

Eye drops and dispensing aids

A Guide



This free booklet is brought to you by Glaucoma UK (formerly the International Glaucoma Association). Contact the Glaucoma UK for further information or advice:

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Glaucoma UK is a registered charity that is here for everyone living with glaucoma throughout the UK.

- We raise awareness of glaucoma so that it is detected and treated early.
- We campaign for effective services for everyone affected by glaucoma.
- We provide advice and support to help people live well with glaucoma.
- We fund vital glaucoma research.



Campaigning & Awareness

Fewer people go blind



Advice & Support

People with glaucoma live well and stay well



Research

Better diagnosis, care and treatment

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01 What is glaucoma?



Glaucoma is the name of a group of eye diseases in which the optic nerve becomes damaged. This is usually due to increased pressure in the eye but there are other reasons glaucoma can occur, such as poor blood supply to the optic nerve. The optic nerve sends visual information from the eye to the brain and if it is damaged, it can result in sight loss and even blindness.

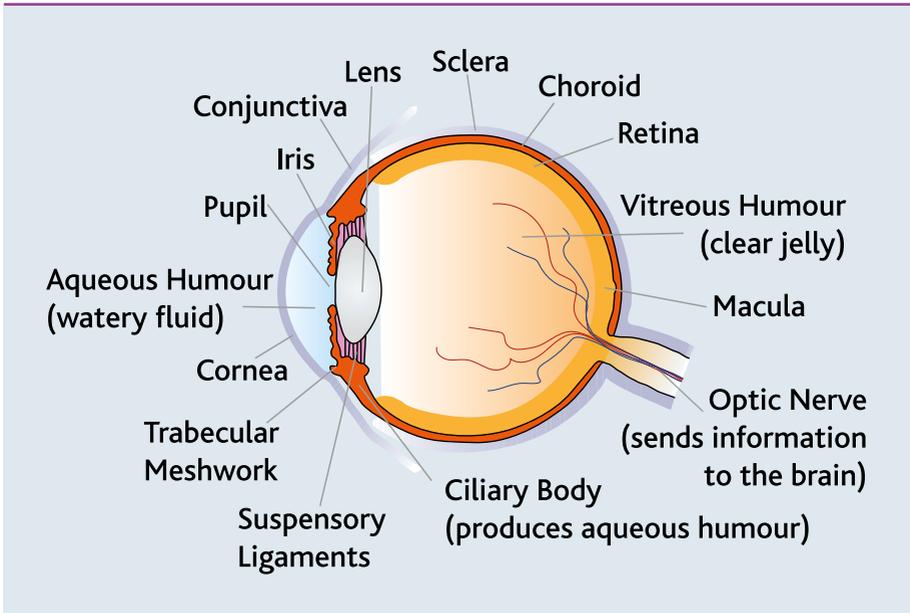
The most common type of glaucoma (primary open angle glaucoma) starts very slowly and has no symptoms to begin with, so it is usually discovered during an eye health check by an optometrist. If glaucoma is detected early and treatment is started and continued, significant sight loss is unlikely. However, you cannot get back any vision that has already been lost due to glaucoma.

There are three main types of glaucoma: primary, secondary, and developmental (glaucoma in babies and children).

Glaucoma is a complicated disease and diagnosis is not always easy. Several different tests will be needed to confirm how and why damage to the optic nerve has occurred.

To understand how glaucoma affects us, it is useful to understand the structure of the eye, and why keeping eye pressure within the normal range is so important.

02 Structure of the eye



The eye is shaped like a ball. The tough white outer coat is called the sclera and its front surface is covered by a thin layer called the conjunctiva which also lines the eyelids. The clear outer layer at the front of the eye is called the cornea and both the cornea and conjunctiva are covered by the tear film. Behind the cornea is the iris (the coloured part of the eye) with the pupil forming a hole in its centre.

The space between the cornea and the lens is filled with a

clear fluid, called aqueous humour. This fluid maintains the pressure in the eye (the intraocular pressure).

The pressure is determined by the balance between the fluid production inside the eye and its drainage out of the eye.

On the inside at the back of the eye is the retina, which is the light sensitive layer onto which an image of what is being seen is focussed by the cornea and the lens working together. The central area of the retina, where the most detailed vision is to be found, is known as the macula and has a very high density of light-sensitive cells. Further away from this central detailed vision area is the area of the retina which also provides our peripheral vision.

Immediately under the retina is the choroid, which is the layer of the eye that provides the blood supply to the cells of the retina and onto which the retina is attached. Light that has passed through the front of the eye and is focussed onto the retina, is finally converted into a series of complex electrical impulses by retinal photoreceptor cells known as rods and cones. These signals pass along the optic nerve to the back of the brain, where the final image is processed.

03 How should I use my eye drops?

There are various ways to put drops in your eye and you will need to decide which is best for you.

Before you begin, make sure your hands are washed and clean. Some drops need to be shaken. If that applies to yours, it should say on the bottle or in the leaflet that comes with it.

One of the simplest ways of putting drops in is to sit comfortably in front of a mirror, or if you prefer you can put in your drops whilst lying down. Pull down the lower eyelid with a finger of one hand with the other hand squeeze or tap the bottle according to the instructions, and let the drop fall into the pocket between your eye and the lower lid (see figure 1). Please visit www.glaucoma.uk for a short video on how to put in your eye drops.

After putting the drop in your eye, close your eye gently and press softly on the inside corner of the eye, by the nose, with a finger for one to two minutes (see figure 2). This will help to slow the rate at which the drop drains out through the tear duct into your throat, rather than staying in the eye where it is needed. A small amount may still drain through the tear duct and be swallowed. This is not

Figure 1

Putting in eye drops



usually harmful but, if the amount of eye drops entering your body through the tear duct is minimised, so too is the potential for side effect problems. Repeat with the other eye if necessary.

Putting in more than one drop

If you need to administer a different drop into the same eye, wait at least five minutes, or however long you have been advised; this prevents the first drop being washed away by the second.

Closing the tear duct

Figure 2



Contact lenses

If you use contact lenses, never put a drop in your eye whilst wearing a lens unless advised by your clinician and allow 15 minutes after using your drops before inserting a lens. Contact lens wearers should avoid using eye drops which contain preservatives. Please speak to your doctor or pharmacist about alternative preservative free eye drops.

Another way to put in drops is to lie on the bed with one pillow (see figure 3). It is sometimes easier to hold the eye drop bottle horizontally in your hand and place the

screwpart of the bottle on the bridge of your nose. Look upwards and squeeze the bottle gently. The drop should fall into the eye. If it doesn't it will be in the corner next to your nose and it will run into the eye if you turn your head slightly.

Alternative

Figure 3



04 Getting into the routine

Damage to vision caused by glaucoma is permanent and can't be reversed. However, treatment can prevent or reduce any future damage by ensuring that the pressure in your eye doesn't get too high. So if you have been diagnosed with glaucoma, it is essential to use your eye drops regularly as prescribed if you want to preserve your eyesight.

So you don't forget to put your drops in, it's worth getting into a routine and sticking to it. For instance, unless the bottle needs to be stored in the door of the fridge, you could keep it by your toothbrush so you are reminded when you brush your teeth. Some people find it helpful to make a chart with the days of the week on it where they can tick off every time they use their drops. There is a drop calendar available to download at www.glaucoma.uk or alternatively you can call our Helpline on **01233 64 81 70**.

If you use a drop more than once a day, try to ensure the times when you put them in are evenly spaced. For example, if they go in twice a day, aim for 12 hours apart. The most important thing, though, is to settle on a routine you can manage and remember every day. This helps to ensure that the drop does not wear off before the next

dose is due, and so will help control your eye pressures and treatment plan.

Storage

Most drops are stored at ordinary room temperature (not next to a radiator or in direct sunlight) but some need to be kept in a fridge before the bottles are opened. Look at the leaflet that comes with your drops or check with your pharmacist to be sure you know the correct way to store your drops.

Single dose unit drops (preservative free)

Some of the single dose unit drops may be packaged within a sachet or pouch inside the box, and when the seal is open, all the drops within the sachet/pouch have a limited expiry date, for example seven days. Look at the leaflet that comes with your drops or check with your pharmacist to be sure you know the correct expiry once opened.

Expiry date

Don't continue to use a bottle for more than a month after it has been opened or the date marked on the bottle if this is sooner. Start a new one. It is a good idea to make a note of when you open the bottle to remind you when you opened it, so that you don't forget to order a replacement bottle from the GP/pharmacy before it has run out and you don't use it after it has expired. The safest way to dispose of old bottles is to return them to your pharmacy.

Keeping drops in the fridge

If you have difficulty knowing whether a drop has gone into your eye, you can try keeping the bottle in the door of the fridge (not the freezer). You will then feel the coldness of the drop going into your eye. However, always be sure to check in the patient information leaflet or with your pharmacist that your drops can safely be stored this way, before doing this.

Travelling

Sometimes you might need to keep your drops cool when the weather is hot, for instance if you are travelling or out for the day. Glaucoma UK has cool wallets available to purchase, that prevent your drops from becoming warm for up to 45 hours. They contain gel crystals which only require soaking in cold water to activate. Refrigeration is not required.

There is a large wallet that holds up to four eye drop bottles or 30 single dose unit eye drops, and a small wallet that takes a single bottle or 10 single dose unit eye drops.

05 What types of glaucoma drops are there?

The name on the bottle

There are various kinds of pressure lowering eye drops used in the treatment of glaucoma. All the drugs used in them have standard pharmaceutical names, which are not trade names. If your drops are only labelled with the names of the drug or drugs they contain, they are said to be 'generic'. However, many drops are better known by their trade name, chosen by the company that developed the drug and have the patent. There are certain glaucoma drops where use in children are restricted (please see our booklet Glaucoma in Babies and Children).

Here is a list of trade names and their generic equivalents.

Trade name	Generic name	Trade name	Generic name
Alphagan	brimonidine	Saflutan UD	tafluprost
Azopt	brinzolamide	Teoptic	carteolol
Betagan+UD	levobunolol	Timoptol+UD	timolol
Betoptic+UD	betaxolol	Tiopex UD	timolol (gel)

Trade name	Generic name	Trade name	Generic name
Iopidine+UD	apraclonidine	Travatan	travoprost
Lumigan+UD	bimatoprost	Trusopt	dorzolamide
Monopost UD	latanoprost	Xalatan	latanoprost
Pilocarpine+UD	pilocarpine		

UD = Unit Dose

Combination drops, usually containing timolol and another drug are also available under different trade names. However, a new combination drop Simbrinza, does not contain timolol.

Trade name	Generic name
Azarga	timolol and brinzolamide
Combigan	timolol and brimonidine
Cosopt+UD	timolol and dorzolamide
DuoTrav	timolol and travoprost
Ganfort+UD	timolol and bimatoprost
Simbrinza	brinzolamide and brimonidine
Taptiqom UD	timolol and tafluprost
Xalacom	timolol and latanoprost

Generic substitutes for branded drops

As patents on glaucoma drops expire, more patients are receiving a generic version of their prescription in place of a branded one. The active ingredient(s) are the same and at the same concentration. Other constituents may vary slightly but the eye drops are essentially similar. The bottle and packaging are likely to be different, and may vary from one prescription to another.

Most people have no trouble with generic drops, but there can be some issues. For example, the design of the bottle might not fit your compliance aid or you may not be able to squeeze the new bottle if the plastic is too hard. Very rarely, the slightly different formulation may not suit you. If you experience any difficulty you should discuss it with your eye specialist, GP or pharmacist. Alternatively Helpline – the Glaucoma UK telephone helpline, will be able to help and advise.

Combination drops

If you need two different types of medication, using a combination drop can have advantages over using two separate drops. It saves both time and having to keep two different bottles. It also means that you deliver less preservative into your eye, which may reduce the possibility of developing an allergic reaction to the preservatives. For patients who pay for their prescriptions, only one prescription charge is levied for a combination drop.

Different categories of drops

The drugs used in eye drops to treat glaucoma fall into several categories, according to the way in which they work.

Alpha agonists (apraclonidine and brimonidine)

These act to reduce the production of fluid in the eye and possibly to improve the flow of fluid out of the eye. They are usually used two or three times a day. Brimonidine is licenced for the long term treatment of glaucoma but apraclonidine is for short term use following, or to delay, laser treatment. Possible side effects include a dry mouth, tiredness and general weakness. Very occasionally people may develop a severe allergic reaction to these drops. If this happens, the eye becomes increasingly red, sore and sticky. It can take several months for this to happen, but if it does, you should consult your ophthalmologist or general practitioner without delay.

Beta blockers (betaxolol, carteolol, levobunolol and timolol)

The action of these drops is to reduce the production of fluid in the eye. They are used once in the morning or twice a day, as advised by your ophthalmologist. They are not usually prescribed for anyone susceptible to chest or breathing problems. Possible side effects include a slow pulse, dizziness and tiredness. In some people these drops may cause depression, loss of libido or impotence. However, most people have no problems with them.

Carbonic anhydrase inhibitors (brinzolamide and dorzolamide)

The action of these drugs is to reduce production of fluid in the eye. These drops are used two or three times a day on their own, or twice a day if with another drop. Possible side effects include redness of the eye, crusty eyelashes, fatigue and a bitter taste in the mouth.

Cholinergic agonist (pilocarpine)

These act to improve the flow of fluid out of the eye through its usual route and the drops are used three or four times a day.

Prostaglandin/prostamide analogues (bimatoprost, latanoprost, tafluprost and travoprost)

Their action is to improve the flow of fluid out of the eye through a different route from the usual one. The drops are used once a day, usually at night. Possible side effects include a pink eye that usually improves over a period of time. The iris may darken in colour (more commonly in those with green or hazel eyes and less commonly in blue eyes). Eyelashes may grow longer and darker and in a small percentage of patients, the skin around the orbit of the eye may darken.

06 Are you struggling with your eye drops?

The Glaucoma UK Helpline often receive calls from people who have difficulty putting in their drops. This section describes the range of different eye drop dispensing aids, some of which may be prescribed and a large number are available from Glaucoma UK. We know that the easier people find it to put their drops in the more likely they are to stick with their daily routine. At the time of going to press, the descriptions are accurate to the best of our knowledge and belief. Our Helpline staff are happy to advise on which dispenser would best suit your needs. All dispensers come with full instructions for use and you can contact Helpline if you would like these in large print.

Aids for eye drop bottles

The Opticare is a hand-sized dispenser with an eye piece for aiming the drop accurately. It has a large squeezable area to make it easy to administer a measured dose and can be prescribed free of charge to those who are eligible. It is best suited for round bottles, and there are black and grey rubber collars which come with the Opticare for bottles which may need adjustment to fit. There are some generic

drops that may require the use of the two collars.

Most bottles can be opened and closed without removing them from the Opticare. The following bottles are very easy to use in this aid:

Allergan drops: Alphagan 5ml, Betagan 5ml, Combigan 5ml, Ganfort 3ml and Lumigan 3ml.

Alcon drops: Azopt 5ml, Betoptic 5ml and Iopidine 5ml.

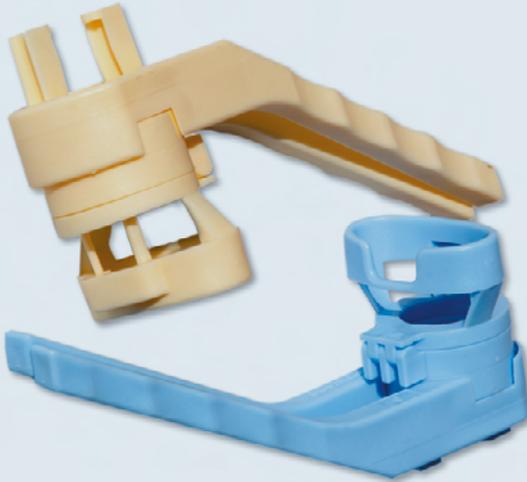


The Opticare Arthro has an adjustable eyepiece and long handles for maximum effect with little pressure. It is especially designed for those with hand and arm mobility problems such as arthritis or sports injury. It is also particularly good for use by a carer/relative who administer

drops for the patient since the device offers flexible positioning. It's available free of charge on prescription to those who are eligible. The blue coloured Arthro 5 can be used with 2.5ml and 5ml round bottles.

The cream coloured Arthro 10 can be used with 10ml and 15ml round bottles. Unfortunately Cosopt, Duotrav, Timoptol, Timoptol LA , Travatan, Trusopt, Xalacom and Xalatan bottles do not fit in this dispenser.

Opticare Arthro



The Alcon Eyot is for use with the Alcon branded bottles Azarga, Azopt, Duotrav and Travatan eye drops. It is designed to specifically fit the shaped bottles, and make it easier to position the bottle over the eye and squeeze the bottle.

Alcon Eyot



The Eye Care bottle opener, which comes with the Alcon Eyot, makes it easy to remove and replace the tops of bottles when they are in the dispenser. It has different sized ends and is made of an easy grip rubber material.

The Autodrop is another small device suitable for a wide variety of eye drop bottles. It's an eyepiece that holds the bottle and helps aim the drop into your eye, while you squeeze the bottle with your fingers. The Autodrop is not suitable for Cosopt and Trusopt (unless round).

Autodrop



The Autosqueeze which is like a pair of butterfly wings, fits around the bottle neck. It is designed with raised grooves which makes squeezing easier and so this aid is particularly useful for people with arthritis or limited hand mobility. It only works well with round bottles and can be used on its own or with the Autodrop.

Autosqueeze



Autodrop & Autosqueeze combined



Single Dose Unit Eye Drops

The **Eyot (Thea)** has a button to help you squeeze out the eye drop, which is helpful if you find the plastic difficult to squeeze.

Eyot (Thea)



The Dropaid is also designed for accurate positioning over the eye with easy grip control. It is particularly good if you have limited thumb dexterity, as you can use your other fingers/palm to grasp the levers which squeeze out the eye drop. Take care though if you have had surgery and speak with your clinician/pharmacist to check the aid is not too close to your eye.

Dropaid



07 Top tips

- Follow your clinician's instructions and only administer the number of drops advised, which is usually only one drop. Take your medication on time every time, as evenly spaced out through the day as possible.
- Always wash your hands before and after using your eye drop bottles.
- Eye drop dispensers are for individual use. They are personal items which shouldn't be shared between patients to avoid any contamination.
- Wash your dispenser regularly in warm soapy water.
- To avoid contamination, never touch the nozzle of the dropper bottle and avoid contact with the eye.
- After putting in a drop, close your eye gently and press softly on the inside corner with a finger for one to two minutes. Then wait five minutes, or according to medical advice, before putting in a different drop into the same eye, to prevent the first being washed away.
- Never use drops after the expiry date printed on the packaging. Discard a bottle of eye drops four weeks after

opening and start a new one. It is a good idea to write the date that you open the bottle onto the label, so you know when it will expire. For single dose unit eye drops, always check the expiry date once you open the outer pouch/sachet and this varies between drops and is not always 28 days. Single dose unit eye drops should be used once only and discarded.

- Order further supplies from your GP, if necessary, before your eye drops finish to ensure that you do not run out.
- Hand in any unused or expired medicines to your local pharmacist.
- If you use contact lenses, remove them before putting in eye drops and wait at least 15 minutes before re-inserting them, unless advised otherwise by your clinician.
- Store eye drops and all medicines out of the reach and sight of children and out of direct sunlight. Store your drops as instructed, whether that be at room temperature (never near a radiator) or in the door of the fridge. If your drops are to be stored at room temperature and you find it difficult to feel your drops going into your eye, speak to your pharmacist to find out whether it is safe for you to store them in the fridge instead. This may make it easier to feel the drop going into the eye.
- Some eye drops may sting or irritate for a short while

after putting them in, but let a clinician, nurse or pharmacist know if symptoms become worse or you experience any other side effects.

If you sometimes forget your medication:

- Establish a routine and stick to it. For example, if your drops are stored at room temperature it might help to put your drops by your toothbrush so that you remember to put them in when you brush your teeth. You can also set a reminder/alarm on your mobile phone.
- Create a chart with the days of the week so that each drop can be ticked off. A calendar is available from the Glaucoma UK helpline or website.

If you use different types of drops:

- Use drops in the same order each time, for example by colour or by bottle size, to reduce the possibility of making a mistake.
- If you have difficulty telling the different bottles apart, it may be useful to use coloured stickers, larger labels or elastic bands around the bottles to distinguish them.
- If you use eye ointments for another condition, use these after putting in your drops waiting at least five minutes before doing so.

08

Frequently asked questions

Q. If I go on holiday, particularly to a warm climate, and there is no ‘fridge, where should I keep the drops?

A. Keep your drops in a cool place out of the light. A cool wallet, available from Glaucoma UK, helps to keep the drops cool, for up to 45 hours.

Q. Should I let the eye doctor know if I develop other medical conditions e.g. raised blood pressure or diabetes?

A. Yes. It may influence the treatment they prescribe you.

Q. Can I do yoga exercises?

A. Yes, except for exercises involving the head being lower than the heart for an appreciable time e.g. headstands. This tends to increase eye pressure.

Q. Can I play wind instruments?

A. Playing a wind instrument such as a trumpet increases the eye pressure, but the effect will depend on how much, and how often, you play. It is best to ask your eye specialist if it would be suitable in your particular case.

09

Further help and information from Glaucoma UK

Glaucoma UK is here for anyone affected by glaucoma. For help and advice,

Call our telephone helpline:

01233 64 81 70 (9.30am - 5.00pm Monday to Friday)

Email us with any worries or queries:

helpline@glaucoma.uk

Visit our website **www.glaucoma.uk** for information and advice. You can also order a range of free booklets online and visit the user forum to ask questions and share experiences with other people living with glaucoma.

Call us or look online to find out if there is a glaucoma support group in your area.

If you are concerned about the treatment you have been offered, we provide a buddy service. You can speak to someone else who has experienced the same treatment as you, and ask them any questions or talk through your concerns. To speak to a buddy, please contact our helpline.

10 Other free advice booklets

We have other free information booklets available to order or download. For example:

- Blepharitis
- Dry eye disease
- Glaucoma: a guide
- Laser treatment for glaucoma
- Ocular hypertension

11

Remember



If you have glaucoma in both eyes, you must inform the DVLA.



Prescribed drops should be used as recommended by your specialist, on a daily basis, unless and until you are told otherwise.



If you develop side effects or symptoms you are concerned about, you should let your eye doctor know as soon as possible.

About Glaucoma UK

- We fund sight-saving research into the early detection and treatment of glaucoma
- We campaign to raise awareness of glaucoma so that no one loses their sight needlessly
- We provide support that helps people to live well with glaucoma

Each year in the UK over 11,000 people are diagnosed with glaucoma. We are passionate about supporting them and are committed to providing our services free of charge to anyone who needs them. It is only through the generosity of our supporters that we can do this.

Help us save sight and fund research

- make a donation by calling 01233 64 81 64
- donate online at www.glaucoma.uk
- become a member for £17.50 a year. **Join online or call 01233 64 81 71**

Your support will make a difference to people with glaucoma today and will protect future generations from unnecessary glaucoma sight loss.



The information in this leaflet was correct at the time of printing (printed 06/2020).

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Whilst every step has been taken to compile accurate information and to keep it up to date, we cannot guarantee its correctness and completeness.

Glaucoma UK and the author cannot take responsibility if you rely solely on the information in this booklet. The information provided is designed as an addition to, and not a substitute for, professional advice from a qualified doctor or other healthcare professional, which will be tailored to a patient's individual circumstances.

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