



Visual inattention and visual field loss

Information for patients from the Kent Clinical Neuropsychology Service, Kent and Medway NHS and Social Care Partnership Trust

Visual inattention and visual field loss are both common changes after a brain injury. Both affect a person's ability to process visual information (the information that we receive from our eyes), but the causes and the challenges they present are quite different. This information leaflet outlines what the two problems are; how they affect people after brain injury; and how people can manage these problems.

What is visual inattention?

Visual inattention is a common condition associated with stroke. Also known as 'unilateral spatial neglect', or more simply as 'neglect', it presents as a difficulty in detecting or acting upon information on one side of space.

Although people with visual inattention may appear to be experiencing visual difficulties, they can often 'see' perfectly well. In contrast to someone with visual field loss, their problems stem from an inability to self-direct their attention to one side; they can often become aware of information in their 'neglected' field when their attention is drawn to it.

What are the symptoms?

People with visual inattention behave as if they do not notice or are no longer interested in events that occur on one side. They may appear to ignore others who stand on their affected side and/or fail to complete basic self-care tasks, for example only washing one side of their body.

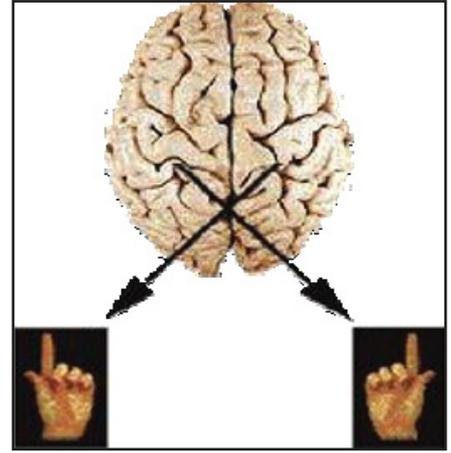
Although visual inattention is a particularly common consequence of stroke, it can also happen following other forms of acquired brain injury (such as traumatic brain injury).



Hemispheres of the brain

The brain is divided into two halves, known as 'hemispheres'. The right side (hemisphere) of the brain controls muscles on the left side of the body and vice versa (see diagram). It is for this reason that damage to one side of the brain affects the opposite side of the body.

The side that is affected by visual inattention is usually opposite the brain hemisphere that has been damaged by the stroke (for example a patient with a right hemisphere stroke will, in most cases, present with left-sided inattention).



Unlike visual field loss (discussed below), visual inattention occurs as a gradient across a person's visual field. This means that people with visual inattention can notice visual information more easily on the side of their brain injury, but it gets steadily more difficult for them to pay attention to information on the other side. This picture illustrates this.

Visual inattention and the right side of the brain

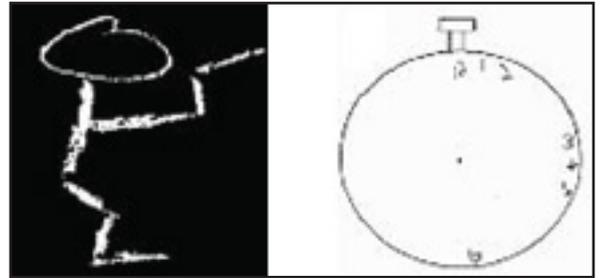
Visual inattention is more common following right hemisphere strokes: if tested within the first three days of their recovery, up to eight out of 10 people who have had a stroke in the right hemisphere of their brain will show signs of the disorder, compared to around 65% who have had a stroke in their left hemisphere.

Visual inattention usually resolves within 10 days. However, in approximately 10% of cases (one in 10 cases), the syndrome continues for weeks or even months. For some, the condition can be permanent. People with persisting inattention are nearly always those who have had right hemisphere brain damage.

How does someone behave if they have visual inattention?

People with visual inattention may display a range of the following behaviour changes.

- Directing their gaze towards one side. This is typically the side affected by their stroke (tending to look towards the right in the context of a right hemisphere stroke). They may fail to report or respond to information located on the opposite side.
- Not orientating towards or even noticing people who are standing on their affected side.
- Neglecting to use their limbs (arms and legs) on one side of their body (even in the case of preserved strength and movement).
- Missing food on one side of their plate.
- Overlooking one side of their body whilst grooming (for example shaving only the right side of their face).
- Finding it difficult or impossible to read.

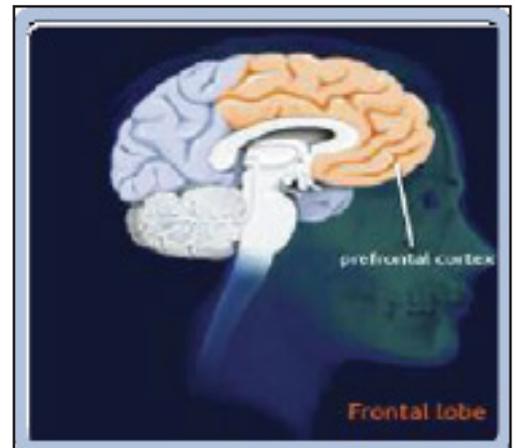


Drawings by people with left visual inattention

The link between visual inattention and alertness

Many of the brain regions that are involved in helping us to pay attention to both sides of space (visual attention) are also involved in helping us to concentrate and stay alert (sustained attention).

When these brain regions (such as the front part of the brain - see image) are damaged, both visual and sustained attention can be affected. It is for this reason that people with persisting visual inattention also frequently present as drowsy and distractible.



Visual inattention and fatigue (tiredness)

When a person has visual inattention, their awareness of their affected side is likely to fluctuate in line with their fatigue; for example their inattention will be worse when they are tired and will improve when they are alert.

Visual inattention and awareness

The right frontal lobe of the brain plays an important role in awareness and self-monitoring. People with visual inattention often have limited awareness of their difficulties. This can serve to hamper their recovery and limit their independence because it prevents them from recognising their need for rehabilitation.

Risks associated with visual inattention

People with inattention may fail to notice people or objects approaching from the left. As a result, they may bump into people and objects on their 'neglected' side.

People with visual inattention will often need close supervision when carrying out high risk activities, such as cooking. It is also important to note that inattention can re-emerge at times when the person is particularly fatigued (tired), often many months after it has appeared to stop.

Rehabilitation strategies that may be helpful for people with visual inattention

• General strategies

People with visual inattention should be encouraged to do activities, such as reading, shaving, and therapy (such as physiotherapy) when they are most alert.

Others can help to improve their alertness. For example, by asking them to drink a cold drink before starting a task or by placing a cold flannel on the back of their affected ('neglected') hand.

People with visual inattention should avoid particularly important or risky activities when they are fatigued, as their inattention is likely to be at its worst at this time.

Individuals with visual inattention should be encouraged to move their affected arm before and during important tasks; in some cases, this can improve awareness of the 'neglected' side. Even if movement is very limited, this technique may still be helpful.

• Managing distractions

People with visual inattention are distracted very easily and find it difficult to hold their attention. Before beginning any important or risky tasks, others should try to reduce distractions (turn off the TV and any phones) and encourage the person not to talk, unless necessary.

• The problem with prompts...

Prompting individuals with visual inattention to look towards their affected side will have only a short term effect and might, over time, cause them to feel irritated and frustrated. In some cases, therapists have provided people with a tape recording of their own voice, reminding them to scan, whilst carrying out activities that are affected by their inattention (such as shaving and/or eating).

• Reading

In the case of left inattention, try placing a thick red vertical line on the left edge of a laminated sheet. Place the sheet over books and magazines so that the line lies on the inside margin: prompt the individual to find the line before beginning to read. This should help them to attend to the start of sentences.

The difference between visual field loss and visual inattention

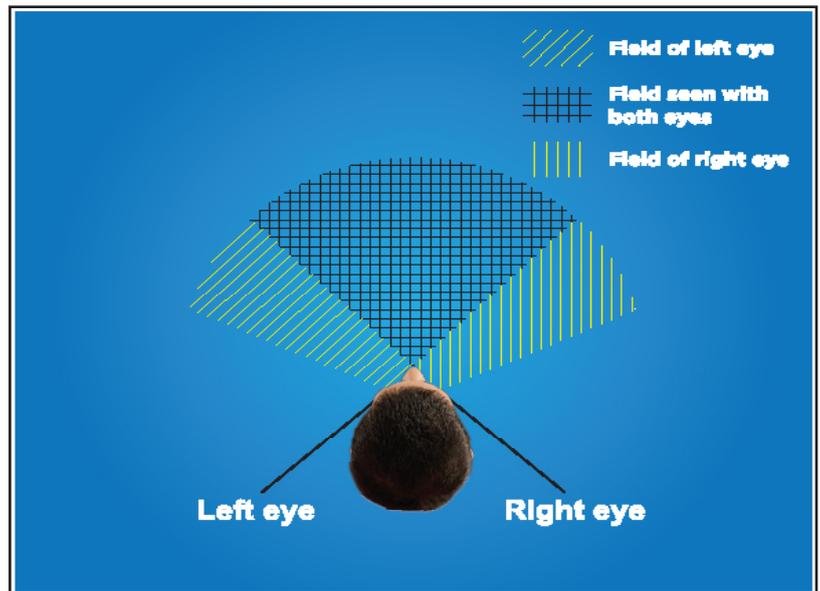
- **The Visual fields**

A person's 'visual field' is the total area in which they can see objects on one side, whilst focusing on a central point (see below).

- **Visual field loss**

Visual field loss happens when someone has damage to their occipital lobes (at the back of the brain) or to the connections between their occipital lobes and their eyes. It is not a disorder of the eyes themselves.

The most common forms of visual field loss following stroke and brain injury are 'homonymous hemianopia' and 'quadrantanopia.'



- **Homonymous hemianopia** (also known as hemianopsia)

This is decreased vision or blindness in half the visual field of one or both eyes.

This picture shows what someone with left homonymous hemianopia might see.



Example of Homonymous hemianopia

- **Quadrantanopia** (also known as quadrantanopsia/quadrantic hemianopia)

This is decreased vision or blindness in one quarter of the visual field of one or both eyes (see picture).



Example of Quadrantanopia

Managing visual field loss

Unlike visual inattention, people with visual field loss are usually aware of the problem and can learn to compensate for visual field loss by moving their head and using their intact visual field to scan their environment.

Can people have visual field loss and visual inattention?

Visual inattention often happens with visual field loss. As previously stated, when people have visual field loss, they usually learn to compensate by moving their head and using their intact visual field to scan.

However, when people have visual field loss and visual inattention, their accompanying impaired awareness and poor sustained attention undermines their ability to use compensatory strategies, such as scanning. Inattention can therefore worsen the impact of a visual impairment.

This leaflet has been produced with and for patients

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Further patient leaflets are available via the East Kent Hospitals web site www.ekhufft.nhs.uk/patientinformation

Information produced by the Kent Clinical Neuropsychology Service & Kent and Medway NHS and Social Care Partnership Trust

Date reviewed: October 2020

Next review date: February 2023

Web 176