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## PATIENT HANDBOOK

### Facts You Need to Know About Laser Assisted In-Situ Keratomileusis (LASIK) Laser Treatment

#### Introduction

In this text you will be provided information to decide whether to have an I Wave LASIK Procedure. I Wave LASIK (Laser Assisted In Situ Keratomileusis) may be used to correct, or partly correct, nearsightedness (myopia) with or without astigmatism.

Some other ways to correct your vision are by wearing glasses or contact lenses, or by undergoing other kinds of laser refractive surgery such as non-custom LASIK or PRK (photo refractive keratectomy). You may also choose non-laser surgical procedures such as clear lens extraction and intraocular lens (IOL) implantation, or intracorneal ring segment implantation. Other surgical procedures that do not use a laser such as RK (radial keratotomy) and ALK (automated lamellar keratectomy) may also be an option.

#### How Refractive Errors Affect Your Vision

The cornea and lens of the eye focus rays of light by bending (or refracting) them to focus an image on the retina at the back of the eye, much like a camera focuses images onto film.

An ideal eye with no focusing imperfections, all of the rays of light traveling through the eye focus to a single point on the retina at the back of the eye. In reality, all eyes have some degree of imperfections.

One way to measure the focusing errors of an eye is to measure the Wave front of the eye. The wavefront map is a picture of the rays of light as they travel through the eye. Wavefront error is the measured light as it reflects out of the eye with a camera sensor.

The wavefront of a perfect eye has a flat surface because all of the light rays travel uniformly through the eye. The wavefront of an eye with imperfections is curved or wavy because some light rays reach the retina before others, and some rays strike different locations on the retina than others.

Wavefront errors include both simple and complex focusing errors. The simple wavefront errors, which can be corrected with curved lenses (e.g., glasses or contact lenses,) are also called refractive errors and include myopia and astigmatism

**Myopia** (nearsightedness) usually starts in childhood and gets progressively worse through adolescence. It usually stops changing by the late teens, but it can sometimes continue to get worse into the mid-twenties.



Nearsighted (or myopic) eyes bend light too much so that light rays focus to a single spot in front of the retina. Things that are far away look blurry because the rays are spread apart instead of focused when they strike the retina.

**Astigmatism** causes the rays of light entering through different parts of the eye to focus unequally so that they do not ever form a single spot. Some rays may focus on the retina, but other rays focus in front of the retina. Things look blurry because images are not ever focused clearly on the retina.

### **Excimer Laser**

The Excimer laser produces a beam of cool ultraviolet light. The doctor programs your information into a computer that controls the laser.

The laser produces a series of rapid pulses that remove small and precise amounts of corneal tissue. Excimer laser light does not penetrate into the eye and leaves other eye structures (iris, lens, and retina) undisturbed.

The laser also contains an auto-Centering eye tracking system, which will automatically compensate for any of your eye movements during procedure.

### **How the LASIK Procedure Works**

LASIK is a laser technique used to correct refractive errors of the eye including nearsightedness and astigmatism. Before activating the laser, the doctor creates a flap on your cornea using a microkeratome (flap making instrument).

To correct myopia, the cornea needs to be flatter, so the laser removes more tissue from the Centre than the edge. When there is astigmatism, the eye is flattened more along one axis (e.g., vertical) than in the other (e.g., horizontal). The doctor creates a unique treatment plan by guiding the laser. The laser removes tissue from the eye according to the treatment plan.

### **Risks**

As with any procedure there are risks associated with I wave personalized lasik treatments. It is important to discuss these risks with your doctor before you make the decision to have the surgery.

If the results of the surgery are not satisfactory, you may need to have additional laser treatment in the same eye. Your doctor may perform Personalized LASIK for both eyes. However, sometimes it is better to have this procedure done on only one eye. Talk with your doctor about whether it would be better to treat one or both of your eyes.



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## Are You A Good Candidate For LASIK?

If you are considering LASIK, you must:

- Be at least 18 years of age and have myopia with or without astigmatism.
- Have healthy eyes that are free from eye disease or corneal abnormality (e.g., scar, infection, etc.).
- Have documented evidence that your refraction did not change by more than 0.50 diopters during the year before your pre-operative examination
- Be informed of LASIK risks and benefits as compared to other available treatments for nearsightedness with or without astigmatism.
- Be able to lie flat without difficulty.
- Be able to tolerate local or topical anesthesia.
- Be willing to sign an informed consent form as provided by your eye care professional.
- Be able to keep your eye accurately on the fixation light for the entire laser surgical procedure.

## When Can't You Have LASIK?

If you have any of the following situations or conditions you should not have LASIK because the risk is greater than the benefit:

- You are pregnant or nursing
- You have collagen vascular (e.g., rheumatoid arthritis), autoimmune (e.g., lupus), or immunodeficiency diseases (e.g., AIDS)
- You show signs of keratoconus or any other condition that causes a thinning of your cornea.

## Summary of Important Information

- LASIK is a permanent treatment to the cornea and is irreversible.
- LASIK may not eliminate the need for reading glasses, even if you never have worn them before.
- Your vision must be stable for at least one year before LASIK. You will need written evidence that your nearsightedness with or without astigmatism has changed less than 0.50 diopters.
- Pregnant and nursing women should wait until they are not nursing and not pregnant to have the surgery.
- You are not a good candidate if you have degenerative or autoimmune diseases, or have a condition that makes wound healing difficult.
- LASIK may result in some discomfort. The surgery is not risk-free. Please read this entire booklet, especially the sections on Benefits and Risks before you agree to the surgery.
- Some people, such as military pilots, have job-related vision requirements that cannot be met by having LASIK.
- Before considering laser vision correction you should have a complete eye examination.