مستشفى الزهراء دبي
AL ZAHRA HOSPITAL DUBAI

SURGICAL INFORMATION PACKAGE FOR
LASIK & PRK

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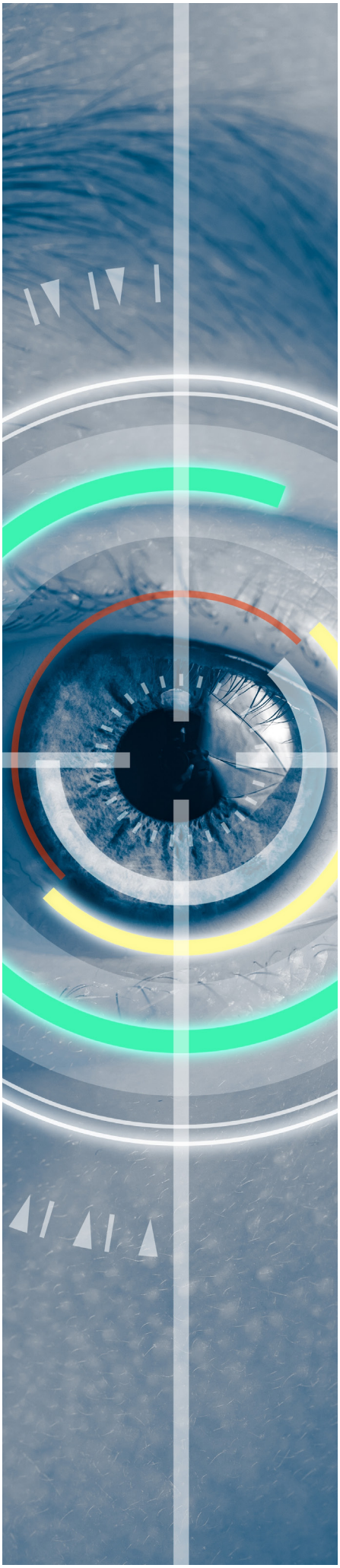


INTRODUCTION

Thank you for choosing the Al Zahra, Laser Vision Clinic, part of Al Zahra Hospital Dubai, for your laser vision correction. We appreciate the fact that this is an extremely important decision that could alter your life.

Like many patients, you may be feeling excited about the prospect of being freed from dependency on glasses or contacts, but at this point, you may also have some questions. In this package, we have attempted to answer any questions you may have regarding the nature of the procedure, the benefits, risks, and potential complications of the procedure, and alternative treatments.

You may also have some questions about the Al Zahra Laser Vision Clinic itself. Our mission, put simply, is to deliver the highest standard of medical care at an accessible cost to our patients. At Al Zahra Laser Vision Clinic, we use the 4the generation EXCIMER LASER from Carl Zeiss, MEL 90 from Germany. It has the best wavefront analyzer to perform wavefront assessment and wavefront treatment. We also use the best microkeratome from Moria which gives the finest flap and has improved safety features to reduce flap complications. Operations are performed in a sterile atmosphere, under topical anesthesia. Also we have now superfast Visumax 800 to make smoother Femtosecond flaps. You will find information about our Ophthalmologists in the enclosed brochure.

The two refractive surgery procedures carried out at Al Zahra Laser Vision Centre are LASIK (Laser in Situ keratomileusis), and PRK (Photo Refractive Keratectomy). Lasik and PRK are referred to collectively as the "procedure" in the following materials and are briefly described below.

WHAT IS LASIK AND PRK

LASIK

LASIk' (Laser in situ keratomileusis) is a form of outpatient corneal surgery in which a surgeon uses a specialized and precise flap-making instrument, called a microkeratome /Femto Laser to create a thin flap of corneal tissue. This flap is raised and laid back while still attached to the cornea. The surgeon then uses a state-of-the-art excimer laser to remove a pre-determined amount of corneal tissue from the exposed bed of the cornea. The flap is replaced and within minutes natural forces hold the flap down on the cornea. Usually, within a few hours, the surface epithelium of the cornea begins to grow over the cut edge of the flap to seal it into position. LASIK can be used to correct shortsightedness (myopia), long-sightedness (hyperopia), and astigmatism.

PRK

PRK (Photorefractive Keratectomy) is a form of outpatient corneal surgery in which a surgeon gently removes the surface covering layer of the cornea called the epithelium, and then reshapes the corneal bed with the laser in the same way as LASIK The technique is usually used for people whose cornea may be too thin to allow for the creation of the corneal flap required for LASIK. The procedure is used to correct short-sightedness (myopia), Long-sightedness (hyperopia) and astigmatism.

HOW THE EYE WORKS

LASIK, and PRK are performed on the cornea. The globe of the eye possesses a transparent wall at the front called the cornea. The cornea acts as the major focusing lens of the eye. Ninety percent of the cornea itself consists of tissue called the stroma, with an outer layer called the epithelium.

WHAT HAPPENS DURING THE PROCEDURE?

The procedure generally requires under twenty (20) minutes of operating room time, during. which the laser is used for less than a minute on each eye, but the actual duration of the procedure may vary according to the type and amount of correction needed.

The LASIK procedure utilizes an extremely precise instrument to create a corneal flap, calling a microkeratome/Femtolaser in addition to the excimer laser. The laser reshapes the cornea by removing tissue from its main body of stroma.

Before the procedure begins, you will be given eye drops to numb your eyes. While you relax on the treatment bed, your eyelids are gently held open and the micro keratome /Femtolaser is carefully positioned. You will be asked to focus on a special fixed light in a microscope. The surgeon activates the micro keratome electronically and seconds later can fold away a corneal flap, revealing the middle layer of the cornea. The laser reshapes the cornea, and the corneal flap is then repositioned. Natural forces hold the flap in place without sutures, until surface healing is completed-usually within 12- 24h.

The LASIK procedure offers extremely fast recovery: within hours of the surgery, the flap has usually begun to be sealed into position. Most patients can resume day-to-day activities just 24 hours after the surgery. Your surgeon may prescribe eye drops for one or two weeks after surgery. You must wear eye shields at night to prevent rubbing your eyes for the first week.

The PRK technique is used for people whose cornea may be too thin to allow for the creation of the corneal flap required for the LASIK procedure. During PRK, a small area on the corneal outer surface is gently polished away. The laser reshapes the corneal surface in exactly the same way as for the LASIK procedure. After the procedure, your surgeon will place a soft contact lens on the cornea to protect the eye and reduce discomfort while healing. You will be provided with adequate medication to tide you over with the least discomfort possible during the recovery phase. The contact lens will be removed after this initial surface healing is complete, usually within five days of the procedure. Your vision will gradually improve during the first week or two, and in most patients stabilizes between four to eight weeks after surgery. The surgeon will prescribe eye drops to take during this period.

For the first few days after either procedure, you may experience some discomfort. During this time, your vision may be blurred and/or may fluctuate between being clear and being blurred.

You should not drive for at least twenty-four (24) hours after either procedure, or in no event should you drive until your vision is clear.

POTENTIAL BENEFITS

There are numerous potential benefits for patients who undergo either LASIK or PRK. Almost all these advantages are associated with reduced dependence on eyeglasses and/or contact lenses. While the use of eyeglasses and/or contact lenses can be an effective method of correcting refractive error, it is also a method that can place restrictions on normal, everyday activities.

Reduced dependence on corrective lenses can result in considerably more freedom for patients with active lifestyles. Many recreational activities, such as water sports or contact sports, tend to be much more enjoyable when the necessity of wearing glasses or contacts is removed. In some cases, patients choose laser eye surgery for professional purposes, rather than recreational ones. Corrective lenses are not permitted in all fields of employment.

For contact lens wearers, laser eye surgery can also eliminate the time and effort involved in cleaning, removing, and replacing lenses. In addition, over time, costs associated with maintaining and replacing corrective lenses can be avoided. Some eyeglass wearers also cite cosmetic or aesthetic reasons for opting the procedure.

The reasons for contemplating laser vision correction will be different for every individual. For those who have required corrective lenses throughout most of their lives, the simple prospect of being able to drive without wearing glasses or contacts, or of being able to wake up and see without putting on glasses or contacts, may be sufficient reason in itself. The potential benefits, like the potential complications, can vary, and should be considered carefully. The patient is the only person who can decide whether the benefits of laser eye surgery outweigh the risks.

ARE THERE ALTERNATIVES?

- Eyeglasses
- Contact lenses
- Intacs
- CLR
- Lamellar Keratoplasty, Radial Keratomy
- ICL

WHO IS ELIGIBLE FOR A PROCEDURE?

To be eligible for LASIK or PRK, you must be over 18 years of age and not have had a significant change in your glasses or contact lens prescription for the preceding twelve months. Other factors, such as the general health of your eye, will be examined at the pre-operative assessment.

Certain conditions may make you a questionable candidate for the procedure or cause additional risks or complications. This may interfere with the healing process and require additional care. If you have or may have any of these conditions, we suggest that you discuss them thoroughly with your optometrist and your surgeon. These conditions include, but are not limited to:

- Eye inflammation or infection
- Severely dry eyes
- Excessive corneal disease or scarring
- Inadequate corneal tissue
- Degenerative disease of cornea
- Uncontrolled diabetes
- Use of certain drug
- Pregnancy and nursing
- Pacemaker
- Certain rheumatological conditions (e.g. Lupus, Rheumatoid arthritis)

ENHANCEMENTS

An overwhelming success rate with patients after only one procedure is achieved in most cases. However, due to an individual's prescription level and unique physiology, an additional treatment or enhancement procedure may be required. If this is the case, you would need to return to your original surgeon, in order to have an enhancement procedure.

In general, patients must wait at least three months after the first procedure, and complete all mandatory post-operative appointments, before requesting an enhancement. The majority of decisions about enhancement can be made at the three-month post-operative visit. You may also be required to complete an annual eye examination prior to requesting a re-treatment.

There are currently two methods used for re-treatment. The most common method for LASIK enhancements involves re-lifting the flap created from the first surgery and reshaping the underlying corneal tissue. The second involves making a new flap. Epi-Lasik/PRK enhancements entail removing the surface cells from the cornea and using the excimer laser to reshape the underlying tissue.

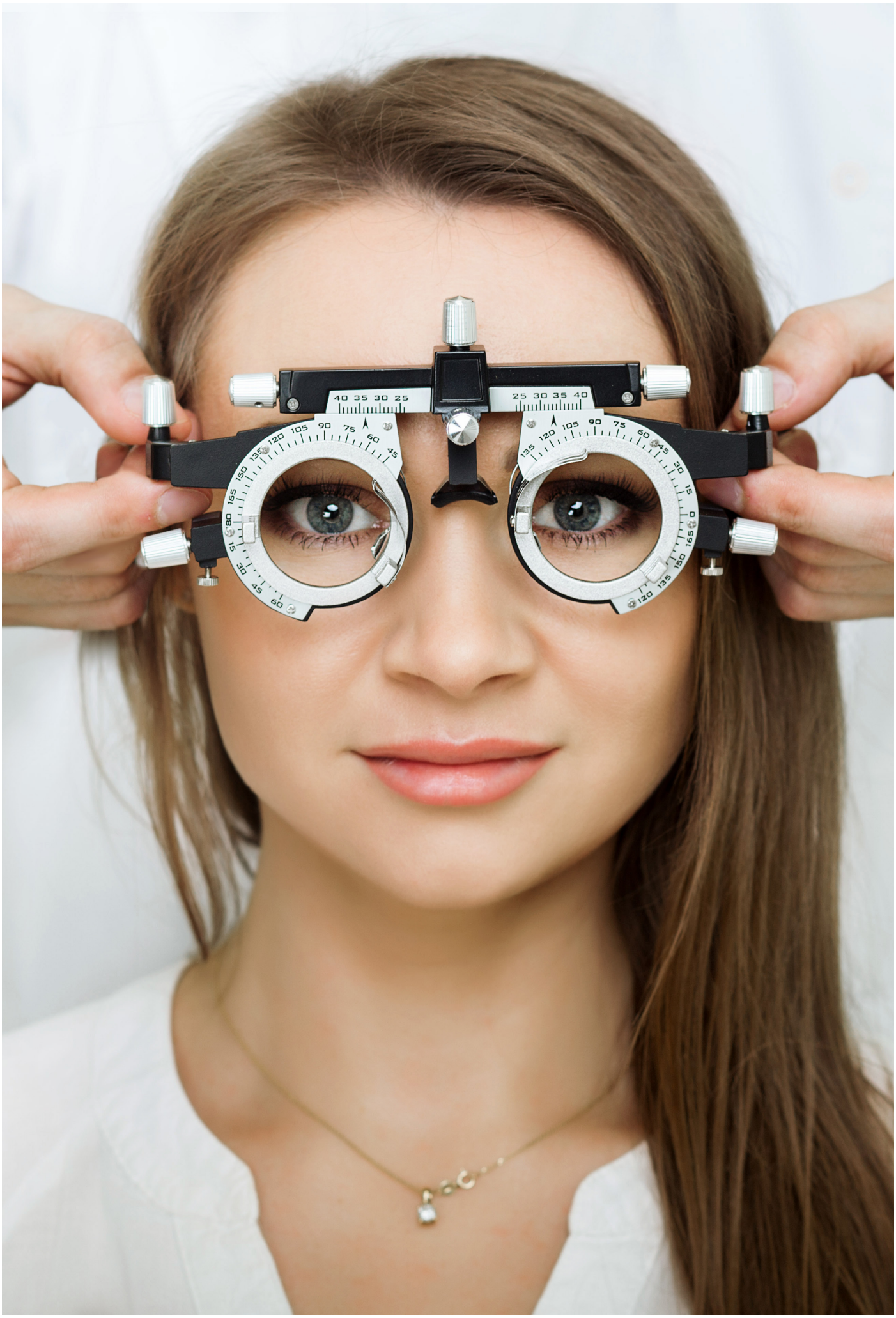
POTENTIAL COMPLICATIONS

Halos, starbursts

Some patients do not see as clearly at night or in dim light and may notice an optical effect called a "halo" or a "starburst" around lights and illuminated objects after the procedure. Patients who notice these effects may need to wear glasses to drive at night. These effects are for the most part temporary, typically lasting between two weeks and three months. Glare and halo could be permanent, and this would be more likely to occur in patients with high levels of shortsightedness or longsightedness and for patients with larger-than-average pupil size. Halos often result when a patient's night time pupil size is larger than the corneal area treated with the laser.

Equipment Malfunction

The microkeratome and excimer laser are' maintained according to manufacturer specifications. However, despite this regular maintenance, the microkeratome or the excimer laser could malfunction, requiring the procedure to be stopped before completion. In some instances, this could result in a rescheduling of the procedure, or damage to the vision.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Under-correction or Over-correction

The exact removal of tissue performed by the laser is overridden in some cases by the healing response of the eye. While the treatment of your refractive error is designed to completely neutralize your refractive error (unless otherwise discussed with your surgeon) this treatment is aimed at the "average" eye. If your eye tends to heal in a different way from the "average", your refraction may result in an over- or under correction of the refractive error. A patient's tolerance for under-correction or over-correction can be corrected with glasses, contact lenses or additional surgery.

Light Sensitivity, Fluctuating Vision

Patients may be extremely sensitive to light and glare or find that their visual acuity fluctuates after the procedure. These conditions are generally temporary and usually go away within one to three months after the procedure, as the eye heals and stabilizes. However, in less than approximately 1% of cases, these could be permanent.

Optical Imbalance

If the surgeon performs the procedure on each eye on different days, the eyes may not be able to balance and focus properly until the procedure is performed on both eyes because there will be a power difference between the two eyes.

Infection, Hemorrhage, Blockage and Other Complications

Other risks include severe infection that cannot be controlled by antibiotics, hemorrhage, corneal swelling, retinal detachment, venous or arterial blockage, cataracts, drug reaction, or other complications. These complications can be minor, temporary problems. There is also a remote risk, estimated to occur in less than 1 to 10,000 cases of major, permanent conditions, including but not limited to perforation of the cornea, retinal damage, or loss of an eye, which can cause partial or total blindness.

Regression

The cornea is living tissue. Once tissue has been removed from the cornea during the procedure, the surface epithelium ("skin") can thicken to compensate for the change in shape that has occurred. Regression is more likely to occur in patients with high shortsightedness or longsightedness.

Increased Pressure in the eye

The steroid drugs used during the first week after surgery may, in rare individuals, cause increased pressure in the eye. The increased pressure typically drops to normal levels upon cessation of steroid therapy.

Fragility on Impact

For at least three (3) months after the procedure, the corneal flap should be considered fragile to direct trauma. When participating in sports or other activities involving possible contact with the eye during this period, you should wear protective eyewear

Eyelid Droop

The eyelids have a natural tendency to droop with age. The eyelid speculum that is used in the procedure may hasten this process slightly.

Corneal Ectasia

A certain amount of corneal tissue must remain under the flap after the laser has achieved tissue removal. This is believed to relate to the long-term stability of the cornea. In rare instances, less tissue is left under the flap than intended. This can have two effects; it can either result in bulging of the cornea thus reversing the intended flattening effect of the treatment, or it can lead to progressive corneal deformity of the cornea with thinning and increasing curvature changes, and the cornea can develop an irregular shape. This progressive corneal deformation is called ectasia, sometimes requiring a corneal

transplant in order to restore vision. The probability of ectasia and transplant occurring with currently employed modern technology is estimated to be one in 10,000 cases.

Faulty or improperly created flap

The corneal flap may be too thin, too thick, uneven, and too short, may wrinkle, become displaced or may not heal properly. This condition could be temporary, requiring that LASIK be postponed until the surgeon can create a new flap, or could cause permanent damage to the cornea. The risk that such a flap complication might produce damage to the vision by two or more lines on the vision chart is in the range of 3 to 10 in 1,000 cases.

Debris under the flap or Infection under the flap

There can sometimes be a small number of debris or tissue under the flap after the surgeon has completed the LASIK procedure. Debris can result from the Instruments used or consist of tear-fllm oil or floating material. The surgeon may decide in the immediate post-operative period to irrigate beneath the flap to remove this debris.

Diffuse Lamellar Keratitis or "Sands of the Sahara"

One in 500 patients experience a temporary inflammatory reaction beneath the flap. This condition has been called "Sands of the Sahara" or Diffuse Lamellar keratitis (also known as "DLK"). The exact cause of this complication has not been proven and is likely due to many different factors. Patients with DLK may not show any symptoms at all or may experience blurred vision and tearing, which can last from several days, up to several weeks, which can delay the healing process. DLK can generally be treated with topical and/or oral steroids, occasionally with possible need for surgical intervention (the surgeon irrigates beneath the corneal flap).

Epithelial Erosion

The epithelium is the surface layer of cells that protects the cornea as the "skin" over the stromal layer of the cornea. If the epithelium is cut or removed, it generally grows back. In LASIK the surgeon creates a flap, consisting of epithelium and stroma, and holds the flap back while performing the laser treatment. The epithelium in some people is not as well attached to the underlying stroma; such eyes are at increased risk for epithelial scratches or epithelial sliding, especially as the flap-maker passes over the corneal surface to create the flap.

Epithelial Ingrowth

Epithelial ingrowth is a condition in which epithelial cells from the surface of the cornea grow under the edge of the flap. The vast majority of these cells regress on their own. However, if the cells continue to grow, they can affect the underlying tissue causing astigmatism, flap edge thinning and reduction of vision.

Dry Eyes

Dry eye is a common but generally temporary, complication arising from LASIK or (/PR K. This condition can usually be treated with lubricating eye drops and occasionally with temporary inserts or "plugs" that prevent the normal drainage of tears into the nose. Dry eye generally improves within a few months after surgery, but in rare instances can continue for longer periods of time,

Vascular Occlusion

When the suction ring is applied to the eye during the flap-making process, the pressure in the eye increases significantly and may patients will I notice that the Light will dim or go out completely in the eye. When the suction ring is removed, the vision is restored to the eye within a few seconds. There is an extremely remote risk that when the suction ring interrupts the blood supply to the eye, permanent damage to the retina (the film of the eye camera) or blood vessels in the retina can take place, with loss of vision. Probability of less than one in 1,000,000.

Microscopic Corneal Surface Irregularities

A fraction of 1% of patients may lose two lines of vision on the eye chart after the procedure. The chances of losing vision in an eye to a level worse than 20/40 is thought to be 1 in 10,000.

Excessive Corneal Haze

Corneal haze is part of the normal healing process, and gradually subsides with a little or no permanent effect on vision. However, if the haze is excessive or does not go away, the patient may

need additional treatment. Haze might be seen in the rare LASIK patient experiencing a significant corneal scratch or erosion.

LIMITS TO CORRECTION

The procedure does not correct vision defects, such as those listed below, which do not arise from refractive errors. Patients with such conditions may be subject to additional risks and side effects.

Cataracts

Cataract is a condition that, if not treated, can cause reduced vision, correctable by cataract surgery.

Amblyopia

Amblyopia, or "lazy eye" is a medical condition that develops in early childhood in which a person who has reduced vision in one eye relies on the other eye to see, hence arresting the development of vision in the amblyopic eye. Lasik/PRK will not reduce or eliminate amblyopia.

Strabismus

Strabismus is an eye disorder caused by a weakness in the eye muscles in which the eye may not be aligned properly. LASIK or PRK will not correct, reduce, eliminate, or prevent strabismus. Patients with strabismus may develop double vision because of or as a side effect of the procedure.

Presbyopia

As we age, the natural crystalline lens of the eye may lose its ability to accommodate nearby objects. This condition known as presbyopia, usually being around the age of 40, and can most often be comfortably corrected using reading glasses. LASIK or PRK will not prevent, and may unmask, the need for reading glasses in patients around the age of forty.

THE DAY OF SURGERY

• You can expect to feel nervous, anxious or excited prior to your procedure. This is a completely natural, normal response

• Please refrain from wearing perfume or cologne on your surgery date. Please do not use any hair products that contain alcohol such as hair spray or mousse

• Please pre-arrange alternate transportation

• Please be aware that your eyes will be irritated and light sensitive following the procedure. This usually settles down within 24 hours after surgery

• We recommend avoiding alcohol 24 hours prior to and 48 hours after your surgery, as this tends to dehydrate the tissues, cause drying of the eyes and can delay the healing process

• Wear comfortable clothing on your surgery day. Avoid clothing that may generate lint in the surgical suite (e.g. wool)

• In consideration of others, and to ensure that your visit is as comfortable as possible. We recommend that you do not bring children to the Centre. The duration of your visit will be approximately 2 hours

WHAT HAPPENS AFTER THE PROCEDURE?

Please remember that your follow-up care is as important as the actual procedure.

Bring sunglasses. Some varieties do not provide adequate protection. We can test you if you are unsure of the strength of protection. Follow the eye drops regimen recommended by the surgeon.

Your first mandatory post-operative appointment will take place at our Centre within 24 hours following your surgery. Your appointment time will be given to you immediately after your surgery.

Following your 24-hour visit you are required to attend 3 additional post-operative appointments (5 for PRK. Post-operative examinations are required at 1 week, 1 month, and 3 months from the surgery date for LASIK with additional a post-operative 6 months and 1 year for PRK.

Each post-operative appointment in our Centre takes approximately 15 minutes; it helps us to evaluate the healing process of your eyes and check for inflammation and infection.

Please refer to the schedule provided below for more information on resuming specific activities.

RECOMMENDED ACTIVITY SCHEDULE FOLLOWING ROUTINE LASIK SURGERY

Day of surgery

- The day of surgery should be a day of rest
- Always be very careful about activities where the eye may be poked, rubbed or touched
- Always avoid rubbing your eyes. (Rubbing is never a good idea - instead use lubricant drops for irritation or cool water gently splashed onto your closed eyelids)
- Avoid staring without lubricating the eyes

24 Hours after surgery

- Take a bath instead of a shower. Avoid any soap or water in the eyes
- Restrict movement to light activities. Work should probably be avoided. Work at home is acceptable
- Driving short distances after the eye examination may be recommended if adequate vision is confirmed at the post-operative evaluation
- Reading and watching TV is recommended if adequate eye lubrication is maintained
- Flying in airplanes is recommended but keep eyes generously lubricated (every 30 minutes)- airplanes have very dry air

48 hours after surgery	● Driving can be resumed if adequate vision is confirmed at post-operative evaluation ● Shower (but continue to avoid any soap or water in the eyes) ● Face makeup may be used (but not eye make-up) ● Office work can be resumed ● Computers can be used (but it is very important to keep eyes well lubricated
Day 3 activities	● Exercise without risk to the eyes (e.g., treadmill Stairmaster, stationary bike) ● Be careful while playing with children Moderate alcohol consumption may be resumed
Day 7 activities	● Applying eye makeup (avoid touching the eyes) ● Jogging outdoors ● Rollerblading ● Relaxed bicycling (no mountain biking) ● Playing golf ● Lifting weights
Activities that can begin at 1 month with eye protection	● Racquet sports - tennis, squash, racquetball, badminton (but always wear eye protection) ● Swimming ● Scuba diving, snorkeling ● Sailing ● Sun-tanning ● Motorcycling, dirt biking, mountain biking ● Parachuting ● Baseball, basketball, football, soccer ● Skiing
Activities that can begin at 3 months with eye protection	● Proceed with caution as these activities have a high risk of water being forced into the eyes: ● Waterskiing, wind surfing ● Kayaking ● Surfing

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