Southern Ophthalmology

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Cataract

Cataract Defined - What is a cataract?

A cataract is a clouding of the lens in the eye that affects vision. Most cataracts are related to aging. Cataracts are very common in older people. By age 80, more than half of all Americans either have a cataract or have had cataract surgery.

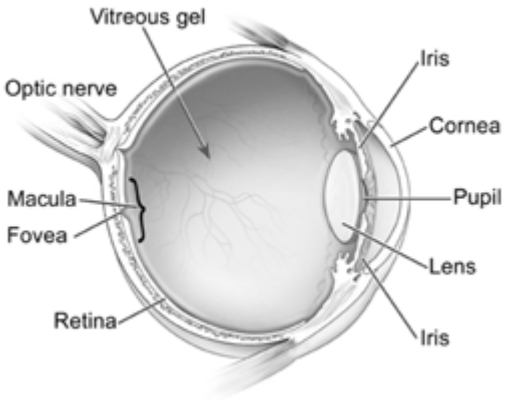
A cataract can occur in either or both eyes. It cannot spread from one eye to the other.

What is the lens?

The lens is a clear part of the eye that helps to focus light, or an image, on the retina. The retina is the light-sensitive tissue at the back of the eye.

In a normal eye, light passes through the transparent lens to the retina. Once it reaches the retina, light is changed into nerve signals that are sent to the brain.

The lens must be clear for the retina to receive a sharp image. If the lens is cloudy from a cataract, the image you see will be blurred.



Are there other types of cataract?

Yes. Although most cataracts are related to aging, there are other types of cataract:

1. Secondary cataract. Cataracts can form after surgery for other eye problems, such as glaucoma. Cataracts also can develop in people who have other health problems, such as diabetes. Cataracts are sometimes linked to steroid use

2. Traumatic cataract. Cataracts can develop after an eye injury, sometimes years later

3. Congenital cataract. Some babies are born with cataracts or develop them in childhood, often in both eyes. These cataracts may be so small that they do not affect vision. If they do, the lenses may need to be removed

4. Radiation cataract. Cataracts can develop after exposure to some types of radiation

Normal vision

The same scene as viewed by a person with cataract

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Causes and Risk Factors - What causes cataracts?

The lens lies behind the iris and the pupil (see diagram). It works much like a camera lens. It focuses light onto the retina at the back of the eye, where an image is recorded. The lens also adjusts the eye's focus, letting us see things clearly both up close and far away. The lens is made of mostly water and protein. The protein is arranged in a precise way that keeps the lens clear and lets light pass through it.

But as we age, some of the protein may clump together and start to cloud a small area of the lens. This is a cataract. Over time, the cataract may grow larger and cloud more of the lens, making it harder to see.

Researchers suspect that there are several causes of cataract, such as smoking and diabetes. Or, it may be that the protein in the lens just changes from the wear and tear it takes over the years.

How can cataracts affect my vision?

Age-related cataracts can affect your vision in two ways:

1. Clumps of protein reduce the sharpness of the image reaching the retina.

   The lens consists mostly of water and protein. When the protein clumps up, it clouds the lens and reduces the light that reaches the retina. The clouding may become severe enough to cause blurred vision. Most age-related cataracts develop from protein clumpings.

   When a cataract is small, the cloudiness affects only a small part of the lens. You may not notice any changes in your vision. Cataracts tend to "grow" slowly, so vision gets worse gradually. Over time, the cloudy area in the lens may get larger, and the cataract may increase in size. Seeing may become more difficult. Your vision may get duller or blurrier.

2. The clear lens slowly changes to a yellowish/brownish colour, adding a brownish tint to vision.

   As the clear lens slowly colours with age, your vision gradually may acquire a brownish shade. At first, the amount of tinting may be small and may not cause a vision problem. Over time, increased tinting may make it more difficult to read and perform other routine activities. This gradual change in the amount of tinting does not affect the sharpness of the image transmitted to the retina.
   If you have advanced lens discoloration, you may not be able to identify blues and purples.

You may be wearing what you believe to be a pair of black socks, only to find out from friends that you are wearing purple socks.

When are you most likely to have a cataract?

The term "age-related" is a little misleading. You don't have to be a senior citizen to get this type of cataract. In fact, people can have an age-related cataract in their 40s and 50s. But during middle age, most cataracts are small and do not affect vision. It is after age 60 that most cataracts steal vision.

Who is at risk for cataract?

The risk of cataract increases as you get older. Other risk factors for cataract include:

- Certain diseases such as diabetes
- Personal behaviour such as smoking and alcohol use
- The environment such as prolonged exposure to sunlight

What can I do to protect my vision?

Wearing sunglasses and a hat with a brim to block ultraviolet sunlight may help to delay cataract. If you smoke, stop. Researchers also believe good nutrition can help reduce the risk of age-related cataract. They recommend eating green leafy vegetables, fruit, and other foods with antioxidants.

If you are age 60 or older, you should have a comprehensive dilated eye exam at least once every two years. In addition to cataract, your eye care professional can check for signs of age-related macular degeneration, glaucoma, and other vision disorders. Early treatment for many eye diseases may save your sight.

Symptoms and Detection - What are the symptoms of a cataract?

The most common symptoms of a cataract are:

- Cloudy or blurry vision
- Colours seem faded
- Glare. Headlights, lamps, or sunlight may appear too bright. A halo may appear around lights
- Poor night vision
- Double vision or multiple images in one eye. (This symptom may clear as the cataract gets larger.)
- Frequent prescription changes in your eyeglasses or contact lenses
- These symptoms also can be a sign of other eye problems. If you have any of these symptoms, check with your eye care professional

How is a cataract detected?

Cataract is detected through a comprehensive eye exam that includes:

1. **Visual acuity test**. This eye chart test measures how well you see at various distances

2. **Dilated eye exam**. Drops are placed in your eyes to widen, or dilate, the pupils. Your eye care professional uses a special magnifying lens to examine your retina and optic nerve for signs of damage and other eye problems. After the exam, your close-up vision may remain blurred for several hours

3. **Tonometry**. An instrument measures the pressure inside the eye. Numbing drops may be applied to your eye for this test

Your eye care professional also may do other tests to learn more about the structure and health of your eye.

Treatment - How is a cataract treated?

The symptoms of early cataract may be improved with new eyeglasses, brighter lighting, anti-glare sunglasses, or magnifying lenses. If these measures do not help, surgery is the only effective treatment. Surgery involves removing the cloudy lens and replacing it with an artificial lens.

A cataract needs to be removed only when vision loss interferes with your everyday activities, such as driving, reading, or watching TV. You and your eye care professional can make this decision together. Once you understand the benefits and risks of surgery, you can make an informed decision about whether cataract surgery is right for you. In most cases, delaying cataract surgery will not cause long-term damage to your eye or make the surgery more difficult. You do not have to rush into surgery.

Sometimes a cataract should be removed even if it does not cause problems with your vision. For example, a cataract should be removed if it prevents examination or treatment of another eye problem, such as age-related macular degeneration or diabetic retinopathy. If your eye care professional finds a cataract, you may not need cataract surgery for several years. In fact, you might never need cataract surgery. By having your vision tested regularly, you and your eye care professional can discuss if and when you might need treatment.

If you choose surgery, your eye care professional may refer you to a specialist to remove the cataract.

If you have cataracts in both eyes that require surgery, the surgery will be performed on each eye at separate times, usually four to eight weeks apart.

Many people who need cataract surgery also have other Eye conditions, such as age-related macular degeneration or glaucoma. If you have other Eye conditions in addition to cataract, talk with your doctor. Learn about the risks, benefits, alternatives, and expected results of cataract surgery.

What are the different types of cataract surgery?

There are two types of cataract surgery. Your doctor can explain the differences and help determine which is better for you:

1. **Phacoemulsification or phaco.** A small incision is made on the side of the cornea, the clear, dome-shaped surface that covers the front of the eye. Your doctor inserts a tiny probe into the eye. This device emits ultrasound waves that soften and break up the lens so that it can be removed by suction. Most cataract surgery today is done by Phacoemulsification, also called "small incision cataract surgery."

2. **Extracapsular surgery.** Your doctor makes a longer incision on the side of the cornea and removes the cloudy core of the lens in one piece. The rest of the lens is removed by suction.

After the natural lens has been removed, it often is replaced by an artificial lens, called an intraocular lens (IOL). An IOL is a clear, plastic lens that requires no care and becomes a permanent part of your eye. Light is focused clearly by the IOL onto the retina, improving your vision. You will not feel or see the new lens.

Some people cannot have an IOL. They may have another eye disease or have problems during surgery. For these patients, a soft contact lens, or glasses that provide high magnification, may be suggested.

What are the risks of cataract surgery?

As with any surgery, cataract surgery poses risks, such as infection and bleeding. Before cataract surgery, your doctor may ask you to temporarily stop taking certain medications that increase the risk of bleeding during surgery. After surgery, you must keep your eye clean, wash your hands before touching your eye, and use the prescribed medications to help minimize the risk of infection. Serious infection can result in loss of vision.

Cataract surgery slightly increases your risk of retinal detachment. Other eye disorders, such as high myopia (nearsightedness), can further increase your risk of retinal detachment after cataract surgery. One sign of a retinal detachment is a sudden increase in flashes or floaters. Floaters are little "cobwebs" or specks that seem to float about in your field of vision. If you notice a sudden increase in floaters or flashes, see an eye care professional immediately. A retinal detachment is a medical emergency. If necessary, go to an emergency service or hospital. Your eye must be examined by an eye surgeon as soon as possible. A retinal detachment causes no pain. Early treatment for retinal detachment often can prevent permanent loss of vision. The sooner you get treatment, the more likely you will regain good vision. Even if you are treated promptly, some vision may be lost.

Talk to your eye care professional about these risks. Make sure cataract surgery is right for you.

Is cataract surgery effective?

Cataract removal is one of the most common operations performed in the United States. It also is one of the safest and most effective types of surgery. In about 90 percent of cases, people who have cataract surgery have better vision afterward.

What happens before surgery?

A week or two before surgery, your doctor will do some tests. These tests may include measuring the curve of the cornea and the size and shape of your eye. This information helps your doctor choose the right type of IOL.

You may be asked not to eat or drink anything 12 hours before your surgery.

What happens during surgery?

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At the hospital or eye clinic, drops will be put into your eye to dilate the pupil. The area around your eye will be washed and cleansed.

The operation usually lasts less than one hour and is almost painless. Many people choose to stay awake during surgery. Others may need to be put to sleep for a short time.

If you are awake, you will have an anesthetic to numb the nerves in and around your eye.

After the operation, a patch may be placed over your eye. You will rest for a while. Your medical team will watch for any problems, such as bleeding. Most people who have cataract surgery can go home the same day. You will need someone to drive you home.

What happens after surgery?

Itching and mild discomfort are normal after cataract surgery. Some fluid discharge is also common. Your eye may be sensitive to light and touch. If you have discomfort, your doctor can suggest treatment. After one or two days, moderate discomfort should disappear.

For a few days after surgery, your doctor may ask you to use eyedrops to help healing and decrease the risk of infection. Ask your doctor about how to use your eyedrops, how often to use them, and what effects they can have. You will need to wear an eye shield or eyeglasses to help protect your eye. Avoid rubbing or pressing on your eye.

When you are home, try not to bend from the waist to pick up objects on the floor. Do not lift any heavy objects. You can walk, climb stairs, and do light household chores.

In most cases, healing will be complete within eight weeks. Your doctor will schedule exams to check on your progress.

Can problems develop after surgery?

Problems after surgery are rare, but they can occur. These problems can include infection, bleeding, inflammation (pain, redness, swelling), loss of vision, double vision, and high or low eye pressure. With prompt medical attention, these problems can usually be treated successfully.

Sometimes the eye tissue that encloses the IOL becomes cloudy and may blur your vision. This condition is called an after-cataract. An after-cataract can develop months or years after cataract surgery.

An after-cataract is treated with a laser. Your doctor uses a laser to make a tiny hole in the eye tissue behind the lens to let light pass through. This outpatient procedure is called a YAG laser

capsulotomy. It is painless and rarely results in increased eye pressure or other eye problems. As a precaution, your doctor may give you eyedrops to lower your eye pressure before or after the procedure.

When will my vision be normal again?

You can return quickly to many everyday activities, but your vision may be blurry. The healing eye needs time to adjust so that it can focus properly with the other eye, especially if the other eye has a cataract. Ask your doctor when you can resume driving.

If you received an IOL, you may notice that colors are very bright. The IOL is clear, unlike your natural lens that may have had a yellowish/brownish tint. Within a few months after receiving an IOL, you will become used to improved color vision. Also, when your eye heals, you may need new glasses or contact lenses.

What can I do if I already have lost some vision from cataract?

If you have lost some sight from cataract or cataract surgery, ask your eye care professional about low vision services and devices that may help you make the most of your remaining vision. Ask for a referral to a specialist in low vision. Many community organizations and agencies offer information about low vision counseling, training, and other special services for people with visual impairments. A nearby school of medicine or optometry may provide low vision services.

Current Research - What research is being done?

The National Eye Institute is conducting and supporting a number of studies focusing on factors associated with the development of age-related cataract. These studies include:

- The effect of sunlight exposure, which may be associated with an increased risk of cataract
- Vitamin supplements, which have shown varying results in delaying the progression of cataract
- Genetic studies, which show promise for better understanding cataract development

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