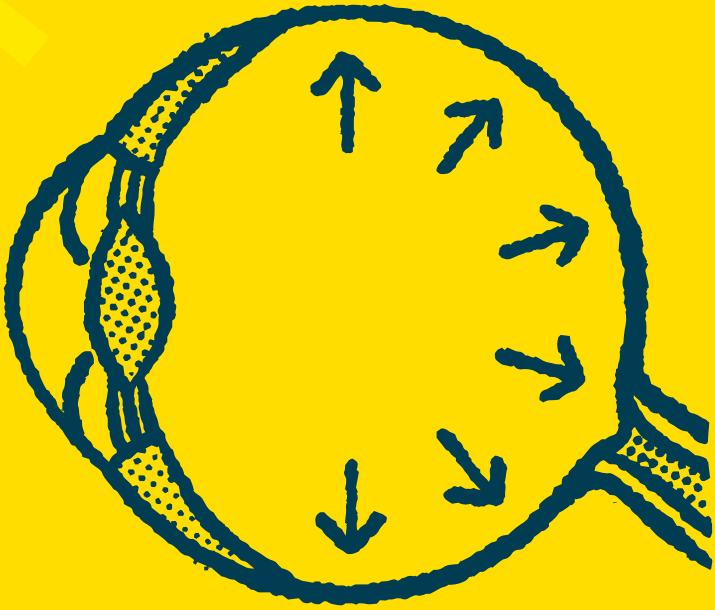
Glaucoma UK

Primary angle closure glaucoma



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.

Contents

Key points

In primary angle closure glaucoma (PACG), your eye's drainage system is blocked. Eye pressure rises, damaging the nerve that takes information from your eye to your brain.

PACG can lead to vision loss. But most people with PACG keep good vision.

Get medical help straight away if you have symptoms of sudden (acute) angle closure. These include intense eye pain, headache, feeling or being sick, seeing coloured rings around lights, red eyes, and blurred or reduced vision.

PACG can run in families. Tell your family so that they can get their eyes checked regularly.

The most common treatments for PACG are laser treatment, lens replacement (‘cataract’) surgery or eye drops. Talk to your eyecare professional about any side effects you get.

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

What is glaucoma?

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

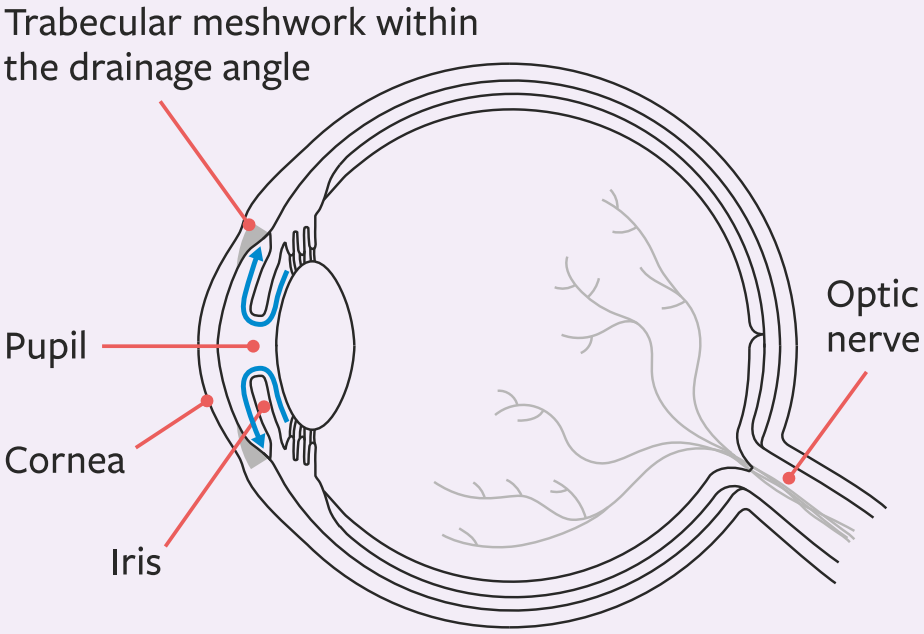
Your optic nerve connects your eye to your brain, so damage to this nerve affects your vision. How much glaucoma affects vision is different for each person, but most people keep good vision.

What is primary angle closure glaucoma?

In primary angle closure glaucoma (PACG), your eye's drainage system is blocked.

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 nutrients to the front of your eye. Aqueous is made inside your eye and drains out through tiny drainage channels called the **trabecular meshwork**.

▼ **Structure of eye showing normal flow of aqueous**



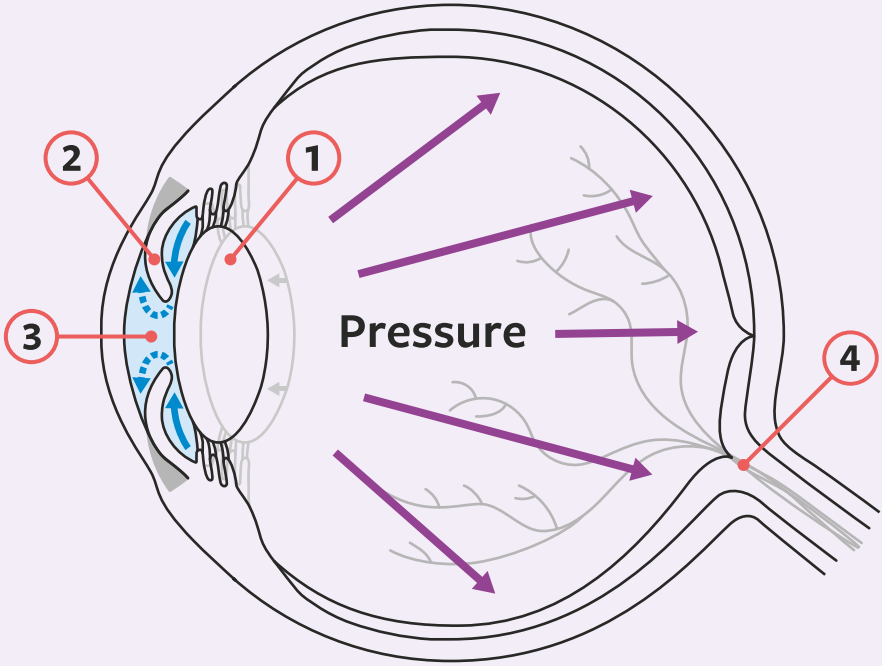
These drainage channels are in the angle where your iris and cornea meet. Your iris is the coloured part of your eye, and your cornea is the clear window at the front of your eye. The angle is called the drainage angle because it's where the drainage channels are.

In PACG, your iris comes too far forward, narrowing or closing your drainage angle and blocking your drainage channels. Aqueous cannot drain out of your eye properly. Fluid builds up, increasing the pressure inside your eye. This pressure is called eye pressure or intraocular pressure (IOP). High eye pressure may damage your optic nerve by pressing on the nerve or restricting its blood supply.

PACG is sometimes just called angle closure glaucoma.

PACG may be acute or chronic. Acute means it happens suddenly. Chronic means it happens slowly.

How eye pressure builds up and affects your optic nerve



1. The lens is pushed forward restricting the flow of aqueous through the pupil
2. The iris is pushed forward, blocking the drainage channels and preventing drainage
3. Too much aqueous stays in the eye, increasing pressure
4. Increased pressure damages the optic nerve

Acute angle closure

Acute angle closure happens with no warning. Your drainage angle suddenly closes, and your eye pressure goes up very quickly.

Symptoms of acute angle closure include:

- Intense eye pain
- Headache
- Feeling or being sick
- Seeing coloured rings around lights
- Red eye
- Blurred or reduced vision

Sometimes people have a series of short attacks of acute angle closure with mild symptoms. The symptoms often disappear after a night's sleep, but they can happen again. This is called intermittent angle closure. If you have intermittent angle closure, you may be at risk of more severe angle closure.

If you have symptoms of acute angle closure, seek medical advice straight away. If you are in a lot of pain or are being sick, go straight to Accident and Emergency or an emergency eye clinic. Delayed treatment increases the chance of damage to your optic nerve and of vision loss.

Chronic angle closure

In chronic angle closure, the drainage angle slowly closes. As it closes, it blocks more of the drainage channels.

To begin with, most people cannot tell they have chronic angle closure, as they have no symptoms. Eye pressure may go up for a short time and then back down, or it may stay high. It usually only becomes a problem when the iris blocks more than half the drainage channels.

How might glaucoma affect what I see?

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

Most people cannot tell they have glaucoma.

Glaucoma vision loss usually starts in off-centre (peripheral) vision. Central vision is clear for much longer. You use central vision for detailed tasks like reading, watching TV and looking at faces. You use peripheral vision for driving, getting 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

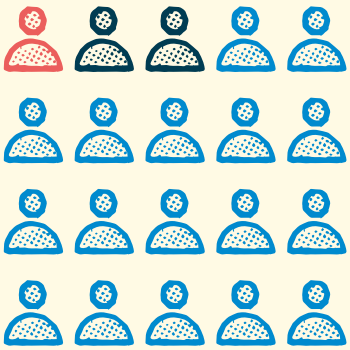
Most people with glaucoma keep good vision for life.

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.

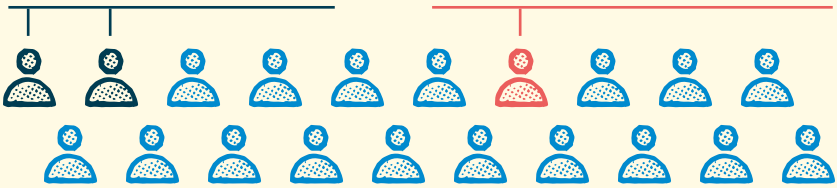
Around **seventeen** barely notice vision loss.

People with primary angle closure glaucoma (PACG) are at higher risk of vision loss. That's because eye pressure tends to be higher in PACG. Plus, in acute angle closure, eye pressure can quickly get very high.

Out of 20 people with newly diagnosed PACG:

Around two have severe vision loss in one eye.

Fewer than one has severe vision loss in both eyes.



Your risk of vision loss from PACG depends on:

- How high your eye pressure is
- How long your eye pressure is high before treatment

That's why you should go straight to Accident and Emergency or an emergency eye clinic if you have symptoms of acute angle closure. It's also why everyone should go for routine visits to their local high street optician at least every two years.

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.

Who gets primary angle closure glaucoma?

Anyone can develop primary angle closure glaucoma (PACG), but some things increase the risk.

Risk factors for PACG:

- If you have a close relative (brother, sister, parent or child) with PACG, you are more likely than the general population to develop it.
- PACG becomes more common over the age of 60 years. This is due to changes in your eye, such as the lens getting thicker. These changes narrow or close the drainage angle.
- If you're from an Asian ethnic background, you are more likely than people from European backgrounds to develop PACG.
- Some people naturally have small eyes with narrow drainage angles.

What can cause primary angle closure glaucoma?

Anything that pushes your iris forward narrows the drainage angle and increases the risk of angle closure.

Some examples are:

- Dim lighting
- Sudden excitement or adrenaline rushes
- Eye drops used to make the pupil bigger during eye clinic appointments
- Certain medicines including some anti-depressants

Always check the leaflet that comes with any medicines you take or talk to your pharmacist, GP or eyecare professional.

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.

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.

◀ **Example of a visual field test machine**

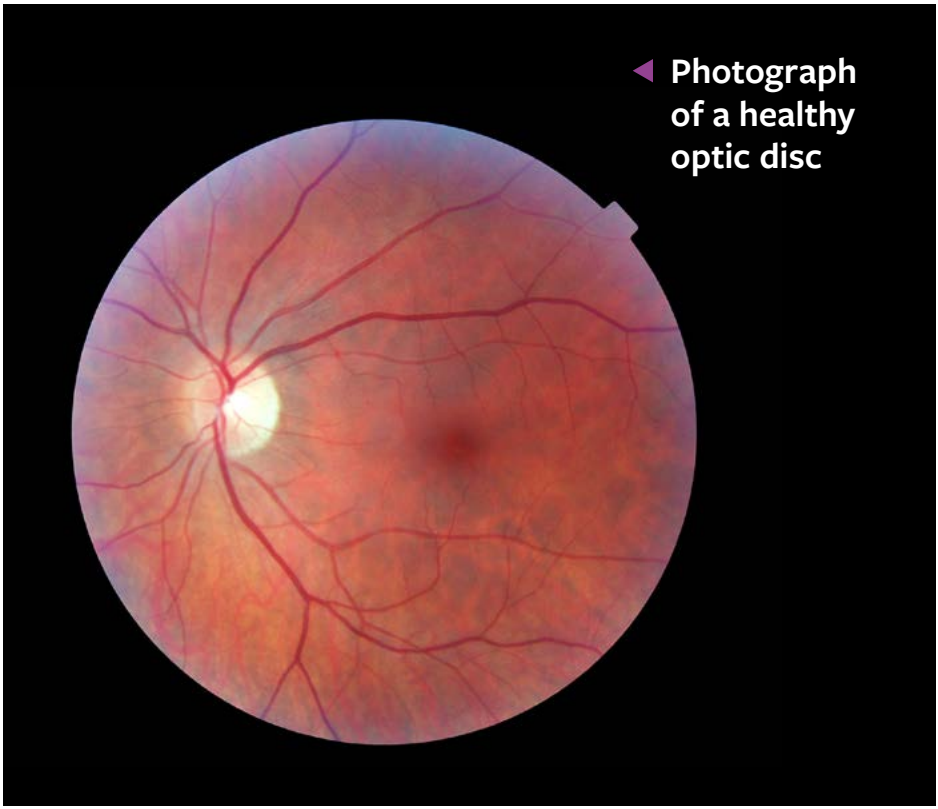
What's your eye pressure?

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

▼ Eye pressure test

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.



Photograph of a healthy optic disc

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 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?

Treatments for primary angle closure glaucoma (PACG) aim to lower eye pressure, which helps stop or slow glaucoma.

There are lots of treatment options for glaucoma.

But treatment does not cure glaucoma, and any vision loss from glaucoma is permanent. 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

Acute angle closure must be treated quickly. The rapid rise in pressure can quickly damage vision. There are often three steps in treating acute angle closure, although not everyone will need each step.

1. Your eye doctor gives you eye drops to make your pupil smaller and help open your drainage angle.
2. Your eye doctor gives you medicines to lower eye pressure. This may include tablets, injections or eye drops to reduce how much aqueous your eye makes. They may also give you steroids to reduce inflammation (swelling and irritation).
3. Once your eye pressure is low enough, your eye doctor gives you laser treatment or surgery. Laser treatment helps aqueous flow through your eye to the drainage channels. Laser treatment also helps stop your drainage angle closing again in the future.

If you have chronic PACG, your ophthalmologist can give you laser treatment or surgery. They do not usually need to lower your eye pressure first.

Laser treatment

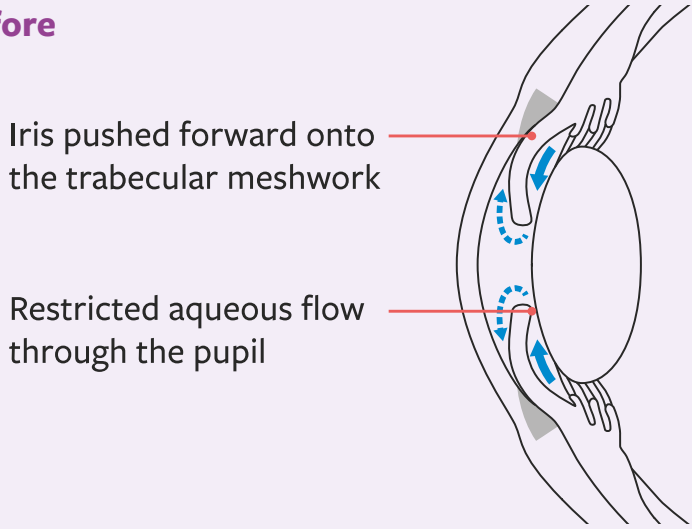
The most common laser treatment for PACG is iridotomy. It usually only takes about 15 minutes, and it's done in the eye clinic.

An eye doctor aims a laser beam at your iris to make a hole in it. This helps aqueous flow through your eye, and helps to keep the drainage angle open.

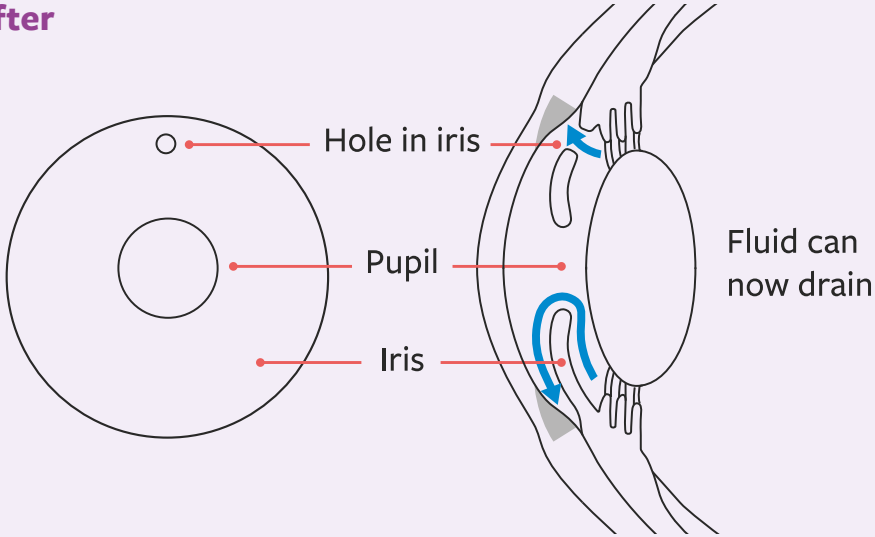
Before the treatment, the eye doctor gives you eye drops to numb your eye. During the treatment, you may feel a fluttering sensation in your eye. You may also get some pain, but this is less common.

▼ Laser iridotomy helps aqueous drain out of your eye

Before



After



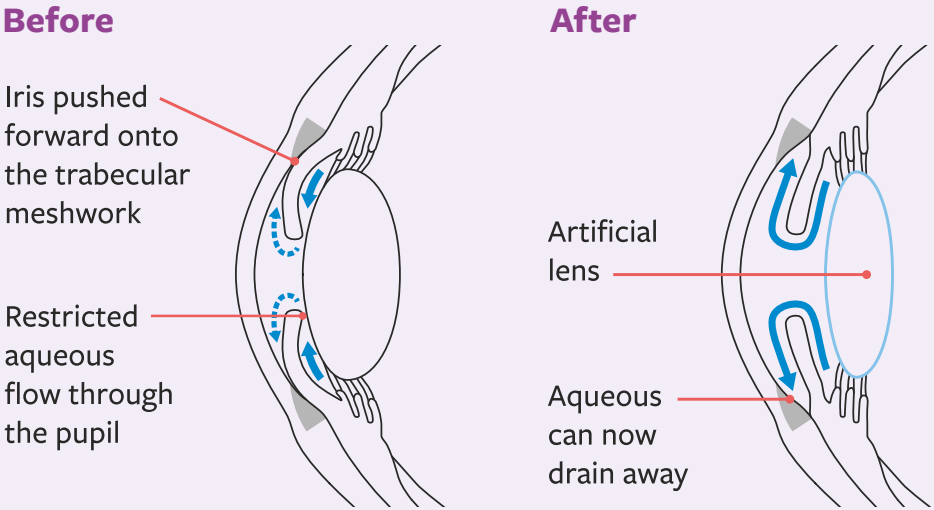
Replacing the lens

The lens inside your eye focuses light onto the back of your eye.

Taking your natural lens out and putting in a thinner artificial one creates more space. It helps the iris move back and opens the drainage angle.

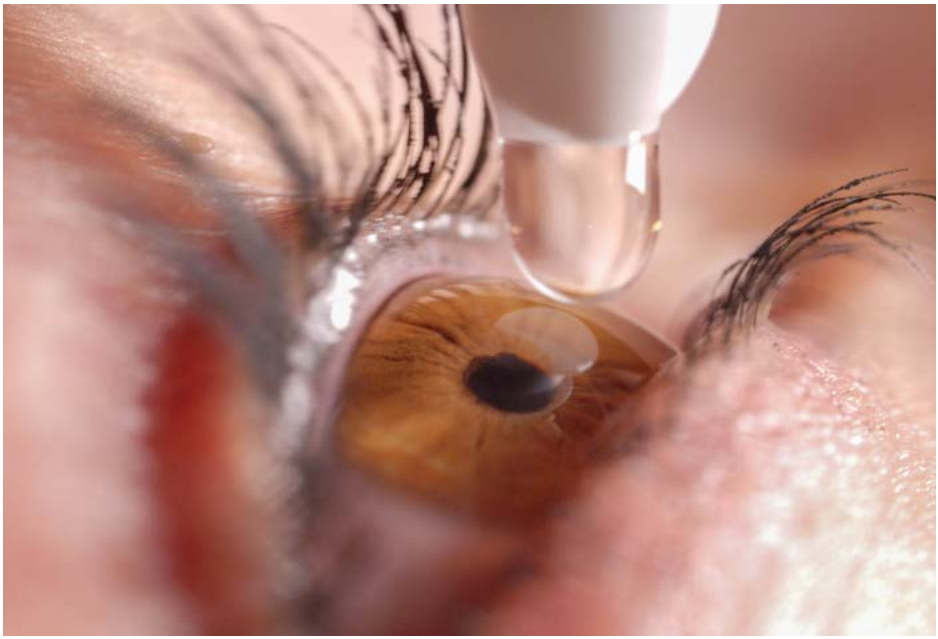
If your lens is clear, this surgery is called lens replacement or lens extraction. If your lens is cloudy, it's called cataract surgery.

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



Eye drops and other medications

Eye drops are a common treatment for glaucoma. Sometimes, your eyecare professional will give you tablets instead of or as well as eye drops.



Eye drops and tablets for PACG can include:

- Acetazolamide tablets or beta blocker eye drops to reduce how much fluid your eye makes
- Steroid eye drops to reduce inflammation
- Pilocarpine eye drops to open the drainage angle

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 your eyecare professional tells you to stop.

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.

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 treatments for glaucoma. For most people, there is at least one 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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Next review due July 2028.

With thanks to our contributors and reviewers

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Glaucoma UK is the operating name of the International Glaucoma Association. Charity registered in England and Wales No. 274681 and Scotland No. SC041550