VINCYP
Visual Impairment Network for Children & Young People

NHS SCOTLAND

Medical Information Document
Amblyopia

What is the normal structure of the eye?

The eye is made of three parts:

- A light focussing bit at the front (cornea and lens).
- A light sensitive film at the back of the eye (retina).
- A large collection of communication wires to the brain (optic nerve).

A curved clear window called the **cornea** first focuses the light.

The light then passes through a hole called the **pupil**.

A circle of muscle called the **iris** surrounds the pupil. The iris is the coloured part of the eye.

The light is then focused onto the back of the eye by a **lens**.

Tiny light sensitive patches (photoreceptors) cover the back of the eye. These photoreceptors collect information about the visual world. The covering of photoreceptors at the back of the eye forms a thin film known as the **retina**.

Each photoreceptor sends its signals down very fine wires to the brain. The wires joining each eye to the brain are called the **optic nerves**.

The information then travels to many different special 'vision' parts of the **brain**.
All parts of the brain and eye need to be present and working for us to see normally.

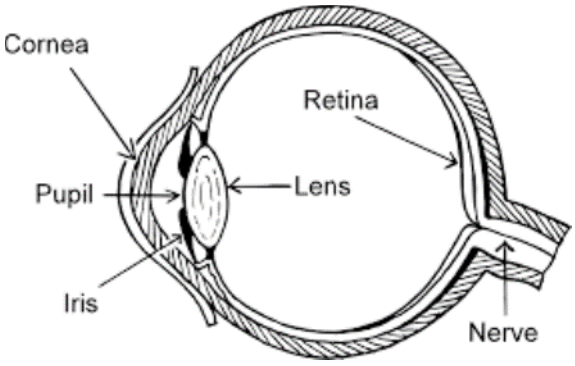

Figure 1: The Structure of the Eye

How we see: Beyond the Eyes

There are many different parts of the eye and the brain that need to work together in order for us to see well. The brain gets signals from the eye and sends them to the vision parts of the brain. In order for us to see it is the brain that does most of the work.

What is Amblyopia?

Amblyopia, which is also known as “lazy eye”, develops in childhood. It occurs in conditions where, the brain does not receive a sharp, clear picture from one or both eyes. If the brain does not get a clear enough picture, it cannot learn to see a clear picture. This is called amblyopia.

What is the cause of Amblyopia?

Amblyopia can result from:

- A squint/turn in the eye
- A difference in the strength of lens focussing ability of each eye
- A visual obstruction such as a droopy eyelid or cloudy lens (cataract).
- Less commonly, amblyopia can affect both eyes as a result of an uncorrected strong glasses prescription.

How does Amblyopia affect a child’s vision?

Amblyopia may affect one or both eyes depending on the cause. It means that vision in the affected eye or eyes is reduced so that things look hazy or blurred instead of clear. The amount of blurring is variable. Generally, vision is clearer when things are closer-up. Amblyopia most commonly affects one eye and there is normal vision in the other eye. When there is normal vision in one eye the child does not have a visual impairment. If amblyopia affects both eyes however the child may have a visual impairment if the vision is very blurred.

What can be done to help in Amblyopia?

It is very important to detect, investigate and treat amblyopia early on to ensure the best possible vision. If not treated, the vision in that eye will be permanently reduced, so it is vital to follow instructions given by the child’s eye doctor or Orthoptist.
Treatment of the specific eye condition may be required e.g. removal of cataract.
It is important that your child wears glasses or contact lenses if prescribed, to give them the best vision they can have.

Eye patching or blurring eye drops (atropine) can also be used to help. This is to make the poorer eye work so that it sees better by blurring the better eye. Sometimes these and glasses are used together.

It is uncommon for children to have amblyopia in both eyes which reduces their vision to the level where they would be regarded as having a visual impairment.

Where can I find more information on Amblyopia?

There are some useful websites listed below:
www.orthoptics.org.uk

www.3M.com/uk/opticlude

Other general information on low vision is available from national organisations such as Guide Dogs and RNIB, and from your local visual impairment society (these are listed on the VINCYP website contacts).

Approved: December 2021

Review Due: December 2024

NOTE
This guideline is not intended to be construed or to serve as a standard of care. Standards of care are determined on the basis of all clinical data available for an individual case and are subject to change as scientific knowledge and technology advance and patterns of care evolve. Adherence to guideline recommendations will not ensure a successful outcome in every case, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgement must be made by the appropriate healthcare professional(s) responsible for clinical decisions regarding a particular clinical procedure or treatment plan. This judgement should only be arrived at following discussion of the options with the patient, covering the diagnostic and treatment choices available. It is advised, however, that significant departures from the national guideline or any local guidelines derived from it should be fully documented in the patient's case notes at the time the relevant decision is taken.