

How your eyes work



The human eye

The human eye is an extraordinary sensory organ. Our vision allows us to be aware of our surroundings and 80 per cent of everything we learn is through using vision.

Vision is a part of who we are and the importance of our eyes is often not appreciated until we experience a problem with them.

Seventy five per cent of vision loss in our community is preventable or treatable if our eyes are given the proper care and attention they deserve.

Regular eye tests and timely care can help us to enjoy good vision for life. Don't wait for symptoms.

Save Your Sight - Get Tested.

How your eyes work

Humans have two eyes that when working normally have overlapping vision which combine to produce a single image. When an object of interest is seen, the eyes move to point directly at the object.

Light reflected from the object enters the eyes and is focused through the optical components within the eye. The light is focussed to a pinpoint on the back of the eye at an area called the macula, on the light sensitive membrane that covers the back of the eye called the retina.

The macula is a small area on the retina of each eye that is responsible for central detailed vision.

The retinal membrane consists of millions of nerve cells; these cells gather together behind the eye to form a large nerve called the optic nerve.

When light stimulates the nerve cells, messages are sent along the nerve to the brain. The optic nerves from the two eyes join inside the brain. The brain uses information from each optic nerve to combine the vision from the two eyes allowing us to see one image.

The overlapping gives us depth perception which is known as binocular vision. Depth perception allows us to judge distances and see the world around us in 3D.

Some retinal nerve cells are only sensitive to colour perception, while others are specifically sensitive to movement. Movement sensitive cells enable us to view things at the edge of our vision, known as peripheral vision. This helps with activities such as driving.

How does vision develop?

Vision develops through the first years of life. Common eye problems in childhood such as turned eye (squint), lazy eye (amblyopia) and uncorrected refractive error (the need for glasses) require prompt attention in order to give a child the best chance of developing normal vision.

Many common conditions of childhood can be corrected if detected early.

Children should be screened at birth and it is important that they have a full eye test before school age. Children will often not complain of blurry vision as they may not understand how clear their vision should be.

By the age of eight or nine years, vision is fully developed.

Many childhood eye problems are inherited from family members.

The ageing eye

Eyes that have developed normally operate just like a camera.

The eye can quickly change focus to automatically clear an image when an object is looked at across varying distances.

As we get older, usually from the age of 45 years, the focussing lens inside the eye becomes less flexible. This happens gradually and results in the loss of ability to easily view objects at different distances.

Glasses for reading overcomes this problem and is why the majority of older people need to use glasses for near vision. This is a normal part of ageing.

As we get older the prevalence of other common eye conditions such as cataract, glaucoma, macula degeneration and diabetic retinopathy increases.

The important thing to remember is that 75 per cent of vision loss from these five main conditions can be prevented or treated if detected early.

As many conditions are not associated with symptoms, it is important to have regular eye examinations to maintain healthy eyes.

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Where should I go for an eye test?

Eye tests can be provided by your local optometrist or ophthalmologist. You can also visit your general practitioner if you are concerned about your eye health.

Optometrist

To find your local optometrist visit the Optometrists Association Australia website www.optometrists.asn.au

You do not need a referral to see an optometrist and there is generally little or no waiting time for appointments.

Medicare provides a full rebate on most optometry appointments.

Ophthalmologist

For more information about ophthalmologists visit The Royal Australian and New Zealand College of Ophthalmologists website www.ranzco.edu

Referral from a general practitioner, optometrist or other medical specialist is required to obtain the Medicare rebate for an ophthalmology consultation.

Appointments are triaged (prioritised) according to medical need, with red eyes commonly seen immediately upon referral.

For more information on eye health visit www.visioninitiative.org.au