Glaucoma UK

Secondary glaucoma

caused by the lens

Glaucoma UK helpline

If you have questions about anything to do with glaucoma, contact our helpline on:

01233 648 170

Monday to Friday 9.30am to 5.00pm

Calls are charged at your standard network cost.

Other ways to find out more

Email: **helpline@glaucoma.uk**

Visit our website: **glaucoma.uk**

Help us keep our services free

Glaucoma UK is the UK's only charity solely focused on ending preventable vision loss from glaucoma. Everyone who needs help and information about glaucoma should be able to get it for free. That's why there's no charge for our booklets and services. We rely on donations, and every contribution truly matters.

If you'd like to contribute to the cost of this booklet or help fund our services, please go to **www.glaucoma.uk/donate** or call **01233 648 164**. We really could not continue without our amazing supporters. Thank you.

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Key points

Cataracts, injuries and other changes to your lens can stop fluid draining properly out of your eye, leading to high eye pressure.

High eye pressure can damage the nerve that connects your eye to your brain. Damage to this nerve is glaucoma.

Glaucoma affects your vision, but with treatment most people with glaucoma keep good vision.

An eye doctor will usually do minor surgery to move or remove your lens. This helps fluid drain out of your eye, reducing eye pressure and helping to prevent future vision loss.

You may need other treatment, such as eye drops or laser treatment, to reduce your eye pressure.

Protect your vision by going to all your eye clinic appointments and using any prescribed eye drops every day.

What is glaucoma?

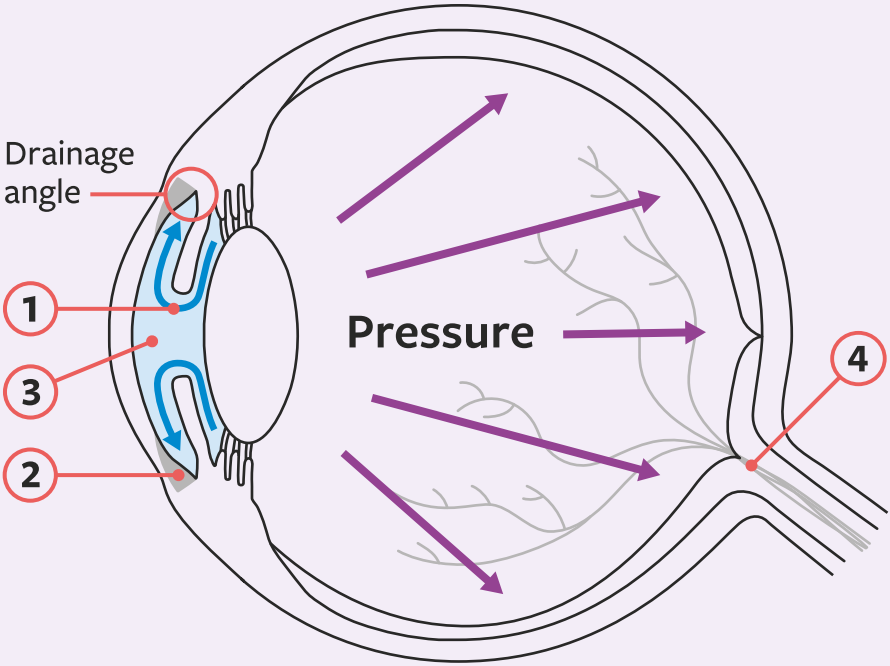
Glaucoma is a group of common eye diseases where your optic nerve has become damaged.

Your optic nerve connects your eye to your brain, so damage to this nerve affects your vision. How glaucoma affects vision is different for each person, but most people keep good vision.

The front of your eye contains a watery fluid called **aqueous humour**, **aqueous fluid** or just **aqueous**. Aqueous helps your eye keep its shape and brings oxygen and nutrients to the front of your eye. Aqueous is made inside your eye and drains out through tiny drainage channels called the **trabecular meshwork**.

If aqueous cannot drain properly out of your eye, it builds up and the pressure inside your eye rises. This pressure is called **eye pressure** or **intraocular pressure** (IOP). High eye pressure can damage your **optic nerve**. Damage to your optic nerve is glaucoma.

How eye pressure builds up and affects your optic nerve



1. Aqueous flows through the pupil

2. Poor drainage of aqueous through the trabecular meshwork in the drainage angle

3. Too much aqueous stays in the eye, increasing pressure

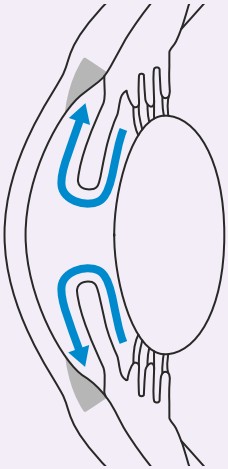
4. Increased pressure damages the optic nerve

Glaucoma may be primary or secondary.

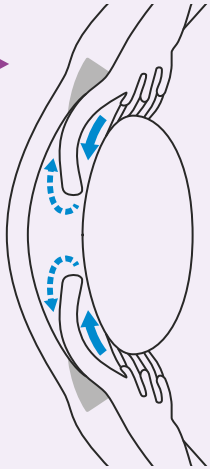
Primary glaucoma happens by itself: there's no obvious cause, and it's likely due to genetic factors. Secondary glaucoma is when something else causes an increase in eye pressure that damages your optic nerve. A change to the lens in your eye is one example of something that can cause secondary glaucoma.

Glaucoma may be called open angle or angle closure glaucoma. The angle refers to the angle between your iris and your cornea. Your iris is the coloured part of your eye, and your cornea is the clear window at the front of your eye. This angle is known as your drainage angle because it's where your drainage channels are.

Open angle ▶

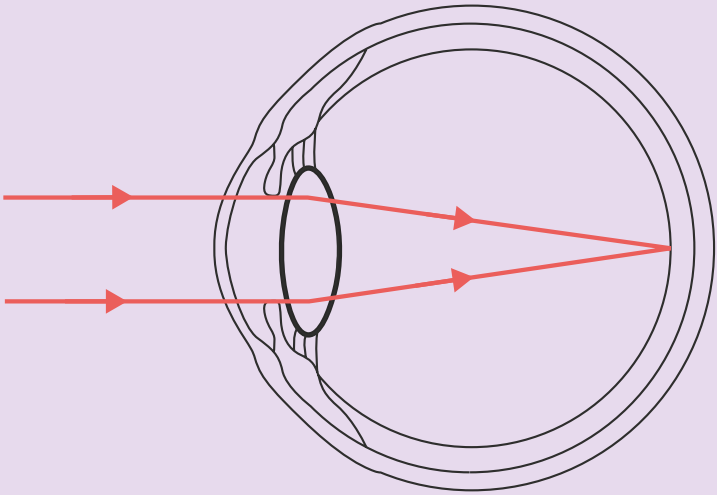


Closed angle ▶



What is my lens?

Your lens is an important part of your eye. It focuses light onto the the light-sensitive layer at the back of your eye, making what you see sharp and focused.

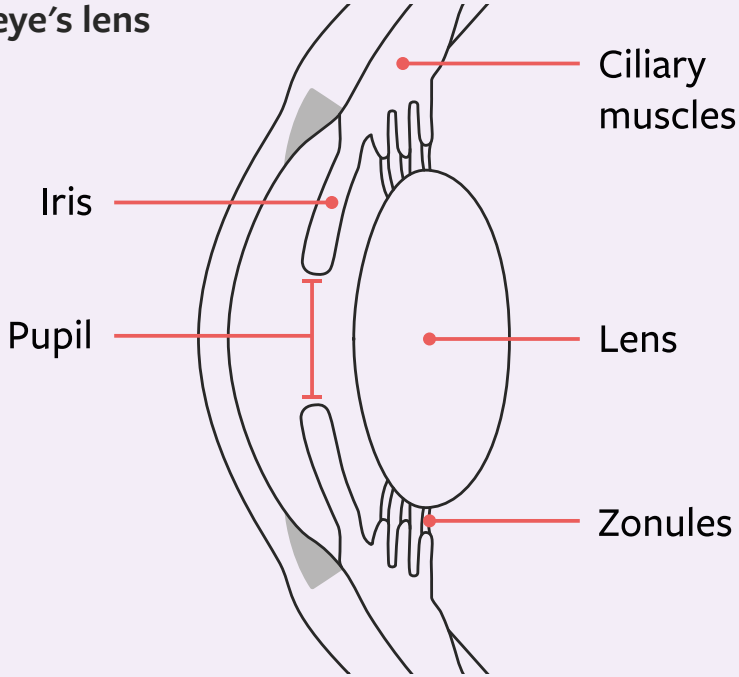


Your **lens** is a clear, bulging disc just behind your iris and pupil. Your **iris** is the coloured part of your eye. Your **pupil** is the opening in the middle of your iris that looks like a black dot.

Thread-like ligaments hold your lens in place. These ligaments are called **zonules**.

Small muscles attached to your lens change its shape to focus on near or far objects. These muscles are called the **ciliary muscles**.

▼ **Your eye's lens**



How might my lens change and cause glaucoma?

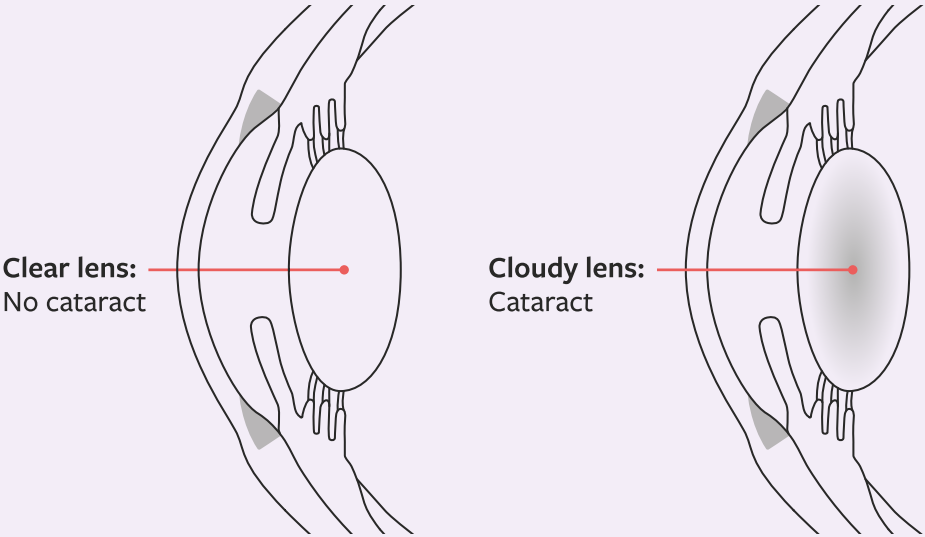
There are lots of ways your lens may change and cause glaucoma. Here are some examples.

Cataracts and cataract surgery

Cataracts are cloudy patches on your lens that make your vision blurry or misty.

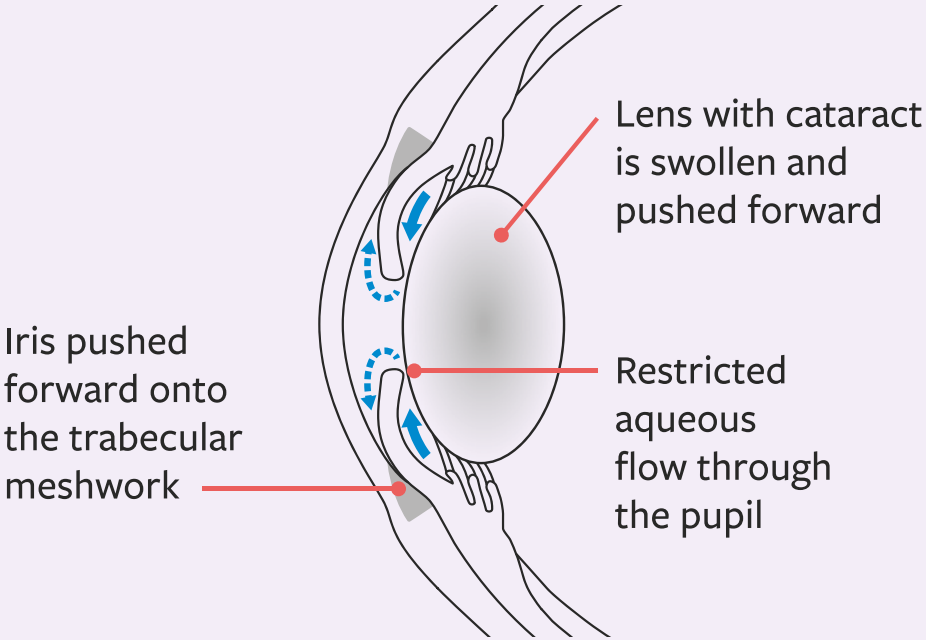
Left untreated, cataracts can lead to vision loss. Eye doctors can remove cataracts by replacing your natural lens with an artificial one.

▼ Cross section of eyes with and without a cataract



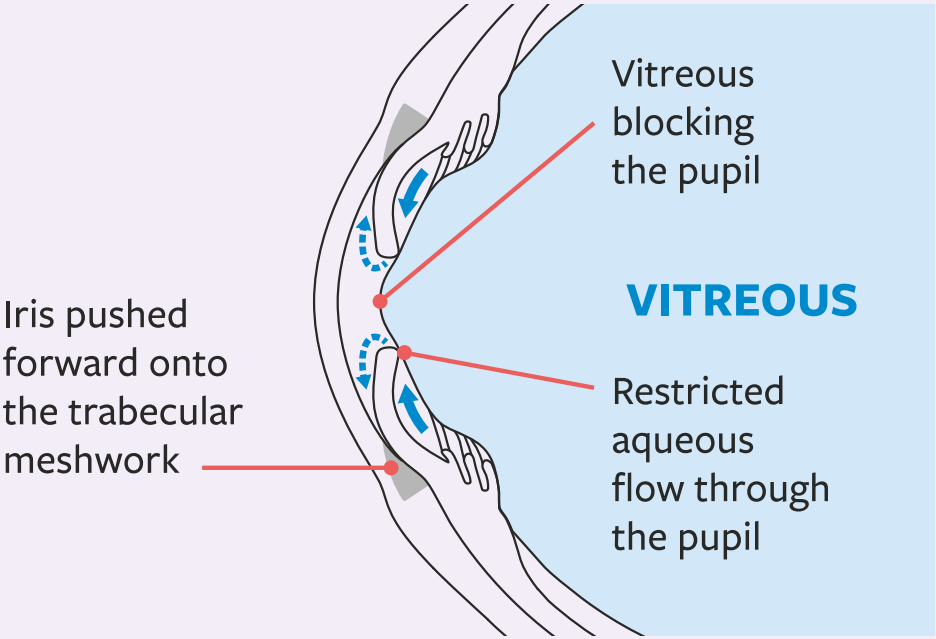
Cataracts sometimes make the lens swell and get bigger. If this happens, it may block the flow of aqueous through your pupil. Aqueous builds up behind your iris, pushing your iris forward and closing your drainage angle.

▼ **Glaucoma associated with cataract**



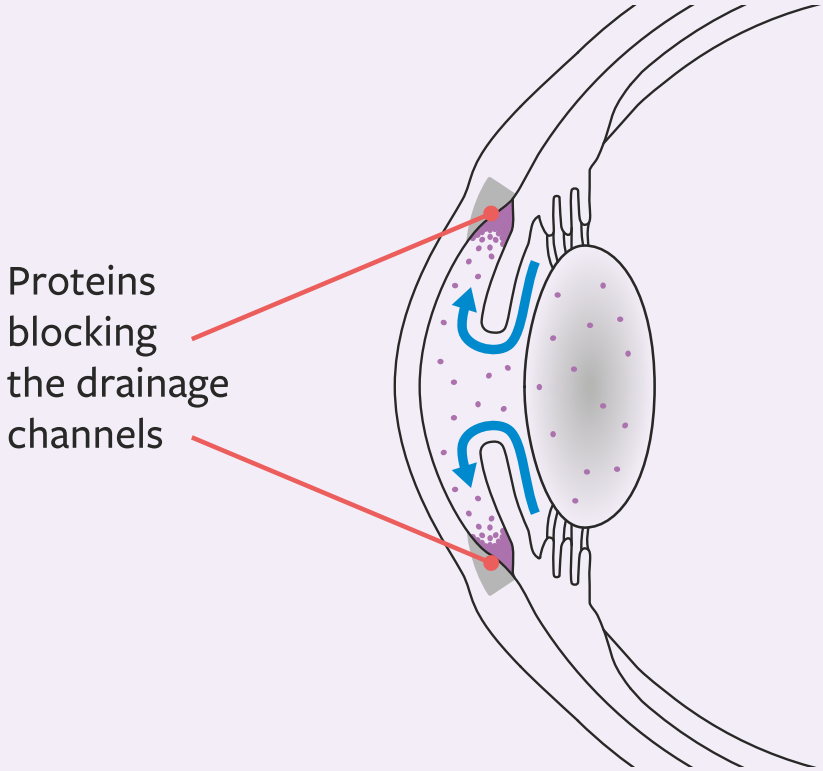
Occasionally, eye doctors must remove your lens without putting in an artificial one, so that your eye has no lens. If your eye has no lens, it's called aphakia. The back of your eye contains a gel-like substance called vitreous humour or just vitreous. Normally, your lens holds vitreous in place. Without a lens, vitreous sometimes sticks to your iris, blocking the flow of aqueous through your pupil. Aqueous builds up behind your pupil, pushing your iris forward and closing your drainage angle.

▼ Glaucoma associated with aphakia



Your lens is mostly made of protein. Very rarely, if you have an advanced cataract, proteins from your lens can leak into the aqueous. These proteins can block the drainage channels, leading to high eye pressure. This is called phacolytic glaucoma.

▼ Phacolytic glaucoma

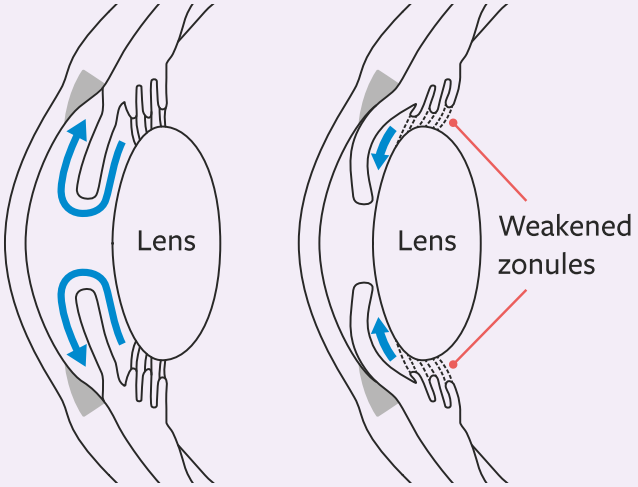


Damage to the muscles and zonules that control your lens

Damage to your zonules or ciliary muscles may move your lens or stop it changing focus. This makes your vision blurry. Causes can include:

- Eye injuries
- Certain medical conditions (such as pseudoexfoliation or Marfan syndrome)

If your lens moves too far forward, it may block the flow of aqueous through your pupil. Aqueous builds up behind your iris, pushing your iris forward and closing your drainage angle.



How might glaucoma affect what I see?

Glaucoma affects everyone differently. People who notice glaucoma vision loss typically describe blurry or misty patches in their vision.

Most people cannot tell they have glaucoma.

Glaucoma vision loss usually starts in your off-centre (peripheral) vision. Central vision is usually clear for much longer. You use central vision for detailed tasks like reading, watching TV and looking at faces. You use off-centre (peripheral) vision for driving, walking around and seeing things at the edge of your vision.

Your two eyes work together. If you have a gap in your vision in one eye, your other eye might make up for it. You might only notice misty or blurry patches when you close one eye. Even then, your brain might fill in the gaps, so what you see looks complete.

▼ Examples of what you might see if you have full vision, moderate glaucoma and advanced glaucoma

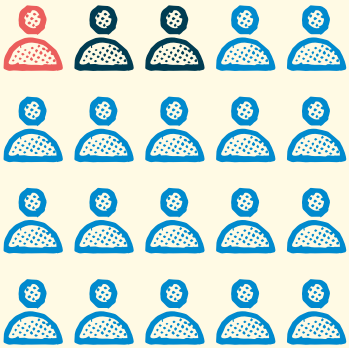
Most people with glaucoma keep good vision for life.

If your glaucoma does lead to vision loss, you might start to notice for example that:

- You trip over things on the floor.
- You find it harder to see things with poor colour contrast.
- It's harder or takes you longer to find what you're looking for.
- Cars seem to suddenly appear from nowhere.
- It's harder to see in the dark.

Most people **do not** go blind with glaucoma.

On average across all forms of glaucoma, out of 20 people with glaucoma:



Only around **one** develops severe vision loss.

Around **two more** develop vision loss that affects day-to-day activities like driving.

Around **seventeen** barely notice vision loss.

These numbers might be better or worse for some forms of glaucoma.

Thanks to modern treatments, fewer people lose their vision due to glaucoma now than in the past.

Most people who have severe vision loss due to glaucoma were diagnosed late or had other underlying health or eye conditions. It's unusual to lose all vision due to glaucoma. But because vision loss is possible, it's important to go to all your eye clinic appointments and to use any treatment as prescribed.

What tests will I have?

You'll have several tests for glaucoma.

You may have had some of these tests during routine visits to your local high street optician.

How well can you see detail at a distance?

This is called visual acuity.

▲ **Visual acuity test**

Where can you see things?

If you look at something straight ahead and keep your eye still, how far up, down, left and right can you see? Are there patches of vision loss?

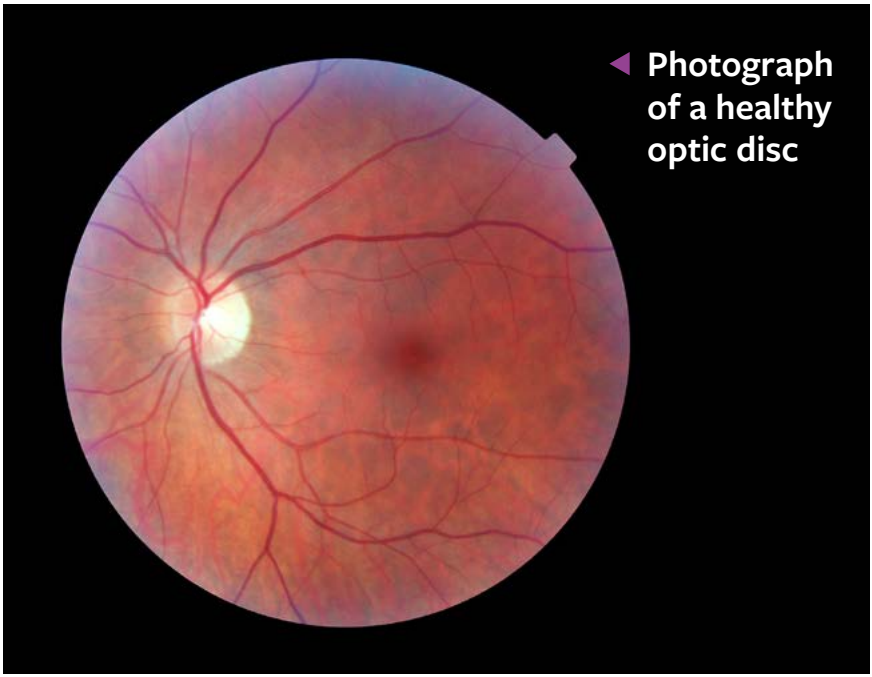
This is called your visual field. If you have glaucoma, you'll have patches of vision loss, usually starting in your peripheral (off-centre) vision.

▲ **Visual field test machine**

What's your eye pressure?

If your eye pressure is high, you're more at risk of glaucoma.

▲ **Tonometer for measuring eye pressure**



Photograph of a healthy optic disc

Are there any signs of possible damage to your optic nerve where it leaves your eye (the optic disc)?

Your eyecare professional may scan or photograph the back of your eyes so that there's a record to compare against at future appointments. Signs of possible damage to your optic disc could be glaucoma.

Other tests you may not have had at routine visits to your local high street optician.

For example:

How thick is your cornea (the clear window at the front of your eye)? The thickness of your cornea helps the eyecare professional make sense of your eye pressure.

What does your drainage angle look like? Can aqueous flow freely through your eye and drain away? This check is called gonioscopy. In open angle glaucoma, your drainage angle is open. In angle closure glaucoma, your drainage angle is narrowed or closed.

These tests may be done by an optometrist, nurse or other eyecare professional.

An optometrist is an eyecare professional trained to check eye health and measure vision. An ophthalmologist checks the test results. An ophthalmologist is a doctor specialising in eye and vision care.

The ophthalmologist will tell you if you have glaucoma. If you do, they should tell you what type it is and how much vision loss, if any, you have. They'll talk to you about your treatment options and answer any questions you have.

Sometimes, test results are inconclusive and the ophthalmologist needs more information to decide whether you have glaucoma. If so, they'll ask you back for another appointment to repeat the tests. They might say that you have suspected glaucoma. This might happen if your results are borderline, for example if your eye pressure is a bit high or your optic disc looks like it might have early signs of damage.

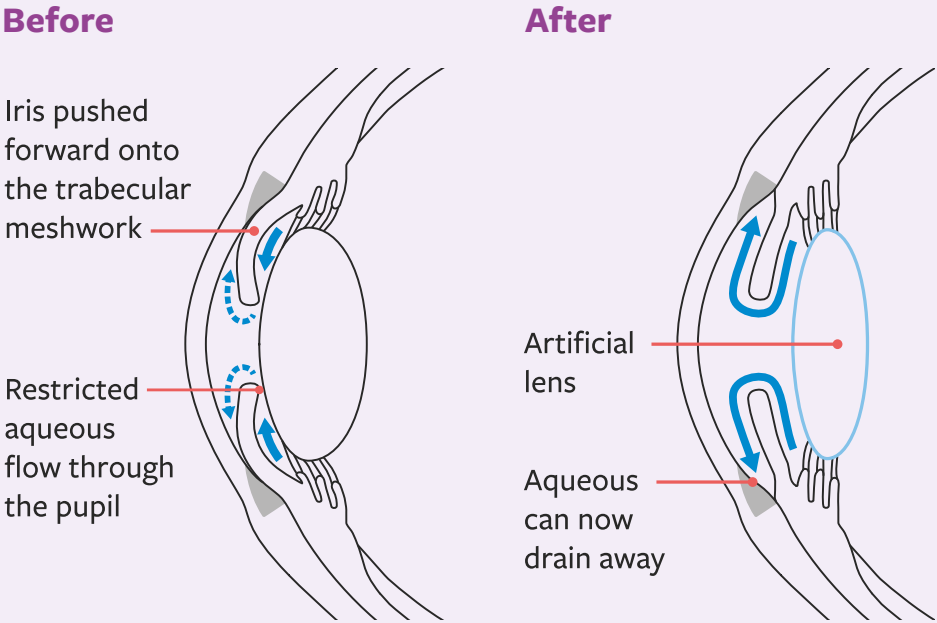
If you have glaucoma, you'll need to have regular appointments to check your eyes and how well treatment is working for you. These follow up appointments may be at a hospital or in a community setting such as a high street optician or GP practice.

What treatment might I have?

The first step will usually be surgery to replace, remove or move your lens.

This lets aqueous flow freely again, and often your eye pressure will fall back to normal. This should stop any future damage to your optic nerve. Sometimes your eye pressure will stay too high and you'll need other treatment to lower it.

▼ **How a replacement lens creates space and opens the drainage angle**



There are lots of treatment options to lower eye pressure and slow down possible future vision loss.

But treatment does not cure glaucoma, and any vision loss from glaucoma is irreversible. This can be difficult to come to terms with.

Your eyecare professional will suggest treatment based on your test results and the type of glaucoma you have. They'll also take account of other things like your health, your age and your preferences.

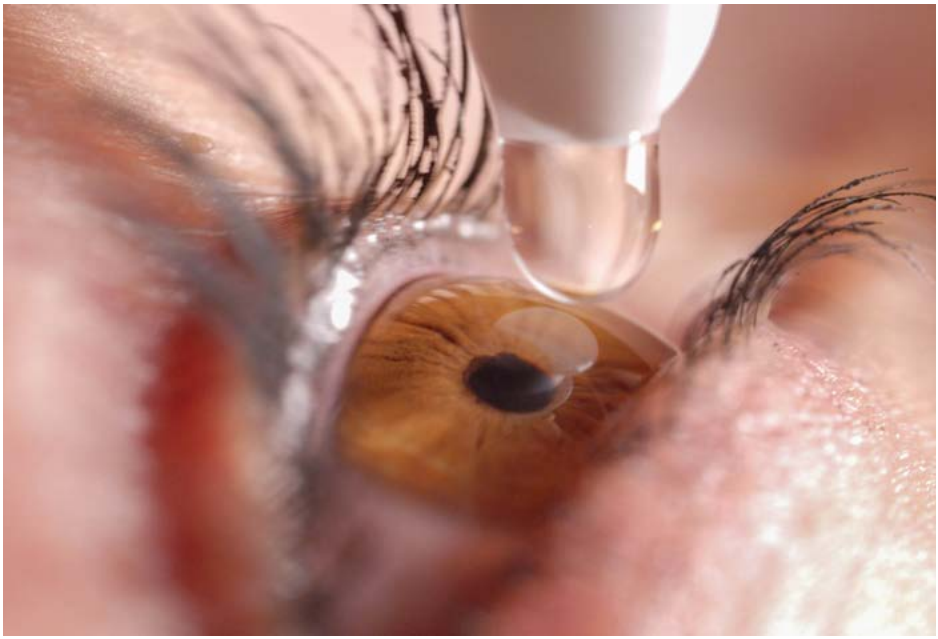
Our helpline is there for you to talk through how you're feeling as well as the practical side of things.

01233 648 170

Monday to Friday 9.30am to 5.00pm

Eye drops

Eye drops are a common treatment for glaucoma. Some eye drops reduce the amount of aqueous made inside your eye. Others help aqueous drain out of your eye. You might need to use one or more kinds of eye drops.



Ask your eyecare professional how long you need to use your eye drops for. With secondary glaucoma caused by changes to your lens, your eye pressure might settle after a few weeks or months. If it does, you may be able to stop using your eye drops. But you might need to use eye drops for life. Always talk to your eyecare professional before stopping or changing your glaucoma eye drops.

Like all medicines, eye drops can have side effects. Red, sore or itchy eyes are common side effects of using eye drops. If you get side effects talk to your eyecare professional. Ask about using preservative-free eye drops or if another treatment may be suitable. Try using lubricating eye drops to soothe your eyes. Keep using your eye drops unless told to stop by your eyecare professional.

If you get side effects that worry you, contact your eye clinic as soon as you can.

Putting your eye drops in every day is one of the most important things you can do to protect your vision.

Minimally Invasive Glaucoma Surgery (MIGS)

In minimally invasive glaucoma surgery (MIGS), your eye doctor inserts a tiny device or makes a small cut into your eye's drainage channels. It helps aqueous drain out of your eye.

If you're having cataract surgery, your eye doctor may suggest MIGS at the same time.

If you've already had cataract surgery and your eye pressure is still too high, your eye doctor may suggest MIGS by itself. This is most likely if:

- your eye pressure is too high even after laser treatment or eye drops;
- you're struggling with eye drops.

No treatment

You may decide against having any treatment even if your eyecare professional recommends it. **This increases your risk of vision loss due to glaucoma.**

Whether or not you have treatment, you should go to follow-up appointments and routine eye tests.

What if my eye pressure stays high?

There are lots of other treatments for glaucoma, including laser treatment and other forms of surgery. For most people, there is at least one treatment that will lower eye pressure.

If one treatment fails to lower your eye pressure, your eyecare professional may try another. It may take time to find the right one for you. As your glaucoma changes, the best treatment for you may also change. Everyone is different.

Is it okay to drive with glaucoma?

Driving is important to many people, but you need to be safe on the roads.

You must tell the DVLA (in England, Scotland or Wales) or the DVA (in Northern Ireland) if:

You drive a car or motorcycle, and you have glaucoma in both eyes.

You drive a bus, coach or lorry, and you have glaucoma in one or both eyes.

The DVLA or DVA will ask you to take a special visual field test at a high street optician. This test checks you meet the minimum vision standards for driving.

Most people with glaucoma meet the minimum vision standards for driving.

You should also check with your motor insurer whether you need to tell them about glaucoma.

Further help and information from Glaucoma UK

We offer other free information booklets on a range of topics, including:

- **Different types of glaucoma**
- **Treatments such as eye drops, laser treatments and surgery**
- **Driving and glaucoma**

For a full list of available booklets and to order or download them, visit our website or contact our helpline.

As well as our information booklets, helpline and website, there are lots of other ways we can help you to live well with glaucoma.

Some examples of our services are:

- **Buddy scheme**
  If your eyecare professional recommends laser treatment or surgery, we can pair you up for a chat with someone who's already had the treatment.
- **Glaucoma support groups**
  Find out more about glaucoma, share information, and ask questions. Visit our website or call our helpline to see if there's a group near you and to find out about online groups.
- **Health Unlocked**
  Join our online forum and talk to other people with glaucoma. Visit **healthunlocked.com/glaucoma-uk** to get involved.

For more information, to get involved or to give us feedback contact our helpline, visit **www.glaucoma.uk/more** or scan the QR code.

About Glaucoma UK

Glaucoma UK is the charity for people with glaucoma. We raise awareness of the risks of glaucoma, and offer help and support to people living with the disease.

We fund high-quality research into prevention, diagnosis, treatment and, hopefully one day, a cure. We also work with professionals to influence policy and practice with the goal of improving services. Our aim is to end preventable glaucoma vision loss.

Raising awareness

Helping people understand why they may be at risk of glaucoma.

Providing support

Ensuring people can access reliable help and advice when and how they need it.

Influencing policy and professional practice

Advocating for glaucoma patients with those who develop policy, commission services and deliver care.

Supporting research and development

Funding high-quality research into glaucoma prevention, diagnosis, treatment and cure.

Keep in touch

We'd love to keep in touch.

Visit our website to sign up for our email newsletter to hear more about our work and how we can help you.

Join Glaucoma UK

Join Glaucoma UK and become a member of our supportive glaucoma community.

You'll receive exclusive benefits, including our magazine full of news and information about glaucoma.

Find out more at **www.glaucoma.uk/membership** or call **01233 648 164**.

Disclaimer

The information in this booklet was correct at the time of last review and is intended as a general guide only. Always ask an eyecare professional or doctor for advice specific to you.

A list of sources is available on request.

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