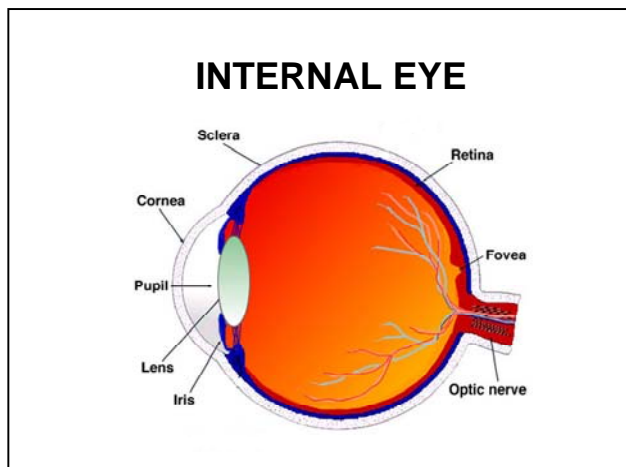




## MODULE 4

### COMMON EYE CONDITIONS



---

### The Causes of Blindness

A simple definition of blindness refers to a loss of vision resulting in a person being "unable to walk unaided"

Globally, the main causes of blindness are cataract (39.1%), uncorrected refractive error (18.2%), glaucoma (10.1%), and age related macular degeneration (7.1%). Other causes include corneal opacity (4.2%), diabetic retinopathy (3.9%), childhood blindness (3.2%), trachoma (2.9%), onchocerciasis (0.7%). Blindness is most prevalent in developing countries where malnutrition, inadequate health and education services, poor water quality and a lack of sanitation leads to a high incidence of eye disease.

### Cataract Blindness

Cataract blindness occurs when the natural lens of the eye becomes hard and cloudy causing a gradual loss of vision. It is like looking at a mirror in a bathroom that has become fogged up with steam. Cataracts occur usually among people 45 years and older, as the lens naturally hardens with age. Almost everyone over the age of 60 years is affected by cataracts to some degree.

Cataracts can also affect those who have experienced an eye injury, have diabetes, smoke, take steroids or who are constantly exposed to the sun's harmful UV rays. Children may be born with cataracts, or develop them in early life, especially if they have poor nutrition and health.

Cataract blindness is treatable. Cataracts can be removed in an operation performed under local anaesthetic. The operation involves removing the clouded lens from the eye and leaving the thin lens capsule behind. An intraocular lens (which is a thin piece of clinical grade plastic and often called an IOL) is then implanted into the capsule and acts as a clear replacement lens. The operation takes around 20 minutes in the hands of a skilled surgeon.

Sir Harold Ridley, a British doctor, was the first person to successfully implant an IOL in 1949. The idea of using an IOL came after one of his students asked why the natural lens removed during cataract surgery was not replaced. The very first IOLs were made of glass, which made them heavy and prone to shattering.

Harold Ridley noticed that soldiers who had eye injuries from shattered windshields during World War II did not show any reaction to the material so he then started to make IOLs from polymethyl methacrylate (PMMA) which is like perspex.



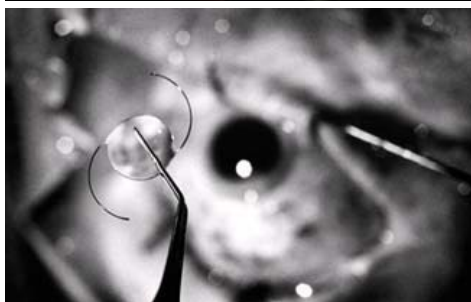
## Cataract Surgery Flowchart



A dense white cataract



The eye is carefully cut and the cataract removed



The plastic lens (IOL) replaces the natural lens



The IOL is placed into the eye



The patient's eye is bandaged overnight

## Glaucoma

Glaucoma occurs when the optic nerve at the back of the eye is damaged, often in association with an increase in pressure inside the eye.

Glaucoma can affect young children - in some cases even before birth. In congenital glaucoma, the drainage openings that allow the normal flow of eye fluid in the anterior eye do not properly develop. This results in pressure build-up within the infant's eye, stretching of the cornea (the clear front surface of the eye) and potential vision loss.

People who have diabetes, suffer from migraines or have had an eye injury, are more at risk of developing the glaucoma. A family history of glaucoma also increases the risk. Infantile glaucoma can occur from birth or can develop in a child's early years.

Glaucoma is the number one cause of preventable blindness in New Zealand.

The management of glaucoma focuses on reducing or eliminating the chances of further damage to the eye. Existing damage and vision loss cannot be restored. Medication (eye drops); laser treatment and surgery can be used to bring the pressure in the eye under control and reduce or eliminate the risk of further damage.

## Diabetic Retinopathy

Diabetic Retinopathy affects people with diabetes whose retinal blood vessels are more likely to weaken and expand, leak or break, resulting in damage to the retina and loss of vision.

A person with diabetic retinopathy can experience blurred or distorted vision, increased sensitivity to glare and difficulty seeing at night. Diabetic retinopathy affects about 1 in 4 people who have diabetes. It particularly affects those who have had diabetes for more than 10 years.

Within 15 years of being diagnosed with diabetes, almost 3 out of 4 people will experience some form of vision loss as a result of diabetic retinopathy.

Those with Type 2 diabetes are particularly at risk. Diabetic patients who have high blood sugar levels, high blood pressure, kidney disease or who smoke also have a greater chance of experiencing vision loss caused by diabetic retinopathy.

Laser treatment, which is used to seal leaking blood vessels, is very successful in stopping any further damage to the retina. Sometimes surgery is necessary if more extensive retinal damage has occurred.

## MODULE 4 QUIZ EYE CONDITIONS



1. What are some of the causes of cataract blindness?
2. Under normal circumstances, how long does a cataract operation take?
3. What are the main steps in a cataract surgery?
4. What is the treatment for diabetic retinopathy?
5. What is glaucoma