Q

- Lens measurements
  - Birth: # mm equatorial, # mm anteroposterior

A

- Lens measurements
  - Birth: 6.4 mm equatorial, 3.5 mm anteroposterior

Q

- Lens measurements
  - Birth: 6.4 mm equatorial, 3.5 mm anteroposterior
  - Adult: # mm equatorial, # mm anteroposterior

A

- Lens measurements
  - Birth: 6.4 mm equatorial, 3.5 mm anteroposterior
  - Adult: 9.0 mm equatorial, 5.0 mm anteroposterior

Q

- Lens measurements
  - Birth: 6.4 mm equatorial, 3.5 mm anteroposterior
  - Adult: 9.0 mm equatorial, 5.0 mm anteroposterior

Cataract surgeons will sometimes employ an age-based rule of thumb for guestimating the A-P depth of a lens--what is it?

A

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  - Birth: 6.4 mm equatorial, 3.5 mm anteroposterior
  - Adult: 9.0 mm equatorial, 5.0 mm anteroposterior

Cataract surgeons will sometimes employ an age-based rule of thumb for guestimating the A-P depth of a lens--what is it?
A-P depth = 'Four-*point*-age' (eg, the A-P depth of the lens in a 65 y.o. is ~4.65 mm)

Q

- Lens measurements
  - Birth: 6.4 mm equatorial, 3.5 mm anteroposterior
  - Adult: 9.0 mm equatorial, 5.0 mm anteroposterior
- With age…
  - Lens curvature [increases *vs* decreases] → [↑ or ↓] refractive power

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  - Adult: 9.0 mm equatorial, 5.0 mm anteroposterior
- With age…
  - Lens curvature increases → ↑ refractive power
  - Refractive index [increases *vs* decreases] → [↑ or ↓] refractive power

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- Lens measurements
  - Birth: 6.4 mm equatorial, 3.5 mm anteroposterior
  - Adult: 9.0 mm equatorial, 5.0 mm anteroposterior
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So which do people become with age—more myopic or more hyperopic?

A

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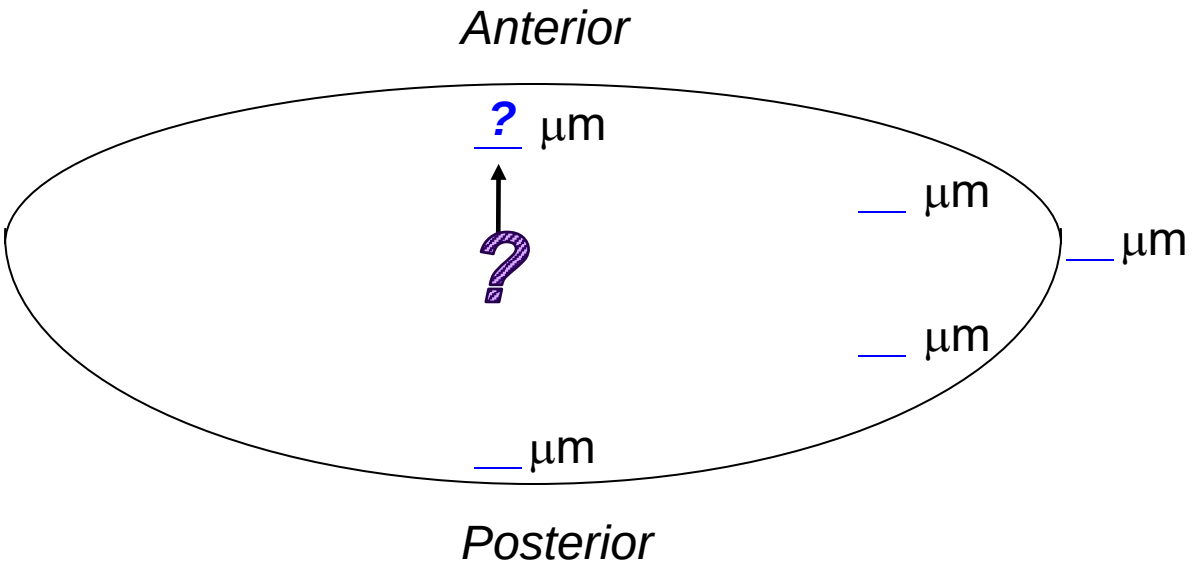
  - Birth: 6.4 mm equatorial, 3.5 mm anteroposterior
  - Adult: 9.0 mm equatorial, 5.0 mm anteroposterior
- With age…
  - Lens curvature increases → ↑ refractive power
  - Refractive index decreases → ↓ refractive power

So which do people become with age—more myopic or more hyperopic? That depends. The change in an individual's refraction is a function of the interplay of these two factors.

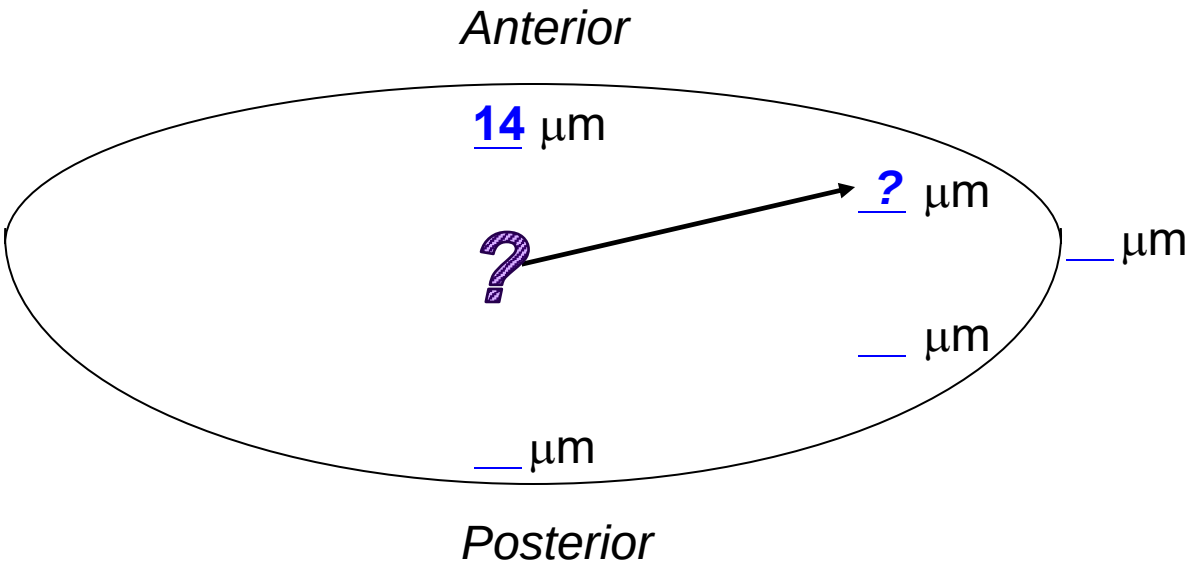
Q

Lens capsule thickness: Fill in the blanks



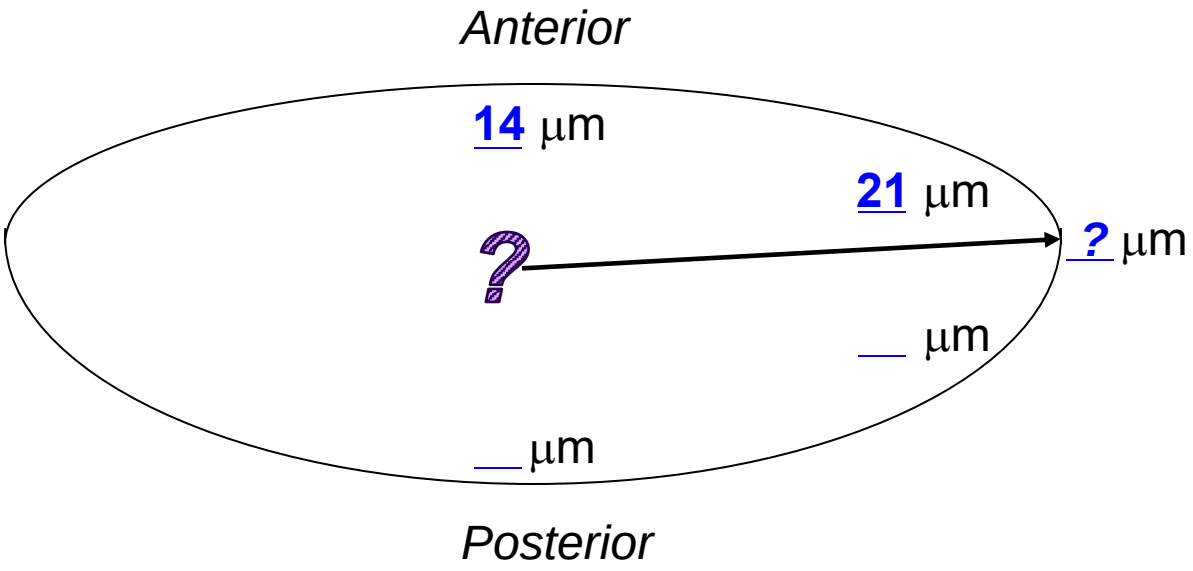
Q/A

Lens capsule thickness: Fill in the blanks



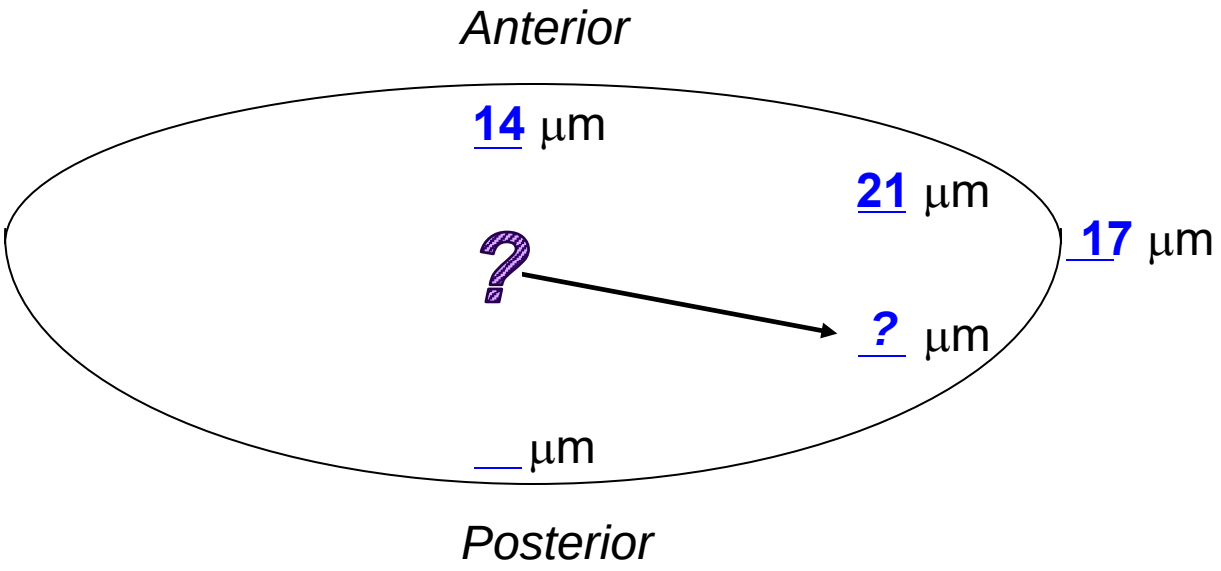
Q/A

Lens capsule thickness: Fill in the blanks



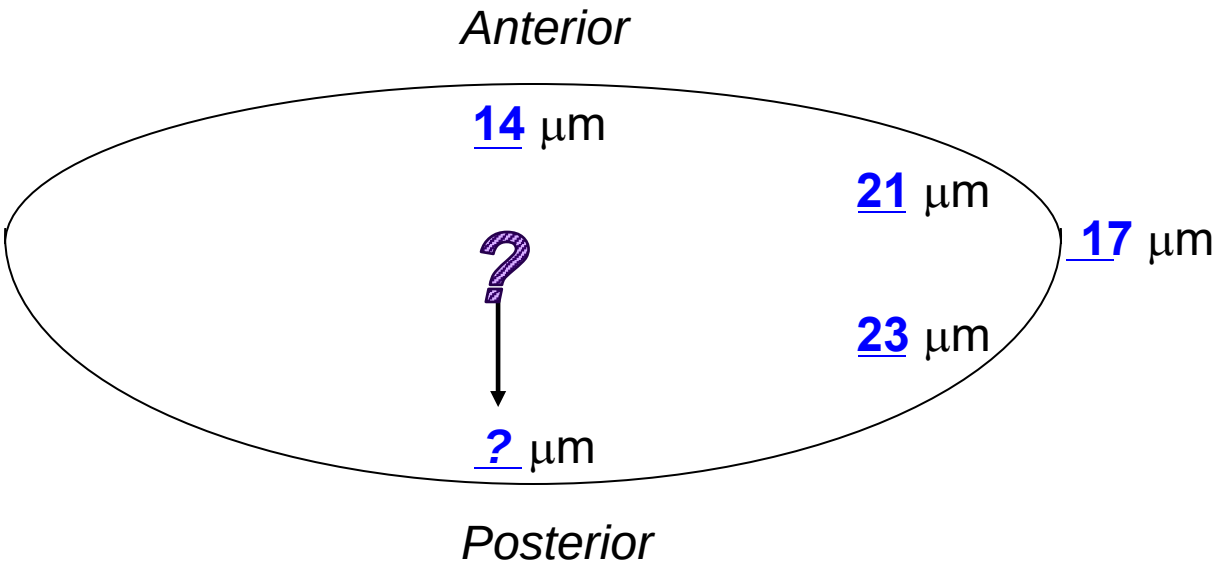
Q/A

Lens capsule thickness: Fill in the blanks



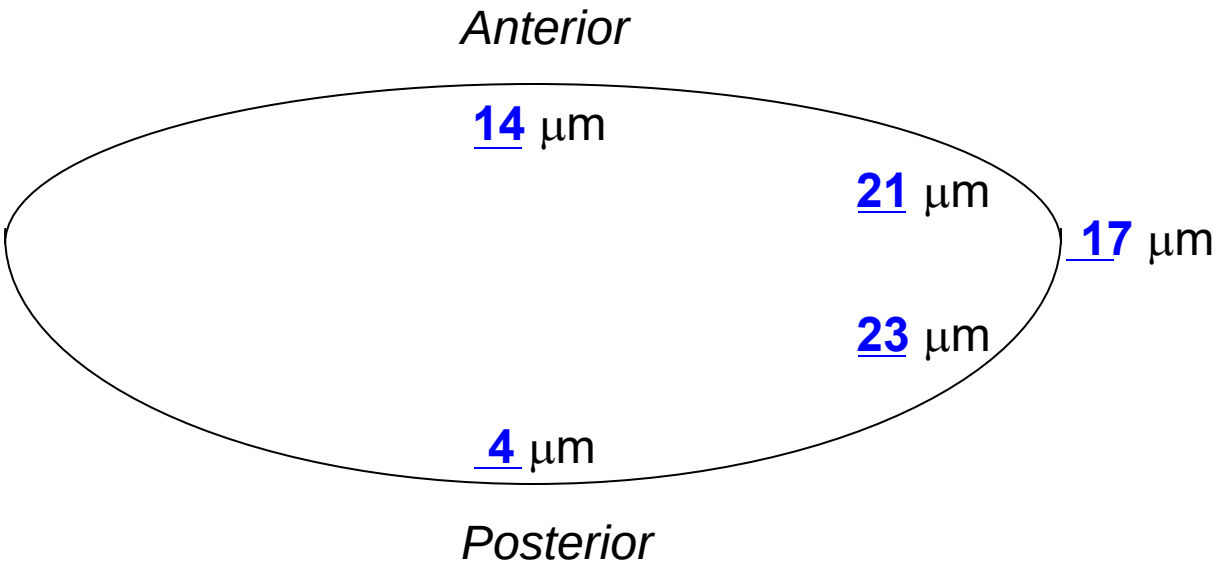
Q/A

Lens capsule thickness: Fill in the blanks

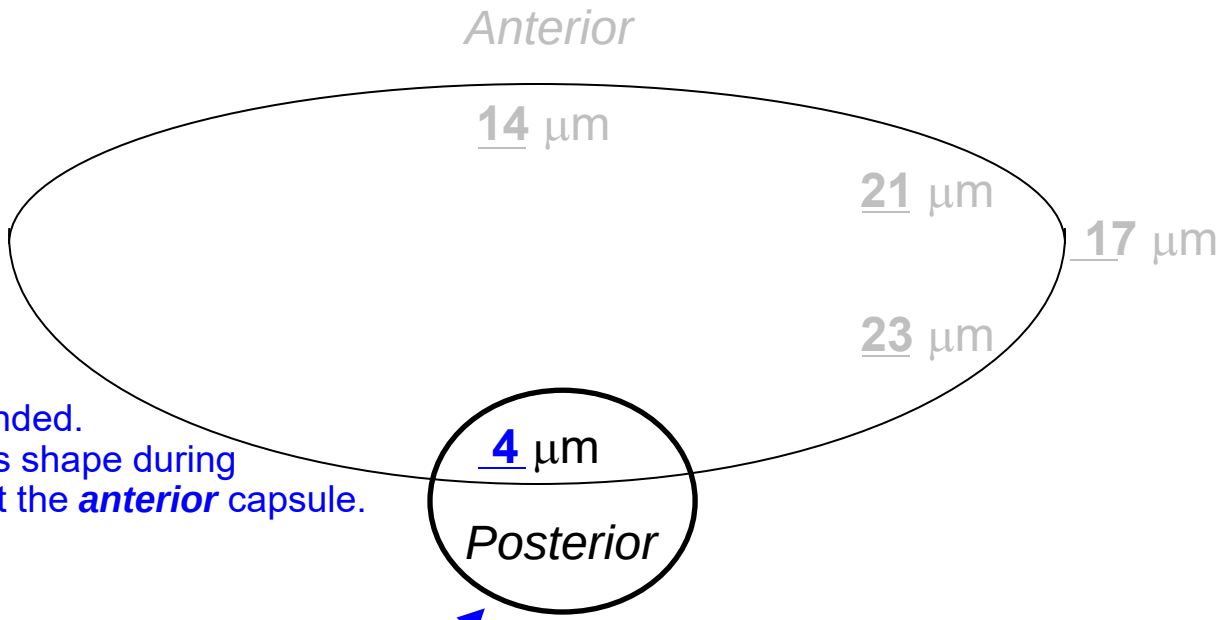


A

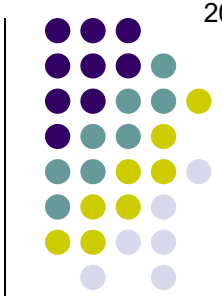
Lens capsule thickness: Fill in the blanks



Lens capsule thickness: Fill in the blanks

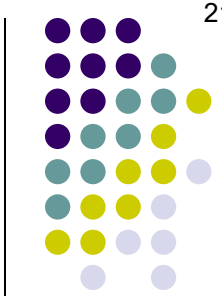


The posterior capsule is
so thin it is always distended.
Thus, all changes in lens shape during
accommodation occur at the ***anterior*** capsule.



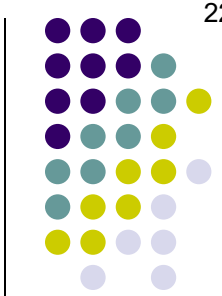
Q

- Zonules
  - Embryologically, the 1º vs 2º vs 3º *vitreous*



A

- Zonules
  - Embryologically, the *tertiary vitreous*



Q

- Zonules
  - Embryologically, the *tertiary* *vitreous*
  - Originate from the very specific tissue of the pigmented vs nonpigmented epithelium of the specific portion 1 and specific portion 2 of the ciliary body

A

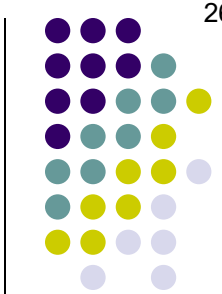
- Zonules
  - Embryologically, the *tertiary vitreous*
  - Originate from the basal lamina of the nonpigmented epithelium of the pars plana and pars plicata of the ciliary body

Q

- Zonules
  - Embryologically, the *tertiary* *vitreous*
  - Originate from the basal lamina of the nonpigmented epithelium of the pars plana and pars plicata of the ciliary body
  - #-# μm in diameter

A

- Zonules
  - Embryologically, the *tertiary vitreous*
  - Originate from the basal lamina of the nonpigmented epithelium of the pars plana and pars plicata of the ciliary body
  - 5-30 μm in diameter



Q

- Zonules
  - Embryologically, the *tertiary* *vitreous*
  - Originate from the basal lamina of the nonpigmented epithelium of the pars plana and pars plicata of the ciliary body
  - 5-30 μm in diameter
  - Stain with one stain and another stain

A

- Zonules
  - Embryologically, the *tertiary vitreous*
  - Originate from the basal lamina of the nonpigmented epithelium of the pars plana and pars plicata of the ciliary body
  - 5-30 μm in diameter
  - Stain with eosin and PAS

Q

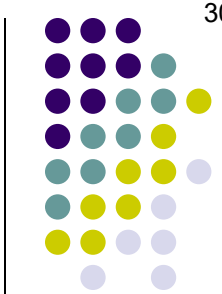
- Zonules
  - Embryologically, the *tertiary vitreous*
  - Originate from the basal lamina of the nonpigmented epithelium of the pars plana and pars plicata of the ciliary body
  - 5-30 μm in diameter
  - Stain with eosin and PAS
  - Three sets of fibers:

    1) location: Insert at the same location

A

- Zonules
  - Embryologically, the *tertiary vitreous*
  - Originate from the basal lamina of the nonpigmented epithelium of the pars plana and pars plicata of the ciliary body
  - 5-30 μm in diameter
  - Stain with eosin and PAS
  - Three sets of fibers:

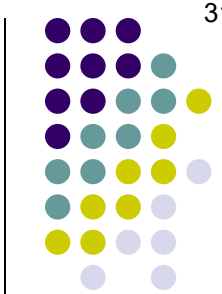
    1) *Equatorial*: Insert at the equator (duh)



Q

- Zonules
  - Embryologically, the *tertiary* *vitreous*
  - Originate from the basal lamina of the nonpigmented epithelium of the pars plana and pars plicata of the ciliary body
  - 5-30 μm in diameter
  - Stain with eosin and PAS
  - Three sets of fibers:

    1) *Equatorial*: Insert at the equator (duh)
       - These zonules [regress vs strengthen] with age



A

- Zonules
  - Embryologically, the *tertiary vitreous*
  - Originate from the basal lamina of the nonpigmented epithelium of the pars plana and pars plicata of the ciliary body
  - 5-30 μm in diameter
  - Stain with eosin and PAS
  - Three sets of fibers:

    1) *Equatorial*: Insert at the equator (duh)
       - These zonules regress with age

Q

- Zonules
  - Embryologically, the *tertiary vitreous*
  - Originate from the basal lamina of the nonpigmented epithelium of the pars plana and pars plicata of the ciliary body
  - 5-30 μm in diameter
  - Stain with eosin and PAS
  - Three sets of fibers:

    1) *Equatorial*: Insert at the equator (duh)
       - These zonules regress with age

    2) *Anterior*: Insert ___ mm anterior to equator

A

- Zonules
  - Embryologically, the *tertiary vitreous*
  - Originate from the basal lamina of the nonpigmented epithelium of the pars plana and pars plicata of the ciliary body
  - 5-30 μm in diameter
  - Stain with eosin and PAS
  - Three sets of fibers:

    1) *Equatorial*: Insert at the equator (duh)
       - These zonules regress with age

    2) *Anterior*: Insert 1.5 mm anterior to equator

Q

- Zonules
  - Embryologically, the *tertiary vitreous*
  - Originate from the basal lamina of the nonpigmented epithelium of the pars plana and pars plicata of the ciliary body
  - 5-30 μm in diameter
  - Stain with eosin and PAS
  - Three sets of fibers:

    1) *Equatorial*: Insert at the equator (duh)
       - These zonules regress with age

    2) *Anterior*: Insert 1.5 mm anterior to equator

    3) *Posterior*: Insert ____ mm posterior to equator

A

- Zonules
  - Embryologically, the *tertiary vitreous*
  - Originate from the basal lamina of the nonpigmented epithelium of the pars plana and pars plicata of the ciliary body
  - 5-30 μm in diameter
  - Stain with eosin and PAS
  - Three sets of fibers:

    1) *Equatorial*: Insert at the equator (duh)
       - These zonules regress with age

    2) *Anterior*: Insert 1.5 mm anterior to equator

    3) *Posterior*: Insert 1.25 mm posterior to equator

Q

- List the unique properties that distinguish the lens layers from one another histologically:
  - Nucleus:
  - Epinucleus:
  - Cortex:

A

- List the unique properties that distinguish the lens layers from one another histologically:
  - Nucleus:
  - Epinucleus:
  - Cortex:

Trick question—there are none! These terms refer to differences in *appearance* and *behavior* as encountered during cataract surgery. They are *descriptive* terms, not histological.