

The Charity for People with Glaucoma
Established 1974

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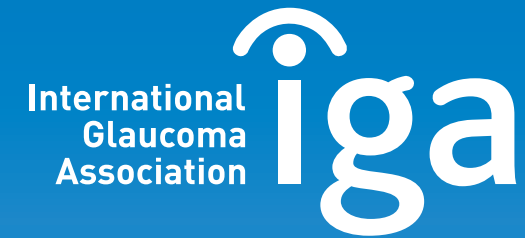
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OCULAR HYPERTENSION

A GUIDE



This organisation has been certified as a producer of reliable health and social care information.
www.theinformationstandard.org

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OPHTHALMOLOGY

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Contact the IGA for further information or advice:

International Glaucoma Association

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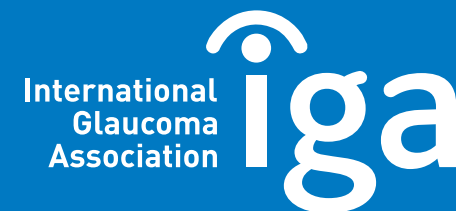
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Glaucoma Service Director, Moorfields Eye Hospital

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Don't forget:

- take your eye drops as prescribed by your consultant as it is the only way to avoid further sight loss in most cases
- tell your close relatives that you have ocular hypertension and that they are at higher risk so that they can be tested too as early as possible
- contact the IGA Sightline if you have any questions, we are here to help you

A membership form is enclosed in the middle of this booklet. If you already are a member, please pass it to a relative or friend, you may save someone else's sight.



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Welcome

The International Glaucoma Association is, as its name suggests, primarily a provider of information about the group of eye conditions known as glaucoma. This guide has been written to give you an introduction to ocular hypertension which is raised pressure within the eye and a significant risk factor for glaucoma. Ocular hypertension is not glaucoma, but as it may lead to glaucoma, it is often treated to prevent the onset of glaucoma. This booklet is intended to help you understand your condition and the reasons for your treatment to help ensure that you retain useful sight for life.

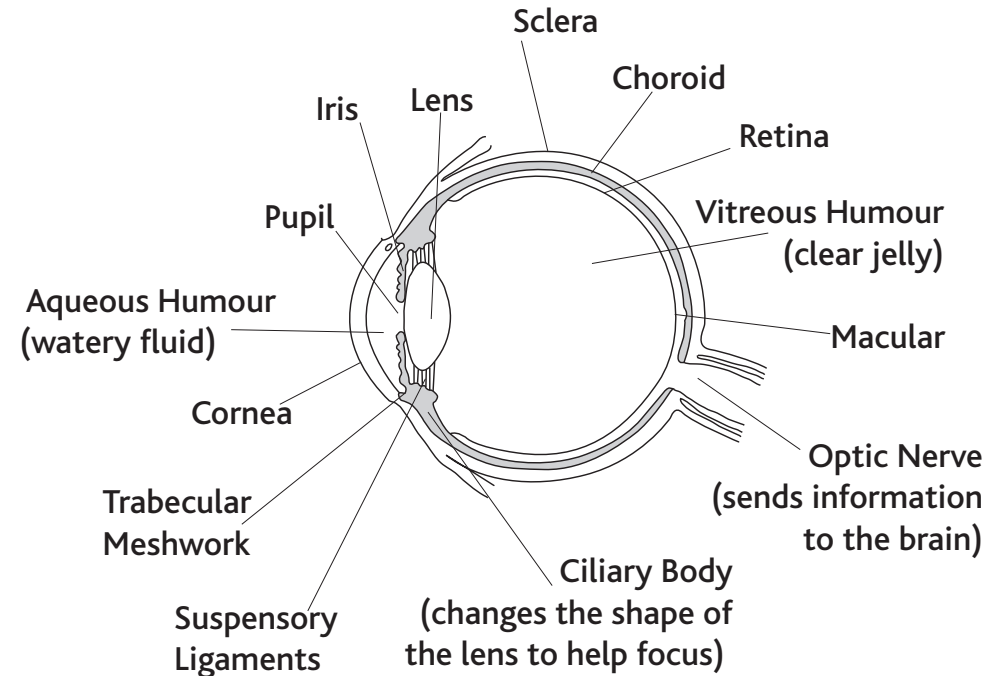
Many people who develop ocular hypertension will not go on to develop glaucoma, especially if they are diagnosed and treated correctly, but this is only the case if they adhere to the treatment regime prescribed by their eye specialist and if they attend their follow up appointments regularly, so that when changes in the level of intraocular pressure, or the first signs of damage to the visual field are noted, the treatment can be altered in order to prevent further damage.

This booklet has been provided to you free of charge because we believe that it is very important for a person to receive the information they need when they ask for it rather than to be given a price list. However, we should be most grateful for any donation you may be able to make in order to help us maintain this free service in the long term.

David Wright FIAM
Chief Executive

Structure of the eye

Cross section through the eye showing the major structures
Patient Pictures, Health Press Limited (Oxford)



The eye is shaped like a ball. The tough white outer coat is called the sclera and its surface is covered by a thin layer called the conjunctiva. The clear outer layer at the front of the eye is called the cornea which is 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, which 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 of 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, known as the macula, has a very high density of cells. Further away from this central detailed vision area is the area of the retina which is more sensitive to dim light and that also provides our peripheral vision. Immediately below 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.

What is ocular hypertension?

Ocular hypertension simply means a raised pressure within the eye in the absence of detectable glaucomatous damage. It is not glaucoma, although in many cases people with glaucoma also have a raised pressure within their eyes and it does mean that someone with ocular hypertension is at increased risk of developing glaucoma. This is why it is most important for people with ocular hypertension to be monitored carefully in order that any glaucoma that does develop is detected at the earliest possible stage when treatment is most effective.

What is meant by 'raised pressure'?

Broadly speaking, if a large population of people have their eye pressures measured, the average pressure will be about 16mm Hg. Two standard deviations above that average will give an upper limit of 'normal' of about 21mm Hg. An eye is considered to have ocular hypertension if it is consistently above that level. This is obviously a mathematical calculation, but the risk of developing glaucoma rises appreciably with rising pressure and it has been shown that the risk of developing glaucoma is about 10 times greater over a 10 year period if a person has pressures between 21 and

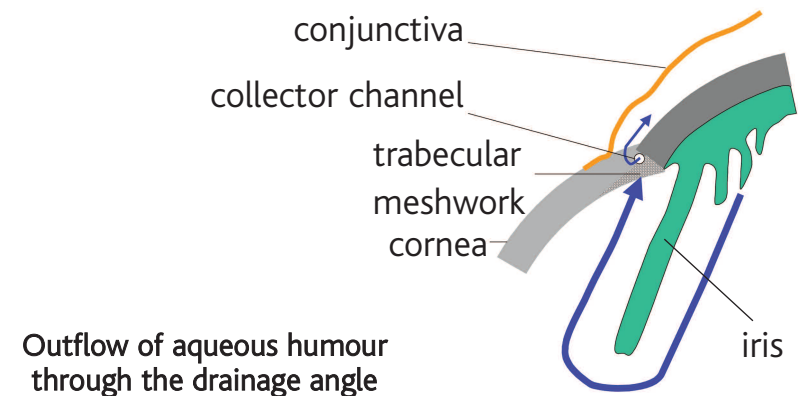
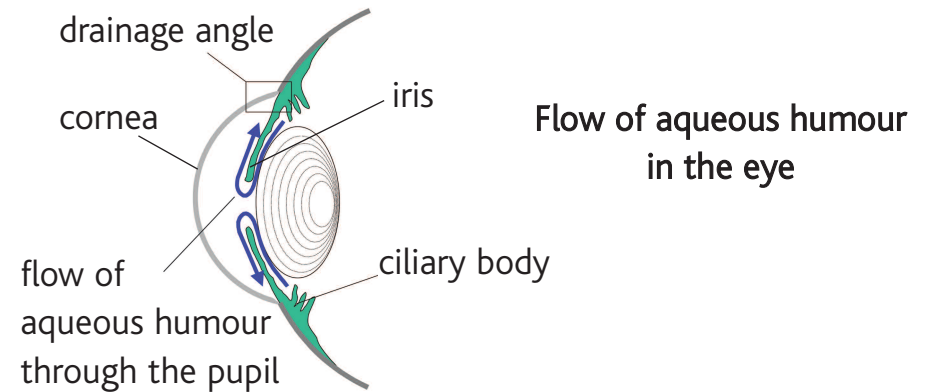
29mm Hg than if the pressure is below 21mm Hg. This is why everyone with ocular hypertension should be monitored carefully for the development of glaucoma and why some people have treatment to reduce the pressure to a more 'normal' level even when they don't have glaucoma, i.e. in order to prevent the development of glaucoma. It is all a question of balancing the risk of the development of glaucoma against the risk of treatment.

Latest research suggests that 'normal pressure' in a Japanese population may be considerably lower than for other racial groups. People of Japanese origin should therefore be carefully examined in order to exclude the possibility of glaucoma. It is not yet known if a similar liability exists for other Asiatic people.

What creates pressure within the eye?

Eye pressure (intraocular pressure) is controlled by a watery fluid called aqueous humour which fills the front part of the eye. The purpose of the aqueous humour is to provide nutrients to the structure of the eye and to remove waste products. This fluid is made in the ciliary body (a ring of tissue behind the coloured part of the eye, which is called the iris). It flows through the pupil and drains away through tiny drainage channels called the trabecular meshwork.

This is situated in the drainage angle between the cornea (the clear window at the front of the eye) and the iris. In a 'normal' eye there is a balance between the production and the drainage of this fluid, but in some eyes this balance becomes disturbed. Most cases of ocular hypertension occur because the flow of fluid out of the eye becomes restricted and the pressure in the eye rises.



Are some people at increased risk of developing ocular hypertension?

Yes, there are several risk factors which make the development of ocular hypertension more likely and they tend to be cumulative in their effect.

Age:

Ocular hypertension becomes much more common with increasing age so regular testing from about the age of 40 is recommended.

Race:

People of African-Caribbean origin are more likely to develop ocular hypertension than people of a European origin. The condition also tends to develop at an earlier age so regular testing from about the age of 30 is advisable.

Family History:

It is unlikely that a person will be aware of a history of ocular hypertension within the family, but any history of glaucoma in a close blood relative leads to an increased risk of developing glaucoma.

More information can be found in the IGA leaflet titled: 'Ocular Hypertension and your relatives'.

Join Us

International
Glaucoma
Association **iga**
The Charity for People with Glaucoma
Established 1974

and help save sight

By joining us, you can keep up to date with the latest news and information about glaucoma and other eye conditions, as well as helping to support our work and fund research

Application Form

Your details:

Name _____

Home Address _____

Postcode _____

Tel. No. _____ Email _____



As a charity we are able to reclaim tax on donations and subscriptions. If you are a UK taxpayer and would like to help in this way please tick the box and sign the declaration.

Gift Aid Declaration: (please tick) I want to Gift

Aid all donations I make to the International Glaucoma Association.

I am a UK taxpayer and want the IGA to claim back the tax on all my contributions made for this tax year and years prior to the year of this declaration, as per government guidelines, until further notice.*

Signed _____ Date _____

* To make Gift Aid donations, you must have paid or pay an amount of income tax or capital gains tax at least equal to that reclaimed by us on your donation.

Please indicate membership type (tick one box only)

FRIEND For an annual subscription of £17.50 if you pay by cheque or debit/credit card (£15.00 if you pay by Direct Debit), you will receive:

- quarterly newsletters featuring the latest facts and viewpoints about glaucoma
- invitations to 2 free open meetings (lecture + Q&A sessions) every year with glaucoma specialist speakers
- details of support groups in your area

MEMBER For an annual subscription of £17.50 if you pay by cheque or debit/credit card (£15.00 if you pay by Direct Debit) you will receive the same benefits as a Friend, plus:

- an invitation to the Annual General Meeting (AGM)
- the chance to put resolutions forward at the AGM
- the right to vote at the AGM
- eligibility for election to the Council of the Association (Board of Trustees)
- the IGA Annual Report and Accounts, including minutes of the AGM

LIFE FRIEND For a single subscription of £250.00, you will receive the same benefits as a Friend, for your lifetime.

LIFE MEMBER For a single subscription of £250.00, you will receive the same benefits as a Member, for your lifetime.

Members and Life Members are liable for a maximum of £5.00 in the event that the IGA should become insolvent.

Please indicate payment type (tick one box only)

Direct Debit - £15.00

I am interested in paying by Direct Debit and receiving the £2.50 discount. Please call us on 01233 64 81 71.

Cheque - £17.50

I enclose my cheque made payable to International Glaucoma Association. (If you are making a payment from overseas, please send a sterling draft).

Debit/Credit Card - £17.50

I would like to pay by debit/credit card. I authorise the IGA to debit my account with the total shown below.

My subscription fee will be: £.....

I would also like to make a donation of: £.....

Bringing my payment to a total of: £.....

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We accept: Mastercard, Visa, Maestro

Card no

(Maestro Only)

/ / / /

Valid from / Expiry date /

Issue no. Security code (last 3 digits at the back of the card)

Cardholder name and title _____

Cardholder signature _____

To help us support you, please fill in the information below:

Which eye condition have you been diagnosed with? _____

When were you diagnosed? _____

Year of birth _____

Where did you hear of the IGA? _____

Where did you pick up our literature? _____

If you have joined on behalf of someone else, please let us know who.

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Myopia

Very short sight (high myopia) is a risk factor for raised IOP.

Previous eye injury

Any previous eye injury, especially a blunt injury, can cause damage leading to a raised IOP even years after it occurred. Regular routine eye health checks are a wise precaution.

What should I do if I fall into one or more of these risk categories?

As has already been discussed, ocular hypertension is a major risk factor for the development of glaucoma. If ocular hypertension has already been diagnosed, then it should be expected that regular routine eye examinations will be needed in order to make sure that the condition has not developed into glaucoma. These routine examinations may be carried out at the hospital or they may be carried out by an optometrist depending on the level of pressure and whether or not treatment has been prescribed.

The central corneal thickness is likely to be measured once a raised IOP has been identified because a thick cornea tends to lead to an overestimate of the pressure, whereas a thin cornea tends to lead to an underestimate. Once the central corneal thickness is known then allowance can be made if necessary.

However, anyone who is in one or more of the risk categories mentioned above should have an eye examination every year or two at an optometric practice (opticians) in the first instance, which includes all three glaucoma tests, so that if glaucoma has developed, it is detected at the earliest possible stage. An onward referral can then be made as required.

The three tests are:

Ophthalmoscopy:

An examination of the optic disc at the back of the eye with a special torch or a slit lamp

Tonometry:

A measurement of the pressure within the eye (the intraocular pressure)

Perimetry:

A check of the visual field to see if there are any signs of sight loss in the off-centre part of the vision which could be a sign of the development of glaucoma

How is ocular hypertension treated?

It is not appropriate to treat all cases of ocular hypertension, but if the risk of development of glaucoma is considered to be significant, the ophthalmologist may decide that the balance of risks and benefits is such that treatment is appropriate. If this is the case, the most usual type of treatment to be prescribed is eye drops that control the pressure within the eye, (these are the same drugs that are used to control glaucoma) by either reducing the amount of aqueous humour being produced by the eye (the ciliary body) or increasing the rate of drainage.

There have been major advances in these forms of treatments in recent years and eye drops are now more effective and have fewer side effects than those that were previously available.

How should I take my eye drops?

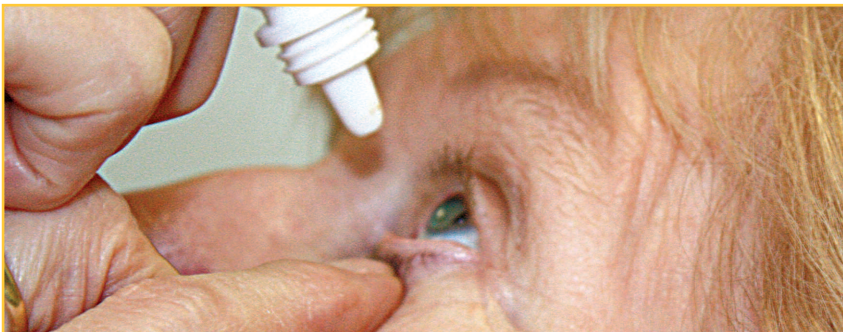
It is worth getting into a routine, so that the drops are not forgotten. For instance, if you keep the bottle of drops by your toothbrush, you will remember to put the drops in when you brush your teeth.

There are various ways to put drops in the eye. One of the simplest is to sit in front of a mirror, pull down the lower lid and let the drop fall into the space between the eye and the lid.

Close your eye and gently press on the inside corner of it with a finger for one to two minutes. This will help to slow the rate at which drops drain out through the tear duct into your system and keep them in your eye, where they are needed. Eye drops drain away through the tear ducts into your nose and then are swallowed, which is not normally harmful but which may lead to unwanted side effects in susceptible people.

Another way of putting in your eye drops is to tilt your head backwards while sitting, standing, or lying down. With your index finger placed on the soft spot just below the lower lid, gently pull down to make a space between the eye and the eyelid. Let a drop fall into the space.

Instilling eye drops



Closing the tear duct



Photos by Rachel Gansczyk

Tips:

If you take more than one type of drop, it is important to leave at least 10 minutes between each drop to prevent the second drop washing out the first.

If you are uncertain if a drop has gone into the eye, try storing your drops in the door of the refrigerator (not the freezer). It is easier to feel the eye drop going into the eye when it is cold than when it is at room temperature (please check with your pharmacist or the drug information leaflet if the eye drops can be stored in the refrigerator).

Can I continue to drive with ocular hypertension?

Ocular hypertension is not glaucoma and there is no requirement to inform the Driver and Licensing Authority (DVLA) about the condition, unless it develops into glaucoma in both eyes (in which case you are required by law to inform the authorities). Nevertheless, it is important that your general eyesight is good enough to allow you to drive, so if you have any doubts it is best to ask your optometrist or ophthalmologist.

What if my ocular hypertension cannot be fully controlled?

Ocular hypertension itself does not damage the vision, but if it develops into glaucoma then there is a risk to sight. More than 90% of people diagnosed with glaucoma today will retain useful sight for life. If you have been diagnosed with ocular hypertension and have received the appropriate level of monitoring, then any glaucoma will have been detected at a very early stage when little damage to the field of vision will have occurred. At the point at which ocular hypertension has developed into glaucoma, the consideration of risk and benefit of treatment changes and there are a number of treatment options available which would not normally

be suggested for a person with ocular hypertension unless the level of the intraocular pressure were very high. It would therefore still be reasonable to expect to retain useful sight for life, although the treatment and monitoring regime will inevitably change.

If you would like to find out more about ocular hypertension or glaucoma, please contact Sightline (helpline) on 01233 64 81 70 or by email at info@iga.org.uk or visit www.glaucoma-association.com

Mission & Vision:

The International Glaucoma Association is the charity for people with glaucoma, with the mission to raise awareness of glaucoma, promote research related to early diagnosis and treatment and to provide support to patients and all those who care for them.

Our vision is to ensure that all people with or at risk of glaucoma have the knowledge and access to care that will enable them to maintain a good quality of life.

To find out more about the IGA, or to make a donation, please contact us on 01233 64 81 64

Other booklets

Available from the International Glaucoma Association:

Glaucoma - A Guide

Glaucoma - A Greater Understanding

Glaucoma - Babies and Children

Dry Eye Syndrome - A Guide

Cataracts - A Guide

A full list of references and information sources used in the compilation of this leaflet is available on request by phone: 01233 64 81 70 (Sightline) or by email: info@iga.org.uk

We hope that you found this booklet helpful. Your feedback is important to us, please help us improve our information by sending us your comments about the content and format of this publication at marketing@iga.org.uk or by writing to us at the address shown on the back of this booklet.