.156, 5.157f, 5.157f, 5.158f
in temporal lobe lesions causing, 5.155, 5.155f
in thyroid eye disease, 5.131, 5.132f
in tilted disc syndrome, 5.144, 5.144f
in toxic/nutritional optic atrophy, 5.137, 5.138f
in verteobasilar insufficiency, 5.336
Visual Field Index (VFI)/VFI field progression plot, in visual field progression identification, 10.72–74, 10.74f
Visual field testing, 5.83–88, 5.85f, 5.87f, 6.10, 7.243
Amsler grid, 5.84
in aura evaluation, 5.291
before cataract surgery, 11.82
confrontation testing, 5.83–84
in hemispatial neglect, 5.181
in glaucoma, 10.59–77. See also Perimetry
in macular degeneration, 12.25–34
interpretation in patterns of field loss and, 10.67–69, 10.68f, 10.69f, 10.70f
of serial fields/progression, 10.71–75, 10.72f, 10.73f, 10.74f
of single field, 10.62–67, 10.64f, 10.65f, 10.66f, 10.67f
optic nerve/nerve head/disc changes correlated with, 10.74–75
screening tests in, 10.62
ultrasound biomicroscopy in, 10.77
in low vision patients/vision rehabilitation, 5.83–88, 5.85f, 5.87f
in nonorganic disorder evaluation, 5.306–308, 5.307f, 5.308f, 5.309f
perimetry, 5.84–88, 5.85f, 5.87f. See also Perimetry
in uveitis, 9.90
Visual function
assessments of central visual field, 3.315, 3.317
contrast sensitivity, 3.314–315
fixation, 3.313f, 3.313–314
peripheral visual field, 3.318
refraction, 3.314, 3.315f
visual acuity measurements, 3.313, 3.313f
improving. See Vision rehabilitation measuring. See also Low vision, assessment of in cataract evaluation, 11.71
after surgery, 11.126
before surgery, 11.71, 11.72, 11.76–77
indications for surgery and, 11.72
central visual field assessment and, 5.85, 5.85f
reduced. See Low vision; Vision loss/impairment
Visual Function Index (VF-14), 11.71
Visual history, in manifest refraction process, 3.25
Visual loss/impairment. See Vision loss/impairment
Visual neglect, in parietal lobe lesions, 5.84
Visual pathways, 5.5–56. See also Retinogeniculocortical pathway
afferent, 5.23–31, 5.24f. See also Afferent visual pathways
anatomy of, 2.115, 2.116f
autonomic pathways and, 5.52–56
parasympathetic, 5.52, 5.54–56, 5.55f
sympathetic, 5.52–54, 5.53f
blood supply of, 2.119–122, 2.120–122f, 2.121f, 2.122f
bony anatomy of head and, 5.5–11, 5.6f, 5.7–8f, 5.9f, 5.10f
central, 6.44
development of, 6.44
efferent (ocular motor), 5.31–46, 5.211. See also Ocular motility, control of; Ocular motor pathways
electrophysiologic and psychophysical testing in evaluation of. See specific test
locations of lesions of, 5.147f
sensory and facial motor pathways, 5.47–52
vascular anatomy of, 2.121f, 2.122f, 5.11–23
arterial, 5.11–20, 5.13–14f, 5.15f, 5.16f, 5.17f, 5.18f, 5.20f
venous, 5.21f, 5.21–23, 5.22f, 5.23f
visual evoked potential testing in evaluation of, 5.95
white matter of, 6.44
Visual phenomena, persistent positive, 5.177, 5.201, 5.290
Visual processing stream, dorsal, 5.224
Visual prosthesis, 3.310
Visual (optic) radiations (geniculocalcraire pathways), 5.18f, 5.19, 5.24f, 5.29, 5.30
lesions of, 5.153, 5.155
in multiple sclerosis, 5.318
Visual rehabilitation. See Vision rehabilitation
Visual resolution. See Vision rehabilitation
Visual (optic) radiations (geniculocalcraire pathways), 5.18f, 5.19, 5.24f, 5.29, 5.30
lesions of, 5.153, 5.155
in multiple sclerosis, 5.318
Visual rehabilitation, amblyopia
Visual task performance, 3.318–319
VIT1, 2.298
Vitamin A
deficiency of, 8.196–197, 8.197f, 12.261, 12.289–290
corneal changes in, 8.196–197, 8.197f
Corneyebacterium xerusis and, 8.196–197, 8.246
illusions caused by, 5.175
in retinal pigment epithelium, 2.326–328, 2.327f
Vitamin B6 (pyridoxine), for homocystinuria, 11.41
Vitamin B12 deficiency
anemia caused by, 1.133
folate deficiency versus, 1.134
optic neuropathy caused by, 5.138
Vitamin C. See also Ascorbic acid
for chemical injuries, 8.383
corneal wound healing and, 13.33
in phototherapeutic keratectomy, 8.367
Vitamin E, 2.340, 2.342, 2.344f
Vitamin K
deficiency of, 1.145
functions of, 1.145
Vitamin K antagonists
for coronary heart disease, 1.90t
direct oral anticoagulants versus, 1.149
Vitamin K–dependent factors, 1.139
Vitamin supplements, 2.447
Vitamins
for age-related macular degeneration, 12.69, 12.70t
deficiencies of cataracts caused by, 11.63
optic neuropathy caused by, 5.138
supplementary, cataract prevention and, 11.7, 11.20
therapeutic uses of, 2.236
Vitelliform degenerations. See Vitelliform macular dystrophy
Vitelliform exudative macular detachment, 12.272, 12.274f
Vitelliform macular dystrophy (VMD) adult-onset, 4.170, 4.171f
description of, 12.32
electro-oculography findings in, 12.51
Vitelliform macular dystrophy (VMD2/BEST1) gene, 6.340–342, 10.111, 12.271
Vitiliginous chorioretinitis. See Birdshot uveitis Vitrasert. See Ganciclovir Vitreal syneresis, 6.344
Vitrectomy, 2.302
angle-closure glaucoma after, 10.143
for capsular rupture during cataract surgery, 11.142, 11.143
cataract/cataract surgery after, 11.20, 11.55, 11.75, 11.190
complications of, 12.402f, 12.402–403
for cystoid macular edema, postoperative, after cataract surgery, 11.165
cystoid macular edema treated with, 12.159, 12.393, 12.394f
delayed, 12.360
diabetic macular edema treated with, 12.388
diabetic retinopathy complications treated with, 12.107
diagnostic, 9.92, 9.298
endothalmatitis, postoperative, 11.162
epiretinal membranes treated with, 12.382, 12.383
for hemolytic/ghost cell glaucoma, 10.106
idiopathic macular holes treated with, 12.384–385, 12.385f
immediate, 12.359
indications for, 12.359, 12.381
instrumentation used in, 12.381–382
in intraocular lymphoma, 4.312
for IOL decentration/dislocation, 11.145
for malignant/ciliary block glaucoma (aqueous misdirection), 10.141
needle perforation/penetration of globe treated with, 12.396
open-angle glaucoma risks secondary to, 12.402
open-globe injuries treated with, 12.359–360
oxidative lens damage and, 11.20
pars plana. See Pars plana vitrectomy posterior vitreous detachment treated with, 12.333f, 12.359
posteriorly dislocated intraocular lenses treated with, 12.393
postoperative endophthalmitis treated with acute-onset, 12.388–390, 12.390f
bleb-associated, 12.390–391, 12.391f
chronic (delayed-onset), 12.390, 12.391f
in primary central nervous system lymphoma, 4.312
for retained lens fragments after phacoemulsification, 11.141, 12.391–393, 12.392f
for retinal detachment cataract surgery/IOL insertion and, 11.166
refractive surgery after, 13.185
rhematogenous, 12.324, 12.400f, 12.400–401
for retinopathy of prematurity, 6.335, 12.187
smaller-gauge instrumentation used in, 12.382
submacular hemorrhage treated with, 12.385, 12.386f
suprachoroidal hemorrhage treated with, 12.394–395, 12.395f
technique for, 12.381
tractional retinal detachment treated with, 12.325, 12.387–388
in uveal lymphoid proliferation/infiltration, 4.314
visualization aids used in, 12.381–382
for vitreocorneal adherence/persistent corneal edema, 11.130
vitreous hemorrhage treated with, 12.366, 12.386–387
vitreous opacities treated with, 12.348, 12.386
for vitreous prolapse, 11.142, 11.143–144
Vitrectorhexis, 6.302
Vitreocorneal adherence, after cataract surgery, 11.130
Vitreolysis enzymatic, 2.304
Nd:YAG laser
for cystoid macular edema, after cataract surgery, 11.165
for vitreous prolapse in anterior chamber, 11.143
Vitreomacular adhesions, 12.336, 12.336f
Vitreomacular traction (VMT) syndrome
description of, 12.332, 12.332f, 12.336f, 12.336–337, 12.337f
epiretinal membranes versus, 12.382–383
vitrectomy for, 12.382–384, 12.384f
Vitreopapillary traction, optic nerve/nerve head/disc edema differentiated from, 5.107
Vitreoretinal adhesions, 12.337
Vitreoretinal interface
description of, 2.296, 2.300
disorders of. See specific type
Vitreoretinal/retinal (primary central nervous system/ intraocular) lymphoma, 4.135f, 4.135–137, 4.136f, 4.311f, 4.311–313, 4.313f, 5.349, 12.233–234. See also Primary central nervous system/intraocular/ vitreoretinal/retinal lymphoma cytologic studies for, 9.91
primary. See Primary vitreoretinal lymphoma
Vitreoretinal surgery. See also Vitrectomy angle-closure glaucoma after, 10.143
after refractive surgery, 13.197
Vitreoretinal tufts, 12.311–312, 12.312f
Vitreoretinopathies. See also specific type cataract surgery in patient with, 11.189
familial exudative, 6.347–348, 6.348f
juvenile retinoschisis. See Retinoschisis, X-linked Knobloch syndrome, 6.346f, 6.346–347
Norrie disease, 6.347
proliferative (PVR), 4.20, 4.21f, 4.131, 4.131f
Stickler syndrome, 6.345–346
Vitreoschisis. See Vitreous detachment
Vitreous, 4.125–137
age-related changes in, 2.278, 2.300–304
amyloidosis involving, 4.134f, 4.134–135
anatomy of, 2.102f, 4.125, 12.7–9, 12.8f, 12.331
as angiogenesis inhibitor, 2.301
ascorbate levels in, 12.9
attachments of, 12.7
biopsy of
for endophthalmitis after cataract surgery, 11.162
indications for, 9.91–92
for juvenile maculopathy, 12.388
for juvenile retinoschisis, 12.378–379, 12.379f
for juvenile vitelliform macular dystrophy, 6.347
for juvenile X-linked retinoschisis, 6.347
fluorescein angiography findings in, 4.131f
for familial exudative vitreoretinopathy, 6.347
for vitreoretinal lymphoma, 4.135f, 4.135–137
for retinoschisis, 4.131f, 4.131–137, 4.136f
for vitreous prolapse, 11.142, 11.143–144
Master Index • 375

for primary central nervous system/ intraocular/ vitreoretinal/ retinal lymphoma, 4.135–136, 4.136f, 4.312
technique for, 9.92
for uveal lymphoid proliferation/ infiltration, 4.314

canals in, 12.7
cataract surgery complications and endophthalmitis, 11.161
with ICCE, 11.200
posterior vitreous detachment, 11.166
prolapse, 11.142, 11.143–144
vitreocorneal adherence, 11.130
chondroitin sulfate in, 2.297
cisterns in, 12.7
collagen fibers in, 12.7, 12.344
age- related breakdown of, 2.300
description of, 2.101, 2.294–297, 2.295–296
proteins associated with, 2.298
type II, 9.56
composition of, 2.273, 2.294–300, 12.7, 12.331
congenital anomalies of, 4.125–127, 4.126f
cortical, 2.296
cysts of, 4.126–127
cytomegalovirus retinitis findings, 12.235
definition of, 12.331
degeneration of, 4.128–135, 4.129f, 4.130f, 4.131f, 4.132f, 4.133f, 4.134f, 12.344
detachment of. See Vitreous detachment
development of, 2.157, 2.158f, 2.293, 4.125
abnormalities of, 4.125–127, 4.126f, 4.127f
persistent fetal vasculature, 12.341–342
prepapillary vascular loops, 12.341, 12.341f
tunica vasculosa lentis, 12.340–341
disorders of, 4.125–137. See also specific type
eosplastic, 4.135f, 4.135–137, 4.136f
enhanced depth imaging optical coherence tomography of, 12.25
familial exudative vitreoretinopathy of, 12.343–344, 12.345f
functions of, 2.101
genetic diseases involving, 2.302, 2.304
healing/repair of, 4.17
hereditary hyaloideoretinopathies with optically empty vitreous, 12.342–343, 12.343f
hyalocytes in, 2.299f
hyaluronan in, 2.297
illustration of, 2.102f
immunologic microenvironment of, 9.52f, 9.56
infection/inflammation of, 2.302, 4.127, 4.128f.
See also Endophthalmitis; Intermediate uveitis; Vitritis
in leukemia, 4.315
liquefaction of, 2.300–301, 12.316–317, 12.344
low-molecular-weight solutes in, 2.298–299
magnetic resonance imaging of, 2.459f, 2.460f
myopia effects on, 2.301
opacities/opacification in
amyloidosis, 4.134, 12.348, 12.349f
asteroid hyalosis, 12.346f, 12.346–347
bilateral, 12.348
cholesterolosis, 12.348
pigment granules, 12.348
from uveitis, 9.323–324
vitrectomy for, 12.386
vitreous degeneration and detachment associated, 12.344
vitreous hemorrhage, 12.347
oxygen movement in, 2.302, 2.303f
peripheral, 2.296
polymerase chain reaction testing of, in uveitis evaluations, 9.90–91
posterior attachments of, 2.103f
primary, 2.157, 2.159f, 2.293, 4.125
primary persistent hyperplasia of (PHPV). See Persistent fetal vasculature
proteins in, 2.298
retinal cavernous hemangioma bleeding into, 12.168
secondary, 2.157, 2.158f, 2.293, 4.125
soluble proteins in, 2.298
specimen collection from/tap/biopsy of. See Vitreous, biopsy of
surgery- related abnormalities of, 12.349–350
syneresis of, 12.310, 12.316
tertiary, 2.157, 2.158f, 2.293, 4.125
topography of, 4.125
traction, 12.208
tumors of, 4.135f, 4.135–137, 4.136f
in uveitis. See Intermediate uveitis
vitrectomy effects on, 2.302
void of, 12.7
zonular fibers in, 2.298, 4.125
Vitreous base, 2.101, 2.102f
avulsion of, 12.315, 12.316f, 12.331
posterior border of, 12.10
posterior vitreous detachment and, 4.130, 4.130f
retinal dialyses at, 12.315
vitreous gel attachment to, 12.307
Vitreous block. See also Ciliary block glaucoma
after cataract surgery, 11.139
Vitreous body, 2.48, 2.49f
anatomy of, 12.8f
anterior surface of, 12.7, 12.8f
topographic areas of, 12.7
Vitreous cavity
anatomy of, 2.48
ascorbate in, 2.302, 2.303f
description of, 2.101
Vitreous cavity–associated immune deviation, 2.299
Vitreous cells
grading scheme for, 9.82, 9.82f
in intermediate uveitis, 9.81, 9.82f
Vitreous detachment
hallucinations and, 5.175
perifoveal, 12.337
posterior, 2.300, 2.301f
posterior (PVD), 4.128–129, 4.129f
age-related, 12.307–308
anatomy of, 12.331
atrophic holes presenting with, 12.318
cholesterolosis and, 12.348
conditions associated with, 12.307
definition of, 12.331
diagnosis of, 12.331
epiretinal membranes. See Epiretinal membranes
examination of, 12.309
fibroglial tissue in, 12.331
floaters associated with, 12.308–309
idioptnic macular holes, 12.337–339, 12.338f
imaging of, 12.308f
indirect ophthalmoscopy of, 12.309, 12.331
management of, 12.309
myopia macular retinoschisis in, 12.209
nonproliferative diabetic retinopathy progression affected by, 12.102
optical coherence tomography of, 12.309, 12.332
in pars plana vitrectomy for diabetic macular edema, 12.115
pathologic conditions caused by, 12.332
photopsias associated with, 12.308
prevalence of, 12.331
retinal breaks associated with, 12.309
retinal detachment after cataract surgery and, 11.166
retinal tears caused by, 12.307, 12.308f, 12.309
risk factors for, 12.309
signs and symptoms of, 12.308
slit-lamp biomicroscopy of, 12.331
vitrectomy for, 12.333, 12.359
vitreomacular adhesions, 12.336, 12.336f
vitreomacular traction syndrome, 12.322, 12.323f, 12.356f, 12.336–337, 12.337f
vitreous hemorrhage associated with, 4.133, 12.309
Vitreous gel
age-related changes in, 12.331
attachment of, to vitreous base, 12.307
composition of, 12.7
Vitreous haze, in intermediate uveitis, 9.81f, 9.81–82, 9.82
Vitreous hemorrhage, 2.302, 4.132–133
in central retinal vein occlusion, 12.135
echography for, 12.347
hemolytic/ghost cell glaucoma and, 12.102
in pars planitis, 9.151
peripheral neovascularization, 12.232
photocoagulation as cause of, 12.379
peripheral neovascularization, 12.232
posterior vitreous detachment and, 12.309
trauma-related, 12.357
treatment of, 12.309
in Valsalva retinopathy, 12.171
vision loss caused by, 12.346
vitrectomy for, 12.366, 12.386–387
Vitreous humor, 2.48, 2.101
Vitreous pressure, positive, flat or shallow anterior chamber and, 11.134
Vitreous seeds, in retinoblastoma, 4.292, 4.293f
Vitreous tap, for specimen collection. See Vitreous, biopsy of
Vitreous veils, 6.344
Vitritis, 4.127. See also Endophthalmitis choriororetinitis with, 9.72–73t
description of, 9.148
in intraocular (primary central nervous system) lymphoma, 4.135, 4.311
Lyme disease in, 9.229, 9.229f
in multiple sclerosis, 5.318
uveitis as cause of, 9.323–324
Vittaforma/Vittaforma corneae, 8.252
corneal infection caused by, 8.280–281
VKC. See Vernal keratoconjunctivitis
VKH. See Vogt-Koyanagi-Harada (VKH) disease/syndrome
VKH disease. See Vogt-Koyanagi-Harada (VKH) disease/syndrome
VLDLs. See Very-low-density lipoproteins
VLM. See Visceral larval/larvae migrants
VMAs. See Vitreomacular adhesions
VMD. See Vitelliform macular dystrophy
VMD2 (vitelliform macular dystrophy/BEST1) gene, 6.340–342, 10.11f, 12.271
VMT. See Vitreomacular traction (VMT) syndrome
VN. See Vestibular nerve/nuclei
VNS. See Vagus nerve stimulation
Vogt
palisades of, 8.10
white limbal girdle of, 8.120, 8.120f
acute secondary angle-closure glaucoma associated with, 9.318
acute uveitic stage of, 9.205, 9.205f
chronic recurrent stage of, 9.207
convalescent stage of, 9.205–206
definition of, 9.204
differential diagnosis of, 9.210
enhanced depth imaging optical coherence tomography in, 9.85, 9.88f
fluorescein angiography findings in, 9.208–209, 9.209f
histologic findings in, 9.204
HLA association with, 9.65f
HLA-DR4 and, 9.204
incidence of, 9.204
indocyanine green angiography in, 9.209
integumentary changes in, 9.206
lumbar puncture for, 9.209
manifestations of, 9.205–207, 9.205–207f
nivolumab-induced, 9.140f
optical coherence tomography findings in, 9.209, 9.210f
prodromal stage of, 9.205
prognosis for, 9.211
Sugiura sign in, 9.206, 9.207f
sunset-glow fundus in, 9.204, 9.206, 9.207f
sympathetic ophthlalmia versus, 9.203
treatment of, 9.211
ultrasonography of, 9.209
Vogt striae, 6.254
in keratoconus, 8.162f, 8.163, 8.164f
Vogt triad, 5.249–250, 5.309
Voluntary convergence/vergence, 5.226, 6.40
Voluntary flutter, 5.249–250, 5.309
Voluntary saccades, 5.219, 5.220
in progressive supranuclear palsy, 5.221
testing, 5.221
Volutaran. See Diclofenac sodium
Volume rendering
B-scans versus, 12.27
macular telangiectasia on, 12.31
Voluntary convergence/vergence, 5.226, 6.40
Voluntary flutter, 5.249–250, 5.309
Voluntary saccades, 5.219, 5.220
in progressive supranuclear palsy, 5.221
testing, 5.221
Volutaran. See Diclofenac sodium
Volume rendering
B-scans versus, 12.27
macular telangiectasia on, 12.31
Voluntary convergence/vergence, 5.226, 6.40
Voluntary flutter, 5.249–250, 5.309
VZV. See Vyzulta.

vWF. See vWD.

Vulnerable populations, 1.4 See V T.

VSR. See VRE.

Waardenburg syndrome, 4.18, 11.53 Vorticose veins, 5.21

Wandering nystagmus, 12.266

Warfarin/warfarin derivatives
cataract surgery in patient taking, 11.171 cessation of, before ocular surgery, 1.286 genetic testing used in dosing of, 1.140 indications for, 1.150 ocular adverse effects of, 1.309t therapeutic uses of, 1.348–350

Wart (verruca/verruca vulgaris)
of eyelid, 4.204, 4.205f papillomavirus causing, 4.204, 4.205f, 8.238 Wasp stings, ocular injury caused by, 8.386–387


Vomiting. See Nausea and vomiting

von Basedow disease. See Hyperthyroidism; Thyroid eye disease

von Graefe knife, 11.90

von Graefe sign, 7.25

von Hippe1 internal ulcer, 4.74f, 4.75f, 6.259

von Hippel–Lindau (VHL) disease/syndrome, 2.228, 2.444, 4.144f, 4.284–285, 5.330, 5.331f, 5.334f, 6.393f, 6.399–401, 6.400f, 6.400f, 12.165–168, 12.166–167f. See also Retinal angiomatis is

von Kossa stain, 4.31f

von Recklinghausen disease/neurofibromatosis. See also von Kossa stain, 4.31f

Wagner hereditary vitreoretinal degeneration, 12.282f

Wagner syndrome, 2.302, 2.304

WAGR syndrome, 2.225, 6.267, 10.155, 11.33

Waite-Beetham lines, 8.41, 8.199

Voriconazole, 1.277, 2.430f

Voretigene neparvovec- rzyl, 9.58

Voretigene neparvovec, 2.196f

VOR gain. See Vestibular-ocular reflex (VOR) gain

Voretigene neparvovec- rzyl, 9.58

Voretigene neparvovec, 2.196f

VOR. See Vestibular-ocular system/vestibular-ocular reflex

VOR gain. See Vestibular-ocular reflex (VOR) gain

Voretigene neparvovec- rzyl, 2.196f

Voretigene neparvovec, 2.196f

Voriconazole, 1.277, 2.430f

for Acanthamoeba keratitis, 8.279

for Candida fungal postoperative endophthalmitis, 9.298

for coccidioidomycosis, 9.302

fungal endophthalmitis treated with, 12.239 for fungal keratitis, 8.275

fungal endophthalmitis treated with, 12.240

Vortex (hurricane) keratopathy (cornea verticillata), 8.90, 8.129f, 8.130, 8.176, 8.177f in chloroquine/hydroxychloroquine toxicity, 8.130 in Fabry disease, 6.270, 8.176, 8.177f

Vortex veins, 2.22, 2.24f, 2.26, 5.21

in choroid, 12.19

eextracocular muscles supplied by, 6.23 surgical considerations for, 6.30 varix of, 4.270f, 4.271

Vorticose veins, 5.21f

Vossius ring, 4.18, 11.53

VRE. See Vancomycin-resistant enterococci

VSR. See Venous stasis retinopathy

VT. See Ventricular tachycardia

Vulnerable populations, 1.4

vWD. See von Willebrand disease

vWF. See von Willebrand factor

Vyzulta. See Latanoprostene bunod

VZV. See Varicella-zoster virus

W

Waardenburg-Jonkers corneal dystrophy. See Thiel-Behnke corneal dystrophy

Waardenburg syndrome, 2.206, 12.282f description of, 6.270 type 1, 6.191f, 6.192f

Wagner disease, 12.342–343

Wagner hereditary vitreoretinal degeneration, 12.282f

Wagner syndrome, 2.302, 2.304

WAGR syndrome, 2.225, 6.267, 10.155, 11.33

Waite-Beetham lines, 8.41, 8.199

Waldenström macroglobulinemia, crystalline corneal deposits in, 8.198, 8.199f

Wall-eyed bilateral internuclear ophthalmoplegia (WEBINO), 5.189, 5.190f in multiple sclerosis, 5.318

Wallenberg syndrome (Wallenberg lateral medullary syndrome), 5.20, 5.180, 5.217, 5.337

Horner syndrome and, 5.260f, 5.337

MRI in, 3.64f

Wallerian degeneration, optic nerve, 4.245–246

Water transport, in retinal pigment epithelium, 12.18

Water and electrolyte balance, in lens, maintenance of, 8.238

Wart (verruca/verruca vulgaris)
of eyelid, 4.204, 4.205f papillomavirus causing, 4.204, 4.205f, 8.238

Wasp stings, ocular injury caused by, 8.386–387

Watchful waiting. See Observation

Water and electrolyte balance, in lens, maintenance of, 12.21, 11.22f

Water channels (aquaporins), 8.251

Water-soluble lens proteins, 11.15, 11.15f See also Crystallins conversion of, to water-insoluble, 11.17

Water transport, in retinal pigment epithelium, 12.18

Watershed defects, 12.198

Watershed zone, 2.120

Watt, 3.106

Watts per square centimeter (W/cm²), 3.108

Watts per unit area (W/m²), 3.108

Wavefront(s)
definition of, 3.42, 3.94 geometric, 3.70–71, 3.274 in myopia, 3.73, 3.73f pictorial representation of, 3.94f

Wavefront aberrations. See also Aberrations; Wavefront analysis; specific type coma, 3.40, 3.275f, 3.275–276, 13.9, 13.12, 13.12f, 13.103f

keratorefractive surgery and, 13.9–13, 13.10f, 13.11f, 13.12f, 13.13f
lower-order, 13.11, 13.11f
measurement of, 13.9–10, 13.10f
myopia producing (positive defocus), 13.11, 13.11f
piston, 13.11
postoperative, 13.102–103, 13.103f
prisms, 13.11
pupil position and, 3.275–276
ray tracing for, 3.277
regular astigmatism, 13.17, 13.18f. See also Regular astigmatism
second-order, 3.276f, 13.11, 13.11f
spherical, 13.9, 13.12, 13.12f, 13.102
after LASIK, 13.12, 13.102
after radial keratotomy, 13.50
after surface ablation, 13.12, 13.102
surfaces of, 3.277
third-order, 3.276f, 13.12, 13.12f
trefoil, 13.9, 13.12, 13.12f, 13.103f
types of, 3.275–276, 3.276f
Zernike polynomials, 3.277
zero-order, 13.11
Wavefront aberrometry/aberrometers, 3.289–292, 3.290–291f. See also Wavefront analysis
intraoperative, in IOL power determination/selection astigmatism and, 11.124
after refractive surgery, 11.86
Wavefront analysis, 13.9–13, 13.10f, 13.11f, 13.12f, 13.13f, 13.46. See also Wavefront aberrations
definition of, 3.268
Fermat principle as basis of, 3.274
graphical representations and, 13.9–10, 13.10f
IOL power determination/selection after refractive surgery, 13.194
of irregular astigmatism, 3.273–277, 3.274–276f
before LASIK, 13.80
after photoablation, 13.102–103, 13.103f
reference sphere in, 3.274, 3.274f
before wavefront-guided ablation, 13.31, 13.46, 13.80
laser programming and, 13.31, 13.81
Wavefront-guided (custom) laser ablation, 13.31, 13.46, 13.76–77
higher-order aberrations and, 13.13, 13.31–32, 13.76–77
for LASIK re-treatment/enhancement, 13.99
for mixed astigmatism, 13.97
multifocal, 13.167, 13.168f
outcomes of, 13.31–32, 13.97
overcorrection and, 13.102
patient selection/relative contraindications and, 13.80
postoperative aberrations and, 13.13, 13.102
preoperative planning/laser programming for, 13.31, 13.46, 13.81
for presbyopia, 13.167, 13.168f
wavefront analysis before, 13.31, 13.46, 13.80
Wavefront-guided lasers, 13.31–32, 13.76–77
programming, 13.31, 13.81
Wavefront-mapping systems, 13.81
Wavefront-optimized laser ablation, 13.31, 13.76–77
higher-order aberrations and, 13.13, 13.31–32
outcomes of, 13.31–32, 13.97
postoperative aberrations and, 13.13, 13.102
Wavefront theory, 3.70–74
Wavefront theory, 3.70–74
Wavelength
anterior segment and, 3.118
color associations with, 3.94f
laser, 3.115
of light, 3.93, 3.94f
Wave scan imaging, 13.21f
WDR36 gene, 10.11f
Weakening procedures
for inferior oblique muscle
bilateral, 6.165
indications for, 6.118
for superior oblique muscle palsy, 6.123, 6.123f
surgical procedures for, 6.164f, 6.165–166
for V-pattern strabismus, 6.111
for oblique muscles, 6.164f, 6.165–166
for rectus muscles, 6.163, 6.164f
Wear-and-tear pigment, 2.98–99
Weber syndrome, 5.191
WEBINO. See Wall-eyed bilateral internuclear ophthalmoplegia
Weil (bladder) cells, 4.121, 4.121f, 11.48, 11.152
in phakomatous choristoma, 4.202, 4.203f
Wegener granulomatosis (granulomatosis with polyangitis/GPA)
definition of, 9.158
description of, 1.171–172, 7.34, 7.63–64, 7.64f, 12.195, 12.196f
diagnosis of, 9.159–160
eyelid manifestations of, 4.207f
laboratory investigations for, 9.125t
manifestations of, 9.158–159, 9.159f
nasolacrimal duct obstruction associated with, 7.306, 7.306f
necrotizing scleritis in, 9.120f
ocular involvement in, 9.159
optic neuritis and, 5.115
treatment of, 9.160
vision loss in, 9.159
Weight, IGF-1, neonatal ROP (WINROP) algorithm, 12.182
Weight loss
hypertension managed with, 1.58f
for idiopathic intracranial hypertension, 5.112
Weight management, coronary heart disease risk modification using, 1.73t
Weil disease, 9.232
Weill-Marchesani syndrome, 6.309, 11.33
microspherophakia in, 10.130, 11.33
Weiss ring, 12.308f
Welch-Allyn retinoscope, 3.150–151, 3.160
Well-differentiated pleomorphic tumors, 6.217
Well-differentiated squamous cell carcinoma, of eyelid (keratoacanthoma), 4.209–210, 4.210f, 4.211f
Werner syndrome, 8.192t
Wernicke disease, 1.199
WESDR. See Wisconsin Epidemiologic Study of Diabetic Retinopathy
West African crystalline retinopathy, 12.303–304, 12.305f
healing/repair of, 4.13–23, 4.14f. See also specific tissue
of cornea, 4.13–16, 4.15f
keratorefractive surgery and, 13.32–33
delays in, 13.93–94, 13.108
of eyelid/orbit/lacrimal tissues, 4.17
histologic sequelae of trauma and, 4.17–23, 4.18f, 4.19f, 4.20f, 4.21f, 4.22f, 4.23f
of lens, 4.17
promotion of, in chemical injuries, 8.383–384
of retina, 4.17
of sclera, 4.16
of uvea, 4.16
of vitreous, 4.17
cataract surgery, 11.118, 11.130–131
flat anterior chamber and, 11.135
angle-closure glaucoma and, 10.144–145
after penetrating keratoplasty, 8.423
after trabeculectomy, 10.209, 10.210, 10.211
Wound misalignment, after penetrating keratoplasty,
X-linked inheritance, 12.252
X-linked disorders. See also X-linked inheritance;
specific disorder
Fabry disease, 8.176–178, 8.177f
gene therapy for, 2.194
Hunter syndrome, 8.175t
ichthyosis, 8.202
Lisch corneal dystrophy, 8.140
megalocornea, 8.96t
ocular findings in, 2.232t
X-linked inheritance. See also X-linked disorders
description of, 2.208
disorders associated with, 2.210
dominant, 2.209, 2.210f
cystic, 2.208–209, 2.209f
X-linked ocular albinism, 2.230
X-linked retinitis pigmentosa, 2.230
X-linked retinoschisis (XLRS)
characteristics of, 12.278f, 12.278–279
electroretinography findings in, 12.46, 12.47f
X-pattern strabismus
clinical features of, 6.110
surgical treatment of, 6.113
Xalacom. See Latanoprost, in combination preparations;
Latanoprost/timolol maleate
Xalatan. See Latanoprost
Xanthelasma, 4.206, 4.206f, 7.190, 7.190f. See also
Xanthomas
in dyslipoproteinemia/hyperlipoproteinemia, 4.206,
4.207f
Xanthoctoria, 6.360
Xanthogranuloma, 8.347
fibrous (fibrous histiocytoma), 8.347
malignant, 4.112
orbital, 4.235
scleral, 4.112, 4.113f
in hyperlipoproteinemias, 4.206, 4.207f
Xanthophylls (carotenoids)
description of, 3.119, 12.373, 12.374f
in macula, 8.140
Xanthopsia, 12.305
Xeroderma pigmentosum (XP), 2.181–182, 7.202,
7.203, 8.202–203
ocular surface squamous cell carcinoma and, 8.336
Xerophthalmia, 8.196–197. See also Vitamin A,
deficiency of
dry eye and, 8.54, 8.54f
Xerosis
Corynebacterium xerosis and, 8.196–197, 8.246
in vitamin A deficiency, 8.196, 8.197
Xibrom. See Bromfenac
XLM. See External limiting membrane
XLRS. See X-linked retinoschisis
XP. See Xeroderma pigmentosum
Xylocaine. See Lidocaine
XYZ hypothesis, 8.11
Yellow spot. See Macula/macula lutea
Yersinia pseudotuberculosis, 6.240
Yoke muscles, 6.38
eccentric gaze and, 5.38
Young, Thomas, double-slit experiments by, 3.94, 3.101, 3.101f, 3.105

Z

z-height/z-maps, 13.22, 13.22f
Z-plasties, for blepharophimosis–ptosis–epicanthus inversus syndrome, 7.174, 7.175f
Z syndrome, 11.151
Zaditor. See Ketotifen fumarate
Zanamivir, 1.279
Zeaxanthin, 2.94
age-related macular degeneration managed with, 12.70f
cataract risk affected by, 11.7
description of, 12.367
ZEB1 gene, in posterior polymorphous corneal dystrophy, 8.136f
Zeis, glands of, 4.201, 8.4, 8.4f
chalazion and, 4.204, 4.206f
chalazion/hordeolum and, 8.76, 8.77
hordeolum and, 4.203–204
sebaceous adenocarcinoma arising in, 4.215
Zeiss 4-mirror goniolens, for gonioscopy, 10.33, 10.34f, 10.35, 10.36
in pediatric glaucoma, 10.159
Zellweger syndrome, 12.283f, 12.290
Zentmayer line, 10.94, 10.95f
Zernike polynomials, 13.9, 13.11f, 13.12f, 13.13f
definition of, 3.42, 3.71, 3.139, 3.277
higher-order aberrations characterized by, 3.139
low-order, 3.73, 3.73f
second-order, 3.73
third-order, 3.73
wavefront aberrations, 3.277
Zero-order aberrations, 13.11
Zeus transport medium, as tissue fixative, 4.26
Zidovudine, 2.432f, 2.436
Ziehl-Neelsen stain, 4.31f
Zika fever, 9.269–270, 9.270
Zika virus
chorioretinitis caused by, 12.247
description of, 1.265–266, 6.413
Zimmerman tumor (phakomatous choristoma), 4.202–203, 4.203f
Zinbryta. See Daclizumab
Zinc
age-related macular degeneration managed with, 12.69, 12.70f
in aqueous humor, 2.274
in intraocular foreign body, 12.362
Zinc finger E box-binding homeobox 1 (ZEB1) gene, in posterior polymorphous corneal dystrophy, 8.136f
Zinn
annulus of, 5.8f, 5.26, 5.45
circle of (circle of Zinn-Haller), 2.120, 2.122f, 5.17, 10.44, 10.46, 12.217
zonules of. See Zonular fibers, lens
Zioptan. See Tafluprost
Zirgan. See Ganciclovir
ZMC fractures. See Zygomaticomaxillary complex (ZMC) fractures
ZNF469 gene, 6.254
Zollinger-Ellison syndrome, 1.50
Zonal granuloma, 4.119, 4.119f
Zonal refractive multifocal intraocular lenses, 13.166, 13.166f. See also Multifocal lenses, intraocular
Zonulae adherentes, 2.98
Zonulae occludentes (tight junctions) in corneal epithelium, 8.8
description of, 2.98, 12.17
Zonular (lamellar) cataracts, 11.34–35, 11.36f
Zonular dehiscence
angle closure/pupillary block and, 10.119
cataract surgery and, 11.181–183, 11.182f, 11.183f
iris coloboma/corectopia and, 11.180
Zonular fibers
lens (zonules of Zinn), 2.82–83, 2.83f, 2.292, 4.115, 4.117, 11.9, 11.10f, 11.12
absent/abnormal
cataract surgery and, 11.179–184
iris coloboma/corectopia and, 11.180
nucleus rotation and, 11.11
in glaucoma, 10.33f, 10.119
degenerations of, 4.124
development of, 11.29
evaluation of before cataract surgery, 11.80
in glaucoma, 10.33f
pigment deposits on, in pigment dispersion syndrome, 10.94, 10.95f
in pseudoxefoliation/exfoliation syndrome, 10.92, 10.93, 10.130, 10.131f, 11.65–66, 11.181, 11.182f, 11.184
as tertiary vitreous, 4.125
topography of, 4.117
ultrasound biomicroscopy of, 2.472f
vitreous, tertiary, 4.125
of vitreous, 2.298
Zonular lamella, 11.11
Zonular traction retinal tufts, 12.311, 12.312f
Zonules, of Zinn. See Zonular fibers, lens
Zostavax, 1.227
Zoster. See Herpes zoster; Varicella-zoster
Zoster dermatitis, 8.227, 8.229
Zoster sine herpete, 5.298
Zoster vaccine, 5.298, 8.229
Zosyn, 1.273
Zovirax. See Acyclovir
Zygoma. See Zygomatic bone
Zygomatic bone. See Zygomatic bone
Zygomatic artery, 5.13f
Zygomatic bone (zygoma), 2.6f, 5.5, 5.7, 5.7f, 5.9f, 7.7–8f
Zygomatic branch of cranial nerve VII (facial), 5.51f, 5.52, 5.276–277f
Zygomatic fractures, 7.109, 7.111, 7.111f
Zygomatic nerve, 5.8f, 5.48f, 5.49, 5.51f
Zygomaticofacial artery, 2.25f, 5.15f
Zygomaticofacial canal, 7.10
Zygomaticofacial foramen, 2.11, 7.7–8f
Zygomaticofacial nerve, 5.49
Zygomaticomaxillary complex (ZMC) fractures, 7.109, 7.111, 7.111f
Zygomaticomaxillary suture, 5.8
Zygomaticotemporal artery, 2.25f, 5.15f
Zygomaticotemporal canal, 7.10
Zygomaticotemporal foramen/foramina, 2.11, 5.11, 7.7f
Zygomaticotemporal nerve, 5.49
Zygomyces, 7.51
Zygomyces infection (zygomyces/mucormycosis/phycomycosis), 5.355f, 5.355–356, 8.251
cornea involved in (keratitis), 4.78
optic nerve involved in, 4.243
orbit involved in, 4.226–227, 4.228f, 5.355
Zygomycosis, 7.51–52
Zygote, 2.215
Zylet. See Loteprednol etabonate/tobramycin
Zymar. See Gatifloxacin
Zymaxid. See Gatifloxacin
Basic and Clinical Science Course

Section 1  Update on General Medicine
Section 2  Fundamentals and Principles of Ophthalmology
Section 3  Clinical Optics
Section 4  Ophthalmic Pathology and Intraocular Tumors
Section 5  Neuro-Ophthalmology
Section 6  Pediatric Ophthalmology and Strabismus
Section 7  Oculofacial Plastic and Orbital Surgery
Section 8  External Disease and Cornea
Section 9  Uveitis and Ocular Inflammation
Section 10 Glaucoma
Section 11 Lens and Cataract
Section 12 Retina and Vitreous
Section 13 Refractive Surgery

Master Index

ISBN 978-1-68104-149-0
Item No. 02850939