

LASIK Eye Surgery

Luke McConnaghy, *Biomedical Engineering, University of Rhode Island*
BME 281 First Presentation, November 22, 2016 <luke_mcconnaghy@my.uri.edu>

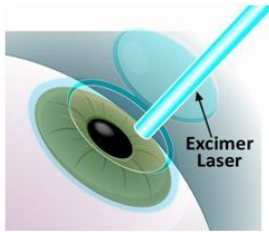
Abstract—LASIK is carving the path of cosmetic eye surgery. This procedure consists of minimal risks and complications. LASIK surgery adjusts the cornea, using an excimer laser, to the proper curvature to result in near-perfect vision.

I. INTRODUCTION

Lasik stands for Laser Situ Keratomileusis, which means stationary cornea reshaping. LASIK is a form of refractive surgery, and it corrects myopia (nearsightedness), hyperopia (farsightedness), and astigmatism. This procedure costs the patient between \$1500-\$2500 per eye, but the price depends on the location of the procedure, surgeons experience, and severity of the patient's sight.

II. METHODS

There are two main methods of LASIK surgery to correct myopia and hyperopia. An all-laser approach uses only two lasers. First, a laser creates a corneal flap. The flap is folded back, allowing an entrance for the excimer laser. The excimer laser is aligned with the opening and carves the new properly shaped cornea.



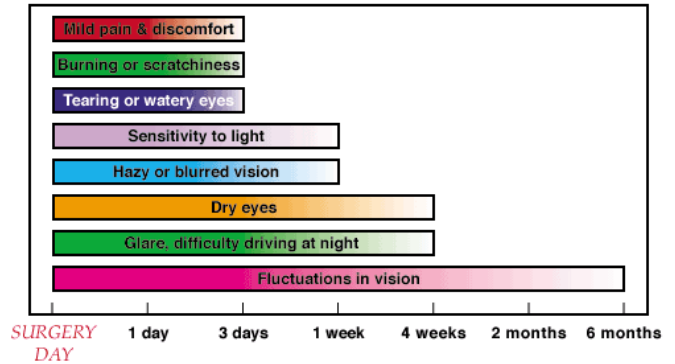
The second method is one of the first forms of LASIK eye surgery. This procedure uses a microkeratome (shown below), a small blade that makes a superficial cut on the lens of the eye. Similarly, proceeding the cut, an excimer laser reshapes the cornea.



III. RESULTS

LASIK eye surgery patients must fit certain criteria to be considered for this procedure. For example, the patient cannot have a severe case of myopia or hyperopia or a history of eye infections. Due to the selectivity of the surgeons, this procedure yields excellent customer satisfaction and decreases the amount of post operation complications. Recovery time varies from patient to patient but is monitored with self-scheduled check-ups. One should expect to have dry and

scratchy eyes following the procedure for about three days.



IV. DISCUSSION

An all-laser approach is more effective while resulting in fewer complications. In exchange, the procedure costs slightly more than the microkeratome method (averaging about \$2000 per eye). Most surgeons are more experienced using microkeratome due to the longevity of the device. To conclude, both methods are very successful and yield superb results.

The disadvantage of LASIK is that patients who get corrected for myopia or hyperopia will still have a large chance of needing reading bifocals around the age of 40. Additionally, surgeons turn away many patients due to the complexity of their case to keep their success and satisfaction rate high. On the other hand, LASIK allows for individuals to save on the annual cost of contact lenses and optic wear with a cost of one procedure. Also, approximately 96% of patients are satisfied with the outcome of their procedure.

REFERENCES

1. Boxer Wachler, Brian, MD. "LASIK Risks and Complications." *All About Vision*. N.p., n.d. Web.
2. "History of Refractive Surgery." *History of Refractive Surgery*. N.p., n.d. Web.
3. "Looking Back: The History of Laser Vision Correction." *LASIK.com*. N.p., 11 July 2013. Web.
4. Mayo Clinic Staff. "LASIK Eye Surgery." *Risks*. N.p., n.d. Web.
5. Salomão, Marcella Q., and Steven E. Wilson. "Femtosecond Laser in Laser in Situ Keratomileusis." *Journal of cataract and refractive surgery* 36.6 (2010): 1024–1032. *PMC*. Web. 12 Nov. 2016.
6. Straub, Howard, D.O. *The Future of LASIK Eye Surgery*. N.p., n.d. Web.
7. Stein, Joshua D. et al. "Gauging Interest of the General Public in Laser Assisted In Situ Keratomileusis (LASIK) Eye Surgery." *Cornea* 32.7 (2013): 1015–1018. *PMC*. Web. 12 Nov. 2016.
8. Solomon, K. D. "LASIK World Literature Review: Quality of Life and Patient Satisfaction." *National Center for Biotechnology Information*. U.S. National Library of Medicine, Apr. 2009. Web.