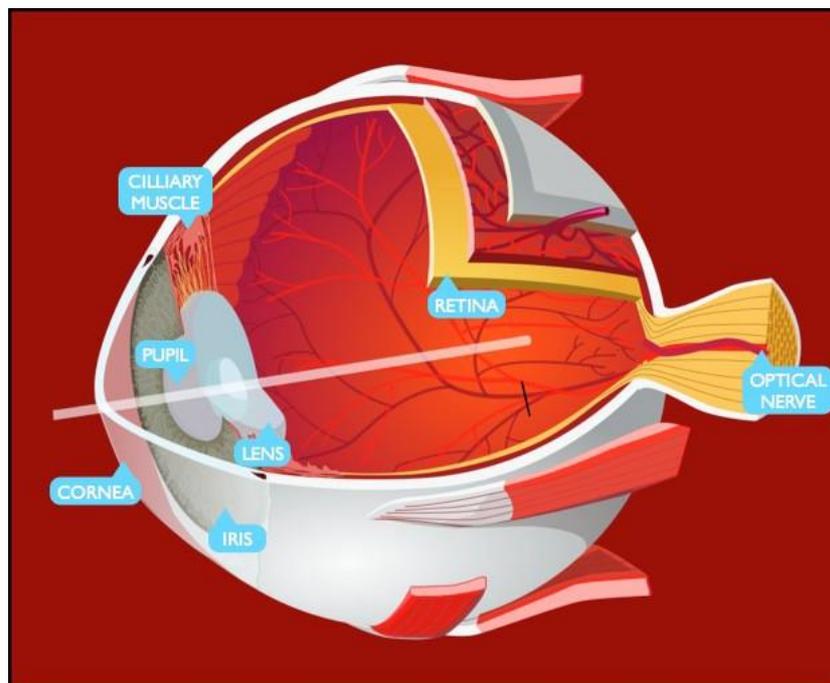


Understanding Amblyopia

Amblyopia, also called 'lazy eye', is a disorder of sight in which the brain fails to process inputs from one eye, and over time favours the other eye, resulting in the inability to achieve normal vision in an eye that otherwise typically appears normal.

The cornea and the lens are the eyes' focusing mechanisms. The retina is the reading mechanism. The retina absorbs and converts light to electrochemical impulses, which are transferred along the optic nerve to the brain.



This concept is fundamental to the understanding of amblyopia because you need a focused image on the retina in order to get an impulse going to the brain. This enables the eye to grow.

To understand the concept of growth, Dr Rob Daniel, Specialist Ophthalmologist at the Sandton Eye Clinic, explains the developmental difference between a 2-month-old baby and a 3-year-old toddler. The 3-year-old is a functional human being with the same physical abilities of an adult while the 2-month-old can't walk, talk, feed or even dress themselves. This period from 0 to 3 years are the fundamental growth and development years.

What do you need to develop vision? Dr Daniel says: "You need a focused image on the retina. The important thing is that vision is not just in the retina, it is the whole tract all the way to the occipital lobe at the back of the brain. So, vision is the eye and the brain. So, if you don't get a focused image at the retina then the entire visual pathway does not develop."

If vision is obstructed in the formative (0-3) years of a child's life, in other words, if the child isn't able to get a focused image, the child will not develop normal vision for the rest of their life.

To properly understand amblyopia, it is important to understand the concept of focus. People with hyperopia, or farsightedness, can see distant objects very well, but have difficulty focusing on objects that are up close. People with myopia can see objects near to them clearly but objects farther away appear blurry.

When we are young (under the age of 7), the lenses of our eyes are so soft and our eye muscles so strong, that the focusing ability of the eye can overcome focus issues; and because of this visual problems, such as hyperopia or myopia, may be missed with normal testing.

Astigmatism can also be a cause of amblyopia, as can cataracts or ptosis (droopy eyelid). Or it could be due to a very severe squint.

From 0–3 years there is exponential rate of development and growth. From 3-7 years growth and development decline and from 7 years, it tapers off. The golden number is therefore age 3. This period from 0-3 years is a critical time to test for amblyopia in order to prevent it. After age 3 it can only be detected, but not much can be done to prevent it.

This age group is difficult to test, they are typically pre-verbal, they don't have any reference of "normal" sight. In years gone by it was difficult, expensive and time consuming to measure this group of children, but now, according to Dr Rob Daniel, "due to highly effective screening technology, we can do so very relatively cheaply, safely and effectively and because of that we now can address the problem."