

Kevin M. Miller, MD

Dr. Miller explains his involvement in developing new products for ophthalmologists and offers advice to the next generation of cataract and refractive surgeons.

How has your background as an electrical engineer influenced your approach to ophthalmology?

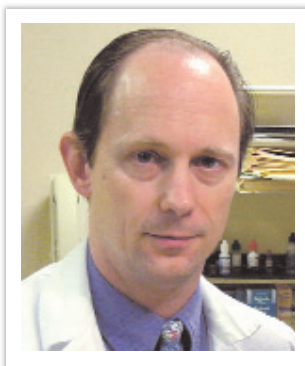
The training that I received as an electrical engineer is very problem focused, and I look at patients and their health issues as problems to be solved. Most physicians look more comprehensively at patients by matching symptoms and laboratory test results to diseases and treatments. My background in electrical engineering also has a bearing on my approach to the devices we use in ophthalmology. I help companies develop products that are useful to ophthalmologists by improving the human interface, which is the ophthalmologist/instrument interaction. Most engineers do not have a full appreciation of this interface. I can bridge that gap because I speak both languages—that of physician and engineer.

Which new product or technology will have the greatest impact on cataract and refractive surgery?

I think the greatest new product will be a really effective accommodating lens. I envision an IOL that is truly accommodating, not what we are seeing on the market right now. It will have a good amplitude of accommodation and incorporate high-quality optics with wavefront and achromatic corrections. The lens will also be continuously wavefront-adjustable over the lifespan of a patient, so he or she will have the IOL adjusted as time goes on instead of changing his or her glasses. This technology will not be available next week, but I think it might be in 20 to 30 years.

What motivated you to obtain a humanitarian device exemption from the FDA to implant artificial iris segments in eyes with congenital or acquired iris defects?

I see a large number of patients who have experienced major ocular trauma. Many of them have suffered open globe injuries or closed blunt trauma, and the entirety of the eye is subsequently disorganized. The retina may have been detached, and the cornea may have failed or scarred. Often, the iris is either partially or completely absent. These eyes need at least some degree of iris reconstruction, if not major reconstructive eye surgery. Unfortunately, there are no artificial iris devices on the US market. I decided to incrementally move one company's products toward FDA approval, so I organized a study of the artificial iris segments manufactured by Morcher GmbH and obtained an investigational device exemption to study a variety of its implants.



What is your advice to the next generation of cataract and refractive surgeons?

Always stay in the learning mode. The surgery that I was doing 2 years after I finished residency training looked very little like the surgery I was trained to do because things evolved quickly. All education is essentially geared to teaching an individual how to learn. The skills I picked up in medical school and during residency are fundamental, but more importantly, I learned how to acquire new knowledge. As a faculty researcher, I also have the privilege of generating new knowledge. The next generation of cataract and refractive surgeons will need to acquire new skills continuously and recognize that ophthalmology changes faster than most medical fields.

What is your most memorable traveling experience?

I have traveled to places most people would never want to visit, so my most unforgettable experience is memorable in a bad way. I had gone to Jerusalem, Israel, for a meeting, and I was walking around by myself. I wandered into the West Bank and did not know it. Looking like a typical American tourist, I walked into a village. Slowly, 100 yards in front of me, kids started coming out of houses. It seemed like they were just milling around until, all of a sudden, they turned in unison to face me. They started running toward me while pulling knives out of their pockets and picking up stones from the ground. It was like a flashback from the nightly news. Within seconds, I was surrounded by 20 to 30 "kids" between the ages of 5 and 30 years, and I had 15 or more knives pointed at me.

Not knowing what else to do, I pointed my finger at the meanest looking guy in the group and said, "Do you want to be my tour guide?" His eyes lit up, and he replied, "okay." I said, "If you want to be my tour guide, then make all of the other 'kids' go away." He did. After a 1.5-hour tour, I was somehow able to persuade him to take me to the Jerusalem bus station, and at that point, I was in relatively safe territory. I reached into my pocket and gave him everything I had, which was about \$70. He started screaming at me at the top of his lungs. I walked off, and he did not follow me, fortunately! The moral of this story is, do not walk around the West Bank of Israel alone. Go with a really big group. ■

Dr. Miller has an investigational device exemption to study Morcher GmbH's artificial iris devices.