

Refractive Surgery - A Guide for Patients

Purpose

This edition of the patient education pamphlet was updated, with the addition of newer techniques and medical illustrations.

Method

The approved RANZCO publisher, Mi-tec Medical Publishing, invited Dr Ron Stasiuk to update the pamphlet in late 2016. Dr Stasiuk co-ordinated the review with several Fellows who specialise in this field. The following panel of Fellows reviewed the third edition of the patient education pamphlet: Dr Abi Tenen, Dr Frank Howes, Professor Gerard Sutton, Dr Raj Pathmaraj, Dr Con Moshegov, Dr Christopher Hodge and Dr Michael Lawless. As for the previous editions, Dr Levent Efe was the medical illustrator.

Results

Much consideration was given to the candidate-exclusion section, including "conditions that might exclude some patients from having refractive surgery". Also: "Your ophthalmologist may still decide that refractive surgery may be appropriate, as long as you understand its risks, benefits and limitations. Treatment may be possible in select patients."

Some examples are:

- cases of stable herpetic keratitis with no recurrence for many years can have treatment with oral antiviral cover
- some cases of keratoconus with scarring having PRK, dry eye syndrome, severe myopia and autoimmune disorders.

Medico-legal advice was obtained from Avant and MIGA insurers. Avant recommended extra pre-operative consultations to answer patient questions. They noted that such a summary on refractive surgery was valuable patient education that would help to reduce medico-legal risks.

Newer technologies such as Presby-LASIK, corneal inlays for presbyopia, and SMILE were added, while conductive keratoplasty was deleted. Stability of refraction was increased to at least 12 months.

Conclusion

The revised six-page patient education pamphlet on Refractive Surgery is a valuable tool to assist the informed-consent process, with a sticky label for patient records. The Author highly recommends the use of such patient information when considering refractive surgery.

Autography

Dr Ron Stasiuk has significant experience in Cataract Refractive Surgery with a special interest in Multifocal IOLs, Phakic lens Implants, Piggy-back implants with the first description of the Red Rock Syndrome that was awarded a Video Oscar at the Boston ASCRS, complicated Cataract Surgery and Laser Refractive Surgery. He was also a Foundation partner in the Melbourne Excimer Laser Group and Vision Eye Institute. Although he has retired from operating due to RSI, he still consults at Vision Eye Institute Blackburn.



Refractive Surgery

A Guide for Patients

The aim of refractive surgery is to reduce a person's dependence on glasses and contact lenses. This is achieved by treating nearsightedness (myopia), farsightedness (hyperopia), and/or astigmatism.

Most refractive surgery techniques rely on altering the shape of the cornea.

As shown in the illustration below, the cornea is the transparent outer layer on the front of your eye. It serves as a fixed-focus lens.

Behind the iris is the natural lens, which can adjust its focus. Light entering the eye is bent (refracted) by the cornea

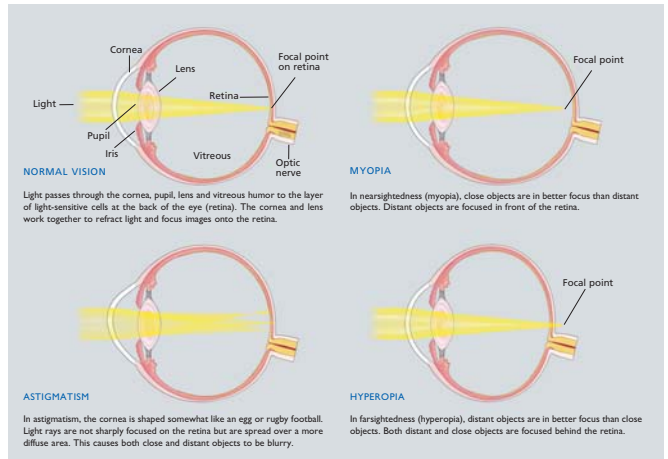
and lens so that images are focused on the retina.

Poorly focused images can be improved by prescription glasses, contact lenses or refractive surgery.

As the cornea is responsible for about two-thirds of the eye's focusing power, vision can be improved by permanent reshaping of the cornea.

Your ophthalmologist will advise you:

- whether your eyes may benefit from refractive surgery
- about the type of refractive surgery that would be most suitable for your eyes, general health and lifestyle.



IMPORTANT: FILL IN ALL DETAILS ON THE STICKER
DEAR OPHTHALMOLOGIST: When you discuss this pamphlet with your patient, remove this sticker and put it on the patient's medical history or card. This will remind you and the patient that this pamphlet has been provided. Some ophthalmologists ask their patients to sign the sticker to confirm receipt of the pamphlet.

TREATMENT INFORMATION PAMPHLET

PROCEDURE: _____
 PATIENT'S NAME: _____
 DOCTOR'S NAME: _____
 EDITION NUMBER: _____ DATE: DD / MM / YYYY

Consent form: If you have treatment, your ophthalmologist will ask you to sign a consent form. Read it carefully. If you have any questions about the consent form, surgery, risks or related matters, ask your ophthalmologist.

YOUR OPHTHALMOLOGIST

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REFRACTIVE SURGERY PROCEDURES

Excimer laser
The excimer laser uses ultraviolet light and energy pulses to reshape the cornea. The reshaping procedure depends on the type of refractive error being treated.
 • To correct nearsightedness, tissue is removed from the central area of the cornea.
 • To correct farsightedness, tissue is removed from the edges of the cornea to advance its curve.
 • To correct astigmatism, tissue from various locations is removed from the cornea to advance its curve.
 • To improve the uniformity of the cornea's curve, the laser is used in some patients, it may be appropriate to treat one eye for distance vision and the other eye for near focus (monovision or blended vision).

LASIK (Laser in situ keratomileusis)
1. To prepare the eye for laser, the surgeon uses a microcylinder instrument to make a flap or a microincision to carefully separate the top layer of the cornea and form a hinged corneal flap. This may have a slight bevel of pressure on the eye. The flap is folded back to expose the underlying tissue of the cornea.
 2. The excimer laser is positioned near the cornea, and the alignment is carefully checked. The laser is then applied to reshape the top layer of the cornea in a precise, controlled manner.
 3. The refractive procedure is complete. The corneal flap is then repositioned and the flap naturally seals to the surface.
 4. The flap is not back to its original position.

Advanced surface ablation (LASEK)
1. The surgeon uses a microcylinder instrument to make a flap or a microincision to carefully separate the top layer of the cornea and form a hinged corneal flap. This may have a slight bevel of pressure on the eye. The flap is folded back to expose the underlying tissue of the cornea.
 2. The excimer laser is positioned near the cornea, and the alignment is carefully checked. The laser is then applied to reshape the top layer of the cornea in a precise, controlled manner.
 3. The refractive procedure is complete. The corneal flap is then repositioned and the flap naturally seals to the surface.
 4. The flap is not back to its original position.

Wavefront ablation
Every eye has subtle imperfections that, if significant, could affect your quality of vision with glasses or contact lenses.

Photorefractive keratectomy (PRK)
During PRK, no corneal flap is made, making it suitable for patients with thin corneas. Also, there is no risk of surgical flap complications. The excimer laser removes tissue from the outer layer of the cornea to correct its curvature. In patients who require larger corrections, the surgeon may cover the treated area with a thin layer of cells or a diffuse solution of mitomycin C, which reduces the risk of haze and regression of the cornea.

Small Incision Lenticule Extraction (SMILE)
During SMILE, a femtosecond laser creates a lenticule (a disc) within the cornea, which is then removed via a small incision created within the cornea to advance a refractive effect similar to laser ablation. There is no need to create a corneal flap as in LASIK. SMILE may be indicated for people with higher levels of myopia or for people with subtle dry eyes. Recovery may be slightly longer than LASIK, but vision returns quickly to the eye after.

Intraocular lens implants (phakic)
In some patients, not suitable for laser surgery, an intraocular lens may be inserted into the eye. This lens is removable. The procedure is reversible, but removal of the lens implant is not generally considered unless the patient has significant symptoms. Phakic lens implants may be an option in people with high prescriptions at the maximum limit for safe laser treatment. People with thin or irregular corneas may also benefit from phakic lens implants.

Refractive lens exchange (RLE)
In RLE for refractive correction, the natural lens is replaced with an artificial lens using similar techniques to cataract surgery. This may be an optimal choice compared to other treatments. In some patients, suitable for LASIK, LASEK, or PRK due to age or severe nearsightedness or farsightedness, RLE may be a better option. RLE may be indicated for people with higher levels of myopia or for people with subtle dry eyes. Recovery may be slightly longer than LASIK, but vision returns quickly to the eye after.

Presbyopia Treatments
Presbyopia is then progressively declines when most people reach their 40th birthday. This is due to changes in the eye's focusing ability. The eye's focusing ability declines as the eye's lens becomes less flexible. This is a normal part of aging. There are several ways to correct this. One way is to wear glasses. Another way is to use contact lenses. A third way is to use refractive surgery. Your surgeon can discuss these options and their suitability in your case.

1. Presby LASIK
This is a variation of LASIK procedure that uses a laser to create multifocal lenses. Most of the natural lens is surgically removed. A multifocal lens is then implanted in its place. This procedure may be indicated for people with higher levels of myopia or for people with subtle dry eyes. Recovery may be slightly longer than LASIK, but vision returns quickly to the eye after.

2. Refractive lens exchange with multifocal intraocular lenses
As described on page 6, the natural lens can be surgically removed. A multifocal lens is then implanted in its place. This procedure may be indicated for people with higher levels of myopia or for people with subtle dry eyes. Recovery may be slightly longer than LASIK, but vision returns quickly to the eye after.

Realistic expectations
Refractive surgery is not suitable for every patient. Some patients have good vision. Refractive surgery may not be suitable for every patient. Some patients may not be suitable for refractive surgery. Some patients may not be suitable for refractive surgery. Some patients may not be suitable for refractive surgery. Some patients may not be suitable for refractive surgery.

Before surgery
If you are a suitable candidate, you will need to stop wearing contact lenses for a period before surgery. This allows the cornea to return to its natural shape. Your ophthalmologist will give you further instructions on surgery.

Talk to your ophthalmologist
The general information in this pamphlet is intended to provide you with a better understanding of the various refractive surgery procedures. To find out more about the procedure that may be most suitable for you, talk to your ophthalmologist. Read the pamphlet carefully and ask your ophthalmologist questions. If you are not sure about the procedure, risks and limitations of refractive surgery, ask your ophthalmologist.

Fully discuss with your surgeon
• the risks you want
• the type of refractive surgery to be done and why
• the nature of surgery
• the type of anesthesia
• the type of anesthesia
• the type of anesthesia
• the type of anesthesia

Anesthesia
Local anesthesia is given in the form of eye drops. Some people may need mild sedatives to help them relax during the procedure. General anesthesia is used for some patients. General anesthesia is used for some patients. General anesthesia is used for some patients.