

Ergonomics for the Retina Specialist

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As young retina MDs, we devote a great deal of time and physical energy honing our skills in order to better serve our patients. This may occur, however, at the expense of inattention to our own bodies. Neutralizing the elements of our daily practice that may make us prone to developing musculoskeletal disorders is essential to professional longevity. We thank Sunir J. Garg, MD for sharing his advice to help us reduce the risk of occupational injury.

—Paul S. Baker, MD; Allen Chiang, MD; and Eugene A. Milder, MD

New retina specialists do not instinctively think or talk about back pain. Our plates are often loaded with other concerns: honing our surgical skills, expanding our clinical knowledge, managing on-call duties, conducting research, and maintaining life outside of work. The majority of us are young and free of any chronic ailments, which may make us all the more naïve to the occupational hazards of practicing retina. What is overlooked now, however, may one day torment us as a pain in the neck, literally.

Practicing retina is inherently physically demanding and is often performed under stressful circumstances. During surgery, the intense visual focus on fine motor tasks generates muscle tension throughout the back, neck, shoulder, and upper extremities. In the clinic, repetitive work at the slit-lamp (particularly when holding a contact lens against a patient's eye) and awkward body positioning while performing examinations or indirect laser treatment can further aggravate overexerted muscles. In time these repetitive tasks, performed in what ergonomic experts refer to as "non-neutral" postures, promote the development of musculoskeletal disorders (MSDs). Non-neutral postures create abnormal stretching of nerves, blood vessels, and muscle tendons over bone and ligaments, all of which generate inflammation that ultimately leads to restriction.

PREVALENCE AND REPERCUSSIONS

Symptoms of MSDs are common among ophthalmologists. Marx and colleagues^{1,2} at the Lahey Clinic in Massachusetts were among the first to report on the prevalence of ophthalmology-related MSDs and ergonomic risk-factor exposure. In one of their studies, a survey of American Academy of Ophthalmology mem-

bers showed that 51.8% of respondents reported having neck, upper extremity, or lower back MSD symptoms. A survey specifically of retina surgeons by another group of researchers³ reported in 2004 showed both back and neck pain in 55.4%, back pain in 21.4%, and neck pain in 8.3% of respondents; only 15% were symptom-free.

In addition to physical pain, MSDs have the potential to incur significant financial loss due to either temporary or permanent disability. In some instances, disability insurance policies may require a disabled retina surgeon to practice as a general eye care physician before granting any benefits. Furthermore, benefits may be paid at a lower income level than previously earned as a specialist.

In spite of their prevalence and economic impact, the good news is that MSDs are preventable. It is up to us to seek the advice of more experienced retina physicians and make appropriate modifications to our lifestyles and clinical practice. We asked one of our mentors, Sunir Garg, MD, to share his personal perspective on this issue.

Q: When and how did you come to realize the importance of ergonomics in your retina practice?

A: I started developing some back pain when I was a third-year resident. Many years prior, my uncle mentioned to me that I should study yoga, but I never pursued it. I was talking with one of my nonmedical friends about my back issues, and she suggested I try taking some yoga classes. It has been an amazing experience; within 1 month my back pain went away. Even now, when I practice yoga postures regularly, I feel great. If I stop for 1 or 2 weeks, my back starts to act up again.

When people think of yoga, they think it in terms of the physical aspect. Obviously, having good physical health is critical for one's well being. What people may

not know is that yoga is a life philosophy (that is independent of, and complementary to, a person's religious beliefs). The postures are a way to help gain balance, awareness, and acceptance of one's body, and also of one's life. This mental aspect of yoga practice has helped me become a better, more patient physician and surgeon.

For example, I have performed some really tough proliferative vitreoretinopathy cases, one of which readily comes to mind. First, I didn't have forceps that worked, then the patient started to sit up, and then at that very moment, one of the OR personnel accidentally unplugged the vitrectomy machine (this obviously was not at Wills). Yoga helped me stay (relatively) calm.

Q: What would you say are the most common non-neutral postures that you see retina fellows adopting?

A: In my opinion, sitting properly, especially in the OR, does not come naturally. Our fellows often start a case by positioning themselves away from the patient (ie, with the backside sticking out away from the patient's head). This leads them to strain their back, hunch over, collapse their shoulders, and tilt their head back, which stresses the cervical spine. Another position that commonly occurs is elevation of the shoulders (it looks like shrugging the shoulders). This often causes the elbows to come away from the body, the forearms lift, and then the fellow tries to compensate by balancing the entire arm weight on the ring finger which is placed on the patient's forehead. It's no surprise that fatigue (and instrument tremor) follows.

Q: What measures have you taken in your lifestyle outside of work to help minimize occupational injury?

A: Taking a series of Iyengar Yoga classes is the best way to go for most ophthalmologists. A teacher can be found at www.iyanaus.org. To become an Iyengar instructor, even at an introductory level, teachers must have hundreds of hours of structured teaching experiences before they have to pass rigorous practical and written exams by senior examiners. (Sounds familiar.) A significant part of their training is learning to work with an individual's abilities, allowing the student to get the benefit with minimal chance of injury. The teachers specifically ask about aches and pains so they can work with the student.

The classes that are offered at most health clubs often have a "monkey see, monkey do" aspect to them that can be frustrating and can lead to serious injury.

Q: What about practical tips for the OR?

A: It is helpful for fellows to sit on the OR stool without the bed or scope and place their feet on the foot pedals. Once in a comfortable, seated position, they should bring the scope over and look through the ocu-

lars without really changing their seated position. Then they should bring the bed in. Most fellows bring the bed in, set it to some arbitrary height, and then force their bodies to adapt to the bed. This may work when you are 29 years old, but not when you are 49.

The other technique that I encourage fellows to use while sitting at the scope is to drop their shoulders down and let their elbows come in toward the body. This usually allows the forearms to relax. I then encourage the fellow to imagine his or her hands are like clay, both heavy and malleable. The heaviness also implies stability and this stability, should be felt at the wrist and base of the metacarpals. This usually allows the fingers to be free from the chore of weight support and available for fine surgical maneuvers.

Q: What about practical measures for the clinic?

A: Our specialty is a set-up for work-related injuries. Sitting properly at the slit lamp is much like sitting properly at the operating microscope. Many of us have a tendency to contort ourselves to fit our patients' body type. Ideally, we would have our slit lamp and chair at a set particular height, and vary the patient's chair position. In my opinion, it is most important to keep the spine in an upright, neutral position. I have noticed that I often tend to twist my body to make notes while also speaking with the patient, and I am consciously trying to stop this practice.

One of the realizations I have come to is that, although I try my best to make my patients comfortable during the exam, they are only at a slit lamp for an infrequent 2 minutes. I am making the same motions 50 or 60 times a day, every day, so I need to protect my long-term health and comfort. Remember, *primum non nocere* also applies to ourselves! ■

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1. Dhimitri KC, McGwin G, McNeal SF, et al. Symptoms of musculoskeletal disorders in ophthalmologists. *Am J Ophthalmol*. 2005;139(1):179-181.
2. Marx JL, Wertz F, Dhimitri KC. Work-related musculoskeletal disorders in ophthalmologists. *Techniques in Ophthalmology*. 2005;3(1):54-61.
3. Desai URT, Abdulhak MM, Bhatti R. Occupational Back and Neck Problems in Vitreoretinal surgeons. Paper presented at: the American Society of Retina Specialists Annual Meeting; San Diego; August 2004.