

Ergonomics, Part One: Is the Job You Love a Pain in the Neck?

BY LINDA ROACH, CONTRIBUTING WRITER

Martin Wand, MD, a Farmington, Conn., ophthalmologist whose focus is glaucoma and cataract, estimates that he lost about five weeks of work this year—thanks to the hazards of practicing ophthalmology.

“For the first time in more than 30 years, I had to stop working,” he recalled. “Over the course of three months, I took almost two weeks off because I was in such agony from a prolapsed spinal disk. But for two or three months before that I was not working a full schedule, and I could not do any surgery. Then I was out of the office for another 10 days after having spinal surgery.”

Why Eye M.D.s Are at Risk

Ergonomics experts agree that a long list of musculoskeletal disorders (MSDs) of the back, shoulders, neck and upper extremities can develop when there is a “perfect storm” of occupational risk factors:

- Repetitive tasks, especially under stressful circumstances.
- Tasks that require fine motor control and close visual focus. These raise muscle tension in the head, neck and upper extremities.
- Prolonged maintenance of awkward body positions while working.

This set of risk factors “pretty much defines almost everything oph-

thalmologists do every day,” said Dr. Wand. Tasks that can potentially put you at risk for MSDs include use of a slit lamp, especially if it is necessary to hold a contact lens against a patient’s eye; all laser procedures; and all surgery requiring an operating microscope. Prolonged stretching or compression during these tasks causes fatigued and overexerted muscles. Non-neutral postures can pull and stretch tendons, blood vessels and nerves over ligaments or bone, pinching, restricting and inflaming them.

Preventive steps should be taken early. Now that he is free of back pain and able to work full-time after a laminectomy/discectomy, Dr. Wand is keen to help other ophthalmologists—especially young ones—avoid injuries like his. He believes all ophthalmologists should be taught early in their careers to adjust their work environments properly in order to minimize the load on muscles, tendons and the spine during exams and procedures. “We are bringing this up so that younger ophthalmologists do not suffer a problem that is easily preventable,” he said.

Surveys Reveal Much Suffering

The first studies in the medical literature on the prevalence of ophthalmology-related MSDs were written by Jeffrey L. Marx, MD, and colleagues at the Lahey Clinic Medical Center in



AT RISK. With Eye M.D.s under pressure to increase productivity, work-related injuries threaten to become even more prevalent.

Burlington, Mass. They first talked about the issue at the Academy’s 2001 Annual Meeting, and they published two papers on the research in 2005.^{1,2}

In their study, they mailed surveys to 2,523 Academy members in the northeastern United States, asking them for self-reports on MSD symptoms in the preceding 30 days. Half of the 697 respondents (51.8 percent) reported having neck, upper extremity or lower back symptoms. The symp-



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toms led to slight to moderate work limitations for 15 percent. A survey of retina surgeons by another group of researchers (1,130 surveyed; 487 completed and analyzed) showed this distribution of reported pain: 55.4 percent both back and neck, 21.4 percent back, 8.3 percent neck and 15 percent none.³

Anecdotal evidence hints at a growing epidemic. Although he has conducted no further surveys, and although objective numbers on the phenomenon are lacking, Dr. Marx believes the situation has deteriorated since then. “The cohort of colleagues and friends whose early problems prompted me to do the survey has begun suffering even more in the last few years,” Dr. Marx said. “They seem to be developing more problems, particularly neck and lower spinal problems.”

Though there are many anecdotes about MSDs, objective evidence is lacking. Ruth D. Williams, MD, a glaucoma specialist in Wheaton, Ill., said that when she became Academy secretary for Member Services, she resolved to remedy this information gap. “Over the years, I’ve listened to many, many colleagues tell their stories of suffering serious injury from repetitive movements or awkward postures on the job,” Dr. Williams said. At age 48, she too has endured two job-related musculoskeletal problems that she views as relatively minor: painful neck spasms (now under control) and early signs of degenerative disk disease.

The Academy asks members about workplace injuries. At Dr. Williams’ urging, the Academy included a question about back and upper body pain in its recent biennial member survey. A random sample of 7,000 members were asked in what body areas, if any, they were experiencing difficulties as a result of performing repetitive motions during exams or surgeries. While the results of the survey won’t be finalized until September, more than 800 questionnaires had been returned at time of press. According to these early responses, almost 30 percent of respondents are suffering problems in the neck area. Furthermore, in each of the following three areas—lower back,

How Injuries Can Sneak Up on You

Unlike the sudden back injuries common in other lines of work, musculoskeletal disorders (MSDs) are likely to creep up on Eye M.D.s. An absence of apparent symptoms today is no guarantee of what tomorrow will bring, experts in ergonomics say.

Some of the injury pathways toward MSDs of the trunk and extremities include:

BACK: Maintaining an unbalanced posture for long periods of time produces static loading of the soft tissues and ischemic accumulation of metabolites in them. This can accelerate disk degeneration and lead to disk herniation.

NECK: Repeated flexion or extension of the neck while at the slit lamp, operating microscope or computer terminal can cause chronic pain and severe spasms.

ARMS, SHOULDERS: Extended periods of holding the bent arms too high, too low or unsupported while with a patient, or while entering data into a computer, can produce shoulder pain, swelling of tendons and ligaments in the carpal tunnel and tingling and numbness of the fingers and hands from tendinitis and tenosynovitis.

ARMS: Repeatedly resting the elbows or forearms on a hard surface during procedures, or on malpositioned armrests, can lead to ulnar neuropathy.

Frequently, those pathways interact to create a complex collection of symptoms that can worsen and/or become chronic over time. Symptoms can vary from day to day, depending on the work activity.

MSDs also are multifactorial, potentiated by everything from lifestyle and psychological stress to small changes in the way the office or surgical suite is arranged. Often, people say they were fine until their normal routines changed because of a new job, new equipment or expanded duties. Some studies have linked MSDs to personal factors such as gender, height and genetic predisposition, but others have not.

upper back and arm/hand—about 20 percent of respondents reported problems. While these responses are worrying, Dr. Williams stressed that a lack of comparative data means the Academy will have to be cautious in interpreting the survey results.

Physical Pain, Financial Loss
 “If I had not been able to have my back surgery, I would have had to stop practicing ophthalmology,” Dr. Wand said. “As a surgeon, if your back is injured in this way, you cannot even switch to medical ophthalmology because using a slit lamp is too painful.”

How much income will you lose?
 You may face a steep drop in income if you are permanently disabled. Some disability insurance policies require the injured specialist to first try practicing as a general physician before they will grant benefits. If the disability claim is granted later, any payments are based on that lower income level, rather than on the income previously earned as a specialist or surgeon.

Invest in your work environment.

“I wish I had known some of this information when I started practicing, at 35, and had taken the proper preventive measures,” said Dr. Wand. For instance, he recommends modifying operating microscopes with oculars that can be tilted to the most comfortable angle. This allows the surgeon to keep the neck neutral, rather than flexed or extended. But at one leading microscope maker this replacement part costs more than \$1,000.

What would Dr. Wand tell young surgeons who are reluctant to spend an extra \$1,000 per slit lamp? “If I knew then what I know now, and if that modification had been available 30 years ago, it would have been one of the best investments I ever made.”

1 Dhimitri, K. C., et al. *Am J Ophthalmol* 2005;139(1):179–181.

2 Marx, J. L. et al. *Techniques in Ophthalmology* 2005;3(1):54–61.

3 Desai, U. R. T., et al. Occupational Back and Neck Problems in Vitreoretinal Surgeons. American Society of Retina Specialists Meeting, San Diego, August 2004.