Strategies for reading with visual impairment following stroke or head injury

Information for patients
Ophthalmology (Orthoptics)
How does a stroke or head injury affect reading?

Many people experience difficulties with reading following a stroke or head injury (collectively known as Acquired Brain Injury ABI). Sometimes people do not connect difficulties with reading with the after-effects of ABI and so they can be missed.

Reading difficulties can have a number of different causes. They may be either visual i.e. relating to the eye or visual pathway or non-visual i.e. relating to understanding and the use of language.

Visual symptoms may include:

- Visual field loss
- Poor eye movements
- Poor central vision
- Double vision
- Reduced or loss of focussing power when looking at near objects

Non-visual symptoms can include:

- Difficulties with attention
- Memory
- Reasoning and understanding
- Difficulties with speech
- Difficulties understanding speech
- Difficulties with written information and communication
Can reading difficulties be treated?

Treatment and advice depends on the specific nature of the reading difficulty. Treatments may include:

- An eye test for glasses
- Scanning exercises
- Prisms
- An eye patch
- A magnifier or reading strategies

Your Orthoptist will be able to provide advice on what will work best for you.
1. What is homonymous hemianopia?

Homonymous hemianopia is when you experience loss of half of your vision. In other words the right half or the left half of your vision is missing from each eye (see leaflet on ‘Visual Field loss following stroke or head injury’).

People with a homonymous hemianopia may lose their place or get confused finding the next word or line when reading. Reading strategies depend on whether a right or left hemianopia is present.

Reading with a right hemianopia

In right hemianopia the area of visual field loss hides what you are trying to read next.

It blocks the end of long words or the end of a line of text as in the example here.

![Sample text with right hemianopia]

Strategies for reading with a right hemianopia

There are various strategies that you could try including:

- Try placing a coloured line or an elastic band on the right hand edge of the page. This will help you to find the end of the line (see example below).
- Try scanning ahead by looking at the last letter in long words.
- You may also find that taking a page of newsprint and crossing out the last letter of each word may help.
Reading with a right hemianopia; a coloured line designates the end of the line
Reading with a left hemianopia

With a left hemianopia you may have difficulty identifying the beginning of the line or returning to the start of the next line such as shown here.

Reading difficulties are not usually as significant as in right hemianopia but they may be in addition to other problems such as visual inattention.

Strategies for reading with a left hemianopia

- Try using a coloured line or elastic band on the left hand edge of the page. This can help you to locate the beginning of the line.
- Use your thumb to indicate the line you have just read.

Reading with a left hemianopia; an elastic band helps show the start of the line and thumb indicates line just read
General strategies for reading with a hemianopia

- Point to letters as you read along the text, using your thumb as a line marker. This can help you to return to the beginning of the line just read and locate the next line down.
- Try using boundary marking devices such as line guides and typoscopes (a reading shield with cut out rectangle to allow one or two lines of print to be seen).
- Another strategy for hemianopia is to try reading vertically:
  - Left hemianopia: turn the text 90 degrees clockwise and read from top to bottom
  - Right hemianopia: turn the text 90 degrees anti-clockwise and read from bottom to top

Example of a line guide used to help keep the reader on the correct line
2. What is visual inattention?

People with visual inattention tend to disregard either the right or left side of the page depending on the side of the inattention.

How is visual inattention treated?

Initially scanning exercises are used to treat the visual inattention and then reading strategies similar to those used for reading with a hemianopia.

For further details see leaflet on Visual Inattention.
3. Other problems giving rise to reading difficulties

There are a number of eye-related problems that can cause reading difficulties including:

a. Defective eye movement

Problems with eye movements and the presence of a squint can lead to difficulties with:

- Double vision
- Moving the eyes in certain directions i.e. unable to look down or scan across a page
- Unsteady movement of the eye (nystagmus) etc.

Specific treatment is required to address these problems, this may include prisms or an eye patch to help overcome double vision or the symptoms of nystagmus. Orthoptic exercises, advice about glasses or compensatory strategies may also help. Your Orthoptist will be able to advise what is right for you.

b. Vision loss

Complaints of blurred vision and/or difficulty focussing on near objects such as print, computer or mobile phone are relatively common complaints following ABI. This can lead to headaches and eye strain when reading. The severity of reduced vision depends on the nature of the injury and the extent of blurred vision prior to the ABI.

Some people do experience an improvement in their vision in the first 6 months following their ABI. For others vision loss may be permanent.

Treatments may include advice about glasses, compensatory strategies, low vision aids such as magnifiers etc.
c. Light sensitivity

Sensitivity to light can occur following ABI as the brain seems to have difficulty adjusting to different levels of light. If you are struggling with bright light, advice about effective task lighting and tinted lenses is available.

d. Cognitive reading difficulties

ABI can cause acquired forms of dyslexia or alexia. This is when someone loses the ability to read or understand words, sentences, or even recognise letters.

You may find that you are able to read text easily, but are unable to make sense of it. You may have attributed this to not being able to see text properly when it’s actually due to the brain being unable to process information.

If this is a problem for you a referral to Speech and Language Therapy may be required.
4. General tips to make reading easier

- Use bigger print
- Use text that is well spaced between lines
- A line guide, typoscope or bar magnifier may help reduce visual sensory overload
- Avoid trying to read when tired
- Initially start reading for short periods such as 10 minutes at a time and gradually increase this
  - Try short stories or poetry with simple text initially
- Always wear prescribed glasses or reading glasses
- Ensure you have adequate lighting and lighting is positioned correctly
- Tell someone if you are having difficulties making sense of what you are reading – you may benefit from referral to a speech and language therapist
5. Online reading therapy websites

There are a few online therapies for people with reading difficulties. Including:

**Eye-Search**

Eye search is a free online therapy for patients with visual search problems caused by ABI. It is particularly helpful for patients with hemianopia or visual inattention.

It can help to improve reading speed and accuracy when finding objects.

- [www.eyesearch.ucl.ac.uk](http://www.eyesearch.ucl.ac.uk)

**Read-Right**

Read-Right helps people with reading difficulties due to a hemianopia (known as ‘hemianopic alexia’).

- [www.readright.ucl.ac.uk/](http://www.readright.ucl.ac.uk/)
6. Can reading difficulties be cured?

Reading difficulties following ABI are complex. Full recovery does not always occur and some people particularly those with additional cognitive problems may not be able to read or may have acquired dyslexia.

There are alternatives to reading including:

- audio-books
- talking newspapers and magazines
7. Where can I find more information about reading difficulties following stroke or head injury?

If you would like to know more about reading difficulties or have any questions or concerns, please contact the Orthoptic Stroke Service at the Royal Hallamshire Hospital on:

- **0114 271 3021**

Additional help and advice is also available from:

**The Stroke Association**
Stroke House
240 City Road
London EC1V 2PR

- 020 7566 0300
- 0303 3033 100 (Helpline)
- info@stroke.org.uk
- www.stroke.org.uk

**Sheffield Reablement Service**
c/o LAS Services Admin Team
Sheffield Stroke Recovery Service
The Stroke Association
The Point, Welbeck Road
West Bridgford, Nottingham
Nottinghamshire, NG2 7QW

- Jane Hammond, Reablement Coordinator
- 0771 727 5705
- 0303 3033 100 (Helpline)
- Jane.Hammond@stroke.org.uk
- www.stroke.org.uk/.../sheffield-reablement
Headway – The Brain Injury Association
Broad House
190 Bagnall Road
Old Basford
Nottingham NG6 8SF

- 0115 924 0800
- www.headway.org.uk

Headway Sheffield
Osborn 4
The Princess Royal Spinal & Neurorehabilitation Centre
Northern General Hospital
Herries Road
Sheffield
Yorkshire S5 7AU

- 07849 338 380
- hello@headwaysheffield.co.uk
- http://www.headwaysheffield.org.uk/home

Eye Search

- www.eyesearch.ucl.ac.uk

A website from the University College London Institute of Neurology. Provides free online therapy for people with visual search problems.

Read Right

- www.readright.ucl.ac.uk

A website from the University College London Institute of Neurology. Provides free therapy you can download to help people with difficulty reading because they have lost vision to one side.