

Refractive Surgery Basics

Refractive surgery is a group of surgical procedures designed to help you reduce or even eliminate your need for glasses or contact lenses. Various procedures are available to help correct the various types of refractive errors: myopia, hyperopia, and astigmatism.

Myopia is also called nearsightedness—you can see well up close without glasses but need glasses to see well at a distance. Myopia arises when the front surface of your eye—called the cornea—is steeper than usual. Hyperopia is far-sightedness—you cannot see well up close and usually cannot see well at a distance either. People with hyperopia often have flatter than usual corneas. Astigmatism is a mixture of myopia and hyperopia—your cornea is warped like the shape of a saddle.

Refractive surgery improves your vision by changing the focus power of your eye. This is accomplished by altering either of the two focusing structures of the eye—the cornea and the lens. The cornea or lens can be altered by various surgical techniques.

The most common refractive surgery procedure of the cornea is LASIK (laser-assisted in situ keratomileusis). In LASIK, an excimer laser is used to reshape your cornea. Traditionally, a thin flap is cut on the surface of your cornea with a special blade instrument called a microkeratome, and the flap is folded out of the way. Laser energy is



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then used to sculpt your exposed cornea to correct your nearsightedness. The flap then is put back into its normal position, covering the treated area. Recent technology, such as the femtolasers system (used to make a more precise flap) and wavefront analysis, has led to even greater success in LASIK surgery. Most patients can see improvement in vision immediately after surgery.

A slightly different procedure, called LASEK (laser epithelial keratomileusis), uses a thinner flap, and is typically performed in people whose cornea is too thin or too flat for LASIK. A third type of corneal refractive surgery is called PRK (photorefractive keratectomy), which differs from LASIK and LASEK in that no flap is made, and the laser directly sculpts the front surface of your cornea to flatten it.

There are two common refractive surgery procedures of the lens. One is implantation of an ICL (intraocular Collamer lens). An ICL is essentially a

contact lens, but instead of being placed on the surface of your eye, it is placed inside your eye. The implant rests on the surface of your natural lens, behind your iris. The strength of the implant is specifically selected to work with your cornea and lens to correct your refractive error. The second procedure is called RLE (refractive lens exchange). Refractive lens exchange involves removing your lens and replacing it with a lens implant that works with your cornea to correct your refractive error.

Each of these procedures has different risks and benefits, and each is designed for a different group of people based on the type and severity of their refractive error. If you are considering having refractive surgery, talk with your doctor about which procedure is best for your eyes.