

Interview with Dr. Ray Stein

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In honour of the Bochner Eye Institute's 80th anniversary in 2009, we asked Dr. Stein for an interview for this issue, and we were delighted when he agreed.

Interestingly, Dr. Raymond Stein did not originally intend to be an ophthalmologist, or even a medical doctor. His undergraduate training, at the University of Pennsylvania, was in economics at the Wharton School of Business; he also played on the varsity tennis team. (He says the sport was a great experience – they played from September through April and had a full time coach). Despite his time on the tennis team, his studies did not suffer – he became a Benjamin Franklin scholar, an honour bestowed on the top 2% of students. He also took a classical music course at the University of Pennsylvania, which he says opened his eyes.

What he found unappealing about economics was that it was not an exact science, so his interests moved elsewhere. He took a few science courses and realized that he truly enjoyed them. Until then, he had never given science a chance. He applied to the University of Toronto medical school, and was accepted. When he first entered medical school, becoming an ophthalmologist was still not part of his plan, and he thought he might choose any specialty other than ophthalmology. In the end, it was ophthalmology that he found the most interesting, and he thinks a genetic component might be to blame as his father (Dr. Harold Stein) and maternal grand-father (Dr. Max Bochner), both practice(d) ophthalmology.

After medical school, he completed his residency at the Mayo Clinic in Rochester, Minnesota, and then completed a cornea fellowship at Wills Eye Hospital in Philadelphia. He returned to Toronto after his training, working first at Scarborough Hospital, and then at the University of Toronto's Mount Sinai Hospital. Of course, he is now very active in clinical practice at the Bochner Eye Institute, which has a surgical license for cataract surgery. The Institute is also active in laser vision corr established a diagnostic imaging clinic to detect abnormalities of the cornea, optic nerve, and retina.

I asked Ray about his most important contributions to the field of ophthalmology. The first thing he mentioned was the Bochner Eye Institute's acquisition of one of the first excimer lasers used in clinical practice in North America. The inventor of the excimer laser technology, Dr. Steven Trokel, of New York, instructed all the doctors at the Bochner Eye Institute in its use. Since then, Bochner's surgeons have shared their knowledge with surgeons and optometrists around the globe. They have had many visiting doctors at the

Institute to observe the surgery, before performing it themselves. The Institute's doctors also authored one of the first clinical textbooks about the excimer laser, as they have extensive experience with the technology. They recently published a book for consumers, titled, "Laser Vision Correction." Ray has also authored or coauthored 15 other educational books for ophthalmologists, optometrists, and family doctors. These titles include "Management of Ocular Emergencies", "The Ophthalmic Assistant", "Ophthalmic Technology", "A Premier in Ophthalmology", "Fitting Guide for Rigid and Soft Contact Lenses", and "Contact Lenses: Fundamentals and Principles."

He also has a great interest in creating and giving power point presentations, and in fact, was the first ophthalmologist to deliver a computer presentation at the Canadian Ophthalmological Society meeting in 1995. All the other presentations were standard slides. Ray says it cost him \$1,000 to rent a video projector for the day that weighed 75 pounds. He enjoys using videos to teach those in the eye care field. His presentations are informative and are delivered in a way that makes it easy for the listener to remember key messages.

He has enjoyed going on eye surgical expeditions to undeveloped countries and recently went to Nicaragua to operate and train some of the local doctors. He continues to be in touch with some of the surgeons by email and is pleased that their confidence and skills have continued to evolve. The foundation of the Bochner Eye Institute has been active in donating phacoemulsification units and surgical instruments to Nicaragua, Grenada, Kenya and China.

Dr. Ray Stein is actively involved with the Foundation for Fighting Blindness (FFB). He feels that they work in an area that truly needs help – hereditary and degenerative retinal diseases. He has helped them raise funds for the last seven years through their main event referred to as Comic Vision, which takes place across Canada. Ray was recently appointed to the Board of Directors of the FFB.

I asked Ray if he has any hobbies or interests when he has spare time for himself. He still loves tennis, and also enjoys trying foods from different countries, and traveling with his family. His main focus, though, he says, is making sure his children realize their potential and grow as individuals. His oldest daughter, Rebecca (19), is studying medicine at St. Andrew's University in Scotland, while his daughter Emma, who is 17, is taking her Grade 12 in Neuchatel, Switzerland. His youngest, Max, is in Grade 9 at Greenwood College, and is active in sports and the debating team.

Finally, I asked Ray what advances he anticipates for eye care in the future. He explained that cataract

surgery had changed dramatically already, and would continue to change and improve in the future. He said that when his grandfather began operating patients had to stay in the hospital post-operatively for two weeks, with sandbags around their head in order to heal properly. His father, Dr. Harold Stein, pioneered intraocular implants, at the time of extracapsular surgery. He believes that there may be a significant role for femtosecond technology in the area of cataract surgery. The technology has the potential to perform perfect corneal incisions, limbal relaxing incisions, an anterior capsulorhexis, and fragmentation of the nucleus. This technology would allow for a safer and easier cataract procedure. The cataract could either be simply aspirated or a minimal amount of phaco power be utilized to complete the procedure.

He felt that intraocular implants will continue to evolve. Ray believes that toric implants will be commonly used and correct for any level of astigmatism; other implants will correct for higher-order aberrations; multifocal implants will also correct astigmatism; and there will be better accommodative implants. The technology will be available to modify the postoperative refractive error (sphere, cylinder, and or higher-order aberration) by the utilization of ultraviolet light to change the polymers of silicone implants.

Ray feels that vision correction will continue to evolve. Today with laser vision correction over 95% of eyes achieve an acuity of 20/20. In the future we will have a better understanding of the eyes healing responses and ways to modulate healing. We will also be able to treat not only myopia, hyperopia, and astigmatism, but presbyopia. Everyone believed that we would not be able to treat presbyopia on the cornea with a laser ablation. It appears however that this hypothesis is incorrect. The future looks very promising for presbyopic laser treatments. This could change dramatically how the presbyope is managed that is interested in vision correction. We will look to laser vision correction as well as a refractive lens exchange to achieve both distance, intermediate, and reading vision.

In addition, Ray believes that laser vision correction may change in a significant way in the future. Femtosecond technology has the potential to cut an intrastromal segment that can be removed through a

small pocket incision. This may eliminate flap related complications and improve predictability. He also feels that for thin corneas or higher corrections that corneal collagen crosslinking can be done prior to laser vision correction to enhance the biomechanical strength of the cornea.

He believes that every cataract surgeon will also be a refractive surgeon in the future.

Specialized sulcus implants will be available for people who have already had cataract surgery and who want their astigmatism corrected. If a patient wants both distance and reading vision, then a secondary multifocal implant could be inserted into the sulcus.

Last but not least, he says that contact lens fittings are also evolving. Technology is now available to image the cornea and determine higher-order aberrations. This specialized information can now be sent to a lab that makes a soft contact lens. This customized wavefront contact lens will be a dramatic improvement for patients with irregular corneas.

I spoke with a colleague and friend of Ray Stein, Dr. Roy Rubinfeld who is a well-respected refractive surgeon in Washington DC. As Dr. Rubinfeld told me, their friendship began when they were both fellows at Wills Eye Hospital. They have known each other for decades, and have spent some family vacations together over the years. In fact, Dr. Rubinfeld said that if he knew Ray was going to be at a science meeting, he might go just to see Ray. He described Ray as a superb colleague and a good friend.

Perhaps the ultimate testament to their friendship is the fact that Ray performed laser surgery on Roy Rubinfeld in 1995, when laser surgery was still very much in its infancy. This is surely a demonstration of the trust and respect they have for each other as friends and colleagues.

It was a pleasure to speak with Dr. Ray Stein. *Eye Care Review* congratulates him and his many colleagues at the Bochner Eye Institute on the occasion of its 80th anniversary.

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