



## North Shore Eye Centre

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# GLAUCOMA

## What is glaucoma?

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Glaucoma is the name given to a group of eye diseases in which the optic nerve at the back of the eye is slowly damaged if not treated early. The optic nerve is the major nerve that transmits messages from the eye to the brain. It is made up of about 1.5 million nerve fibres, like an electric cable carrying numerous wires.

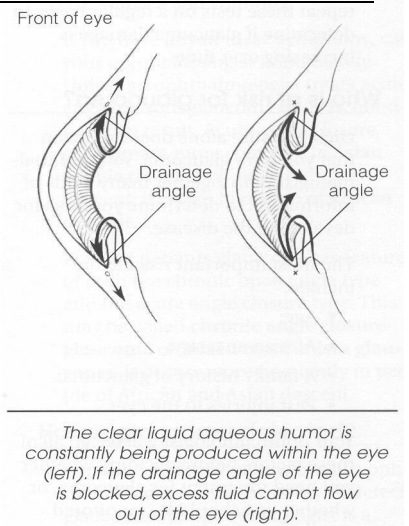
Glaucoma can damage nerve fibres, causing blind spots to develop. Usually these blind areas are not noticed until optic nerve damage has already occurred. If left untreated blindness can result.

## What causes glaucoma?

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Like a camera, the eye needs to maintain its shape so that it can focus the light accurately. This is achieved by keeping the pressure inside the eye firm, like a balloon. A clear liquid, called **aqueous humor**, circulates inside the eye to maintain this pressure. It is produced in the **ciliary body** and circulates around the structures of the **anterior chamber** and is then drained through the **trabecular meshwork** back to the blood to be renewed.

If the drainage system in the eye is blocked or hindered the aqueous humor cannot escape and so the pressure in the eye increases, which in turn can damage the optic nerve.





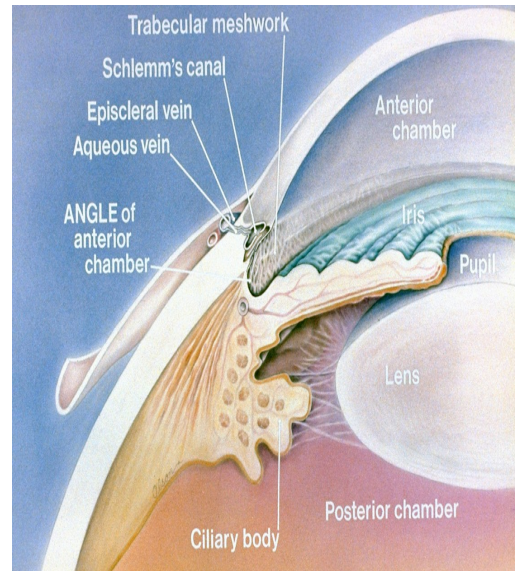
## What are the different types of glaucoma?

### ***Chronic Open-Angle Glaucoma***

This is the most common form of glaucoma (over 300,000 Australians). The drainage system of the eye becomes obstructed and hinders the drainage of aqueous. This causes excessive amounts inside the eye and so raises the pressure inside the eye.

There are no symptoms initially, and the damage to vision is painless and gradual, starting with the side vision and slowly tunnelling in.

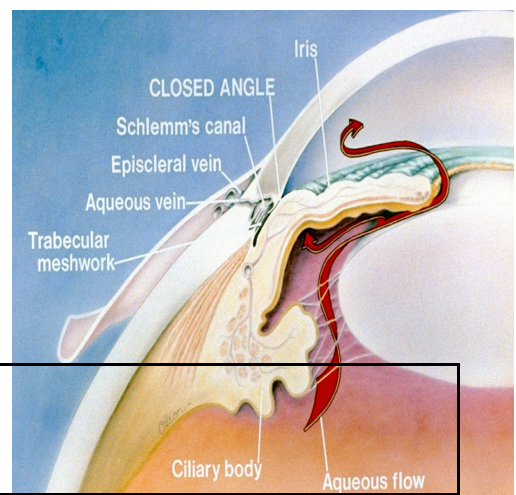
Most of the vision is through the 'good eye', therefore a person may remain unaware of any problem until a majority of nerve fibres have been destroyed, and there has been significant vision loss. This damage is irreversible and treatment cannot recover the vision.



### ***Acute Angle-Closure Glaucoma***

Acute glaucoma occurs when the pressure inside the eye rapidly increases due to the iris blocking the drain. An attack of acute glaucoma is often severe. People suffer severe eye pain, nausea, vomiting, blurred vision, haloes around lights and redness of the eye.

If treatment is delayed eye there can be permanent visual damage in a very short time due to the excessively high pressure in the. Usually laser surgery performed promptly can clear the blockage and protect against visual impairment.



**Immediate medical help must be sought from your Ophthalmologist**

### ***Low-Tension or Normal Tension Glaucoma***

Occasionally optic nerve damage can occur in people with normal eye pressure. This form of glaucoma is treated in the same way as open-angle glaucoma.



## ***Congenital Glaucoma***

This is a rare form of glaucoma caused by an abnormal drainage system. It can exist at birth or develop later. Parents may note that the child is sensitive to light, has enlarged and cloudy eyes, and excessive watering. Surgery is usually required.

## ***Secondary Glaucoma***

This type of glaucoma can develop as a result of other disorders of the eye such as injury, cataracts or eye inflammation. The use of steroids (cortisone) has a tendency to raise the eye pressure and therefore pressures should be checked frequently when steroid medications are used.

## **How is glaucoma detected?**

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Regular eye examinations by your ophthalmologist are the best way to detect glaucoma early.

A glaucoma test usually includes the following:

**Optic nerve check with an ophthalmoscope**

**Eye pressure check (tonometry)**

**Visual field assessment – this tests your side vision, where glaucoma strikes first.**

## **Who is at risk?**

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Patients should have yearly eye examinations if they have any of the following, as they can have an increased risk of developing glaucoma:

**A family history of glaucoma**

**Diabetes**

**Migraine**

**Short sightedness (myopia)**

**Eye injuries**

**Past or present use of cortisone drugs (steroids)**

## **How is glaucoma treated?**

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Although there is no cure for glaucoma, there are many ways your ophthalmologist can prevent any further loss of vision, or at least slow down its progress.



Treatments include:

**Eye drops** – There are a number of different categories of eye drops that can be prescribed by the ophthalmologist but all are used to either reducing the amount of fluid (aqueous humor) in the eye or improve its out-flow. A combination of drops can be more effective in some patients. A doctor can decide which medications are best suited for a patient based on the individual case of glaucoma, medical history and current medication regimen. In some cases, tablets are prescribed.

**Laser Surgery** – treatments vary on the form of glaucoma, but there are two main types

1. **Trabeculoplasty** is for open-angle glaucoma. It modifies the drainage system of the eye to help control eye pressure.  
Argon L
2. **Iridotomy** is for acute closed angle glaucoma. The laser creates a hole in the iris to improve the flow of aqueous to the drain.



**Surgery** – Normally, surgery is used to treat glaucoma, when other strategies such as eye drops and laser have been unsuccessful.

**Trabeculectomy** involves removal of a piece of trabecular meshwork to create a new opening (a bubble or bleb will form on the eye) to allow the fluid to flow through and enter the blood stream. This may eliminate the need to use eye drops, however the eye pressure may fall too low or the opening may heal over and cause raised pressure again.

**Glaucoma Drainage Implant** is a tiny tube that is implanted in the eye (between the cornea and lens) to allow drainage of fluid.

**Trabectome** can be used for open-angle glaucoma. A small piece of trabecular meshwork is removed to increase the drainage of fluid without creating a permanent hole or bleb on the eye.

**Peripheral Iridectomy** is performed for treatment of closed angle glaucoma. A small part of the iris is removed to allow drainage of fluid.

**Trabeculotomy** is a surgical procedure used for infants with congenital glaucoma. A tiny probe is used to break through the trabecular meshwork. This allows drainage of the fluid, to maintain pressure in the normal range.

## Loss of vision can be prevented

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Regular eye examinations with your ophthalmologist may help to prevent any irreversible loss of vision.