British and Irish Orthoptic Society

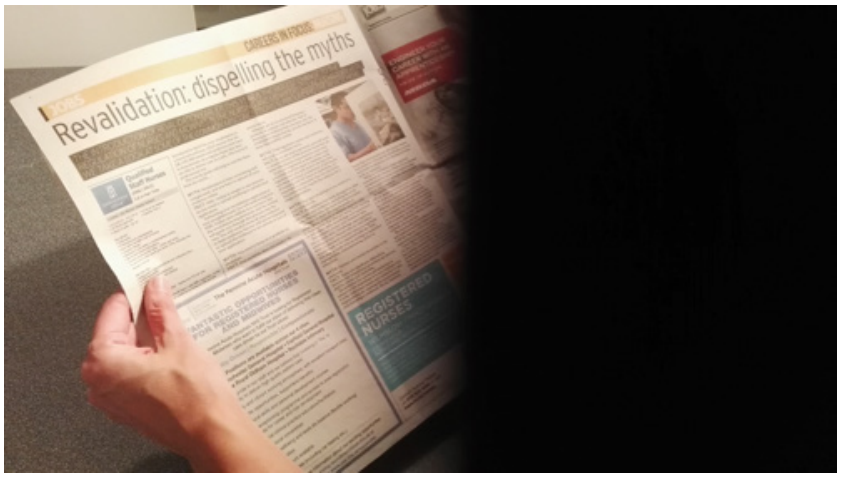
Visual field loss following stroke or brain injury

What is visual field loss?

Visual field is a term used to describe the whole area of what you see when you are looking straight ahead. It includes both your peripheral and central vision. Each eye has its own field of vision. The fields of vision of each eye overlap so some objects are seen by both eyes. Objects to the extreme right or left are only seen by one eye. Visual field loss is when you have lost an area of vision in your visual field. Visual field loss following a stroke or brain injury usually affects both eyes.

Usually the part of your vision lost is to the same side as any weakness in your face, arms or legs. Strokes which only affect the very back of your brain may cause visual field loss without any other problems. There are different types of field loss. The most common type following a stroke is called a homonymous hemianopia. Hemianopia means loss of half of your vision. In other words, the right half or the left half of your vision is missing from each eye.

For example: a complete loss of visual field to the right (hemianopia) means that a person will be unable to see objects on their right hand side or communicate effectively with people positioned to their defective side. If they move their head and eyes to the right they can bring the object or person into their field of view. This is not due to damage of the eyes but the visual pathway in the brain.



Field of vision in right homonymous hemianopia

Other types of visual field loss seen following a stroke or brain injury are:

- loss of a quarter of the visual field (quadrantanopia)
- loss of central vision (low vision)
- random areas of visual loss (scotomas).

How can I tell if I have visual field loss?

If you have visual field loss you may:

- notice that you cannot see objects to one side
- some people feel they have lost the vision in one eye, ie if they have lost their vision to the right they may describe it as having lost the vision in the right eye
- bump into objects and people in your blind field
- easily trip and fall over objects in your blind field
- find crowded areas difficult as people and objects appear suddenly in front of you from your blind field
- experience difficulties with reading and writing. If you have a left sided field loss, it is difficult to find the start of the line. In right sided field loss, it is difficult to see along a line of text, making it easy to lose your place.

How will visual field loss affect someone following a stroke?

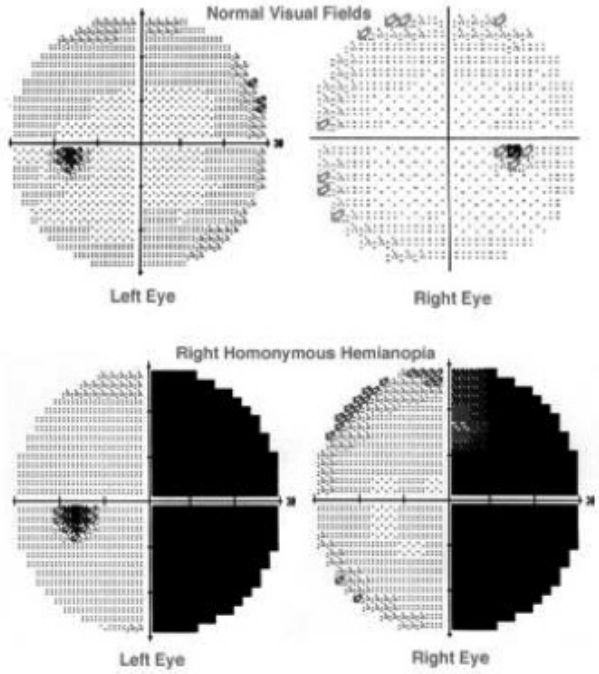
- they have an increased risk of trips and falls.
- people may become disorientated and easily alarmed when objects suddenly appear from the blind field.
- field loss can affect general mobility and independence.
- field loss can lead to depression and impaired quality of life.
- people may experience visual hallucinations related to their field loss (see separate leaflet on ‘visual perception defects following stroke or brain injury’).
- if the visual field loss is associated with visual inattention (see separate leaflet on ‘visual inattention following stroke or brain injury’), a person may have no awareness that their vision is defective.

Diagnosis of field loss

Initially your visual field loss will be detected by a simple bedside test called a confrontation visual field test. The health professional sits directly in front of you and you will be asked to report when you can see a target in your peripheral vision.

More formal testing using a machine called a perimeter is performed in an outpatient clinic to create a map of your peripheral vision.

A formal visual field test test result for a person with right homonymous hemianopia



Can visual field loss recover?

Recovery depends on the area of brain affected and how much damage has been done. Some visual field loss can improve by itself.

Improvement has been reported in about 50% of patients with visual field loss following stroke. Recovery is usually seen within the first 3-6 months if it is going to occur.

Any field loss present after this time may be permanent. You may however feel that your sight improves as you adapt to the defect over time.

Visual field loss cannot be cured if it does not spontaneously recover.

Treatment of field loss

None of the treatments below will permanently cure the visual field loss but may help faster adjustment and adaptation to the loss.
Most treatment involves targeted advice for individual patients, including:

- Visual search strategies help to improve the awareness of the blind field and help your ability to scan into the blind area. These include increasing head movements and fast eye scanning movements into the blind area. Your orthoptist can recommend scanning exercises and there are various computer programmes available that can be undertaken to help this (see separate leaflet 'web based therapy for vision field loss and visual neglect').

- Reading can be helped using a number of methods including typoscopes, line guides, coloured markers or magnifiers.

Line guides

Coloured markers

- Prisms (Peli prisms) can be used to temporarily expand your field of vision. The prism displaces images from the blind field to the seeing side. Peli prisms can be helpful for selected patients and their use can be discussed with your orthoptist.

- Visual restorative treatment is a computer based treatment that stimulates the blind field. It has been reported to improve navigation skills and reading ability for some people. This treatment is not available on the NHS.

Your Orthoptist will discuss with you the best strategies to use and how to go about doing them.

What can be done at home to help someone with visual field loss?

A number of things can be done to help people with visual field loss. Some methods make the person more aware of their affected side and attend to it better and others are designed to make the best use of the seeing side. For example:

- relatives and carers should approach from the non-affected side.
- encourage visitors to sit on the unaffected side
- move furniture to the non-affected side to prevent accidents.
- put important things on the seeing side i.e. hot drink so they can easily see it
- encourage them to get out of bed on the non-affected side.
- •encourage them to look around / scan their eyes to the affected side as much as possible.
- put a line or coloured tape down the left hand side of books / newspapers so they know where the line starts.
- put a line or coloured tape down the left hand side of books / newspapers so they know where the line ends (preferably a different colour to the one at the start of the line).

Driving and Visual Field Loss

Initially following a stroke, you are not permitted to drive for at least one month. This may be longer if you have had surgery or other complications.

If you have a persistent visual problem such as visual field loss or reduced vision, the DVLA states that you are not normally accepted as safe for driving. Your orthoptist will be able to offer advice on whether you are eligible to return to driving.

Some people may be eligible to reapply on an individual basis as exceptional cases subject to strict criteria. These include a stable visual field defect for 12 months, absence of a progressive condition and full functional adaptation to the defect. A specialist driving assessment may be undertaken if reapplication is accepted by the DVLA. If in doubt consult the DVLA website for the latest information: www.dft.gov.uk

Where can I find more information about visual field loss?

Additional help and advice is available from:

British and Irish Orthoptic Society
www.orthoptics.org.uk

The Stroke Association
www.stroke.org.uk

Headway
www.headway.org.uk

Royal National Institute for the Blind (RNIB)
www.rnib.org.uk

This leaflet was made by the Stroke and Neurological Rehabilitation Special Interest Group Steering committee in September 2016.

See www.orthoptics.org.uk for more information