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## Eyes - glaucoma

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### Summary

- Glaucoma is a common eye disease that often runs in families.
  - Vision loss or blindness can usually be prevented when glaucoma is detected early and treated.
  - The lack of symptoms makes early detection of glaucoma difficult.
  - It is important to have regular eye checks from an optometrist or ophthalmologist, particularly for people who have the risk factors for glaucoma.
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Glaucoma is a common eye disease that can lead to permanent vision loss and blindness if it is not detected and treated early. The World Health Organization has identified glaucoma as the second leading cause of blindness in the world and the leading cause of irreversible blindness.

Glaucoma affects the optic nerve connecting the eye to the brain. When the drainage area at the back of the eye is blocked, fluid builds up and causes increased pressure. Damage commonly occurs when the intraocular pressure is too high.

Glaucoma generally develops gradually over several years and often goes undetected in the early stages. A person with glaucoma may not experience symptoms until vision loss has already begun. Glaucoma also runs in families and the risk increases with age (it is extremely rare in people aged less than 40 years).

### Types of glaucoma

Some forms of glaucoma are more common in particular population groups. The different types of glaucoma include:

- Open-angle glaucoma (OAG) is the most common type of glaucoma in Caucasians (people of white-skinned or 'European' appearance). OAG occurs when the aqueous humour (the clear liquid that nourishes the inside of the front of the eye) does not drain properly, causing the pressure in the eye to rise and eventually damage the optic nerve.
- Angle-closure glaucoma (ACG) is the most common form of glaucoma in some Asian populations. It occurs when the peripheral part of the iris (the coloured part of the eye) blocks the outflow pathways. It can be sudden in onset or develop slowly over time.
- Glaucoma without high eye pressure (sometimes called normal tension glaucoma) occurs when there is progressive optic nerve damage and loss of peripheral vision, despite the eye pressures being within normal range for the population (or even below normal). Other risk factors appear to play a more important role than eye pressure.
- Secondary glaucoma can develop as a result of other conditions, such as eye injuries, cataracts, diabetes and inflammation of the eye, or the use of certain medications (particularly those containing steroids).
- Congenital glaucoma is a rare form of glaucoma present at birth or that develops in infants. It is caused by the improper development of the baby's drainage channels and can lead to the eyes expanding in size, with excessive eye watering and light intolerance.

### Symptoms of glaucoma

The most common form of glaucoma, open-angle glaucoma, starts with slight loss of side vision (peripheral vision) with no pain or discomfort. The lack of symptoms makes early detection difficult. As open-angle glaucoma progresses, symptoms may include loss of peripheral vision and difficulty adjusting to low light.

### Risk factors for glaucoma

Everyone is at risk of developing glaucoma, but some people have a higher risk. You are in a higher risk group if

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you:

- Have a family history of glaucoma
- Are aged 40 years or over
- Are short-sighted
- Have diabetes
- Have had a serious eye injury
- Have used steroid treatment over an extended period
- Have hypertension.

### **Diagnosis of glaucoma**

It is estimated that around 300,000 Australians have glaucoma and half of them don't know it. Early detection of glaucoma is vital to prevent irreversible vision loss and blindness. Regular eye exams by an optometrist or an ophthalmologist (eye specialist) can detect early glaucoma.

A glaucoma eye test will check:

- Eye (intraocular) pressure – using tonometry testing in conjunction with a fundoscopic eye exam
- Optic nerve damage – using an ophthalmoscope
- Visual field loss – the perimetry test checks the sensitivity of the side vision, where glaucoma strikes first
- The angle where the iris meets the cornea – using a gonioscopy test to check for open-angle or closed-angle glaucoma.

### **Treatment of glaucoma**

Glaucoma is treated by reducing the pressure in the eye, commonly using eye droplet medication, laser treatment or surgery. If glaucoma is detected early enough, treatment can slow or stop further vision loss, but it cannot restore vision already lost.

### **Where to get help**

- Your doctor
- An optometrist
- An ophthalmologist
- The Fred Hollows Foundation has recently developed a **3D visual simulation** of what it can look like for different severities of common vision-loss diseases including glaucoma.

**This page has been produced in consultation with and approved by:**

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