



VISUAL DIFFICULTIES FOLLOWING A BRAIN INJURY



Visual impairments / difficulties are extremely common following a brain injury. In order to be able to see, three things need to work properly - the eye, the optic nerve and the brain. Often the eyes are intact, but the pathways of the brain are damaged which affects the ability to process visual information and make sense of the world.

It is rarely possible to know what the child or young person is seeing/experiencing and they themselves maybe unaware of the changes to their vision or unable to express what they are finding difficult. Observing the child and, where possible, asking them what works best can be very helpful, alongside trialling support strategies (see additional resource on our website).

EYE MOVEMENT DIFFICULTIES

This can be caused by damage to the nerves that control your eyes, which can result in both the eyes not working together as a pair. This can make it difficult to maintain stable focus on things because of **blurred vision** as well as **double vision** (diplopia).

Weakness in eye muscles can mean difficulty or even inability to follow objects with your eyes (pursuit) or shift vision quickly from object to object (saccade) which may make it difficult to focus or track objects and read.

Nystagmus where the eyes may wobble, also known as "dancing eyes," causes involuntary, rapid eye movements in one or both eyes. and can cause symptoms such as vertigo, nausea or headaches

Gaze palsy where it may not be possible to move both eyes together in a particular direction

CEREBRAL VISUAL IMPAIRMENT (CVI)

A brain-based visual impairment caused by damage or interruption to the visual pathways or visual processing areas of the brain. CVI is a neurological issue. The brain has trouble processing what the eyes can see.

You may notice some of these visual behaviours:

(source RNIB)

- reaching for objects to the side but not straight ahead
- looking away from people or objects in order to "see" them
- vision which seems variable and may change on an hourly or day-to-day basis
- for the mobile child - inaccurate visual guidance of movement and reach for objects
- inability to look at objects for any length of time
- irregular eye movements
- lack of response to objects on a "busy" background that the child would respond to on a plain, contrasting surface
- eye movements not made independently of head movements
- difficulty seeing objects unless they are moving, or in other children, unless they are still
- lack of response to faces or facial expression

Some information sourced from:
RNIB - <https://www.rnib.org.uk/>
Headway - <https://www.headway.org.uk/>



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VISUAL FIELD LOSS

The visual field is everything you can see – including straight ahead (central vision) and out to the side (peripheral vision). Visual field loss means that the inability to see a section of field of vision, usually because the vision areas of the brain have been damaged. Vision can be blurry or lost in affected areas. This can be caused for example by a stroke, a tumour and is a frequent consequence of surgery for epilepsy which cannot be managed by medication.

EXAMPLES

- Loss of peripheral vision- **tunnel vision**
- **Hemianopia** – where there is a loss of one half of your visual field. This may mean that you're not able to see to either the left or right from the centre of your field of vision in one eye or both eyes. When the same side of the visual field in both eyes is affected, this is called **homonymous hemianopia**. If you have a stroke to one side of your brain, you may develop field loss to the opposite side. For example, if the right side of your brain has been affected by the stroke, the left side vision in each eye may be affected.

**RIGHT SIDED
HEMIANOPIA**



**LEFT SIDED
HEMIANOPIA**

VISUAL NEGLECT (OR SPATIAL INATTENTION)

This can affect perception of things around you as you may be unaware of objects to one side. Visual neglect is more common after a stroke in the right side of the brain which affects the left side of the body. It may occur with have visual field loss but can occur on its own as well.

OTHER DIFFICULTIES TO CONSIDER:

- increased sensitivity to light
- dry eye
- visual balance disorders
- judging depth and movement
- recognising text, objects and people
- visual hallucinations
- disorientation
- reading difficulties
- impaired ability to navigate through tight, crowded spaces
- Impaired visual memory

- Depth perception – people with depth perception changes will struggle to identify the distance between things, causing difficulties with reaching out for objects, climbing stairs safely, or navigating around
- Colour vision – colours may appear different, or look like shades of grey
- Motion vision problems, called **akinetopsia**, can cause moving objects to appear as static images that move in a jagged way rather than smoothly