

What Are Cataracts?

Cataract is a clouding of the eye's lens. When we look at something, light rays travel into our eye through the pupil and are focused through the lens onto the retina, a layer of light-sensitive cells at the back of the eye. The lens must be clear in order to focus light properly onto the retina. If the lens has become cloudy, this is called a cataract.

Vision problems with cataracts

If your vision has become blurry, cloudy or dim, or things you see are not as bright or colorful as they used to be, a cataract may have developed in one or both of your eyes. Many people say that their vision with cataracts is similar to the effect of looking through a dirty car windshield.

As a cataract slowly begins to develop, you may not notice any changes in your vision at first. But as the cataract progresses, you may begin to find that it interferes with your daily activities. Performing a complete eye exam, your [ophthalmologist \(Eye M.D.\)](#) can tell you whether cataract or another problem is the cause of your vision loss.

While cataracts are one of the most common causes of vision loss, especially as we age, they are treatable with [cataract surgery](#). Since most cataracts are part of the normal aging process, they cannot be reversed. There are no medications or eye drops that will make cataracts go away—surgery is the only treatment.



The top lens is clear. The bottom lens shows clouding by cataract.

A cataract may not need to be removed right away if your lifestyle isn't significantly affected. In some cases, simply changing your eyeglass prescription may help to improve your vision. Contrary to popular belief, a cataract does not have to be "ripe" to be removed. However, once you are diagnosed with a cataract, your ophthalmologist needs to monitor your vision regularly for any changes.

Cataract surgery for clearer vision

When a cataract causes bothersome vision problems that interfere with your daily activities, your ophthalmologist may recommend surgery to remove the cataract. With cataract surgery, your eye's cloudy natural lens is removed and replaced with a clear artificial lens implant (called an intraocular lens or IOL).

You and your ophthalmologist can discuss the [cataract surgery procedure](#), preparation for and [recovery after surgery](#), [benefits and possible complications](#) of cataract surgery, [cataract surgery costs](#) and other important information. Together, you can decide if cataract surgery is appropriate for you.

Cataract Symptoms

Cataract symptom progression

Gradually, as cataracts progress, you may have symptoms such as:

- Painless cloudy, blurry or dim vision
- More difficulty seeing at night or in low light
- Sensitivity to light and glare
- Seeing halos around lights
- Faded or yellowed colors
- The need for brighter light for reading and other activities
- Frequent changes in eyeglass or contact lens prescription
- Double vision within one eye.

The only way to know for certain if you have cataracts is to have a dilated eye exam (where your pupil is widened with eye drops). Your ophthalmologist can detect early signs of cataract development by looking at your eye's lens.

Get a [baseline exam at age 40](#) when early signs of disease and changes in vision may start to occur. Your ophthalmologist (Eye M.D.) will let you know how often you should return for follow-up exams. At any point, if you have symptoms or risks for eye disease, see your Eye M.D. Because your risk for cataracts and other eye diseases increases as you get older, starting at age 65 you should see your Eye M.D. every year. A complete eye examination will rule out any other condition that may be causing blurred vision or eye problems. Early detection and [treatment of cataracts](#) is critical to preserving sight.



Your vision can be dulled or yellowed from cataracts.



Blurry or dim vision is a symptom of cataracts.



If you have cataracts, you may experience distortion or ghost images in your vision.

Who Is at Risk for Cataracts?

Cataracts develop as part of the aging process, so everyone is at risk eventually. By age 75, about 70 percent of people will have cataracts. With age, our eye's lens slowly becomes less flexible, less transparent and thicker. Then areas of the lens become cloudy as protein in the lens begins to clump together.

Cataract risk factors

These factors increase your risk of developing cataracts:

- Advanced age;
- [Diabetes](#);
- A family history of cataracts;
- Extensive exposure to sunlight;
- [Smoking](#);
- Obesity;
- High blood pressure;
- Previous eye injury or inflammation (swelling) in the eye;
- Previous eye surgery;
- Long-term use of steroid medication (especially combined use of oral and inhaled steroids).

If you have any of these risk factors for cataract, you should schedule an appointment with your [ophthalmologist \(Eye M.D.\)](#).

Cataract Causes

In the normal human eye, light rays travel into the eye through the pupil and are focused through the clear lens onto the retina, a layer of light-sensitive cells at the back of the eye.

Cataract as part of aging

The lens is made mostly of water and protein. As we age, the lens continues to grow layers on its surface and hardens. Protein in the lens may clump together and become cloudy in some areas, preventing light from passing clearly through the eye. This cloudiness of the lens is what we call a cataract.

If the clouding is mild or only involves a small part of the lens, your vision may be only slightly affected. If there is more clouding and it affects the entire lens, your vision will become severely limited and [cataract surgery](#) becomes necessary.

Less common types of cataracts, not related to normal aging, include the following.

Congenital or developmental cataracts

This type of cataract can occur in infants or children. They may be hereditary or they can be associated with some birth defects. Some occur without any obvious cause.

Non-age related cataracts from other disease or medication

These cataracts are caused by other eye diseases or previous eye surgery. Chronic disease can make you more likely to develop cataracts; for example, [diabetes has been proven to increase risk for cataracts](#). Excessive use of [steroid medications](#) can spur development of this type of cataract as well.

Traumatic cataracts

These cataracts are related directly to an eye injury. Traumatic cataracts may appear immediately following injury, or they can develop several months or even years later.

Cataract Diagnosis

During a comprehensive, dilated eye exam (where your pupil is widened with eye drops), your Eye M.D. will examine and test your eyes to make a cataract diagnosis.

Slit-lamp exam

Your ophthalmologist will closely examine the eye's cornea (see How the Eye Sees video above), iris, lens and the space between the iris and cornea. With this special microscope, the doctor is able to examine your eye in small, detailed sections, making it easier to spot abnormalities.

Retinal exam

When your eye is dilated, the pupils are wide open so the doctor can more clearly see the back of the eye. Using the slit lamp and/or an instrument called an ophthalmoscope, the doctor looks for signs of cataract. Your Eye M.D. will also look for signs of [glaucoma](#) and other potential problems with the retina and optic nerve.

Refraction and visual acuity test

This test assesses the sharpness and clarity of your vision. Each eye is tested individually for the ability to see letters of varying sizes.

Once I have a cataract diagnosis, what should I do?

- Have an [eye exam](#) every year if you're older than 65, or every two years if younger.
- Protect your eyes from UV light by wearing sunglasses that block at least 99 percent UV and a hat.
- If you smoke, quit. [Smoking](#) is a key risk factor for cataracts.
- Use brighter lights for reading and other activities; a magnifying glass may be useful, too.
- Limit driving at night once night vision, halos or glare become problems.
- Take care of any other health problems, especially [diabetes](#).

- Get the right [eyeglasses](#) or [contact lenses](#) to correct your vision; when it becomes too difficult to complete your regular activities, consider [cataract surgery](#).
- To make an informed decision about cataract surgery, thoroughly discuss with your ophthalmologist the surgical procedure, preparation for and recovery after surgery, benefits and possible complications of cataract surgery, [cataract surgery costs](#), and other important information.
- Do not use eyedrops or other treatments that claim to dissolve or remove cataracts. There is no proven way to dissolve cataracts with eyedrops. [Surgery](#) is the only way to remove cataracts.

Cataract Treatment

If your vision is only slightly blurry, a change in your eyeglass prescription may be all you need for a while. However, after changing your eyeglass prescription, if you are still not able to see well enough to do the things you like or need to do, you should consider cataract surgery.

With cataract surgery, your eye's cloudy natural lens is removed and replaced with a clear artificial lens implant (called an intraocular lens, or IOL). Your ophthalmologist will discuss the [cataract surgery procedure](#), preparation for and recovery after surgery, the benefits and possible complications of cataract surgery, [cataract surgery costs](#) and other important information.

Cataract surgery is often performed as an outpatient procedure and does not require an overnight hospital stay.

Cataract Surgery

With cataract surgery, your eye's cloudy natural lens is removed and replaced with a [clear artificial lens implant \(called an intraocular lens or IOL\)](#). Cataract surgery is often performed as an outpatient procedure and does not require an overnight hospital stay.

Pre-operative tests for cataract surgery

Before surgery, the length of your eye will be measured in what is called an A-scan, and the curve of your cornea will be measured in a technique called keratometry. These measurements help your Eye M.D. select the proper lens implant for your eye. You will also discuss the various lens options available to you.

If you have had previous [LASIK](#) or other laser [vision correction](#), you can still have cataract surgery. In planning for cataract surgery, provide your Eye M.D. with the vision correction prescription you had before LASIK, if possible. This information will help your Eye M.D. calculate the correct IOL prescription for you. Previous refractive surgery can make determination of the correct IOL more difficult and your vision prescription *prior* to refractive surgery can help the surgeon calculate the correct IOL power.

Medications and cataract surgery

If you are having cataract surgery, be sure to tell your ophthalmologist about all medications and nutritional supplements you are taking. If you currently use or have ever used alpha-blocker drugs for prostate problems, such as Flomax®, Hytrin®, Cadura® or Uroxatral®, tell your Eye M.D. These medications may prevent your pupil from dilating properly during surgery, leading to possible complications. If your surgeon is aware that you have had these drugs, he or she can adjust their surgical technique to adapt as needed, allowing for a successful cataract removal procedure. You should also tell your Eye M.D. about any other sedative medications you are taking.

To reduce the risk of infection from surgery, your ophthalmologist may prescribe antibiotic eyedrops for you to use one or two days before surgery.



With phacoemulsification cataract surgery, an ultrasound instrument breaks up the center of the cloudy lens and suction it out.

The cataract surgery procedure

The most common procedure used for removing cataracts is called phacoemulsification. A small incision is made in the side of the cornea (the front part of your eye), where your Eye M.D. inserts a tiny instrument that uses high-frequency ultrasound to break up the center of the cloudy lens and carefully suction it out.

After the cloudy lens has been removed, the surgeon will replace it with an [intraocular lens \(IOL\)](#) implant made of plastic, silicone or acrylic. This new, clear lens allows light to pass through and focus properly on the retina. The IOL becomes a permanent part of your eye. In most cases, the IOL is inserted behind the iris, the colored part of your eye, and is called a posterior chamber lens. Sometimes, the IOL must be placed in front of the iris. This is called an anterior chamber lens. When the IOL is in place, the surgeon closes the incision. Stitches may or may not be used. After the surgery, your Eye M.D. usually places a protective shield over your eye.

Cataract surgery recovery

You will spend a short period of time resting in the outpatient recovery area before you are ready to go home. You will need to have someone drive you home.

Following your surgery, it is very important to put in the eye drops exactly as prescribed by your ophthalmologist to promote healing. You will also need to take care to protect your eye by wearing the eye shield whenever you sleep, and by wearing special wraparound sunglasses in bright light. Be sure not to rub your eye.

During the first week of your recovery, you must avoid strenuous activity such as exercise or bending and heavy lifting (including anything over 25 pounds). You will also need to avoid getting any water, dirt or dust in your eye, which can lead to infection.

You may have some blurry vision a few days to weeks after surgery procedure. If you experience any pain or loss of vision, be sure to call your ophthalmologist.

Cataract surgery risks and complications

As with any surgical procedure, there are risks associated with cataract surgery. Risks and complications can include:

- Infection
- Bleeding inside the eye
- Increased pressure inside the eye (glaucoma)
- Swelling of the retina
- Swelling of the cornea
- Retinal detachment
- Loss of vision (partially or completely)

In some cases, the part of the lens covering that supports the IOL (called the capsule) can become cloudy several months or years after the first cataract was removed. This is called an "after cataract" or "secondary cataract." If this occurs and blurs your vision, your Eye M.D. will make an opening in the center of the cloudy capsule with a laser to allow light to pass through the lens properly again. This procedure, called a posterior capsulotomy, takes about five minutes in the doctor's office and requires no recovery period.

Most people who wear bifocals or reading glasses for near vision may still need to wear glasses after cataract surgery for reading, and, in some cases, even for distance. If you choose to have a [multifocal or accommodative IOL](#), your dependence on glasses may be minimized or, in some cases, eliminated completely.

Cataract surgery costs

Cataract surgery costs are generally covered by Medicare (if you are Medicare eligible) as well as by most private insurance plans.

Your [cataract surgery](#) costs will be covered by Medicare as long as your vision tests at a certain level of acuity or clarity. If you have a private insurance plan, they too may have similar vision requirements that you must meet in order to have your surgery covered. Even if Medicare or private insurance covers your cataract surgery, there may be some costs you would still be responsible for, such as having a special enhanced type of [intraocular lens \(IOL\)](#) implanted instead of a standard IOL, or choosing to have cataract surgery before your vision has deteriorated enough to be eligible for Medicare or insurance coverage.

In certain cases, it might be possible to get insurance or Medicare coverage for cataract removal before you meet the age or visual acuity eligibility requirements. Talk with your ophthalmologist if you are considering having early cataract surgery.

If you don't have Medicare or private insurance coverage, you may still be able to reduce and manage the cost of cataract surgery through other means, such as payment plans through your doctor's office or with a flexible spending account

through your employer. Your Eye M.D. can help you learn more about costs of cataract surgery and discuss your options for affording the procedure.

IOL Implants: Lens Replacement and Cataract Surgery

Before intraocular lenses (IOLs) were developed, people had to wear very thick eyeglasses or special contact lenses to be able to see after cataract surgery. Now, with cataract lens replacement, several types of IOL implants are available to help people enjoy improved vision. Discuss these options with your Eye M.D. to determine the IOL that best suits your vision needs and lifestyle.

Cataract lens replacement: How IOLs work

Like your eye's natural lens, an IOL focuses light that comes into your eye through the cornea and pupil onto the retina, the sensitive tissue at the back of the eye that relays images through the optic nerve to the brain. Most IOLs are made of a flexible, foldable material and are about one-third of the size of a dime. Like the lenses of prescription eyeglasses, your IOL will contain the appropriate prescription to give you the best vision possible. Read below to learn about how IOL types correct specific vision problems.

Which lens option is right for you?

- Before surgery your eyes are measured to determine your IOL prescription, and you and your Eye M.D. will compare options to decide which IOL type is best for you, depending in part on how you feel about wearing glasses for reading and near vision.
- The type of IOL implanted will affect how you see when not wearing eyeglasses. Glasses may still be needed by some people for some activities.
- If you have astigmatism, your Eye M.D. will discuss toric IOLs and related treatment options with you.
- In certain cases, cost may be a deciding factor for you if you have the option of selecting special premium IOLs that may reduce your need for glasses.

Intraocular lens (IOL) types

Monofocal lens

This common IOL type has been used for several decades.

- Monofocals are set to provide best corrected vision at near, intermediate or far distances.
- Most people who choose monofocals have their IOLs set for distance vision and use reading glasses for near activities. On the other hand, a person whose IOLs were set to correct near vision would need glasses to see distant objects clearly.
- Some who choose monofocals decide to have the IOL for one eye set for distance vision, and the other set for near vision, a strategy called "monovision." The brain adapts and synthesizes the information from both eyes to provide vision at intermediate distances. Often this reduces the need for reading glasses. People who regularly use computers, PDAs or other digital devices may find this especially useful. Individuals considering monovision may be able to try this technique with contact lenses first to see how well they can adapt to monovision. Those who require crisp, detailed vision may decide monovision is not for them. People with appropriate vision prescriptions may find that monovision allows them see well at most distances with little or no need for eyeglasses.
- Presbyopia is a condition that affects everyone at some point after age 40, when the eye's lens becomes less flexible and makes near vision more difficult, especially in low light. Since presbyopia makes it difficult to see near objects clearly, even people without cataracts need reading glasses or an equivalent form of vision correction.

Multifocal or accommodative lenses

These newer IOL types reduce or eliminate the need for glasses or contact lenses.

- In the multifocal type, a series of focal zones or rings is designed into the IOL. Depending on where incoming light focuses through the zones, the person may be able to see both near and distant objects clearly.
- The design of the accommodative lens allows certain eye muscles to move the IOL forward and backward, changing the focus much as it would with a natural lens, allowing near and distance vision.
- The ability to read and perform other tasks without glasses varies from person to person but is generally best when multifocal or accommodative IOLs are placed in both eyes.
- It usually takes 6 to 12 weeks after surgery on the second eye for the brain to adapt and vision improvement to be complete with either of these IOL types.

Considerations with multifocal or accommodative IOLs

- For many people, these IOL types reduce but do not eliminate the need for glasses or contact lenses. For example, a person can read without glasses, but the words appear less clear than with glasses.
- Each person's success with these IOLs may depend on the size of his/her pupils and other eye health factors. People with astigmatism can ask their Eye M.D. about toric IOLs and related treatments.
- Side effects such as glare or halos around lights, or decreased sharpness of vision (contrast sensitivity) may occur, especially at night or in dim light. Most people adapt to and are not bothered by these effects, but those who frequently drive at night or need to focus on close-up work may be more satisfied with monofocal IOLs.

Toric IOL for astigmatism

This is a monofocal IOL with astigmatism correction built into the lens.

- [Astigmatism](#): This eye condition distorts or blurs the ability to see both near and distant objects. With astigmatism the cornea (the clear front window of the eye) is not round and smooth (like a basketball), but instead is curved like a football. People with significant degrees of astigmatism are usually most satisfied with toric IOLs.
- People who want to reduce (or possibly eliminate) the need for eyeglasses may opt for an additional treatment called limbal relaxing incisions, which may be done at the same time as cataract surgery or separately. These small incisions allow the cornea's shape to be rounder or more symmetrical.

Protective IOL filters

IOLs include filters to protect the eye's retina from exposure to UV and other potentially damaging light radiation. The Eye M.D. selects the filters that will provide appropriate protection for the patient's specific needs.

Other important cataract lens replacement considerations

- In some cases, after healing completely from the [cataract lens surgery](#), some people may need further correction to achieve the best vision possible. Their ophthalmologist may recommend additional surgery to exchange an IOL for another type, implant an additional IOL, or make limbal relaxing incisions in the cornea. Other laser [refractive surgery](#) may be recommended in some cases.
- People who have had refractive surgery such as LASIK need to be carefully evaluated before getting IOLs because the [ability to calculate the correct IOL prescription](#) (PDF 650K) may be affected by the previous refractive surgery.