



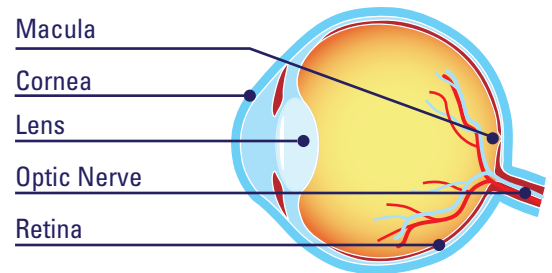
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Guide to Cataract Surgery

According to the Prevent Blindness report, *Future of Vision*, more than 29 million Americans age 40 and older have cataract. By age 80, more than half of all Americans will have cataract. In 2017, 3.8 million cataract surgeries were performed in the United States. Cataract surgeries are performed without complication in 98% of cases.

What is a cataract?

A cataract is when your eye's natural lens becomes cloudy leading to blurry vision. At first, you may not notice that you have a cataract. But over time, cataracts can make your vision blurry, hazy, or colors may appear to be faded. You may have trouble reading or doing other everyday activities. Cataracts can occur in one eye or both eyes.



Who will get a cataract?

Most people experience cataracts as a part of aging. There are other risk factors to develop a cataract:

- Eye infections
- Some medicines (such as long-term steroid use, cancer medication)
- Eye injuries
- Exposure to intense heat or radiation
- Too much exposure to non-visible sunlight (called UV or ultraviolet light)
- Various diseases, such as diabetes, arthritis, or metabolic disorders
- Smoking
- Family history of cataract
- Nearsightedness (also called myopia)
- Infection or inflammation during pregnancy (such as measles or rubella)

What are the types of cataract?

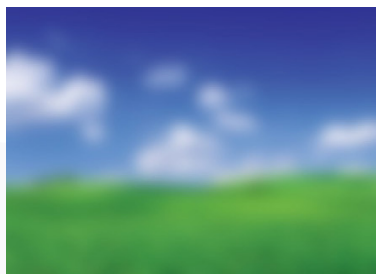
Age-related – 95% of cataract are age-related, usually after age 40.

Guide to Cataract Surgery

(continued)



Normal Vision



Cataract Simulation

Congenital – These are present at birth, usually caused by infection or inflammation during pregnancy; possibly inherited.

Traumatic – Lens damage from a hard blow, cut, puncture, intense heat or chemical burn may cause cataract.

Secondary – Some medicines, eye disease, eye infection, or diseases such as diabetes cause this cataract.

Cataracts are also named by the location in the lens:

- **Nuclear cataract:** This cataract is located in the center of the lens. It can darken with age, changing from clear to yellow and sometimes brown.
- **Cortical cataract:** This cataract affects the layer of the lens around the nucleus. It looks like a wedge or a spoke.
- **Posterior capsular cataract:** This cataract is found in the back of the lens. This type often develops more rapidly.

How can the eye doctor tell if I have cataract?

Everyone who gets cataract experiences it differently. But a person with cataract commonly experiences cloudy or blurry vision. Lights may cause a glare, seem too dim or seem too bright. It may be hard to read or drive, especially at night. If you have cataract, you may see halos around lights, such as car headlights, that make it hard to focus clearly. Colors may not seem

as bright as they used to be. Or you may have to change your eyeglass prescription often.

To find out if you have cataract, your eye doctor will want to:

- ask about your general medical history
- ask about your specific eye history, including problems and symptoms
- test your vision (visual acuity)
- test your side vision (peripheral vision)
- test your eye movement
- test you for glaucoma (by measuring the eye's internal pressure)
- do a microscopic exam of the front of the eye (using a device called a slit lamp) to assess the thickness of the cataract and how it interferes with light passing through the lens
- widen (dilate) the pupils of your eyes to examine the retina, the optic nerve (which carries visual messages from the retina to the brain) and the macula (responsible for the best part of central vision)
- test you to see how glare affects your vision

Should I have cataract surgery?

You must decide whether to have cataract surgery. Cataracts will not cause large vision changes for some people. A cataract at the outer edge of your lens, for example, may hardly affect your

Guide to Cataract Surgery

(continued)



vision. A cataract at the center of your lens, however, may greatly affect your sight. Only you can decide if a change in your vision keeps you from doing all the things you want or need to do. A cataract may also impede your eye doctor from treating you for other vision diseases. **If a cataract keeps your eye doctor from viewing the inside of your eye, he or she may suggest surgery.**

When should I wait to have cataract surgery?

An eye care professional may not recommend cataract surgery if:

- cataract has not affected your lifestyle or kept you from doing all the things you want and need to do
- your vision will not improve with surgery because of other eye problems
- your glasses or contact lenses can provide satisfactory vision
- you are not well enough/fit enough for the surgery
- you do not want surgery

What if I have cataracts in both eyes?

If you have cataracts in both eyes, your eye surgeon will suggest having your cataract removed in one eye first and the second eye at a later date.

What kind of lens will replace my cataract lens?

When the eye surgeon removes the lens with the cataract, you will need something to replace it, so that you can focus and see clearly. Intraocular lenses (IOLs) replace your cataract, or cloudy lens. IOLs have become the most popular choice for replacing lenses with cataract. The eye surgeon implants the IOL in about the same place as your natural lens, so that it results in the most natural vision. The eye surgeon can decide to correct your vision with an IOL to be able to see at a distance for driving a car or playing golf. However, you may need glasses for near vision.

Types of IOLs

- **Monofocal IOL:** This IOL is most commonly used. It is usually used to correct for distance vision. Using this IOL option means that you will likely still use glasses for close vision.
- **Multifocal IOL:** These IOLs provide both distance and near correction at the same time.
- **Accommodative IOL:** These lenses move or change shape inside your eye, allowing correct vision at different distances.
- **Toric IOL:** This lens is used if you have astigmatism.

IOLs are the best option to replace your own lenses. However, if you have certain eye diseases or problems, you may not be able to

Guide to Cataract Surgery

(continued)



have lens implants. You and your eye doctor will need to discuss whether any restrictions apply.

Choosing an eye surgeon

Once you decide to have cataract surgery, you'll need to choose an eye surgeon to perform the operation. Some things to keep in mind are the surgeon's experience and skill, how easy it is to talk to him or her and have your questions answered, and your previous experience with this eye doctor, if any. If you have insurance coverage, you will want to find out if the surgeon accepts it. Referrals including from your optometrist may help you choose an eye surgeon. Ask friends who have had cataract surgery or contact a university with a medical school or a hospital for names and references.

If an eye doctor has recommended surgery, you may want to get a second opinion. Make an appointment to see an eye doctor who does not work with, and was not referred by, your regular doctor. You do not have to tell this doctor that someone else has already recommended surgery—let this doctor come to his or her own conclusions about whether you need cataract surgery.

Here are some points you may want to bring up with your doctor.

Check the questions you'd like your eye doctor to answer during your next appointment or conversation.

- Do I really need surgery? What will I gain by having it?
- What are the risks?
- What is surgery like? Will it hurt? What will I see?
- Will any other health issues I may have—such as glaucoma or diabetes— affect my cataract or my surgery?
- How long will I need to recover from the surgery?
- Will I need glasses after surgery? If I wear contacts, can I wear them again after surgery?
- Are there some things I won't be able to do after surgery? If so, for how long?
- Will someone have to take care of me after surgery? If so, for how long?
- Will the medicines I take for other illnesses interfere with surgery or my recovery?
- How experienced is the doctor? Is he or she board certified?
- Does the doctor's office accept my insurance coverage? Will I have a co-pay amount?
- Is a payment plan available?

Guide to Cataract Surgery

(continued)

Cost of surgery

Basic charges you can expect for cataract surgery include fees for the hospital/surgical center, the doctor, the anesthesiologist, basic tests before surgery, medicine after surgery and follow-up visits with your doctor. Ask your doctor's office and your insurance company to estimate each of the costs. You will likely need new glasses (or less likely contact lenses) after surgery.

If you have private health insurance or [Medicare](#), it will usually pay for a part of or most of the surgery cost. Try to find out what your health insurance will cover before the surgery. Ask your doctor about his or her billing and payment methods. Newer “trifocal,” “multifocal,” or “astigmatism-correcting (toric)” IOLs are not usually covered by insurance, requiring you to pay out-of-pocket if you wish to choose one of these options.

Some hospitals and surgical centers may be able to help you with financial planning. This may include putting together a payment plan or filing claims to your insurance company. Filling out insurance forms can be hard and take a lot of time—so be sure to ask questions ahead of time.

Getting ready for surgery

Because you will be given some form of anesthesia during the surgery, your doctor will probably ask you not to eat or drink anything after midnight the day before your

surgery. If you take medicines or have diabetes, ask your doctor whether different guidelines apply.

Removing the cataract and inserting an intraocular lens usually takes the surgeon ten to fifteen minutes. The entire process, from arriving at the hospital or surgical center to going home, takes about half a day. Less than 1% of surgeries require an overnight hospital stay.

On the day of your surgery, you will be given some eye drops to widen (dilate) your pupils. You may also be given a mild sedative to help you relax. A healthcare worker will take you into the operating room where an anesthesiologist or nurse anesthetist will give you a local or an intravenous anesthetic. He or she will monitor your condition.

You will not feel the surgery because the topical or local anesthetic numbs your eye during the operation. You may see some lights or vague shapes, but that is all. Your surgeon will use a special microscope, which magnifies and illuminates the area of the procedure as he or she removes your cataract.

You may not remember much about the operation after it is over. You may feel a little drowsy afterward, but as the sedative wears off, you will be encouraged to walk around a bit. Your doctor will monitor your condition for a while, explain how to care for your eye at home and schedule a follow-up appointment. Have a family member, friend, or caregiver help you on the day

Guide to Cataract Surgery

(continued)

of the surgery and to assist in remembering the after-surgery instructions.

Once you're fully recovered, you will be allowed to go home. It is a good idea to have a friend, relative, or caregiver drive you, and some surgery centers will require that you have a ride and someone accompany you. You may feel tired after surgery, so try to relax the rest of the day.

At home, you should not experience much discomfort. Some people describe the feeling as having an eyelash in their eye—slightly uncomfortable and itchy but not painful. You will apply eye drops or ointment as your doctor prescribes, and you will learn to rely on your untreated eye during this time.

Three kinds of cataract removal

During the cataract operation, your surgeon will first remove the clouded lens. (If you are able to have a lens implant, your doctor will perform this procedure right after removing your cataract lens.) There are three methods for removing the clouded lens:

- Phacoemulsification (fei·kuh·uh·muht·suh·fuh·kei·shn)
- Extracapsular (ex·tra·cap·su·lar)
- Intracapsular (in·tra·cap·su·lar)

Phacoemulsification By far the most common procedure, phacoemulsification requires a smaller incision in the cornea or, less commonly, the sclera. The

surgeon uses sound waves (an ultrasonic device) to break the lens into small pieces, and then suctions the tiny pieces out through the same incision. Next, the doctor will insert the lens into the capsular bag, which is the original location of the lens. Most IOLs are foldable, so they can be inserted through the same small incision.

The lens usually unfolds slowly once it is placed into the capsular bag. The incision can be closed with either one stitch, or usually none at all.

Phacoemulsification, with its smaller incision, offers the fastest healing and recovery time, produces little discomfort, and reduces the chance of uneven focus (astigmatism) or distorted vision.

Extracapsular and Intracapsular Much less common in the U.S. are the extracapsular and intracapsular procedures. An extracapsular cataract extraction may be needed if your lens is too hard to break apart. The extracapsular procedure removes only the inside of the lens but leaves the capsular bag that holds the lens in place. Leaving the capsular bag adds to the structural strength of the eye and promotes easier healing.

During the intracapsular procedure, your eye surgeon removes the lens and the entire capsular bag that holds it. Your doctor will make an incision in the sclera, use a special tool to freeze the lens, and then remove it through the incision. He

or she may then implant the IOL in front of the iris where its loops hold it in place. Another option is to suture the IOL to the wall of the eye. This latter option enables the IOL to be placed behind the iris.

Possible complications from surgery

Less than 2% of patients experience complications from cataract surgery, but you should discuss possible problems with your doctor. Here are three areas of complications:

Problems during surgery, called operative complications, such as severe bleeding, happen to less than 1% of patients. Up to 2% of patients lose the gel-like substance that fills the inside of the eye (vitreous humor) during surgery. Complication rates may be higher if you have certain medical or ocular diseases.

Problems soon after surgery, called early post-operative complications, can include leaking from the wound, bleeding or infections.

Problems after healing, called late post-operative complications, include retinal detachment (this requires surgery to correct), swelling of the cornea, or swelling of the retina (called cystoid macular edema). Infection is a rare complication, but it may cause severe vision loss. Remember, the risk of severe problems or blindness from cataract surgery is very low. Still, it may ease your

Guide to Cataract Surgery

(continued)

mind to talk about your concerns with your doctor before surgery.

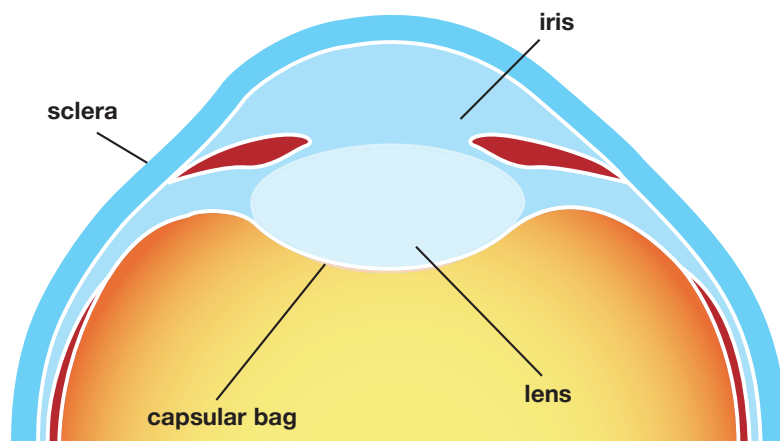
Sometimes after the extracapsular or phacoemulsification procedure, the capsular bag that remains in your eye can become cloudy. This is called an after cataract or posterior capsular opacification. If this happens, your doctor may suggest laser surgery to make a small hole through the cloudy capsule. This hole will let you see clearly again.

Your recovery

After surgery, most of the healing takes place in the first few days. But it may take up to 1 month for your eye to fully heal. For the first week or two, or as your doctor recommends, you should minimize vigorous physical activity. You should avoid any lifting or deep bending, which causes increased eye pressure. If you experience severe pain, loss of vision, or a sudden increase in redness or swelling of your operated eye, call your eye doctor right away.

Other DO's and DON'Ts

- **Do** use your medication as directed.
- **Do** sit down and lift your feet to put on your shoes.
- **Do** try to sleep on your back or on the unoperated side.
- **Do** wear a shield to protect the eye while sleeping for the first week after surgery.



- **Do** have someone else drive while your eye is healing.
- **Do** wear sunglasses in bright light.
- **Do** keep follow-up appointments with your doctor.
- **Do** keep moderately active.
- **Don't** rub or press your eye.
- **Don't** bend over to pick things up; kneel instead.
- **Don't** get cosmetics, soap, shampoo, or other irritants in your eye.

Take care of your eye

Here are some pointers that can help you recover more quickly:

Applying eye medications

Use the eye drops or ointment exactly as prescribed by your doctor to help your eye heal. This medicine protects against infection and helps decrease swelling.

How to apply eye drops or ointment

Tilt your head back. Pull your lower eyelid down to create a "cup" that

holds the drops or ointment. Put in the prescribed amount of medicine and close your eye to distribute it evenly. If you have trouble doing this, ask a friend or relative for help. Start with a fresh bottle of medicine after surgery so germs don't get transferred. Do not touch the tip of the medicine bottle to your eye.

Eye shields

Your doctor may want you to use an eye shield at night to protect your eye while you sleep.

Follow-up care

Your doctor will suggest a schedule for follow-up visits. The first one will be the day after your surgery. It is important to keep these appointments to find out whether your eye is healing well. These visits will also let you ask your doctor any questions you have about medicine or your activities (such as heavy lifting or exercising).

Guide to Cataract Surgery

(continued)

Resources for cataract surgery

Vision Care Financial Assistance Information: This resource provides a list of organizations and services that provide financial assistance for vision care.

<https://preventblindness.org/vision-care-financial-assistance-information/>

Medicare: Learn about cataract surgery benefits.

<https://preventblindness.org/medicare-benefits-your-eyes/#1587953897065-8df2ee06-1e30>

Medicaid: Consult your state-specific Medicaid agency to confirm which vision services are covered.

<https://www.medicaid.gov/about-us/contact-us/index.html>

Mission Cataract USA: This organization offers free cataract surgery to people of all ages who have no means to pay.

<http://missioncataractusa.org/>

Transportation Services Directory: Search for transportation assistance by city and state.

<https://lowvision.preventblindness.org/transportation-services-directory/>