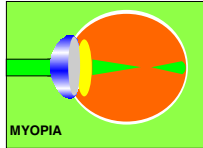




Refractive Errors & LASIK Laser

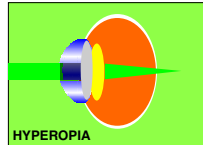
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The eye works in a similar way as a camera. To get a clear picture, the lens of the camera focuses the rays of light on the camera film. In a similar way, the light rays get focused on the Retina (the innermost layer of the eye) with the help of cornea (the anterior surface of the eye) and lens of the eye. The inability of the eye to accurately focus these rays of light coming from a distance, onto the retina is called **refractive error**. This condition may be either because the eye is too short or long in length, or because the refractive power of the cornea or lens is not optimum. There are three types of refractive errors:

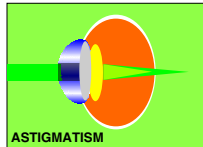


Myopia (near-sight): the light rays are focused in front of the retina, either because the eye is too long or the power of the cornea and lens is more than required. Distant objects are blurred but the near objects are seen clearly. Minus glasses are needed to correct this condition.

Hypermetropia (long-sight): the light rays are focused behind the retina, either because the eye is too short or the power of the cornea and lens is less than required. The person may need to strain the eyes to see objects clearly. Plus glasses are needed to correct this condition.



Astigmatism: the light rays do not get focused evenly to a point, usually due to the cornea of the eye being more curved in one direction than the other. Cylinder lenses (with axis) are needed.



What is Presbyopia?

In a younger person, the lens has the capacity to increase its power to focus for nearer objects (accommodation). Presbyopia is a part of normal aging process, where the lens progressively loses this capacity of accommodation. The distance vision may be normal, but the near vision becomes blurred with age greater than about 45 years. This is corrected by wearing reading glasses (plus) for the near work. One must remember that refractive laser surgeries only correct the refractive error (myopia, hypermetropia and astigmatism), but do not correct the presbyopia.

What are the ways of treating refractive errors?

The refractive errors may be treated by either of the following ways:

- ♦ **Glasses:** this is the simplest and most popular way of correcting refractive errors
- ♦ **Contact lens:** this option is cosmetically much better. However, it requires thorough maintenance and cleaning of the contact lenses, and regular eye checkups. There is also a slight risk of allergy and infection to the eye, if the contact lenses are not cleaned properly.
- ♦ **Refractive Laser Surgeries:** get rid of the need for glasses and are increasingly becoming popular with the advent of safer and more predictable laser treatments.

How does Laser correct the refractive error?

A special form of Laser (Excimer Laser) is used to correct the refractive error by changing the shape and thus the power of the cornea. It is a very precise Laser and can change the shape of the cornea with an accuracy of more than a thousandth of a millimeter. The sophisticated laser machine automatically delivers the required laser treatment based on the refractive error of the patient.

What are the various Laser treatments available?

The most common options available are:

PRK: It is being used less commonly nowadays.

LASIK: This is the most popular form of Laser treatment.

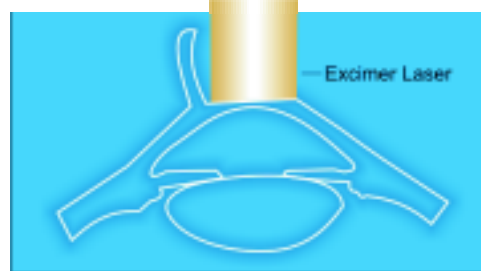
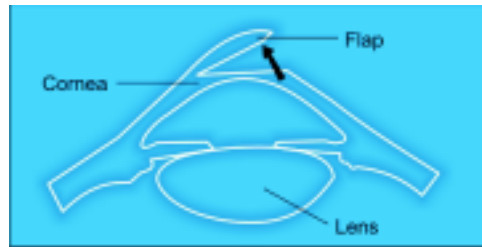
LASEK (or Epi-LASIK): This newer form of treatment may be suitable in some selected patients with very high power.

What is LASIK?

LASIK involves raising a very thin corneal flap with the help of a special automated and very precise blade. After this the Excimer Laser treatment is applied to the rest of corneal surface to change its shape and thus correct the refractive error. The parameters used for conventional LASIK are based on the refractive error of the patient. The raised flap is then positioned back, where it sticks without the need of any suture.

What is Customised LASIK?

This is a special form of LASIK in which the treatment parameters are customised for the particular patient, based not only on the refractive error, but also on the corneal map of the eye and other



findings detected by special tests. This procedure tries to correct aberrations, maintains normal shape of the cornea and gives better night vision.

Who is a suitable candidate for LASIK laser surgery?

The person must be 18 years or older with a stable power. A contact lens user must discontinue the use of contact lenses at least 2 weeks before the procedure. A detailed eye checkup is done to look for suitability for the procedure. Before the Laser is done the eyes are checked with special machines to determine the exact power, the corneal mapping is done and corneal thickness is measured. In patients with high minus power, a special retinal checkup is done for detecting any possible weak areas in the retina, which may need to be treated before the LASIK is performed. The LASIK laser is performed only after ruling out any contraindication and confirming the suitability of the procedure.

What happens during the Laser surgery?

The LASIK surgery is done as an outpatient procedure and does not require any admission. It is painless and is done after putting the anesthetic drops and does not require any injections. The laser procedure takes approximately 15-20 minutes for both eyes. After the procedure, the patient can go back home after 20-30 minutes.

What are the complications of LASIK?

LASIK is a very safe procedure with a majority of patients achieving very good results. However, since it is a surgical procedure, it does carry some chances of complications as well, which would be discussed with you before the surgery. The overall rate of significant complications in LASIK is only of the order of 1-2%. Some of these complications may be:

- Undercorrection or Overcorrection
- Glare and difficulty in night driving
- Flap complications, perforation
- Infection
- Scarring of the cornea

What are the precautions to be followed after LASIK, and when can one resume work?

After LASIK surgery one needs to avoid using cosmetics in and around the eye for a week or two. One should also avoid wetting or rubbing the eyes for some period. Use the medications regularly and report immediately in case of any discomfort, redness, injury or any other problem. There is no restriction in reading, watching TV, going for walks etc. In majority of cases, routine office or simple household work may be resumed in a day or two.

Disclaimer: Information published here is for educational purposes only and is not intended to replace medical advice. If you suspect that you have a health problem, please consult your doctor immediately.

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