

# LASEK Eye Surgery: How It Works

By Liz Segre; updated by Diane Donofrio Angelucci;  
reviewed by Brian S. Boxer Wachler, MD

LASEK (laser epithelial keratomileusis) is a relatively new variation of PRK, a procedure in which laser energy is applied directly to the eye's outer surface for reshaping and vision correction.

To understand how LASEK works, you first must know the fundamental differences between LASIK, PRK and LASEK:

- With **LASIK**, a thin flap is cut into the eye's surface and then lifted. Laser energy is applied to the eye for reshaping, and the flap is replaced to serve as a type of natural bandage for quicker healing.
- An eye surgeon using **PRK** does not cut a thin flap into the eye's surface, as occurs with LASIK. Instead, laser energy is applied directly to the eye's surface. The ultra thin, outer layer of the eye (epithelium) is removed completely by laser energy during a PRK procedure, and eventually grows back.
- A **LASEK** procedure involves preserving the extremely thin epithelial layer by lifting it from the eye's surface before laser energy is applied for reshaping. After the LASEK procedure, the epithelium is replaced on the eye's surface.

In LASIK, the thicker flap is created with a the microkeratome cutting tool or a special laser. With LASEK, the ultra thin flap is created with a special cutting tool known as a trephine.

LASEK is used mostly for people with corneas that are too thin or too steep for LASIK, when it may be difficult to create a thicker LASIK flap. LASEK was developed to reduce the chance of complications that occur when the flap created during LASIK does not have the ideal thickness or diameter.

According to a survey of members of the American Society of Cataract and Refractive Surgery (ASCRS), the popularity of LASEK is growing among refractive eye surgeons, as it is with epi-LASIK — another variation of the procedure. Epi-LASIK uses a plastic blade, called an epithelial separator, to detach part of the epithelial layer from the eye.

*In LASEK, an ultra-thin flap is created on the eye's surface, unlike the thicker flap in LASIK.*

However, eyes undergoing LASEK procedures generally heal more slowly and result in more complaints of discomfort than with LASIK. For this reason, some surgeons prefer to perform PRK rather than LASEK or epi-LASEK because they find no advantage in the latter procedures.

In fact, a 2008 study published in the *Journal of Refractive Surgery* indicated that people undergoing PRK tended to have less pain and healed slightly faster than people who had undergone a surgical technique called butterfly LASEK. "Butterfly" refers to the shape and type of thin flap lifted in LASEK, which is thought to increase comfort and healing time.

## The LASEK Procedure

During LASEK, your surgeon uses local anesthesia. Then he or she cuts the epithelium, or outer layer of the cornea, with a fine blade (trephine). Then the surgeon covers the eye with a diluted alcohol solution for approximately 30 seconds, which loosens the edges of the epithelium.

After sponging the alcohol solution from the eye, the surgeon uses a tiny hoe to lift the edge of the epithelial flap and gently fold it back out of the way. Then he or she uses an excimer laser, which is used for LASIK or PRK, to sculpt the corneal tissue underneath. Afterward, the epithelial flap is placed back on the eye with a type of spatula.

## After LASEK

In many ways, LASEK vision recovery is slower than LASIK recovery, but there are some differences. According to doctors who perform LASEK, the flap edge heals in about a day, though patients usually wear a bandage contact lens for approximately four days to protect the eye.

Your eye may feel irritated during the first day or two afterward. Also, with LASEK compared with LASIK, it often takes longer to recover good vision — up to four to seven days — but this can vary from one person to the next. You also may experience more pain with LASEK compared with LASIK.

**Vision recovery after LASEK may be slower than for other procedures, but there is less risk of complications such as dry eye.**

## Talking to Your Doctor

If you are considering LASIK, but your doctor says you need LASEK, ask why. It's not for everyone, but many surgeons who perform LASEK consider it a better option for some patients who will probably not do very well with LASIK. Also, in some studies LASEK has been associated with faster recovery of sensation or nerve function in the eye's surface (cornea) compared with LASIK. It also may cause dry eye less frequently than LASIK.

However, keep in mind that a 2007 study published in the *Journal of Cataract and Refractive Surgery* concluded that the outcome of LASEK depends on the surgeon's experience. Therefore, it's always a good idea to ask how many procedures your surgeon has performed. [AAV](#)

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