

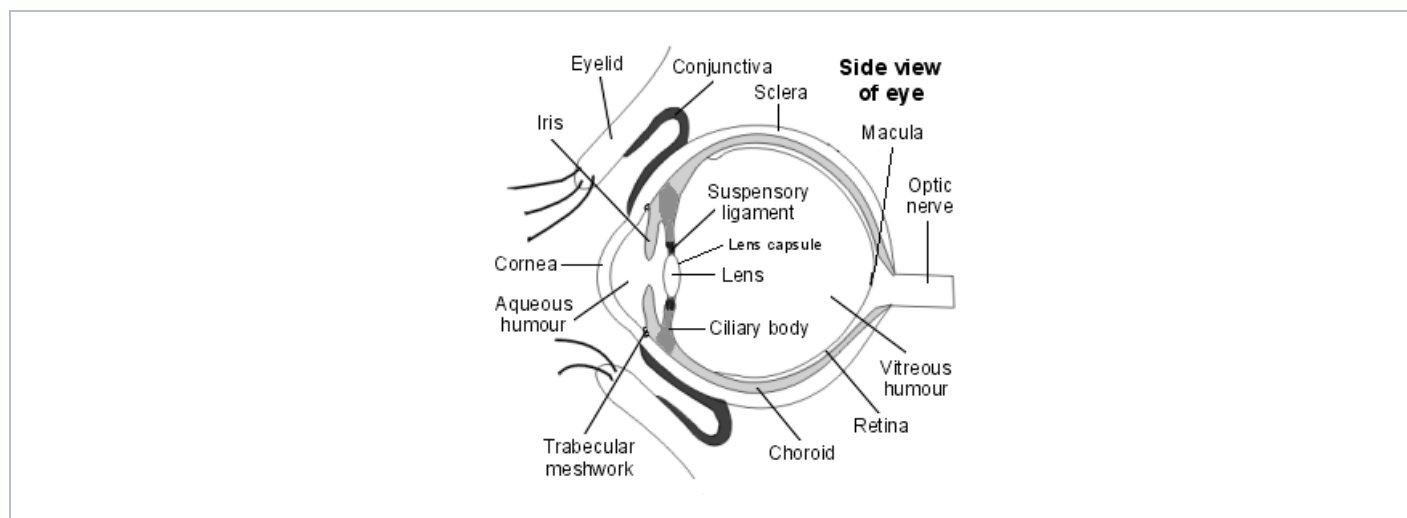
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Cataracts

A cataract is a condition in which the lens of an eye becomes cloudy and affects vision. Most commonly, cataracts occur in older people and develop gradually. Cataracts can usually be treated with a day-case operation where the cloudy lens is removed and is replaced with an artificial plastic lens. However, in developing countries where this treatment is not available, cataracts are a major cause of total loss of vision (severe sight impairment).

What are cataracts?

Cataracts are cloudy (opaque) areas that develop in the lens of the eye. The lens should normally be clear. But, with cataracts, the affected lens becomes like frosted glass.



The lens is mostly made of water and protein. The protein is arranged in a manner which keeps the lens clear. With ageing and other causes of cataract, some of the protein may clump together and start to cloud the lens. Over time, this can make it harder to see. Things are made worse by a gradual tendency for the lens to discolour with age, acquiring a brownish tinge which can affect colour vision and make reading less clear.

A cataract is a gradual change inside the lens. There are three different patterns of cataract formation in the lens:

- A **nuclear cataract** forms deep in the central part of the lens. Nuclear cataracts usually are associated with ageing.
- A **subcapsular cataract** occurs at the back of the lens. People with diabetes or those taking steroid medications by mouth have a greater risk of developing a subcapsular cataract.
- A **cortical cataract** begins with white, wedge-like cloudy areas that start in the outer part (periphery) of the lens and work their way to the centre in a spoke-like fashion.

Who develops cataracts and how common are they?

Age-related cataract (senile cataract)

This is by far the most common type and affects older people. It becomes more common with increasing age. In the UK about 1 in 3 people over the age of 65 have a cataract. Men and women are equally affected. Often both eyes are affected but one eye may be worse than the other.

Typically, an age-related cataract forms gradually over many years. Many people with an early cataract do not realise they have it. This is because the cloudiness caused by an early cataract is not too bad and the vision is only mildly affected. Others will have their cataract diagnosed at a routine eye check before symptoms ever develop. In some people, the cataract does not become too severe. However, in many cases, vision becomes gradually worse over the years.

Congenital cataracts (present at birth)

These are uncommon but important to diagnose early. This is because vision and seeing have to be learnt very early in infancy. A cataract that is present at birth stops the eye from learning to see. It can cause total loss of vision (severe sight impairment) which may persist even if the cataract is removed later in life. A congenital cataract must be removed as early as possible after birth. This is why doctors examine the eyes of babies as part of routine baby checks.

Other types of cataract

There are some uncommon causes of cataracts. A cataract may develop after an injury to an eye, or as a result of radiation exposure. Using steroid drops in the eye over a prolonged period increases the likelihood of developing a cataract.

Cataracts sometimes develop as a complication of some other eye conditions. There is an increased risk of cataracts in people who have diabetes.

Some studies have raised the possibility that cataract formation might relate to diet, with the thought that eating less meat or increasing intake of antioxidant vitamins might be helpful. Research continues in this area. However, it is not clear that taking vitamin supplements is of benefit to eye health in those whose diet is already good and well balanced.

The rest of this leaflet is only about the common age-related cataract.

What causes age-related cataracts?

The cause is not entirely clear. There seems to be a change to the structure of the proteins in the lens. Some of the proteins then clump together in places within the lens. This causes tiny areas of cloudiness. Each tiny area of cloudiness blocks a bit of light getting through to the retina. The severity of the cataract depends on the number of areas of cloudiness that develop in the affected lens.

Most affected people develop a cataract for no apparent reason. Factors that may increase the chance of developing cataracts include:

- Having a poor diet.
- Smoking.
- Diabetes.
- Steroid medicines.
- Having a family history of cataracts.
- Ultraviolet radiation from sunlight and other sources.
- High blood pressure (hypertension).
- Obesity.
- Statin medicines used to reduce cholesterol.
- Previous eye injury or inflammation.
- Previous eye surgery.

- Significant alcohol consumption.
- Use of hormone replacement therapy (HRT) for a prolonged period (more than ten years).
- Severe short-sightedness (high myopia).

What are the symptoms of age-related cataracts?

At first you may notice your vision becoming a bit blurred. With time, you may notice some of the following:

- Having spots in your vision.
- Seeing halos around bright lights - for example, street lights.
- Not being able to see as well in brightly lit rooms or in sunshine.
- Becoming easily dazzled by bright lights such as the headlights of an oncoming car.
- Your colour vision may become washed out or faded.
- Over the years your vision may gradually become worse.
- Your visual impairment is not corrected by glasses.

Depending on the severity of the cataract, the effect on your sight can range from vision being slightly blurred to complete blindness in the affected eye.

How is an age-related cataract diagnosed?

A cataract can usually be seen easily by a doctor or optician (optometrist) when they examine your eyes. This may be done because you have noticed a problem with vision, or during a routine eye check.

Do I need treatment for age-related cataracts?

An early cataract may not cause any noticeable problem with your vision. The rate of decline in vision varies considerably from person to person. It is now common for people to have their cataract treated at an early stage when the cataract is just beginning to affect ability to function normally. For example, you might be offered surgery if you are having problems reading the paper, watching TV, driving, cooking. Treatment is usually successful.

What is the treatment for age-related cataracts?

When symptoms begin to appear, you may be able to improve your vision for a while using new glasses, magnification, appropriate lighting or other visual aids.

There are no medicines, eye drops or lasers that can treat cataracts. The only way of treating cataracts is with surgery. This is a very common operation. Around 300,000 cataract operations are performed each year in the UK. The operation involves removing the cloudy lens and replacing it with an artificial plastic lens (an intraocular implant).

It is a routine operation that usually takes 10-20 minutes. It is often done as a day case. The majority of people who have cataract surgery experience a marked improvement in their vision.

The decision on whether or not to have cataract surgery is a personal one which you should make after talking to your doctor or eye specialist. It will be affected by factors such as your general health and fitness, your wish to read or drive and the presence of any other eye problems which might mean that removing the cataract will not restore your vision.

What happens during a cataract operation?

The operation is performed, using a microscope, through a very small opening in the eye. When the eye is numb, the surgeon makes a tiny hole in the front of the eye at the edge of the cornea. Then, the surgeon removes the inside of the lens. He/she may first break up the lens with ultrasound to allow it to be extracted through a smaller incision (this technique is called phacoemulsification).

A clear plastic lens is placed within the lens capsule. Usually no stitches are needed. You may have to wear a pad over your eye after the operation.

The standard plastic lens can't change its focus to look at near objects versus distant objects, for example. So, if you have a standard plastic lens inserted you will still need to wear glasses (if you did before the operation).

It is sometimes possible to have an accommodating lens inserted which allows focusing on near as well as distant objects. Multifocal lenses which are even more versatile are now also available. Your surgeon will be able to discuss with you whether these are suitable for you, although these types of lens are not usually available on the NHS.

Normally one eye is operated on at a time. The operation is usually done under local anaesthetic, so you are awake during the operation. The operation should be painless, as local anaesthetic eye drops are used to numb your eye. (Occasionally, local anaesthetic injections are also used around the eye.)

What are the possible complications of cataract surgery?

In the vast majority of cases, the operation is successful and vision improves immediately. In a small number of cases, complications occur. These may include

- Dysphotopsias (see below)
- Damage to the lens capsule at the back of the eye with leakage of the jelly (the vitreous) inside the eye.
- Bleeding into the eye.
- Infection of the eye, which can be serious.
- Inflammation of the eye.
- Damage to the cornea or to other parts of the eye.
- **Detachment of the retina** at the back of the eye.

Dysphotopsias are a variety of visual symptoms that result from light reflecting off the replacement intraocular lens onto the retina. They may be positive or negative. Positive dysphotopsias are more common and involve symptoms of brightness such as glare, starbursts or **haloes**. Negative dysphotopsias are noticed as shadows or dark areas. In most cases symptoms subside within several weeks of surgery as the brain adapts and screens out the symptoms (this is called neuroadaptation), but in a small percentage of patients symptoms persist, in which case further surgery may be helpful.

These are all uncommon and can usually be treated. However, they are very occasionally serious enough to cause permanent visual problems.

Complications which can occur some time after surgery include:

- Problems with glare.
- Slippage (dislocation) of the plastic lens.
- Increased pressure in the eye (glaucoma).
- Squint (strabismus).
- Posterior capsule cloudiness (opacification): the back part of the lens capsule, which is left in place, can become cloudy. This cloudiness can usually be easily treated with a laser, although a laser cannot be used to treat a cataract itself.

Cataracts and driving

Cataracts may affect your ability to drive, either:

- By visual clouding (if severe); or
- By causing pronounced glare which can dazzle you when driving at night.

It is your legal obligation to inform the DVLA about any medical condition which could affect your safety behind the wheel. If you are uncertain, you should discuss this with your doctor and/or optician (optometrist).

The DVLA prescribed eyesight requirements are:

- To read in good daylight (with the aid of glasses or contact lenses if worn) a registration mark fixed to a motor vehicle and containing letters and figures 79 millimetres high and 50 millimetres wide at a distance of 20 metres, or at a distance of 20.5 metres where the characters are 79 millimetres high and 57 millimetres wide.
- Visual acuity (with the aid of glasses or contact lenses if needed) must be at least 6/12 with both eyes open (or in the only eye if you have vision in one eye only).
- Note that in the presence of cataract, glare may affect your ability to meet the number plate requirements, even if your acuity is good enough.

Further reading & references

- [Cataract surgery guidelines](#); Royal College of Ophthalmologists (2010)
- [Implantation of accommodating intraocular lenses for cataract](#); NICE Interventional Procedure Guidance, February 2007
- [Implantation of multifocal \(non-accommodative\) intraocular lenses during cataract surgery](#); NICE Interventional Procedure Guidance, June 2008

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