Cataract Surgery

Lions Eye Institute
What is a Cataract?

A cataract is a clouding or opacity of the lens of the eye. In order to understand about a cataract and its effect on vision, it is important to understand how the eye works.

The eye is similar to a camera. The pupil is like the aperture of the camera, regulating the amount of light entering the eye. The cornea is the clear window of the eye and helps focus the light. The lens of the eye is located behind the pupil and also helps to focus the light. The natural lens is clear like glass. The light-sensitive part of the eye is the retina, a thin layer of tissue lining the back of the eye.

It is like the film in the camera. When light hits the retina a picture is taken and messages about the picture travel through the optic nerve to the brain. This is how we see. A cataract can be compared to a dirty camera lens or a fogged window.
What causes Cataracts?

Ageing is the most common cause of cataract formation. Cataracts can be hereditary and are occasionally seen in infants and children. Injury to the eye may cause a cataract as can the use of some medications, such as steroids. Medical problems, such as diabetes, can be associated with cataract formation, often in younger people. Previous eye surgery and other eye diseases may also cause cataract formation.

How fast does a Cataract develop?

It is not possible to predict exactly how fast a cataract will develop in any one person. Cataracts associated with ageing usually develop gradually over a period of years. Other cataracts may develop rapidly over a few months.
How do Cataracts affect vision?

A cataract can cause painless blurring of the vision, making it difficult to read print or to see clearly in the distance, such as reading road signs when driving. Some types of cataract create glare, making the vision worse in bright light. Night driving may be a particular problem.

Some patients with cataract note a change in the appearance of colours, typically a fading or general yellowing of colours. Occasionally a cataract can cause double vision in one eye. This means that with only one eye open, two images are seen. Some cataracts change the focusing power of the eye and therefore the strength of glasses needed. Frequent eyeglass prescription changes could indicate cataract development.

How is a Cataract detected?

A thorough eye examination by your ophthalmologist will determine whether a cataract is present. This may include a check for glasses, called a refraction.

In the early stages of cataract development a change in glasses may be all that is needed.

A complete eye examination will also determine if there are other causes of vision loss, particularly problems involving the retina or optic nerve.

If so, perfect vision may not return after cataract surgery. If such conditions are severe, removing the cataract may not result in any improvement in vision. Your ophthalmologist can tell you how much visual improvement is likely.
When must a Cataract be removed?

A cataract does not have to be removed just because it is there.

Cataract surgery should be considered when a cataract causes enough vision loss to interfere with daily activities, such as work, driving, hobbies, reading, or watching television.

It is a misconception that a cataract needs to be “ripe” before it can be removed. Surgery is performed when a person’s visual needs require it.

You and your ophthalmologist can decide together when surgery is appropriate.

How is a Cataract treated?

Surgery is the only way to remove a cataract. Although it is a common misconception, lasers are not used to remove a cataract.

There are no known medications or dietary supplements that will prevent or cure a cataract.
How is Cataract surgery performed?

Cataract surgery is usually performed in the hospital operating theatre, usually with local anaesthesia (an injection around the eye), although occasionally general anaesthesia is preferred.

The cataract is removed using a microscope and miniature instruments. In most cases, an intraocular lens implant is placed in the eye to restore the focusing power of the natural lens. Measurements will be taken before the surgery to allow the strength of the implanted lens to be calculated. If an intraocular lens is not implanted, cataract glasses or a contact lens will be needed after surgery.

Stitches may or may not be used to close the wound, depending on the preference of the surgeon. A bandage is then placed over the eye. Most patients go home from the hospital on the day of surgery, although some prefer an overnight stay.

If you have any questions or concerns about any aspect of your treatment or surgery you should discuss these with your ophthalmologist.
What type of implant will my surgeon use?

There are many different types of implants available with different characteristics. The majority of implants are monofocal, i.e. have single distance focus and require additional spectacles for near vision.

Multifocal or variable focal implants are available but are not widely used as the quality of vision may not be as good as monofocal implants.

Lenses which have the potential to adjust their focus for near and distance vision are also available, although the results are unpredictable.

Achieving distance vision in one eye with a monofocal lens and a degree of near vision in vision in the second eye is another strategy known as monovision or blended vision that can reduce spectacle dependency after surgery.

After discussion with you, your surgeon will select an implant, which in his or her overall experience has the most favourable characteristics for you.

What type of anaesthesia is used in Cataract surgery?

The most common type of anaesthesia used in cataract surgery is local anaesthesia. Local anaesthesia can be administered with an injection around the eye or by eye drops.

Although extremely rare, the risks of anaesthesia administered by injection include haemorrhage or injury to the eye. Occasionally general anaesthesia is preferred for cataract surgery.

The risks of general anaesthesia should be discussed with your anaesthetist.
Normally observed side effects

**Pain**
Mild discomfort or irritation is usual for a few days after surgery. Severe pain is unusual and can indicate the presence of high pressure in the eye or infection. Contact us straight away if you experience severe pain or nausea.

**Light sensitivity and glare**
As the dark cataract is replaced with a perfectly clear implanted lens, more light can get into the eye after surgery. It may take some time to adjust to this. One advantage of this is that colours can seem much brighter than they were before.

**Sub-conjunctival haemorrhage**
Some bleeding on the white surface of the eye is normal after surgery. Although this may appear alarming it is generally a painless and harmless condition that may take about 2 weeks to clear.
What can I expect after surgery?

The bandage will be removed from the eye on the day after surgery. Eye drops will be needed for several weeks. Occasionally, tablets are needed if the eye pressure is high. The amount of physical activity allowed after surgery is variable. Your surgeon will tell you about showering and activity restrictions. The eye may be slightly red and tender, but severe pain is not to be expected. If you develop increased pain, redness, or discharge after surgery, or if your vision worsens, then contact your ophthalmologist immediately.

Depending on the preference of your surgeon, stitches may need to be removed from the eye several weeks after surgery. This can be done painlessly in our rooms.

Visual recovery is variable. Some patients see very well a few days after surgery, while for others improvement may take several weeks. A change in glasses is generally made several weeks after surgery. Most patients still need glasses after cataract surgery for some activities, particularly reading.

What are the risks and complications of Cataract surgery?

Cataract surgery is generally very safe. However, as with any surgical procedure, occasional complications do occur and a good result cannot be guaranteed. Your vision after surgery will depend on the health of the eye.
Variations in outcome

Need for glasses after surgery
Although measurements of the eye are taken and used to calculate the required power of the implanted lens, the result is sometimes more short-sightedness or long-sightedness than was planned due to limitations of the formulae available.

This means that vision in the distance may not be as good as expected without glasses. In this case, vision is usually good with the appropriate spectacle lens. In extreme cases the intraocular lens may need to be replaced. You may need glasses for distance vision or for reading or both after the surgery.

Astigmatism
Astigmatism is due to the cornea not having equally round curves as does a basketball, but having unequal curves like a football. This causes light to be focused unevenly and objects may be seen as distorted or blurred.

Astigmatism may arise from tight sutures or from uneven healing of the surgical incision.

If sutures have been used they may need to be removed weeks to months after surgery before glasses can be prescribed. Vision may not be clear without glasses. Occasionally surgery may be required to correct the astigmatism.

Quality of vision
Although the vast majority of patients are delighted with the improvement in their vision, a minority may be disturbed by unwanted optical side effects related to the intraocular lens implant. These include halos or starburst around lights, particularly at night, unwanted reflections or shimmering and peripheral shadows in the visual field.
Vision threatening complications

Occasionally a portion of the cataract falls into the vitreous cavity in the back of the eye during the surgery. Removal of this fragment may require a second operation.

The surgery usually involves removal of the opaque contents of the lens of the eye whilst leaving the clear covering (capsule) of the lens intact. Sometimes this capsule is torn or ruptured during the operation and it may be necessary to remove some of the clear vitreous jelly from the back of the eye. This may mean that a different type of intraocular lens may need to be implanted than was planned, or it may not be safe to implant a lens. This may also increase the risk of developing other complications after the surgery such as macula oedema or retinal detachment.

Haemorrhage

Bleeding inside the vitreous cavity of the eye during the operation is a very rare cause of permanent loss of vision.

Infection

Infection in the eye can occur in the days to weeks after the operation, but is rare. You will usually be using antibiotic drops to help prevent this. When infection occurs the eye may become red and painful and vision may deteriorate. In these circumstances you should seek the attention of your ophthalmologist as infection should be treated promptly to have the best chance of maintaining good vision.

Corneal swelling

The cornea, or clear window of the eye, sometimes becomes swollen and cloudy after cataract surgery. In most cases this clears over a period of weeks. Rarely the condition is permanent and requires a corneal transplant operation.
Vision threatening complications (continued)

**Macular oedema**
The inside of the eye may become swollen after cataract surgery. This swelling occurs in the centre of the retina, called the macula, and is called macula oedema. This causes the vision to be blurred. Most cases of macular oedema improve spontaneously or after treatment with drops, tablets, or an injection around the eye. In rare cases vision may be permanently blurred and worse than it was before the cataract surgery.

**Retinal detachment**
The retina is the thin light-sensitive layer lining the back of the eye. About two out of every hundred patients having cataract surgery will develop a retinal detachment in the few years after the operation. This can often be fixed with another operation, but may lead to permanent loss of vision.
Will the Cataract grow back?

A cataract does not grow back after it is removed, but sometimes the vision gradually becomes blurred after cataract surgery, similar to the way the vision was blurred by the cataract. This blurring is caused by a condition related to the cataract.

The natural lens of the eye has a cellophane-like coating called the capsule. The most common method of removing a cataract leaves part of the capsule intact. The capsule provides a natural barrier between the front and back parts of the eye and helps to support the intraocular lens implant. The capsule is normally clear, like a sheet of stretched cellophane, but with the passage of time it may become cloudy or wrinkled. When this happens the vision becomes blurred.

This condition is called opacification of the posterior capsule. It is not necessary to remove the capsule, but only to make an opening in the centre of it to allow light rays to pass. This can be easily accomplished using the YAG laser.
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