



## Small Incision Lenticule Extraction (SMILE)

### What is small incision lenticule extraction?

Small incision lenticule extraction (SMILE) is a newer type of laser refractive surgery. This kind of surgery uses a laser to treat myopia (nearsightedness,) a specific refractive error.

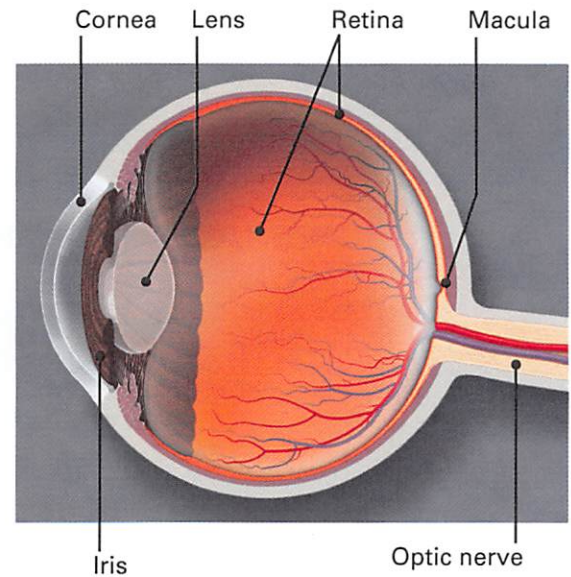
For you to see clearly, light rays must travel through your cornea and lens. The cornea and lens refract (bend) the light so it lands on the retina. With a refractive error, the shape of your cornea or lens keeps light from bending properly. When light is not focused on the retina as it should be, your vision is blurry.

With SMILE, your ophthalmologist uses a laser to change the shape of your cornea. This improves the way light rays are focused on the retina. SMILE is FDA-approved to treat mild nearsightedness.

The goal of SMILE is to correct your nearsightedness to improve your vision. SMILE may reduce your need for eyeglasses or contact lenses. In some cases, it may even allow you to do without them completely.

### Who is a good candidate for SMILE?

If you have an active lifestyle or job, SMILE may be a better option for you than LASIK or similar procedures. This is because SMILE does not involve cutting a flap in your cornea like LASIK. If you are highly active, you could accidentally dislodge a corneal flap, causing problems.



### Eye Words to Know

**Retina:** Layer of nerve cells lining the back wall inside the eye. This layer senses light and sends signals to the brain so you can see.

**Cornea:** Clear dome-shaped window of the front of your eye. It focuses light into your eye.

**Lens:** Clear part of the eye behind the colored iris. It helps to focus light on the retina so you can see.

To have SMILE, you need to meet certain requirements. Here are some of them:

- You should be 22 years or older.
- Your eye prescription should not have changed in the last year.
- You should have nearsightedness between -1 and -8 diopters with minimal astigmatism.
- Your corneas need to be healthy, and your overall eye health must be generally good.
- You need to have realistic expectations about what SMILE can and cannot do for you.

Some people are not candidates for SMILE. They include people:

- with an unstable (changing) refractive error
- with skin or other disease that can affect healing
- with a history of a lot of scarring
- with cornea abrasions or disease
- with advanced glaucoma
- with a cataract affecting vision
- with uncontrolled diabetes
- with a history of eye disease or eye surgery
- with history of certain eye infections
- who are pregnant or nursing

Your ophthalmologist can talk with you about other conditions that may keep you from having SMILE.

To determine whether you are a candidate for SMILE, your ophthalmologist will examine your eyes. Here's what he or she will do:

- Check the overall health of your eyes
- Measure your cornea
- Check your pupil size
- Measure your nearsightedness

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### What to expect with SMILE

**Before surgery.** You and your ophthalmologist should discuss your expectations for SMILE. People who have SMILE to achieve perfect vision without glasses or contacts run the risk of being disappointed. SMILE allows people to do most of their everyday tasks without corrective lenses. But you might need to wear glasses for certain activities, such as reading or driving at night.

Your ophthalmologist will examine your eyes and make sure you are a candidate for SMILE. Here is what he or she will do:

- **Test your vision.** This is to make sure that your vision has not changed. It also shows how high your nearsightedness is and whether SMILE can be used to correct your vision.
- **Check for other eye problems.** Your ophthalmologist will make sure that you do not have eye problems. This is because other problems could affect your surgery, or SMILE could make those other problems worse.
- **Measure and map the surface of your cornea.** Your ophthalmologist will check the thickness of your cornea and make precise measurements of the cornea's surface. Your eye surgeon uses these measurements to program the computer-based laser used during surgery.
- **Measure your pupil size.**

**During SMILE.** The procedure usually takes about 10 – 15 minutes. Here is what to expect:

- The laser is programmed with specific measurements for your eye.
- Your eye will be numbed with eye drops.
- Your eye surgeon will place an eyelid holder on your eye to keep you from blinking.
- A suction ring lifts and flattens the cornea and helps keep the eye from moving.
- The laser sculpts a disc-shaped piece of cornea below the surface of your eye. This is the “lenticule” that gives the surgery its name.
- The laser then makes a small incision in your cornea. This gives your surgeon access to the disc that the laser formed. The entire laser treatment takes about 30 seconds.
- Your surgeon removes the disc-shaped piece of cornea through the incision. This reshapes your cornea.

**After surgery.** Keep these things in mind for the days after surgery.

- You will need to have someone drive you home after surgery.
- You should plan to take a nap or just relax for the rest of the day.
- You should take your eyedrop medicine as prescribed by your surgeon.
- Your vision may be blurry right after SMILE surgery. As you heal over the next few days and weeks, your vision will gradually improve.
- You can do most normal activities after a day or two. Avoid getting water in your eyes for a few days.

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### What are the risks of SMILE?

Like any surgery, SMILE carries the risk of problems or complications you should consider. These include:

- glare and halos around lights, particularly at night
- debris where the corneal disc was removed
- inflammation within the treated area
- infection
- retreatment which must be done with surface PRK

Also, with SMILE, your vision may end up being undercorrected or overcorrected. These problems often can be improved with glasses, contact lenses, or additional laser surgery.

Most complications can be treated without any loss of vision. However, very rare problems may include:

- having worse vision than before SMILE, even with glasses or contacts (called loss of best-corrected vision)
- blindness

If you are happy wearing contacts or glasses, you may not want to have refractive surgery. Together, you and your ophthalmologist can weigh the risks and rewards of SMILE.

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### The benefits of SMILE

SMILE is a newer refractive surgery. Ophthalmologists expect that it will have a couple advantages over LASIK for treating nearsightedness and have similar good outcomes.

- No corneal flap is made during SMILE. There should not be problems with the flap that can happen with LASIK.
- The corneal disc is removed through a very small incision. Since the surface of the cornea is minimally disturbed, long-term dry eye should be less common with SMILE.

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### Summary

Small incision lenticule extraction (SMILE) is a newer type of refractive surgery. With this outpatient procedure, a laser is used to create a disc of corneal tissue. The disc is removed to reshape your cornea and improve how light rays are focused in the eye.

SMILE is FDA-approved to treat mild nearsightedness between -1 and -8 diopters with minimal astigmatism.

SMILE is expected to have similar positive results to LASIK without the same frequency of risk for dry eye or corneal flap dislocation.

If you have any questions about your eyes or your vision, speak with your ophthalmologist. He or she is committed to protecting your sight.

Get more information about eye health from EyeSmart—provided by the American Academy of Ophthalmology—at [aao.org/eyesmart](http://aao.org/eyesmart).

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