

## **LASIK – EPILASIK – FEMTOSECOND LASER**

### **Advantages**

There are many advantages to having laser vision correction.

Laser vision correction gives most patients the freedom to enjoy their normal daily activities without the dependence of corrective lenses. It also allows people to pursue careers that they would not have been eligible for without excellent vision. In general, laser vision correction can make your life much simpler and enjoyable.

### **Expectations**

#### **What kind of result can I expect?**

Although no one can promise patients “perfect” or 20/20 vision, most laser patients no longer need glasses or contacts to drive, play sports, watch TV, or participate in careers requiring excellent vision such as police and fire fighters. Even those who are severely nearsighted, farsighted, and astigmatic can be treated- and achieve outstanding results.

The goal of laser vision correction is to achieve best visual result in the safest way. The goal is not to eliminate glasses and contacts completely but to dramatically reduce your dependence upon them in an attempt to help improve your quality of life.

Night driving glasses may always be needed even when an excellent visual result is achieved.

Enhancement procedures are sometimes needed when a patient has a very high prescription. This is a very normal part of the procedure that can be performed once your vision has stabilized unless it's medically unwise or unsafe. Adequate corneal tissue must be available to proceed with an enhancement procedure and a repeat measurement of the residual corneal thickness will be taken. Typically, patients considered for an enhancement procedure should have at least 1.00 diopter of residual hyperopia, myopia or astigmatism or unaided vision of 20/40 or worse. Enhancement procedures should be performed once adequate corneal healing and stability is achieved.

Complications are an inherent part of surgery and despite our best efforts, training, and skill, we recognize that some patients will experience problems. It is our hope to educate you as to what those problems may be so that you can make an informed decision whether or not to proceed with the procedure. No one ever believes that they will be in the small percentage of people that develops a significant complication, so it is important for all candidates to appreciate that there are truly no guarantees.

### **Risk**

It is important to note that the change of having a serious vision-threatening complication is much less than 1%.

In general, most of the risk following the LASIK and PRK procedures are the same.

However, while LASIK does offer a faster and easier visual recovery, it also has specific risks due to the creation of the corneal flap.

Femtosecond Laser treatment reduces possible flap risks to almost non existing.

## **Safety**

**Since May 2007, the United States Air Force approves LASIK for all aviation categories!! Wavefront guided Lasik is advised. Femtosecond laser treatment is advised. Since September 2007, NASA approves LASIK for astronaut applicants!! This means that this technique fulfils all the stringent criteria for safe eye surgery in the group of professionals with the highest demands.**

### **Refractive Complications:**

Refractive problems that may be encountered include too much correction, too little correction, a prescription imbalance between eyes, aggravation of muscle imbalance problems or a loss of effect from regression. **LASIK** and **PRK** may result in over corrections and under corrections due to the variability in patient healing patterns and other surgical variables, leaving patient nearsighted, farsighted, or with astigmatism.

This may require patients to wear spectacles, contact lenses or undergo further surgery.

Incidence of significant overcorrection: 1 in 100

Incidence of significant under correction: varies with prescription.

## **LASIK PROCEDURE**

### **Infection**

This is probably the greatest risk during the first 48 to 72 hours following the procedure.

You will receive antibiotic drops, to help prevent infection.

Most minor infections are treated and quickly eliminated. Incidence of serious infection: 1 in 5000 for LASIK.

### **Post- Treatment Haze**

Healing haze is the term for the collagen protein that develops on the surface of your eye following the procedure. It is invisible to the naked eye and very rarely affects your vision.

Most patients are not even aware that they have haze. Although treatable in most cases, haze usually clears gradually over the months following the procedure.

Incidence of serious haze: 1 in 1000 for Lasik.

Haze is almost non existing with Femtosecond laser flap creation.

### **Regression**

Regression refers to the tendency of the eye to bounce back somewhat towards your original prescription following Laser Vision Correction. If your vision regresses, you may require an enhancement procedure or a thin pair of glasses. In most cases, the regression experienced is minimal and is accounted for when planning your procedure. In some cases, glasses for night driving may be all that is required by a patient who experiences regression.

It is essential that you understand as much as possible about the risks associated with the excimer laser procedure.

The risk of having a serious vision-threatening complication is much less than 1%, however, the excimer laser procedure, like all surgical procedures, has limitations and risks.

### **Night glare**

Even before having Laser Correction, many people experience poor night vision or night glare( haloes, star busting) when wearing glasses or contact lenses. Night glare, when present, is commonly immediately following the procedure and will typically last for three or four months.

By the time both your eyes are treated and six months have passed, your night glare tends to decrease and you should be back to where you began. However, rarely you may still require glasses for driving at night.

Incidence of significant glare: less than 1 in 1000.

### Post-Treatment Discomfort

You may not have any pain or discomfort during the laser procedure itself. With new techniques, a relative small number of patient experience discomfort following the procedure, which can usually be easily treated with medication. Most patient experience some irritation, sensitivity to light, and watering or swelling of their eyes for a few days following the procedure.

Incidence: 1 in 50 for LASIK

### Loss of Best Corrected Vision

A small number of patients experience a slight loss of visual sharpness or crispness following Laser Vision Correction ( compared to when they were wearing glasses before the procedure).

If this occurs, you will lose the ability to read the bottom one to three lines of the eye chart. In some cases, the sharpness returns over a period of six to 12 months. This means that after the procedure, even with glasses or contact lenses, you may not be able to see as clearly as you did prior to the procedure. Incidence: 1 in 500

In a few instances, patient will actually gain sharpness of vision, meaning that their vision following the procedure is better than their best-corrected vision before the procedure.

## **LASIK PROCEDURE**

### LASIK Flap Complications

While only about 1% of patient have complications with their LASIK procedure, even fewer experience a serious flap related complication.

This may result in loss of best corrected vision.

Incidence: 1 in 500

With Femtosecond laser flap creation, flap complications are almost absent.

### Corneal Flap Complications

The primary benefits of LASIK are related to the creation of the protective corneal flap. The corneal flap must be clinically adequate quality, thickness and size to proceed with laser treatment. Corneal flap complications range in severity from those that simply require healing to those that create permanent corneal irregularities resulting in blurred vision.

The most severe LASIK complication is that of corneal perforation which has been reported, in the beginning of flap making, several dozen of times worldwide. Corneal flap complications that occur after LASIK procedure during the recovery period include displacement and wrinkling of the corneal flap and epithelial in-growth.

With the Femtosecond laser, flap complications are almost not reported. Corneal flap problems include but are not limited to:

- Corneal flaps of inadequate size, typically too short, preventing laser treatment, and requiring the LASIK procedure to be repeated in 3-6 months. Typically no serious visual disturbance although glare and shadowing may occasionally be produced.
- Corneal flaps of inadequate thickness, may or may not be adequate for laser treatment, and may result in the procedure being stopped and repeated after 3-6 months. A thin corneal flap

may result in a slow visual recovery over weeks to months and possibly permanent blurred vision with or without laser treatment.

- Corneal flaps of inadequate quality or smoothness include a variety of corneal flap Problems which may produce serious permanent corneal irregularities and significant visual blurring. Corneal flap irregularities may be produced because of inadequate suction pressure, inadequate orbital size, inadequate patient cooperation, malfunction or problems with the microkeratome, blade or suction apparatus.
- \* Corneal flaps are routinely hinged nasally or superiorly beneath the upper eyelid. A corneal hinge is not required for good visual result, but a hinged corneal flap is more secure and typically heals faster and more smoothly. It is possible depending upon the corneal shape, the suction ring alignment and the microkeratome, that a free corneal cap may be produced which is not hinged to the cornea. Although the laser treatment can still be performed, if any irregularities in flap thickness are noted, the corneal disc is immediately replaced and allowed to heal. If the free corneal flap is of excellent quality then the procedure is completed, but special care must be taken during the first 24-48 hours not to displace the corneal cap. Loss of the corneal cap may result in scarring, and permanent corneal irregularity and the need for more invasive surgery.
- Corneal perforation is the most serious LASIK complication. With the new type of microkeratomers, this complication is almost completely eliminated. Perforation of the cornea requires corneal suturing, and the need for an intraocular lens implant as the natural lens is usually lost or damaged. It should be appreciated that corneal perforation may also potentially result in infection, the need for a corneal transplant or even rarely blindness. This complication occurred in the beginning period.
- Corneal flap displacement, partial or complete, occurs during the early post-operative period, typically during the first 12-24 hours, but may occur days to weeks later with trauma. Care should be taken to protect the eyes from trauma, as well as avoiding rubbing the eyes or forcefully closing the eyes during the first week following LASIK. Partial displacement of the corneal flap may result in corneal striae or wrinkles, which blurs vision both qualitatively or quantitatively. Most corneal striae are treatable but some may be resistant to the treatment especially in highly nearsighted patients. Complete displacement of the corneal flap is often painful and requires urgent replacement. There is a higher risk of epithelial ingrowth and infection with corneal flap displacement.

## **LASIK PROCEDURE**

### Epithelial In-growth

Epithelial in-growth occurs during the first month following LASIK and is more likely to occur in patients with an abnormal or weakly adherent protective layer, for which age is a factor. Epithelial in-growth is produced when epithelial cells grow underneath the corneal flap during the healing of the corneal flap incision. Epithelial in-growth is more common with any trauma or breakdown of the epithelium, which is more common in LASIK enhancement procedures and long-term contact lens wearers. Treatment of this condition involves lifting the flap and clearing the cells away. Although most small areas of epithelial in-growth need only be monitored, untreated large areas of epithelial in-growth may discomfort vision and may actually damage the flap integrity if severe and progressive.

## **POST- OPERATIVE CARE**

Once your procedure is complete, you will be able to go home almost immediately to rest. Additional drops will be placed in your eyes and medication may be given to use over the next few days.

Your recovery will depend on which procedure you chose to have. If you have LASIK, you will receive an eye shield, that will be placed over your eyes. You should use the shield for the first few nights to protect your eyes while you are sleeping.

You will typically notice dramatic visual results within the first few days following the procedure. By the end of the second day, you will usually be able to resume all of your regular activities.

It is important for you to remember the following during this period:

- We recommend that you rest as much as possible following your procedure as sleep helps to speed up recovery tremendously.
- \* You should avoid swimming, hot tubs, or whirlpools for one week. Showers and baths are fine, but try to keep your eyes closed in the shower and avoid getting water and shampoo in your eyes for the first few days.
- We recommend you to avoid eye make-up, gardening and dusty, dirty environments for one week. Smoking is allowed, but may find that smoke will be quite irritating.
- Watching TV and reading will strain and irritate your eyes for a few days. These Activities should be done in moderation.
- We recommend that you avoid driving for the first few days following your procedure as you may experience blurred vision and the loss of depth perception. We will let you know when you are able to safely resume driving.

If you follow these guidelines, your post-procedure healing should be smooth and trouble free, and you should expect to achieve excellent results in the safest way.

For any further information, please feel free to make an appointment at my office.