

# Glaucoma

Glaucoma, in its most common form, is a slow progressive eye condition that causes damage to the optic nerve resulting in permanent vision loss. It has been called the “silent thief of sight” because it can slowly steal your sight without you being aware of it. By the time you become aware of problems with your vision, it is usually too late.

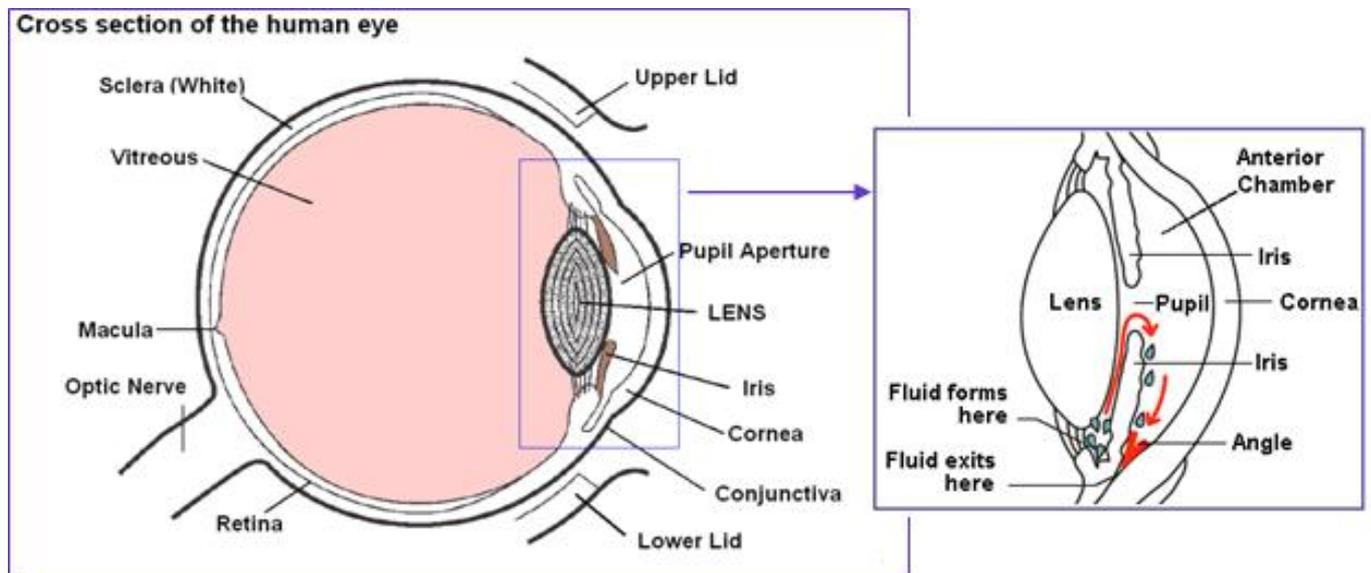
This is why routine eye health examinations are of huge benefit. Glaucoma diagnosed early means that the condition can be arrested with medical treatment and while the condition cannot be cured, your vision can be preserved.

The prevalence of glaucoma in New Zealand is about 2% of the population but prevalence increases with age and 10% of people over the age 70 will have glaucoma. If you have a family history of glaucoma then you're ten times more likely to get the disease.

## Understanding Glaucoma

Light enters the eye through the pupil and casts an image on the retina at the back of the eye. This image is transferred to the brain via nerve fibres from the retina. These fibres band together as they leave the eye and become the optic nerve. The point where these fibres exit the eye is called the optic nerve head (or optic disc). The optic nerve head is the area where an optometrist will observe damage caused by glaucoma.

Glaucoma is the name given to several types of conditions that can damage the optic nerve head. That damage starts as a painless, peripheral loss of vision which often remains undetected by the person developing glaucoma. The main cause of damage to the optic nerve head is elevated eye pressure.



## Types of Glaucoma

**Primary Open Angle Glaucoma.** This form of glaucoma is also called chronic open angle glaucoma. The eye produces a fluid called aqueous, which needs to drain out of the eye at the same rate as it is being produced. If this doesn't happen, the pressure in the eye increases. The point at which the raised pressure will damage the optic nerve head varies between individuals. It is called primary glaucoma because the cause of the glaucoma is not truly known.

**Acute Angle Closure and Angle Closure Glaucoma.** This condition is relatively rare but your optometrist will be able to detect its risk factors. This is a rapid onset form of glaucoma and causes a painful, red eye with nausea and possibly vomiting. The pupil will be semi-dilated and

not moving, and vision will appear “steamy”. When there is a sudden closure of the drainage angle of the eye it causes a rapid increase in the eye pressure. This constitutes a **medical emergency**. Failure to treat angle closure within a day can result in angle closure glaucoma.

**Chronic Angle Closure and Angle Closure Glaucoma.** In acute angle closure the drainage angle of the eye closes suddenly with the entire angle closed. In chronic angle closure the angle gradually closes and mimics the same pressure rise as in primary open angle glaucoma.

**Low Tension Glaucoma.** This condition is not well understood. The optic nerve head disc shows signs of glaucoma damage but the eye pressure is within a normal range. A possible cause of this may be a compromised blood flow to the optic nerve head.

**Secondary Glaucomas.** In primary glaucoma the cause of the glaucoma is not truly known but for secondary glaucoma the cause of the elevated pressure can be found. Secondary glaucoma can be caused by:

- Pigmentary dispersion syndrome, where pigmentary material, usually from the iris, clogs up the drainage angle and causes increased eye pressure
- Pseudoexfoliation, where exfoliative material accumulates on the anterior lens surface, the pupillary margin, and the trabecular meshwork. This material restricts drainage of aqueous fluid and causes increased eye pressure
- Trauma to the eye resulting in damage to the drainage angle.
- Underlying ocular conditions: uveitis, retinal blood vessel occlusions
- Medications, particularly with steroid use

#### **Risk Factors for Glaucoma**

- Having a parent, brother or sister with glaucoma
- Being over 60 years old
- Being of a specific race: In primary open angle glaucoma being a black American, in angle closure being Eskimo or Chinese
- Having certain medical conditions: high blood pressure, diabetes, thyroid disease, or a history of migraine.
- Taking steroids over a prolonged period
- A history of eye injury
- Injuries that have involved sudden blood loss
- Being myopic (short sighted) in primary open angle glaucoma; and being hyperopic (long sighted) in angle closure glaucoma.



#### **What should I do to prevent getting glaucoma?**

You can't prevent getting glaucoma but you can protect yourself from damage caused by glaucoma by having regular routine eye examinations. Regular eye examinations will ensure early diagnosis and prompt treatment in the event that you do get glaucoma. Routine eye examinations are especially important for people with any of the risk factors listed above. In particular if you have a family history of glaucoma or are over 60 years old. Today's treatments are very effective at preventing any further glaucoma damage and preserving your vision.

#### **Treatments for Glaucoma**

Glaucoma treatments include medicines, laser trabeculoplasty, conventional surgery, or a combination of any of these. Treatment may save remaining vision but is not able to restore sight already lost from glaucoma.

**Medicines**, such as eye drops or pills, are the most common early treatment for glaucoma. Some medicines cause the eye to make less fluid, while others lower pressure by improving drainage from the eye.

**Laser trabeculoplasty** can help fluid drain out of the eye. You may need to keep taking glaucoma drugs after this treatment.

**Surgical trabeculectomy** makes a new channel for the fluid to leave the eye. This can be an effective treatment option when medicines and laser treatment have failed to control pressure.

### **Regular Eye Exams**

The NZ Association of Optometrists recommends a regular eye examination every 2 – 3 years for healthy adults. After age 65 more frequent exams are a wise precaution to ensure early diagnosis and treatment of sight threatening conditions such as glaucoma and age-related macular degeneration (ARMD).

Increasingly, new technology such as OCT scans and GDx scans are being used to enable optometrists to identify glaucomatous changes in the retinal nerve fibre layer much earlier than was previously possible. Early detection improves the outlook for successful treatment of glaucoma.



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