

## GLAUCOMA

### What is Glaucoma?

Glaucoma is a disease where fluid pressure inside the eye increases causing irreversible damage to the optic nerve and loss of vision. Glaucoma can be divided into two main categories:

- **Open angle:** Open angle, chronic glaucoma tends to progress at a slower rate and you may not notice that your vision is affected until the condition has significantly progressed
- **Closed angle:** Closed angle glaucoma can appear suddenly and is often painful. Visual loss can progress quickly but the discomfort often leads you to seek medical attention before permanent damage occurs

The optic nerve is a bundle of more than 1 million nerve fibres. The optic nerve connects the retina to the brain. The retina is the light sensitive tissue at the back of the eye. A healthy optic nerve is necessary for good vision.

### What causes it?

There are several causes for Glaucoma:

- Ocular hypertension (increased pressure within the eye) is the largest risk factor
- People of African descent are three times likely to develop primary open angle glaucoma
- Elderly people have thinner corneas and often suffer from hypermetropia
- Family history of glaucoma
- People of East Asian descent are prone to develop angle closure glaucoma
- Secondary causes of glaucoma may be :
  - Corticosteroids
  - Conditions that restrict blood flow to the eye: diabetic retinopathy, central vein occlusion, and uveitis.
  - Ocular trauma
- Congenital malformations can be associated with Glaucoma

### What are the symptoms?

At first there are no symptoms for glaucoma. The vision stays normal and there is no pain.

However as the condition progresses, you may notice that your side vision is gradually failing and you slowly lose your side vision. It may appear that you are looking through a tunnel. Over time your straight ahead vision may decrease until no vision remains. Glaucoma may develop in one or both eyes.

### How is it diagnosed?

Screening for Glaucoma should be performed as part of a standard eye examination performed by ophthalmologists, orthoptists and optometrists.

Testing for glaucoma should include measurement of the intra-ocular pressure via tonometry, changes in size or shape of the eye, anterior chamber examination and examination of the optic nerve to look for any visible damage to it.

- **Visual field test:** Measures your peripheral vision, to detect whether you have lost any side vision
- **Visual acuity test:** The eye test measures how well you see at various distances
- **Dilated eye examination:** Drops are placed in your eyes to widen, or dilate the pupils. Your retina and optic nerve are examined via a special magnifying glass for signs of damage
- **Tonometry:** An instrument measures the pressure inside your eye
- **Pachymetry:** A numbing drop is applied to your eye. An ultrasonic wave instrument is used to measure the thickness of your cornea

### How can Glaucoma affect my health?

Glaucoma has been termed the "silent thief of sight" because the loss of vision gradually occurs over a long period of time and is only recognised when the disease is quite advanced. Once lost, the damaged visual field cannot be recovered. Worldwide it is the second cause of blindness. Ocular blood flow is involved in Glaucoma. Fluctuations in blood flow are more harmful to the optic nerve than steady reductions. Unstable blood pressure and dips are linked to optic nerve damage and correlate with visual field deteriorations.

## Treatment

Immediate treatment of open angle glaucoma can delay the progression of the condition. Early diagnosis is very important.

There is no cure for glaucoma. Glaucoma treatments include medicines, laser trabeculectomy, conventional surgery or a combination of these. Whilst treatment may save remaining vision, they do not improve sight already lost from glaucoma.

**Medicines:** Medicines in the form of eye drops or pills are the most common early treatment of glaucoma. There are several different types of medicines to treat glaucoma.

- Prostaglandin analogs: Increase the outflow of the aqueous humor from the eye thus decreasing the fluid in the eye. Xalatan, Lumigan and Travatan
- Topical beta-adrenergic receptor antagonists: Decrease aqueous humor production. Betagan and Betaxolol
- Alpha-2-adrenergic agonists: Decrease aqueous humor production and increase fluid outflow. Alphagan

- Less selective Sympathomimetics: Decrease aqueous humor production through vasoconstriction. Epinephrine
- Miotic agents: Contract the ciliary body muscle, tightening the trabecular meshwork and allow increased outflow of the aqueous humor. Pilocarpine
- Carbonic anhydrase inhibitors: Lower secretion of aqueous humor by inhibiting carbonic anhydrase in the ciliary body. Diamox, Trusopt and Azoptic

**Surgery:** May be used for people with congenital glaucoma.

**Trabeculectomy:** A flap is made in the sclera wall of the eye and a window opening made in the trabecular meshwork. Fluid is thus able to flow out of the eye through the opening.

**Laser surgery:** Laser trabeculectomy may be used to treat open angle glaucoma. An argon laser is aimed at the trabecular meshwork to stimulate opening of the meshwork to allow outflow of the aqueous humor.

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## Your role in managing this condition

- The early detection and treatment of glaucoma before it causes major vision loss is the best way to control the condition
- Have your eyes examined regularly by your eye professional
- Use your eye drops for your glaucoma every day, as prescribed by your doctor
- Make sure your high blood pressure and blood sugar levels are kept under control

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## Disclaimer

The reader should always consult a doctor if they believe they may be suffering from this medical condition. The information contained herein is intended to assist understanding and should not take the place of your doctor's advice or instructions. Whilst every effort has been made to ensure the accuracy of the information contained herein, Universal Care does not accept responsibility for any errors or omissions or their consequences, and shall not be liable for any damages suffered arising out of the use of this information.

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