

History of LASIK Surgery

Most people think of LASIK as a new procedure to treat bad vision. But, the first LASIK procedure in the United States was actually done over 15 years ago, and LASIK developed from surgeries that date back over 55 years ago.

In The Beginning

The modern day field of vision correction procedures began in Bogota, Columbia in 1948. Dr. Jose Barraquer would remove 60% of the cornea, freeze it, and then use a lathe to reshape it. The cornea was then sewn back into place. The procedure was called freeze myopic keratomileusis (MKM for short) and seems barbaric compared to seamless modern day LASIK surgery. MKM was an important first step in vision correction surgery. It provided doctors with knowledge about how much of the cornea had to be left unaltered to provide a stable long-term result. MKM utilized a very rudimentary microkeratome, which is the instrument that today is mainly used to create the flap in LASIK surgery.

MKM surgery was difficult to perform well and sometimes gave unpredictable results. Through trial and error doctors made modifications to MKM, and thus Automated Lamellar Keratoplasty (ALK for short) was born in the 1960's. In ALK a microkeratome was used to create a corneal flap. The microkeratome was then used to remove a wedge of corneal tissue from underneath the flap, thereby correcting the patient's nearsightedness. But, this technique still provided inconsistent results and was abandoned pending the development of more refined instruments and techniques.

The Development of RK

In the 1960's Fyodorov, a Russian Ophthalmologist, ushered in a much more reliable, albeit it manual, technique called RK. RK, also known as radial keratotomy, made use of a scalpel to reshape the cornea. Cuts were made through 90% of the cornea's thickness to cause a reshaping of it and correction of low to moderate levels of [myopia](#) and [astigmatism](#). RK was a reliable procedure, but could not treat a broad enough range of myopia and astigmatism to gain the widespread acceptance that LASIK enjoys today.

Over the last thirty years several inventions set the stage for laser vision correction. Ophthalmologists first adapted technology that the U.S. government used to create topographic maps of the earth. This technology made it possible to study the cornea in much greater detail than ever before.

The Birth of Laser Vision Correction

The excimer laser was developed by the U.S. military and subsequently altered by ophthalmologist Steven Trokel, who first described its use in 1983 in removing corneal tissue. The excimer laser removes 39 millionths of an inch of tissue in 12 billionths of a second. Dr. Trokel's work lead directly to the development of [PRK](#), the immediate precursor to [LASIK](#). PRK has been performed in the U.S. for 16

years, and was a great improvement over RK, mainly due to the accuracy of the excimer laser. With PRK only 10-20% of the cornea needs to be altered instead of the 90% required with RK. Also, a much larger range of prescriptions can be treated with PRK than RK. The modern era of laser vision correction had begun.

LASIK Takes Over

In 1991 the first LASIK procedure was performed in the U.S. LASIK makes use of decades of research and refinements to provide an amazingly accurate, comfortable procedure with a fast recovery time. This procedure has been performed millions of times since its inception, making it one of the most popular and successful surgical procedures in medical history. Today about 99% of laser vision correction is some form of LASIK.

As you can see, LASIK is far from new, and has given sight to millions and millions of people. It promises to provide crystal clear vision to many more millions of people each year. Dr. Barraquer would be proud of where the last 55 years have taken us with vision correction surgery and the bright future the field has that he created.

“The Art of LASIK” Second Edition, published by SLACK in 1999 was used as a reference for this article.