

## **IS REFRACTIVE SURGERY RIGHT FOR YOU?**

### **WHY REFRACTIVE SURGERY MAY BE RIGHT FOR YOU**

A desire to reduce or eliminate your dependence upon corrective eyewear for your daily activities is the proper reason for undergoing refractive surgery. Do you wish to wake up and be able to see the alarm clock, to see to get dressed in the morning, to function at home and at the office independent of corrective eyewear? These are all reasonable goals and are most often, but not always, attainable with LASIK.

### **WHY REFRACTIVE SURGERY MAY NOT BE RIGHT FOR YOU**

**IF YOU EXPECT A PERFECT OUTCOME** - No surgical procedure can assure you of a perfect outcome and it is not possible to guarantee that your goals will be achieved. At the Eye Clinic, we strive to achieve the best results in surgical vision correction through **professional and technical excellence**. LASIK is the most modern refractive surgical technique performed at the Eye Clinic, and it offers most patients a high probability of reducing or eliminating the need for corrective eyewear. However, no refractive surgical technique, including LASIK, is as accurate, as predictable, or as precise for correcting vision as glasses or contact lenses.

**IF YOU EXPECT PERFECT VISION UNDER ALL CONDITIONS** - Like most refractive surgical procedures, LASIK changes the shape of the central portion of the cornea. It is not possible anatomically to change the shape of the entire cornea. Consequently, when your pupil enlarges at night, you may look through some of the unchanged (nearsighted) cornea and your vision will become slightly nearsighted. Thus, you may need a thin pair of glasses (or contact lenses) to drive comfortably at night – or to see your best from the back of a theatre. If you will be unhappy wearing eyewear for occasional needs, then refractive surgery may not be right for you.

**IF YOU EXPECT AN INSTANT RESULT** - In most cases, LASIK offers patients a rapid recovery of vision with little discomfort. However, results are not instantaneous, particularly for patients with corrections above -5.0 diopters of myopia. It may take up to three months, sometimes longer, for the shape of the cornea to stabilize following surgery. You must be willing to be patient with your visual recovery for at least a three-month period – with an initial procedure and possibly with an enhancement treatment performed three months after the initial surgery (at no additional cost). During this time you may need to wear temporary glasses. You may have

the lenses replaced in your existing frames at our cost in our optical shop located at the Eye Clinic.

### **YOUR GOAL FOR SURGERY: BEST DISTANCE VISION IN BOTH EYES OR MONOVISION**

- **PRESBYOPIA:** It is important that you understand that LASIK does not prevent the age related loss of the eye's ability to vary its focusing power. This results from changes in the crystalline lens (inside the eye) – a condition called presbyopia. After age forty, the eye gradually becomes a single-focus optical system, which can view either near objects or distant objects clearly – but not both. During your consultation with your physician, you must determine if your goal is to achieve best vision correction for distance in both eyes or to leave one eye slightly nearsighted for monovision.
- **MONOVISION:** If you are over 40 and both your eyes are fully corrected for distance vision, you will need reading glasses for near work. As an alternative to reading glasses, you may opt to leave one eye slightly nearsighted – an outcome called monovision. If you are over forty and a contact lens wearer, you may have already experienced monovision by wearing one contact lens that has slightly less power. With LASIK, you may achieve monovision by leaving one eye slightly nearsighted. About two-thirds of patients who try monovision adapt to it successfully – and the other third elect to have both eyes corrected optimally for distance and wear simple reading glasses for near work. If you try monovision and do not like it, your under corrected eye can be enhanced for distance vision. Discuss monovision with your physician so that an appropriate surgical plan can be made.

## **CONTRAINDICATIONS**

### **YOU SHOULD NOT HAVE LASIK IF:**

- You have collagen vascular, autoimmune, or immunodeficiency diseases (such as – lupus or AIDS)
- You are pregnant or nursing

- You show signs of keratconus (corneal disease)
- You have a tendency to form scars
- You are taking one or more of the following medications:
  - Accutane (isotretinoin)
  - Cordarone (amiodarone hydrochloride)

### **HOW LASIK CORRECTS YOUR VISION**

LASIK stands for laser in-situ keratomileusis. The LASIK procedure combines two sophisticated techniques of surgery to correct nearsightedness. The first technique uses an automated microsurgical instrument, the microkeratome, to create a protective flap of corneal tissue that covers the area to be sculpted by the laser. This protective flap allows for an early recovery of vision and reduces discomfort after surgery. This technique, called keratomileusis, has been performed by surgeons around the world for approximately thirty years and has been refined for use in the LASIK procedure. The second technique uses a computer-controlled excimer laser – a cold, invisible, ultraviolet laser – to reshape the cornea by removing extremely small amounts of tissue in a prescribed shape.

During LASIK, the microtome creates a protective flap of corneal tissue, which is folded back. The excimer laser is then used to reshape the bed of the flap, which is then replaced into position. No sutures are needed. Depending upon the appearance of the corneal epithelium at the end of the procedure, the surgeon may elect to place a thin contact lens, which will remain in position the first day following surgery. The laser sculpting causes curvature of the cornea to flatten, reducing or eliminating myopia. Astigmatism may be treated with the laser or by making small incisions in the cornea with a diamond knife.

### **THE LASIK SURGICAL EXPERIENCE**

#### **WARNING FOR PATIENTS WITH DRUG ALLERGIES**

The following medications may be used during LASIK, either as eye drops or orally. If you have an allergy to any of the following drugs, notify the Eye Clinic staff before your treatment so that alternative medication can be selected:

Proparacaine	Mydriacyl	Phenylephrine
Demerol	Phenergan	Acular
Ocuflox	Tobramycin	Fluromethalone

### **INSTRUCTIONS BEFORE SURGERY**

- **CONTACT LENSES** – If you are a contact lens wearer, please leave **soft contacts out for three days** or **hard contacts out for three weeks** prior to your surgery (unless otherwise instructed by your physician). This also applies to your pre-op exam. This gives us a chance to pick up any significant changes in corneal shape, which may be caused by contact lens induced warpage.
- **MAKE-UP** – Please discontinue the use of eye makeup at least three days prior to surgery – one week is best. **NO MAKE-UP, HAIRSPRAY, PERFUME, COLOGNE, OR BODY LOTIONS THE DAY OF SURGERY.**
- **DRESS** – Wear loose fitting, comfortable clothing on the day of surgery. The laser room will be cold, so dress accordingly.
- **DRIVER** – Arrange for a driver on the day of surgery and plan on being at the Physicians Surgery Center for approximately 1½ hours. You will not be able to drive immediately after surgery.
- **SEDATIVES** – Sedatives are not usually needed for the LASIK procedure. However, approximately 5% of patients experience high anxiety with simple medical procedures, such as going to the dentist or having blood drawn. *If this is true for you*, ask one of the Eye Clinic staff and we will provide you with a short acting relaxing agent that can be taken orally before your treatment.

### **THE LASIK PROCEDURE**

- **SURGICAL PLAN** – Just before surgery, some drops will be placed in your eye. Your surgeon will review your surgical plan and informed consent document with you and ensure that all your questions have been answered. LASIK surgery is easy for patients to undergo. Drops will completely anesthetize the surface of the eye, making the procedure essentially painless. There are no injections, IV's, etc. You do not need to worry about keeping your eye open during the procedure as this is accomplished with a small eyelid speculum.

- **THE LASIK PROCEDURE** – In the laser room you will sit in a comfortable chair that reclines under the laser system. The surgeon will point out a red light for you to focus on during parts of the procedure. Your position during the procedure will be controlled precisely by the motorized chair, which you may feel moving slightly, and by the position of your head which your surgeon may ask you to move one way or the other. It is easy to cooperate with your surgeon during the procedure. Your eye will be held steady by a suction device during preparation of the protective flap. The suction ring will make the light appear to go out and it is not necessary to fixate during this step. Once the protective flap of tissue is moved out of the way for the laser, the fixation light will appear somewhat foggy, but you will be able to see it easily. The laser treatment itself is painless and lasts anywhere from ten to sixty seconds, depending on the amount of correction you require.
- **AFTER SURGERY** – Immediately after surgery, your vision will be quite blurry, much like it was without glasses before surgery. Your surgeon will check your eye(s) to ensure the flap is properly positioned. Next, your postoperative instructions will be reviewed. You will then be free to leave ...**remember, you must have someone drive you home!**

#### **YOUR POSTOPERATIVE KIT**

You will be given a postoperative kit that contains:

- **PLASTIC SUNGLASSES** – useful for wearing immediately after surgery
- **EYE SHIELDS** – wear at bedtime for the first two nights
- **ANTIBIOTIC & ANTI-INFLAMMATORY EYE DROPS** – will be started after your exam on your first postoperative day
- **ARTIFICIAL TEARS** – useful to lubricate and soothe the eye – use as often as you like following surgery
- **POSTOPERATIVE INSTRUCTION SHEET** – follow the instructions as indicated
- **PRESCRIPTION** – for oral pain medication if you find it necessary

In most cases following LASIK, there is little discomfort – most patients experience a scratchy sensation in their eye(s). This sensation is usually relieved by the use of aspirin, Tylenol, or an over-the-counter analgesic such as Motrin or Advil. In case you have persistent pain, we

provide a prescription for Demerol and Phenergan (Mepergan tablets) so that it will be available to you if you need it. The medication will make you groggy and sleepy. If you sleep, be sure to place your protective eye shield into position. This should be worn for two nights after your LASIK procedure to ensure that you do not inadvertently rub the eye and dislodge the flap. After the second night, the flap will be firmly attached and it will no longer be necessary to wear the shield.

#### **RESTRICTIONS FOLLOWING SURGERY**

- Do not attempt to drive or operate machinery until you feel completely comfortable with your vision.
- No make-up for three days
- No swimming or hot tubs for one week. You may bathe and shower normally.
- Avoid rubbing your eyes for one to two weeks.
- Exercise may be resumed one day after surgery – perspiration in or around the operated eye may cause stinging, but will not be harmful.
- Wear the protective eye shield when sleeping for two nights following surgery.

#### **WHAT TO EXPECT AFTER SURGERY**

*On the first day after surgery, you will notice a change in the vision of your eye(s). The vision will still be blurry, but objects will generally be sharper than they were without glasses before surgery.*

#### **FOLLOW UP VISITS**

- **24 HOUR EXAM** – Your vision will be checked and your cornea examined by the physician to ensure that your cornea is healing properly. You will begin taking drops four times daily for one week.
- **PROTOCOL FOR FOLLOW UP EXAMS** – The Eye Clinic physicians perform periodic exams at approximately one week, two weeks, three, six and twelve months. At your three-month exam, a decision can be made whether an enhancement procedure to optimize your vision should be performed.

#### **ENHANCEMENT SURGERY**

A major advantage of LASIK surgery is that the refractive result can often be adjusted, improving your unaided vision. If you have sufficient

residual nearsightedness, the flap can be lifted and additional laser treatment applied.

#### **WHAT CAN GO WRONG: POSSIBLE SIDE EFFECTS AND COMPLICATIONS**

*With LASIK, like all surgical procedures, there is a small risk that a complication or problem could develop, either at the time of surgery or afterwards. Like any surgical procedure, you must be willing to accept these risks and side effects in order to gain the benefits that the surgery has to offer.*

#### **POSSIBLE COMPLICATIONS DURING SURGERY**

**CREATION OF AN UNSATISFACTORY FLAP –** In less than 1% of cases, the automated microkeratome fails to make a satisfactory flap of tissue. In this case, the surgeon will replace the flap and not proceed with the laser sculpting. The surgery can be performed again in about three months when the flap heals. Sometimes a flap made with an inadequate hinge is sutured into position by the surgeon after the laser treatment is applied; this has no effect on the outcome of the surgery.

**CORNEAL ABRASION –** In about 5% of cases, the microkeratome scrapes off some surface cells from the cornea, creating a corneal abrasion. An abrasion does not affect the outcome of the surgery, but it will make your eye somewhat sore for the first 24 to 48 hours and may require you to take additional pain medicine.

**LASER MALFUNCTION –** The excimer laser used in LASIK is a sophisticated device. The laser must pass numerous internal and external checks before it is ready for treatment. There is a chance that the laser may fail one of its checks and need to be serviced before you can be treated. Since this checking is an ongoing process, and the final check is done just prior to each surgery, your treatment could be cancelled at the last minute and need to be rescheduled. If a laser malfunction occurs during the treatment (none have happened to date), the treatment will be terminated, the flap repositioned, and you will probably be left nearsighted until additional treatment can be applied at a later date.

#### **POSSIBLE COMPLICATIONS AFTER SURGERY**

**DISLOCATION OF THE PROTECTIVE FLAP –** In less than 1% of cases, the flap moves slightly out of position, usually during the first 24 hours, probably due to inadvertent rubbing of the eye or vigorous blinking. This is why the surgeon checks your flap the first day following surgery,

and if it is out of position, it is “refloated” into its correct position – a simple procedure that takes about five minutes. Because the surface cells of the cornea seal the flap into position after 24 hours, it is extremely unlikely that the flap will become dislodged more than 24 hours after surgery.

**INACCURATE REFRACTIVE OUTCOME –** It is possible that you may not achieve the refractive effect intended. You may be left with residual nearsightedness or astigmatism that can be reduced with an enhancement procedure three months after surgery. It is also possible that you may have a small amount of residual nearsightedness or astigmatism that blurs your vision slightly that cannot be advanced further with present technology. In the future, it may be possible to “touch up” your vision using laser systems capable of refining your correction. Rarely, LASIK causes too much flattening of the cornea, resulting in farsightedness after surgery. In this case, you may need corrective eyewear to see clearly at both distance and near, or you may need an additional enhancement surgery performed.

**LOSS OF SPECTACLE CORRECTED VISION –** Rarely, the shape of the cornea may not become regular following LASIK and some patients may lose several lines of vision on the eye chart and notice that objects are not quite as sharp and distinct as they were when wearing glasses before surgery. In these cases of induced irregular astigmatism, restoring optimal vision will require wearing a gas permeable contact lens. Laser vision technology is currently being developed to attempt to correct these rare complications.

**ASTIGMATISM –** When astigmatism is treated by arcuate keratotomy, perforation of the cornea may occur which usually seals itself, but which sometimes requires placement of a suture that usually remains in place permanently. If the astigmatism is overcorrected by the transverse keratotomy, sutures may be needed to compress the incisions and to decrease the overcorrection; such sutures are usually put in place three months or more after surgery.

**INFECTION –** Every surgery carries the risk of infection, and LASIK is no exception. You will be given antibiotic drops to use for the first week following surgery. An infection could cause redness, pain, and decreased vision. Most corneal infections can be successfully treated with antibiotics, although progression of the infection causing permanent damage to your vision is a remote possibility.

### **GROWTH OF EPITHELIAL CELLS UNDER THE**

**FLAP** - In approximately 1% of cases, epithelial cells that grow on the surface of the cornea (like skin cells elsewhere) may grow *under* the flap. This may cause a slight clouding of vision and impart an uneven shape to the surface of the cornea. If this happens, the flap may have to be lifted and the cells removed.

**INFLAMMATION** – A small percentage of patients will develop inflammation at the flap interface after surgery. This is treated with anti-inflammatory drops usually resolves in about five to seven days. Rarely the flap will need to be lifted to remove the inflammation. Only in rare instances would this cause scarring or have any effect on the patient's vision.

### **VERY RARE/UNLIKELY COMPLICATIONS –**

Very unlikely complications include uncontrollable infection or scarring in the bed of the flap that could cause loss of vision or even blindness. It is possible that either the microkeratome or laser could malfunction during the procedure, damaging the eye or producing an inaccurate correction. The lid speculum could cause the eyelid to become droopy.

### **POSSIBLE SIDE EFFECTS OF LASIK**

**DISCOMFORT** – Most of the discomfort following LASIK occurs within the first 24 hours. The eyes may become more sensitive to light during the first several days following surgery. The sunglasses provided in the postoperative kit are helpful during this period.

**OPTICAL ABERRATIONS** – It is common for patients to notice halos, ghost images, and a slight distortion of images following LASIK. These side effects are usually transient and they are less noticeable when treatment is completed on the second eye. These optical aberrations may be bothersome, particularly at night. Rarely some patients may have to curtail their night driving.

**NIGHT VISION** – Because the central portion of the cornea is reshaped, your vision may shift slightly under conditions of dim illumination – when the pupil dilates. It may be necessary to wear a thin pair of glasses at night for optimum vision.

***Although this list discusses possible complications and side effects that may occur during and following LASIK, it is not possible to list all potential complications for any surgical procedure and, therefore, this list is incomplete.***

### **YOUR VISION FOLLOWING LASIK**

*Visual recovery after surgery depends on whether you had one or both eyes operated on at the same time.*

**ONE EYE** – You will function best if you wear your contact lens or spectacle lens over your untreated eye.

**BOTH EYES** – The majority of patients following LASIK will see well enough to function normally – drive, work at the office, etc. – the first morning after surgery. However, the time required to achieve satisfactory vision varies among patients, particularly during the first three days following surgery.

### **WILL YOU NEED CORRECTIVE EYEWEAR IMMEDIATELY FOLLOWING SURGERY?**

About two-thirds of patients with nearsightedness less than -10.0 diopters will achieve functional vision within three days after their procedure, and they will not need any temporary eyewear. One third of patients with less than -10.0 diopters and most patients with higher degrees of myopia will need temporary corrective lenses until enhancement surgery at three months, so plan accordingly. We discourage the use of contact lenses on the eyes in the immediate postoperative period because the contact lens may change the shape of the cornea, making it more difficult for you to obtain an accurate outcome if an enhancement is necessary.

### **CUSTOM LASIK**

Custom LASIK tailors a unique correction for each individual. It employs the VISX WaveScan System, a diagnostic system that captures a "fingerprint" of the eye which is 25 times more precise than what was previously measurable by standard methods. This evaluates more than nearsightedness, farsightedness, and astigmatism: it captures other, more specific imperfections in each individual's vision. This data is then used to generate an individualized treatment for a Custom LASIK procedure. Clinical data show that at one year following the procedure, all of the follow-up examinations indicated that participants could pass a driving test to drive without glasses or contacts. 94% of the participants could see 20/20 or better and nearly 70% could see better than 20/20 without glasses or contacts. Please see an Eye Clinic staff member for more details and specific information.

