

LASIK Eye Surgery Report

LASIK eye surgery can be a liberating experience for people hoping to reduce or eliminate their dependence on glasses and contact lenses. Most patients do not realize how evolved LASIK eye surgery has become in recent years. The level of technology has been improving this amazing eye surgery since its FDA approval in 1995. In order to better explain all of the dimensions of LASIK surgery we want to briefly highlight the different types of LASIK surgery and what their significance actually is to your vision correction decision. We hope you might find this information useful in your research process. This research is critical to determine the best vision correction procedure for your unique eyes.

About LASIK laser vision correction

LASIK actually stands for Laser in-situ keratomileusis, which is the most commonly performed type of laser eye surgery today. This eye surgery procedure is generally safe, effective, and has very few side effects. LASIK is a great option for many individuals considering laser vision correction for a variety of very personal and professional reasons. LASIK eye surgery may not promise perfect vision, however; it is a highly successful procedure that can at the very least reduce a person's dependence on glasses or contact lenses. The lifestyle benefits can be tremendous for active and social people. These benefits can enable people to more freely pursue their hobbies, sports activities or career options. LASIK has been performed in the United States since its FDA approval in 1995. At the 2005 AAO (American Academy of Ophthalmology) meeting a 10 year study of the effectiveness and safety was presented and showed overwhelming success of the procedure.

LASIK facts

- There have been no reported cases of any LASIK patient going blind
- Most LASIK patients see 20/40 or better
- 98% of CustomVue Custom LASIK patients see 20/20 or better
- A 10 year study has been done by AAO and verified the safety
- Not all LASIK patients get great results (ask your doctor why?)
- LASIK is a cornea surgery to the outside part of the eye, it is not intraocular.

Understanding LASIK candidacy

There are a few things you will need to know before undergoing LASIK eye surgery. Your eye doctor will have to give you an examination usually 2 weeks before. He will then know if any medical conditions or eye conditions will stop you from getting lasik eye surgery done. Ways to qualify:

- * You have to be 18 or older and have a mild case of nearsightedness
- * 21 or older and have astigmatism
- * Persons with healthy eyes
- * Have a prescription that hasn't changed in over a year
- * People who know the risks
- * People who are perfectly healthy and want 20/20 or better vision

Candidates for LASIK

- LASIK candidates should have no major change in the glasses prescription for a one-year period to assess stability.
- LASIK candidates should be 18 years of age or older! Before the age of 18 years, many patients do not have stable vision.
- LASIK candidates are typically patients who are not satisfied with contact lenses or wearing glasses. Contact lenses often dry up and aggravate many patients. If you are a contact lens wearer please consult with our staff regarding the duration you will need to be out of contacts prior to LASIK eye surgery.
- LASIK candidates should have healthy eyes with no corneal diseases. Diseases such as keratoconus will eliminate a patient from qualifying as a LASIK candidate. Please discuss the health of your cornea during your pre-operative LASIK evaluation
- LASIK Candidates should not be affected by an autoimmune disorder, such as Sjogren's Syndrome or Lupus.
- LASIK candidates should be willing to accept a small amount of risk associated with surgery. Although 98% of patients see 20/20 after LASIK eye surgery there is a small chance that 20/20 vision will not be achieved. In the event that perfect 20/20 vision is not achieved a LASIK enhancement can be performed.
- Patients who have thin corneas will also not qualify for LASIK surgery. There needs to be enough corneal thickness to perform LASIK eye surgery.
- LASIK candidates must be carefully selected if they have high levels of refractive error. Your doctor will test for these conditions on your evaluation exam.
- Individuals with pupils that dilate beyond seven millimeters in the dark may not be good candidates for LASIK.
- All interested LASIK candidates should [CLICK HERE](#) to fill out our self evaluation form to get a better idea of their personal LASIK candidacy.

Selecting Your LASIK surgeon

Selecting a surgeon for your LASIK eye surgery is a very important decision that will ultimately affect your vision for the remainder of your life. It is important to discuss your personal situation with a qualified ophthalmologist and ask your questions directly to the ophthalmologist if possible. Choosing a surgeon that has high quality and safety standards can often reduce unnecessary surgical risk. Experience with LASIK eye surgery is also a very important factor when selecting your surgeon. Not all eye doctors share the same level of training or experience in laser vision correction. A surgeon with a vast amount of experience should also be able to show you some basic information regarding outcomes. When constantly analyzing surgical outcomes, the better surgeons find that the consistency and predictability of their results gets better. If a surgeon tracks outcomes this actually demonstrates his or her concern with achieving the best possible results. LASIK technology is constantly improving every year.

Some practices and surgeons aim to keep up with the latest technology in order to provide the best possible equipment for the best visual outcomes. In recent years we have seen the advent of wave-front optimized LASIK and special diagnostic equipment to measure aspects of corneal thickness. Each piece of equipment contributes significantly to the LASIK process and can make the procedure better and safer. If a practice does not discuss your cornea or corneal thickness this could be an indicator that you need to see another practice. Clear patient communication should be sought after. If a practice chooses to keep you in the dark about the details start to ask questions. The best practices always provide detailed information about every step of the LASIK process. You may find some of the technical equipment information interesting or also be interested in the LASIK outcomes chart.

The Excimer Laser

When you hear the word laser, you are probably wondering how can this possibly help in correcting vision. The laser responsible for all of this eye surgery is commonly known as the excimer laser. There are many brands of excimer lasers on the market today and some of them have specific points of differentiation. The excimer laser's role is to permanently change the shape of the cornea, or the outer layer of the eye. The EXCIMER laser, which is a specific type of "cool" laser, generates its power from light in the ultraviolet range. This cannot be visualized by the human eye. Because the laser does not generate any heat, there is no tissue damage as the result of the laser light. As the treatment with the laser proceeds, microscopic layers of tissue, approximately 1/10th the width of a human hair are removed. The laser is programmed to remove precisely the amount of tissue needed to achieve the desired result.

The LASIK Procedure

(ALSO known as laser vision correction)

During LASIK, the surgeon first applies anesthetic eye drops to numb the eye for surgery. The Cornea is then marked with water-soluble ink to guide replacement of the flap. Next a suction ring is applied that is designed to hold the eye steady and also confirms the pressure of the eye. The surgeon then creates a thin corneal flap using a device called a microkeratome. The surgeon tests for laser alignment and walks the patient through the fixation process. The corneal flap is lifted up, and the laser beam is applied to the exposed interior surface of the cornea to reshape the tissue. The computer-controlled excimer laser removes the tissue under the flap and reshapes the cornea of the affected eye. In less than 60 seconds, high-energy pulses from the excimer laser actually reshape the internal cornea with accuracy up to 0.25 microns, or 1/4000 of a millimeter. The flap is then replaced over the treated area. This corneal flap serves a natural bandage, which eliminates the discomfort associated with other types of refractive surgery, and expedites the healing process. Your doctor will then watch the eye for five minutes to ensure proper healing. Because of the extraordinary bonding properties of the corneal tissue, stitches are not needed to keep the flap in place postoperatively.

LASIK Risks

No matter what type of LASIK you and your surgeon decide is right, you must understand that there are risks. LASIK is a surgical procedure conducted on the cornea part of the eye. It is crucial that patients are well educated on the potential benefits and risks of this procedure. After your pre-operative evaluation you will have a good idea about the risks and what they imply to your specific situation. It is important to discuss any concerns with directly with your surgeon. Each patient's vision is different and different treatment options are available in order to give the best possible results. Once again, the only way to determine if LASIK is right for you is to come in and discuss your options with a qualified LASIK coordinator.

Are you concerned about the possible risks associated with LASIK eye surgery? If so, you should discuss these with your surgeon prior to signing the dotted line. The surgeon should discuss the possible risks, the possible complications, the possibility of side effects and the pros and cons of LASIK surgery with you until you feel comfortable with your decision.

Possible risks of LASIK surgery include:

- * Over correction
- * Under correction
- * Corneal scarring
- * Irregular astigmatism
- * Corneal infection
- * May not be able to see as well after surgery
- * A decrease in contrast sensitivity
- * Problems with night driving
- * Irregular flaps
- * Incomplete flaps
- * Ingrowth of cells under flap
- * Flaps cut off completely

Different types of LASIK eye surgery

Conventional LASIK – (DESCRIBED ABOVE) - This type of LASIK refers to the original form of LASIK eye surgery where a microkeratome is used to make a flap. Once the flap is made the excimer laser is used to correct the shape of the cornea. Conventional LASIK typically does not include wavefront technology also called custom LASIK.

Custom LASIK – This topic can often be confusing for a patient so make sure to read this section carefully! All eyes suffer from optical aberrations or distortions. Aberrations can be separated into two categories HIGH and LOW. Low order aberrations are the familiar sphere and cylinder of myopia, hyperopia, and astigmatism, measured through refraction and denoted by diopters on your prescription. This is precisely what conventional LASIK was aiming to correct. Higher order aberrations such as trefoil, coma, and other similarly unfamiliar terms cannot be measured with a standard refraction. Instead, they are measured with an instrument called an aberrometer. The aberrometer measures the total amount of aberrations in the eye, including the refraction, and then transforms this complex data into a wavefront map. Aberrometer findings are transferred and then loaded into the excimer laser for treatment. The laser ablation pattern to improve your vision is derived from the total set of

Monovision LASIK – Monovision LASIK is a surgical technique in which one eye is corrected for distance vision and the other eye is corrected for up close vision or reading vision. This version of LASIK is typically performed only on patients over the age of 40 years old and is the only way that an older patient can avoid needing reading glasses. Many people that undergo Monovision LASIK are satisfied with their new vision. Despite the relatively high level of patient satisfaction we typically ask each patient to undergo a contact lens trial prior to having the actual surgery because this will give the most realistic view of what Monovision will be like.

Blade-FREE LASIK

Traditionally, a microkeratome is used to create the corneal flap necessary in LASIK eye surgery. Ophthalmologists have found that when complications arise from LASIK they are typically from a poorly created corneal flap. Unlike mechanical instruments, IntraLase technology (Blade-FREE LASIK) is uniquely able to program the dimensions of your flap based on what's best for your eye(s). Then the IntraLase laser (femtosecond laser) creates your flap from below the surface of the cornea-without ever cutting it. This process is done in a series of steps:

Ultra-fast pulses of laser light position microscopic bubbles at a precise depth predetermined by your doctor. The laser light passes harmlessly through your cornea. Then the laser creates rows of these bubbles just beneath your corneal surface as it moves back and forth across your eye in a uniform plane. Next, the IntraLase laser stacks bubbles around your corneal diameter to create the edges of your flap. These bubbles are stacked at an angle that is determined by your doctor and is individualized to the way your eye is shaped. The LASIK doctor will then gently lift the flap to allow for the second step of your LASIK treatment. When treatment is complete, the flap is gently put back into position and the healing process begins.

Alcon LADARVision® - "LADAR" or "LADARVision®" is the proprietary name given to one of the excimer laser instruments used in LASIK vision correction surgery. LADARVision combines active tracking and small beam corneal shaping, two features previously unavailable in the United States. What makes the LADARVision 4000® unique is its laser radar tracker. This state of the art technology locks onto the patient's eye and stays locked on, sampling saccadic movement 4,000 times per second. Of what advantage is the LADARTracker™ eye tracking system to patients? It means greater accuracy when your cornea is re-shaped.

iLASIK – iLASIK is the brand name offered by VISX and American Medical Optics for custom LASIK surgery with Intralase. iLASIK combines custom LASIK, blade-FREE LASIK and the use of the excimer lasik. iLASIK is not a different LASIK surgery it is a brand of the combination of technology offered.

PRK (Photo-Refractive Keratotomy) - PRK is similar to LASIK, in that the same type of laser is used; however a corneal flap is not created. Instead, the laser beam is applied directly to the surface of the eye to reshape the cornea. PRK is less frequently used because of the development of LASIK, but in some individual cases, PRK may still be the procedure of choice.

Even though the initial healing may take several days longer than that of LASIK, the long-term results are the same.

LASEK (Laser epithelial Keratomileusis) - LASEK is a refashioned form of photorefractive keratectomy (PRK). In LASEK the epithelium is folded back, not removed as it is in PRK, so that the laser can reshape the exposed cornea.

LASEK is used most frequently for people who are not candidates for LASIK because their corneas are too thin or too flat. Visual recovery is generally faster than PRK, but slower than in LASIK.

Epi Lasik

(epipolis laser in situ keratomileusis) Epi-lasik is a recently adopted type of LASIK eye surgery performed to correct nearsightedness, farsightedness, and astigmatism. Epi-LASIK actually combines advantages from both PRK and conventional LASIK into one procedure.

Epi-LASIK involves cutting an ultra thin flap from tissue known as epithelium that covers the very front of the eye's surface or cornea. Epi-LASIK differs from LASIK primarily based around the type of flap created. The flap cut is so thin that it does not penetrate the actual cornea whereas LASIK actually penetrates into the cornea. With Epi-LASIK the surgeon uses epithelial separator to separate the sheet from the eye. After the epithelial separator has created this ultra thin flap the flap is lifted and carefully folded back. The next step involves using an excimer laser just like with conventional LASIK. The laser treatment then occurs, thus reshaping the surface of the eye. The epithelial flap is then gently repositioned back on the eye. A contact lens bandage may be required after the surgery to assist with the healing process.

Zyoptix (Custom LASIK)

High Definition LASIK with Zyoptix™ can potentially:

- Improve overall quality, contrast and crispness of your vision
- Allow you to see better than you can with glasses or contact lenses
- Increase your chances of seeing 20/20 or better

The expertise in the critical areas of eye tracking had its genesis in many years of contract research and development for the Strategic Defense Initiative and the National Aeronautic and Space Administration (NASA). More than \$35 million dollars has been invested by industry to develop this technology and its application to an excimer laser to correct vision beyond the original government research.

Until recent times, laser vision correction treated patients based strictly on their eye prescription. There was no effort in this early treatment to customize the treatment to an individual's eye or account for higher order aberrations. With the conventional LASIK approach only the refractive error was corrected. This meant if a patient had a -5 refractive error this is what would be corrected.

Once wavefront technology arrived courtesy of (NASA) the vision scientists began researching the use of this technology to help to improve LASIK eye surgery. Now, wavefront guided excimer lasers can now treat patients according to the uniqueness of their entire optical system, not just their prescription. This means clearer, sharper vision, especially at night.

Zyoptix LASIK Candidacy

You may be a good candidate if you:

- Are older than 21 years of age and have stable vision.
- Glasses are troubling at work or during workout and sporting events.
- Contact lenses make your eyes uncomfortable and dry.
- Experience poor night vision or higher order aberrations.
- You have large pupils
- You have thin corneas
- Have had stable vision for the past 2 years
- Have healthy eyes, good general health and are not taking medication that affects the healing process