



LASIK Surgery Screening Guidelines For Patients

The Eye Surgery Education Council

Medical Advisory Board:

Chair, Roger F. Steinert, MD; Douglas D. Koch, MD; Stephen S. Lane, MD; R. Doyle Stulting, MD

I. Introduction

Laser in-situ keratomileusis, or LASIK, the most commonly performed type of laser surgery, is generally a safe and effective treatment for a wide range of common vision problems. Specifically, LASIK involves the use of a laser to permanently change the shape of the cornea, the clear covering of the front of the eye.

LASIK is a quick and often painless procedure, and for the majority of patients, the surgery improves vision and reduces the need for corrective eyewear. However, as LASIK is a surgical procedure conducted on a delicate part of the eye, it is crucial that potential candidates are well educated on the benefits and risks of the procedure, understand the importance of a thorough screening by their physician, and maintain realistic expectations about the procedure's outcome.

II. Patient Profiles: Who is Right for Laser Eye Surgery?

While many individuals are considered good candidates for LASIK, there are some who do not meet the generally accepted medical criteria to ensure a successful laser vision procedure. Individuals that are not deemed good candidates given today's technology may be able to have the surgery in the future, as technology advances and new techniques are refined. Anyone considering laser eye surgery must have a thorough examination by an ophthalmologist that will help determine, in consultation with the patient, whether or not the LASIK procedure is right for them. Based on various conditions and circumstances, all LASIK candidates will fall into one of the following three broad categories.

The Ideal LASIK Candidate

The ideal candidate includes those who:

- Are over 18 years of age and have had a stable glasses or contact lens prescription for at least two years.
- Have sufficient corneal thickness (the cornea is the transparent front part of the eye). A LASIK patient should have a cornea that is thick enough to allow the surgeon to safely create a clean corneal flap of appropriate depth.
- Are affected by one of the common types of vision problems or refractive error – myopia (nearsightedness), astigmatism (blurred vision caused by an irregular shaped cornea), hyperopia (farsightedness), or a combination thereof (e.g., myopia with astigmatism). Several lasers are now approved by the U.S. Food and Drug Administration (FDA) as safe and effective for use in LASIK, but the scope of each laser's approved indication and treatment range is limited to specified degrees of refractive error.
- Do not suffer from any disease, vision-related or otherwise, that may reduce the effectiveness of the surgery or the patient's ability to heal properly and quickly.
- Are adequately informed about the benefits and risks of the procedure. Candidates should thoroughly discuss the procedure with their physicians and understand that for most people, the goal of refractive surgery should be the reduction of dependency on glasses and contact lenses, not their complete elimination.

The 'Less Than Ideal' LASIK Candidate

Sometimes, factors exist that preclude a candidate from being ideal for LASIK surgery. In many cases, a surgeon may still be able to perform the procedure safely, given that the candidate and physician have adequately discussed the benefits and risks, and set realistic expectations for the results. Candidates in this category include those who:

- Have a history of dry eyes, as they may find that the condition worsens following surgery.
- Are being treated with medications such as steroids or immunosuppressants, which can prevent healing, or are suffering from diseases that slow healing, such as autoimmune disorders.
- Have scarring of the cornea.

More often, factors exist that may keep an individual from being a candidate immediately, but do not preclude the individual from being a candidate entirely. Candidates in this category include those who:

- Are under age 18.
- Have unstable vision, which usually occurs in young people. Doctors recommend that, prior to undergoing LASIK, candidates' vision has stabilized with a consistent glasses or contact lens prescription for at least two years.
- Are pregnant or nursing.
- Have a history of ocular herpes within one year prior to having the surgery. Once a year has passed from initial diagnosis of the disease, surgery can be considered.
- Have refractive errors too severe for treatment with current technology. Although FDA-approved lasers are available to treat each of the three major types of refractive error – myopia, hyperopia and astigmatism – current FDA-approved indications define appropriate candidates as those with myopia up to -12 D, astigmatism up to 6 D and hyperopia up to +6 D. However, laser eye surgery technology is evolving rapidly, and doctors may be able to treat more severe errors in the future.

The Non-LASIK Candidate

Certain conditions and circumstances completely preclude individuals from being candidates for LASIK surgery. Non-candidates include individuals who:

- Have diseases such as cataracts, advanced glaucoma, corneal diseases, corneal thinning disorders (keratoconus or pellucid marginal degeneration), or certain other pre-existing eye diseases that affect or threaten vision.
- Do not give informed consent. It is absolutely necessary that candidates adequately discuss the procedure and its benefits and risks with their surgeon, and provide the appropriate consent prior to undergoing the surgery.
- Have unrealistic expectations. It is critical for candi-

dates to understand that laser eye surgery, as all surgical procedures, involves some risk. In addition, both the final outcome of surgery and the rate of healing vary from person to person and even from eye to eye in each individual.

III. Pre-LASIK Testing: What Types of Screening Exams Should Patients Expect?

Anyone considering LASIK should undergo a thorough examination by an eye care professional. The exam, and a follow-up consultation with the physician, can also identify ongoing health concerns that may affect the candidate's vision in the future, inform the candidate of potential outcomes of LASIK, frame expectations for what the procedure can do, and inform the candidate of his or her vision health status.

A list of preliminary or screening tests that should be performed routinely appears below. Additional testing, depending on preliminary findings and the special needs of the candidate, may also be appropriate. If, after an evaluation, a patient has questions about why a test was included or omitted, he/she should discuss the matter with the eye care professional in question. Certainly a patient can and should question why a test was omitted. The patient should be satisfied with the explanation before proceeding.

Assessment of Eye Health History

- History of wearing glasses: It is important to determine if a candidate's vision has stabilized or is changing. If it is unstable, LASIK may not be appropriate at this time. The ideal candidate is at least 18 years of age with a stable glasses or contact lens prescription for at least 2 years.
- History of contact lens wear: Contact lenses may change the shape of the cornea (the clear front surface of the eye) or act in such a way as to prevent the ophthalmologist from determining a candidate's correct prescription. Most ophthalmologists require that soft contact lenses be discontinued at least 3 days and rigid contact lenses 2 to 3 weeks prior to the evaluation. If concern arises about contact lens-induced changes in the cornea, it may be necessary for a candidate to stop wearing contacts for as long as several months to allow the cornea to return to

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its natural contour, so that a surgical evaluation can be made.

- History of ocular or systemic diseases and medications: Some eye diseases and medications can affect the suitability of a candidate for LASIK.
- History of previous ocular problems such as lazy eyes, strabismus (eye misalignment caused by muscle imbalance), or the need for special glasses to prevent double vision.
- History of previous eye injury.
- Assessing vocational and lifestyle needs: The LASIK candidate's work or recreational activities and needs can influence vision correction strategies. For example, different strategies can affect depth perception and the ability to see near or far.

A Comprehensive Examination of the Eye

- Determination of uncorrected vision and vision as corrected by glasses or contacts.
- Determination of the magnitude of visual error in each eye to establish the amount of surgical correction that is needed and develop the appropriate surgical strategy.
- Assessment of the surface of the cornea by "mapping" its topography (corneal curvature or shape), to correlate its shape to errors in focusing (correlate corneal shape to refractive astigmatism), to find irregularities, if any, and to screen for disease states that may produce poor outcomes with LASIK.
- Measurement of pupil size in dim and room light. Pupil size is an important factor in counseling a candidate about night vision and planning the appropriate laser vision correction strategy.
- Assessment of motility to measure the ability of the muscles to align the eyes.
- Examination of the eyelids to see if they turn inward (possibly scratching the cornea) or outward and redirect tear flow away from the eye, and other conditions.
- Examination of the conjunctiva, the transparent membrane that covers the outer surface of the eye and lines the inner surface of the eyelids, to see whether there are irritations, redness, irregular blood vessels or other abnormalities.
- Examination of the cornea to determine if there are any abnormalities that could affect the outcome of surgery.
- Examination of the crystalline lens to determine if clouding of the lens (cataract) or other abnormalities are present.

- Measurement of corneal thickness (pachymetry). The amount of LASIK correction may be determined in part by corneal thickness.

- Measurement of intraocular pressure to detect glaucoma or pre-glaucomatous conditions. Glaucoma is a visual loss caused by damage to the optic nerve from excessively high pressures in the eye. It is a common cause of preventable vision loss.

- Assessment of the back (posterior segment) of the eye: The dilated fundus exam is used to assess the health of the inside back surface of the eye (retina), with the pupil fully open. Examination of the retina, optic nerve, and blood vessels screens for a number of eye and systemic disorders.

- Follow-up should include review of examination results by an ophthalmologist, discussion with the candidate, additional testing as necessary, and adoption of a plan for managing the candidate's eye-care needs.

IV. Realistic Expectations: Why Are They Central to Patient Satisfaction?

The overwhelming majority of patients who have had LASIK surgery are fully satisfied with their results – having experienced the significant benefits of improved vision. However, as with any medical or surgical procedure, for certain patients the outcome of the procedure may not seem "ideal" or meet all of his/her expectations. A small minority of patients may also experience complications. Therefore, it is crucial that LASIK surgery candidates thoroughly discuss the procedure — its benefits, risks and probable outcomes — with their physician prior to undergoing the surgery. Each patient should be fully informed and feel comfortable that they are making an educated decision based upon facts.

Candidates should be aware that:

- LASIK cannot provide perfect vision every time for every patient. However, for the majority of LASIK candidates, the surgery improves vision and reduces the need for corrective eyewear. In fact, the vast majority of patients with low to moderate nearsightedness achieve 20/40 vision or better, and many can expect to achieve 20/20 vision or better.
- Re-treatments (enhancements) may be required to

achieve optimal outcomes. Fortunately, it is possible to repeat the laser treatment by lifting the flap, typically about three months after the original procedure. Even after enhancements, vision after LASIK may not be as good as it was with glasses or contact lenses before the procedure.

- There may be visual aberrations after LASIK—most commonly, glare and halos under dim lighting conditions. Usually, these are not significant, and resolve within several months of surgery. Occasionally, they are severe enough to interfere with normal activities.
- Monovision is a technique in which one eye is corrected for distance vision and the other is left nearsighted to focus on near objects without glasses. Today, it is the only way that LASIK candidates older than about 45 years can avoid reading glasses. LASIK will not cure presbyopia, the aging changes that prevent older people from seeing near objects through the same glasses that they use for viewing distant objects.
- LASIK surgery, as all surgical procedures, has the risk of complications. Fortunately, the likelihood of visual loss with LASIK is very small. In the many millions of LASIK procedures done so far, less than one percent of patients have experienced serious, vision threatening problems. Most complications represent delays in full recovery and resolve within several months of surgery.

V. Initiating A Dialogue: What Should I Ask My Doctor?

The decision to have LASIK should be an informed one, made in close consultation with an eye care professional. In order to understand whether LASIK is right for them, patients considering the procedure should ask the following questions of their doctor:

- What type of testing will you do in order to determine whether I'm a candidate for LASIK?
- Has my glasses or contact lens prescription been consistent for at least two years?
- Does my nearsightedness, farsightedness or astigmatism fall within the accepted levels established for sur-

gery by the FDA?

- Are my corneas thick enough to perform LASIK surgery?
- Do I have cataracts, glaucoma or other corneal diseases?
- Are my corneas scarred?
- Do I have any diseases that would affect the outcome of the surgery or my ability to heal properly?
- Are there any other reasons why I may not be a candidate for LASIK surgery?
- Am I at risk for complications?
- What can I expect during the procedure?
- What outcome can I expect from the surgery?

The Eye Surgery Education Council (ESEC) is an initiative established by the American Society of Cataract and Refractive Surgery (ASCRS), a professional society of ophthalmologists dedicated to raising the standards and skills of surgeons, who operate on the anterior (front) segment of the eye, through clinical education, and to work with patients, government, and the medical community to promote delivery of quality eye care. The ESEC, which is committed to helping patients make informed decisions about undergoing laser eye surgery, has two missions -- to provide patients with accurate, accessible information, and to promote active physician/patient discussion about the benefits and risks of laser eye surgery procedures.

The information provided in these patient guidelines is intended to provide educational information to eye care professionals and is not intended to establish a particular standard of care, provide an exhaustive discussion of the subject of laser eye surgery, or serve as a substitute for the application of the individual physician's medical judgment in the particular circumstances presented by each patient care situation.

Candidates and prospective candidates for laser eye surgery should likewise understand that the information provided in these guidelines is educational in nature and is not intended to serve as a substitute for medical advice. The decision whether to undergo laser eye surgery must be made by each individual based on the relevant facts and circumstances acting in consultation with a qualified eye care professional.

Eye care professionals interested in obtaining reprints of these guidelines or additional information should contact: John Ciccone, The American Society of Cataract and Refractive Surgery, 4000 Legato Road, Suite 850, Fairfax, VA, 22033-4055, jciccone@ascrs.org

Others interested in obtaining more information about the ESEC or additional educational materials about laser eye surgery should log onto eyesurgeryeducation.com or call 1-800-536-ESEC.