

## GLAUCOMA

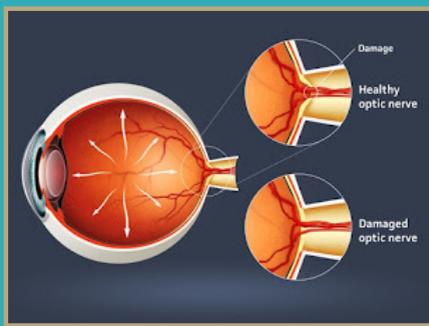
### What is glaucoma?

Glaucoma is one of the most important causes of preventable blindness in the world. Glaucoma is a condition of high pressure in the eyeball. This can lead to damage of the optic nerve and gradual loss of sight.

The retina consists of a layer of light-sensitive cells at the back of the eye. The retina receives the light rays and sends this visual information to the brain via the

optic nerve. When the small channels that drain the fluid (aqueous humour) from the eye become clogged or completely blocked, pressure builds up in the eye and this damages the optic nerve. The eye can also produce too much fluid which cannot drain fast enough through the channels. This leads to a reduced visual field, and if not treated, may lead to blindness.

### What are the risk factors?



Glaucoma affects people of all races, ages and genders. The following people are at higher risk:

- over the age of 40
- family history of glaucoma
- abnormally high intraocular pressure
- African, Scandinavian, Celtic or Russian ancestry
- diabetic
- short-sighted
- long-term use of steroids
- previous eye injury
- if you suffer from high blood pressure or migraine.

### What are the symptoms?

Many people do not know that they have glaucoma until they lose some of their eyesight. It is a painless condition that develops slowly over time. Patients experience a gradual worsening of their peripheral vision. This loss of vision is called tunnel vision. Unfortunately the loss of vision is permanent and can't be reversed.



### Different types of glaucoma

**Open-angle glaucoma** is the most common form of glaucoma in South Africa. A partial blockage in the drainage canals causes the intraocular pressure to slowly rise over time. This raised pressure causes gradual visual loss which can be extensive.

**Angle-closure glaucoma** is far less common and is sometimes also referred to as acute glaucoma. The drainage system becomes blocked by the iris (the coloured part of the eye). The fluid is then unable to drain through the channels. The pressure can rise very quickly with blurred vision, haloes, severe headaches, eye pain and nausea. This condition must be treated very promptly to avoid permanent visual loss.

**Normal tension glaucoma** is when damage occurs to the optic nerve despite the pressure in the eye being "normal".

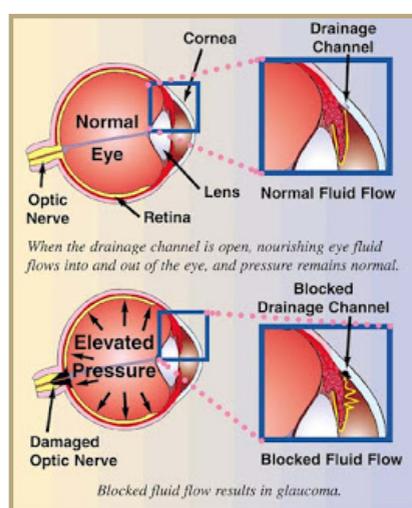
**Secondary glaucoma** occurs as a result of an eye injury, inflammation or a tumour. It may also occur in advanced cases of diabetes or cataract.

**Congenital glaucoma** is a rare condition where babies are born with high intraocular pressure. It occurs as a result of incomplete development of the eye's drainage channels before birth.

### How is it treated?

The goal of treatment is to reduce the intraocular pressure. This is mainly accomplished by the use of drops, but occasionally surgery or laser treatment is needed. The drops work by either increasing the drainage of fluid through the drainage canals or by decreasing the amount of fluid (aqueous humour) production.

Doctors measure intraocular pressure with a test called tonometry. Normal intraocular pressure is 10-21 mmHg.



### Drops

#### Prostaglandin analogues

This is the newest class of drops. They work by increasing the flow of aqueous humour out of the eye. The most common side effect is redness of the eye (hyperaemia), which usually subsides after a few weeks. In a small number of people these drops may gradually (and permanently) change the eye colour by increasing the amount of brown pigment in the iris.

#### Beta blockers

These drops have been available for many years. They work by decreasing the production of fluid in the eye. Some of the side-effects include low blood pressure, slow heart rate and general fatigue.

#### Alpha agonists

These drops increase the drainage from the eye as well as decrease production of aqueous humour. They can cause allergic reactions and drowsiness.

#### Carbonic anhydrase inhibitors

This is available as either pills or eye drops. They decrease the production of aqueous humour. The severe side effects of the oral forms, such as "pins and needles", nausea and diarrhoea, are largely avoided with the eye drops. The eye drops are usually well tolerated but may cause a bit of stinging or burning in the eye.

#### Miotics

These drops decrease the intraocular pressure by increasing the drainage of the fluid from the eye. Common side effects include blurred vision, brow ache and small pupil size.

### Surgery

#### Laser surgery

Two forms are available for open angle glaucoma; Argon laser trabeculoplasty (ALT or LTP) and selective laser trabeculoplasty (SLT). The ophthalmologist uses the laser to stimulate the drainage canals to drain more effectively.

#### Incisional surgery

If medical treatment and laser surgery do not work, incisional surgery may be indicated.

The ophthalmologist creates an entirely new drainage system for the eye. Trabeculectomy and the application of artificial valves (such as the Ahmed valve or Ex-Press valve) are examples of this kind of surgery.

