

Refractive Errors



Normal Eye

Clear vision is the result of light entering the cornea (outer window of the eye), passing through the lens (behind the iris), and focusing directly on the retina, at the back of the eye.

Nearsightedness

If the cornea is too steep or the eye is too long, the laser must remove tissue from the center of the cornea to reduce its focusing power. This moves the point of focus from in front of the retina to on the retina.



Astigmatism

If the cornea is more curved in one direction than the other, the laser must remove tissue so that the cornea is more symmetrical. This eliminates multiple focal points and establishes one point of focus on the retina.



Farsightedness

If the cornea is too flat or the eye is too short, the laser must remove tissue from the outer zone of the cornea to make it steeper and increase its focusing power. This moves the point of focus from behind the retina to on the retina.

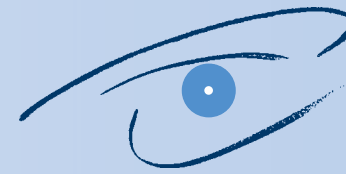


Which of These Procedures is Right for You?

It is likely that more than one of these procedures could reduce or eliminate your dependence on glasses or contacts. Every eye is different, and everyone has different visual needs. Your first step is to have a thorough eye examination to determine the health of your eyes. Together, you and your doctor will determine which option is best suited for your eye condition and lifestyle.

Realistic Expectations

The goal of any refractive procedure is to reduce your dependence on corrective lenses. Your doctor cannot guarantee your results. You will be given additional information about these procedures to help you make an informed decision. Be sure to have all of your questions answered to your satisfaction before proceeding.



New England Eye Center

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School of Medicine*

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Vision Correction

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Blade-Free All Laser Custom LASIK with IntraLase

LASIK is the number one eye procedure in the world and is the procedure of choice for correcting nearsightedness, farsightedness and astigmatism. Since LASIK was approved by the FDA there have been tremendous improvements in the procedure.

iLASIK™, VISX® CustomVue® Excimer Laser with Iris Registration, coupled with the IntraLase® Laser for blade-free flap creation, is the most advanced laser vision correction in the world. It is so safe and precise that NASA has approved it for astronauts and fighter pilots. iLASIK™ allows our doctors to identify and correct imperfections in an individual's eye 25 times more precisely than with standard methods used for glasses and contact lenses providing an unprecedented level of accuracy and precision. We seldom use a metal blade to cut the cornea and find that most patients are no longer afraid to have LASIK for this reason. LASIK is a painless outpatient procedure that takes only a few minutes to perform. Amazingly, most patients see well enough to drive a car the next day and return to normal activities. Additionally, most experts agree that LASIK performed by a cornea specialist is the best case scenario for having LASIK

PRK Photo-Refractive Keratectomy



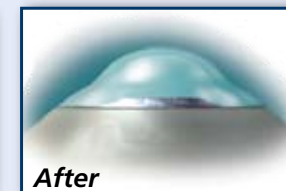
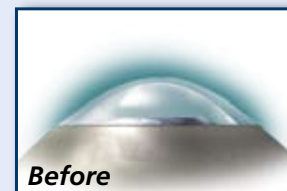
Photo-Refractive Keratectomy (PRK) became popular worldwide in the early 1990s and in the USA in 1995 when the Excimer laser was first approved by the FDA for laser vision correction. The Excimer laser brought tremendous advancements to refractive surgery.

With PRK, surgeons use state-of-the-art computer technology in combination with the accuracy and precision of the Excimer laser to treat a wide range of nearsightedness, farsightedness, and astigmatism. PRK has proven to be extremely successful, with the vast majority of patients having visual results of 20/20 to 20/40, thereby reducing or eliminating their dependence on glasses or contact lenses.

PRK is performed in the comfort and convenience of an outpatient, Excimer laser suite. First, very powerful eye drops completely numb the eye. Next, the clear, protective surface layer (epithelium) of the cornea is loosened from the underlying layers of the cornea and is either removed completely or moved to the side. Then, in a matter of seconds, the Excimer laser is applied to the cornea, reshaping it to the correct focusing power. After the procedure, a protective contact lens bandage is placed on the eye to make it more comfortable during the healing process. It usually takes three to five days for the epithelium to fully heal.

Most PRK patients notice an improvement in their vision soon after surgery. However, vision is usually somewhat blurred during the epithelial healing process. Many PRK patients prefer to have one eye treated at a time with the second eye being treated within a week or two.

CK NearVisionSM Conductive Keratoplasty[®]



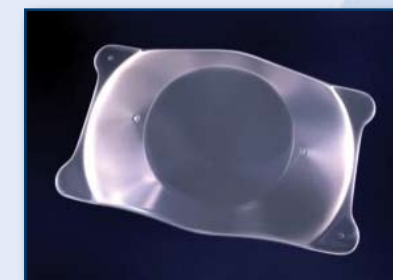
NearVision CK is a non-laser procedure that can reduce or eliminate farsightedness and presbyopia and offer those who have difficulty seeing small print the opportunity to read again without bifocals or reading glasses. It is best suited for patients over the age of 40 who had good vision until they reached their forties.

NearVision CK uses the controlled release of radio frequency energy to reshape the cornea. A small probe is applied to the inner corneal tissue in a circular pattern, which causes the tissue to shrink. This circular shrinkage pattern creates a constrictive band, which steepens the curvature of the cornea and increases its focusing power.

Some people who can see well at distance elect to have “blended vision” and have only one eye treated to provide them with better near vision. NearVision CK may cause temporary swelling of the cornea, so it may take a few days for the swelling to subside to appreciate the results.

The goal of CK is to turn back the clock and restore your vision to where it was when you were in your thirties and thus reduce or eliminate your need for reading glasses. How far the clock turns back depends on how your eye responds and heals. As your eyes continue to age, you may require additional treatments in the future.

ICL Implantable Collamer Lens by Visian[®]



The Implantable Contact Lens (ICL or Visian lens) is also known as a phakic IOL. “Phakic” means that the natural lens of the eye is not removed, and “IOL” means intraocular lens, or a lens inside the eye. The ICL is considered an alternative to such procedures as LASIK and PRK or Refractive Lens Exchange. The best candidates for the ICL are between the ages of 21 and 60, with moderate to severe nearsightedness.

The ICL is a small, injectable lens that is inserted through a tiny, 3-mm incision that does not usually require sutures. The procedure is performed on one eye at a time and is a five minute, pain-free, procedure.

The ICL provides predictable outcomes and excellent quality of vision. If there are major changes in one's vision, the ICL can easily be removed and replaced. It is designed to remain in place within the eye without maintenance. Because the lens is positioned behind the iris, neither you nor an observer will be able to see it. The lens material is a collagen copolymer that is very biocompatible (doesn't cause a reaction inside the eye) and stable. It also contains an ultraviolet light filter to help protect the eye and reduce the risk of macular degeneration.