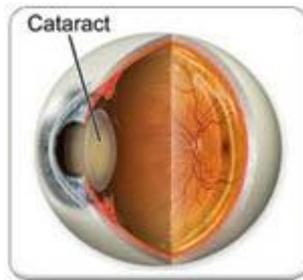


What Are Cataracts? What Causes Cataracts?



Cataracts are cloudy areas in the lens inside the eye - which is normally clear. Cataracts can develop in one or both eyes. If they develop in both eyes, one's vision and day to day activity will be more severely affected than the other. A normally clear lens allows light to pass through to the back of the eye, so that the patient can see well-defined images. If a part of the lens becomes opaque light does not pass through easily and the patient's vision becomes blurry - like looking through cloudy water or a fogged-up window. The more opaque (cloudier) the lens becomes, the worse the person's vision will be.

There are two types of cataracts:

- **Age related cataracts** - they appear later in life; the most common form.
- **Congenital cataracts (childhood cataracts)** - these may be present when the baby is born, or shortly after birth. Cataracts may also be diagnosed in older babies and children - these are sometimes referred to as developmental, infantile or juvenile cataracts. Researchers now have identified the chromosomal location and exact molecular defect in the coding region of the gene responsible for a childhood cataract.
- **Secondary cataract:** it can be because of some eye problems like ocular trauma, inflammation of eye (Uveitis), some ocular and systemic medication (for Ex steroid).

A patient with cataracts will eventually find it hard to read, or drive a car - especially during the night. Even seeing people's facial expressions becomes difficult. Cataracts are not usually painful. The patient's long-distance vision is more severely affected at first.

As cataracts develop very slowly most people do not know they have them at first. However, the clouding progresses and vision will gradually get worse. In earlier stage of cataract, more bright r lighting and polarized tinted eyeglasses can help improve vision. Nevertheless, eventually the vision impairment affects the patient's ability to carry out everyday tasks. At this point the individual will need surgery. Fortunately, cataract surgery is usually a very effective and safe procedure.

Cataracts cause more vision problems globally than any other eye condition or disease - especially in developing countries. In india 51% of blindness is due to cataract. Both men and women are affected equally. More than 50% of people above the age of 65 have cataracts in one or both eyes.

Factors that may increase the risk of developing cataracts

We are all at risk of developing cataracts because we will all get old one day - the greatest risk factor is age. In India, approximately 50% of people aged 65 or more have some degree of lens clouding. 75% of Indian aged 75 or more have their vision significantly impaired by cataracts. This percentage will only increase in coming years as people will live longer.

The following factors may increase a person's chances of developing cataracts:

- Age
- Close relatives who have/had cataracts (family history). If parents had cataract in early age, the risk of developing cataract in early age increases
- Diabetes
- Ionizing radiation exposure
- Long-term exposure to bright sunlight
- Long-term use of corticosteroids - many people with asthma rely on inhaled, and sometimes oral, steroids, as do people with chronic obstructive pulmonary disease. A study conducted by the Centre for Vision Research, University of Sydney, Australia, revealed that cataract risk is higher for patients taking these medications.
- Previous eye inflammation
- Previous eye injury
- Exposure to lead - lifetime lead exposure may increase the risk of developing cataracts, scientists from the National Institute of Environmental Health Sciences, USA revealed.

What are the symptoms of age-related cataracts?

Symptoms usually creep up many years after onset - usually when the person is elderly. Progressively, more of the lens becomes cloudy. Cataracts often affect both eyes, but rarely equally.

People with cataracts may have the following symptoms:

- Blurry, cloudy, or misty vision.
- Some describe it as similar to looking through frosted glass.
- Vision may be affected by small spots or dots.
- Vision gets worse when lights are dim.
- Vision is sometimes worse when light is very bright (glare).
- Some people with cataracts also comment that colors appear less clear and faded.
- Reading becomes very difficult, and eventually impossible.
- Glasses need to be changed more frequently.
- In some rare cases patients can see a halo around bright objects, such as car headlights or street lights.
- Double vision in one eye (rare).

As the person's vision deteriorates, and the glare of oncoming headlights and street lights gets worse, driving becomes awkward and potentially very dangerous. Cataracts do not usually cause any change in the appearance of the eye. Any discomforts, such as irritation, aching, itching or redness are most likely caused by some other eye disorder.

Cataracts are not hazardous to the sufferer's health, or the health of the eye. If the cataract becomes hypermature (completely white), the sufferer may experience inflammation, headache and some pain. Hypermature cataracts need to be removed early if there is inflammation or pain.

How are cataracts diagnosed?

Anybody who experiences vision problems should see an ophthalmologist. The eye specialist will carry out a number of tests. These may include:

- **Visual acuity test** - this tests how clearly the individual can see an object. It tests the person's sharpness of vision. The patient reads letters from across a room. The two eyes are tested separately (one is covered). By using a chart with progressively smaller letters, the specialist can determine how acute the patient's vision is. The chart is called a *Snellen Eye Chart*.

Sometimes the chart has to be read twice - once with, and once without bright lights. This will give an indication of glare sensitivity.

- **Slit-lamp examination** - this is a microscope which allows the specialist to see the structures at the front of the eye. An intense line of sight (a slit) is used to illuminate the cornea, iris, lens, as well as the space between the iris and the cornea. The slit makes it possible for the specialist to see these structures in small sections, making it easier to spot any problems.
- **Retinal examination** - eye drops are administered which dilate the pupils, providing a bigger window to the back of the eyes. The specialist examines the lens for signs of cataract with either an ophthalmoscope or a slit lamp. If signs of cataract are found, the specialist can also determine how dense the clouding is. Most specialists will check for glaucoma at the same time, and perhaps some other eye conditions/diseases.

The pupils will remain dilated for a few hours after the examination before the eye drops gradually lose their effect. During this time the patient may find it harder to focus on close objects. It is advisable to wear sunglasses, especially if it is a bright day. Driving is not advisable until the pupils are back to their normal size.

Although an eye test may help confirm a cataract diagnosis, it may not always reflect the patient's quality of life. Some patients who do badly in a test seem to have no problem with daily function, while others who may do well insist that their eyesight is poor and does interfere with ordinary activities.

Treatment for cataracts

If the patient is found to be only mildly affected surgical treatment may not be needed. During its early stages, stronger glasses and brighter lights may help improve vision. The following simple approaches may assist people who are not ready yet to have surgery:

- Wear sunglasses to reduce glare on sunny days.
- Try to refrain from driving at night.

The newer surgeries are very safe and has high index of success rate, so if patient has difficulty in day to day work and if the ophthalmologist attributes that to cataract, early surgery is advisable.

Surgery

However, these are only temporary measures - the cataracts will continue developing and gradually impair eyesight more.

Patients who take Alpha-Blockers should inform their doctor about this as the drug may increase the difficulty of cataract surgery.

While an alpha-blocker is largely prescribed to men to treat prostate enlargement, some women also take the drug to treat urinary retention problems. Other alpha-blockers are used to treat hypertension. Once informed, the ophthalmologist can anticipate certain problems and employ different surgical techniques that help to achieve excellent outcomes.

When the cataracts are severe the only effective treatment is surgery. The specialist will recommend surgery if the patient:

- Is having trouble looking after himself/herself.
- Is having difficulties looking after someone else.
- Cannot drive, or finds driving difficult.
- Has problems leaving the house.
- Finds it hard to see or recognize people's faces.
- Has problems doing his/her job.
- Cannot read properly.
- Can no longer watch television properly.

The cloudy lens is removed from the eye and an artificial clear plastic one is put in its place - an intraocular implant (intraocular lens). In most developed countries, and a growing number of developing countries, cataract operations are performed as keyhole surgery. The patient will be given a local anesthetic. It is a day care surgery and patient will not require spending the night in hospital. The operation is commonly known as phacoemulsification or phaco extracapsular extraction.

Pre-operative assessment (assessment before surgery)

The specialist will assess the patient's eyes and general health. During the pre-operative assessment the eye will be measured so that the replacement artificial lens can be prepared.

The day of the operation - before it begins

Eye drops that dilate (widen) the pupils will be administered just before the procedure. Sometimes the eye drops will also have anesthetic in them, or the doctor may inject the tissue around the eye for a local anesthetic. As soon as the anesthetic starts working the area will be numbed and the patient will feel nothing. During the operation he/she will be aware of a bright light, but will not be able to see what is happening.

Various types of replacement lenses may be used:

- **Monofocal lens** - this is a fixed-strength lens which is set for one level of vision - usually distance vision.
- **Toric lens:**
- **Multifocal lens** - this type of lens may have two or more different strengths; near and distance vision.
- **Multifocal Toric lens:**
- **Accommodating lens** - this type of lens is the most similar to the natural human lens. It allows the eye to focus on near and distant objects.

The operation

The eye surgeon makes a tiny cut in the cornea at the front. He/she then inserts a minute probe through the cut. The probe uses ultrasound and breaks up the cloudy lens into very small pieces which are sucked out.

The artificial lens is then inserted through the cut. The lens sits in the lens capsule to keep it in place - the lens capsule is like a little pocket. When it is first inserted the lens is folded - it unfolds when in position.

The whole procedure should not take more than about 15 minutes. Most patients will wear an eye pad for protection for a short while.

Other procedures

- Manual extracapsular extraction - the lens is removed in one piece. No ultrasound is used to break it up. The surgeon will make a slightly larger cut in the eye.
- Intracapsular extraction - the lens capsule as well as the lens is removed. The artificial lens is sewn into the eye. This type of procedure is much less common.

After the operation

Most patients will experience vision improvement virtually immediately. It may take a while for the eye to settle down completely. The cut in the eye usually heals by itself and doesn't require a stitch.

Patients should avoid vigorous activities for a while. Most individuals find they can go about their daily activities as soon as they get home. An appointment will be made to test the patient's vision. Most patients will need different glasses after their operation. The new glasses can only be determined after his/her vision has settled down - this is usually done after 3 weeks. .

There is no other way to cure cataracts. Medications, dietary supplements, exercise or optical devices are not effective.

Prevention of cataracts

To prevent suffering the complications of cataracts it is advisable to have regular eye exams, especially as you get older. The following steps are advisable to lower your risk of developing cataracts - some of them have convincing circumstantial evidence of their worth, while others (smoking, diet) are proven measures:

- **Give up smoking** - several studies have indicated that a higher percentage of smokers develop cataracts, compared to non-smokers. There are also indications that smokers are likely to experience cataract symptoms earlier. **Smoking also increases the risk of other eye disease/conditions and all other systemic problems like heart disease, lung cancers it carries.**
- **Nutrition** - eat plenty of fruits and vegetables, whole grains, unrefined carbohydrates, good quality fats (avocado, olive oil, omega oils), and either plant sourced proteins or lean animal sourced proteins.
- **Sunlight** - wear sunglasses that block ultraviolet B rays (UV radiation). You may not be aware but UV radiation can cause damage to the eyes – especially cataract and retinal damage..
- **Sleep** - make sure you get at least 7 hours of good quality, continuous sleep every night.
- **Obesity** - obesity significantly raises the risk of developing diabetes type 2, which in turn is an important cataract risk factor. Keeping your weight within the recommended limits will help prevent your risk from increasing.
- **Exercise** - Researchers from the U.S. Department of Energy's Lawrence Berkeley National Laboratory reported that it delays the development of cataract.

Expectations (prognosis)

Usually the prognosis is very good and success is more than 98%. Vision may not improve to 20/20 after cataract surgery if other eye diseases, such as macular degeneration, are present. Ophthalmologists can usually, but not always, determine this in advance.

Complications

- **Blindness** - If the cataracts are left untreated, they may lead to blindness.
- **Higher mortality rates** - people aged 49 and older with cataract and those aged 49 to 74 years with age-related macular degeneration appear to have higher mortality rates over an 11-year period than those without such visual impairments.