# Eye Conditions Related to Stroke

## What is a stroke?

Stroke is one of the most common causes of adult disability. It is estimated that 152,000 strokes occur in the UK every year and about half of survivors will have some form of disability. You’re more likely to suffer a stroke if you are over the age of 65, but it can occur in all age groups. One quarter of stroke survivors are of working age.

Strokes occur when a part of your brain is starved of oxygen. Oxygen travels in our blood and all parts of the body including the brain. The two common causes of stroke are blood clots and bleeding. A blood clot prevents oxygen from being delivered to a part of your brain. Bleeding can occur where a part of your blood vessel wall is weakened causing it to burst and bleed into the brain.

The effects of a stroke depend on what part of your brain was affected or starved of oxygen. Every stroke is different and the symptoms and degree of damage are very individual. Some people are mildly affected by the stroke for a short time while others may suffer long term disabilities from the stroke. Some of the common effects of stroke include problems with walking, language or speech, mental processes, swallowing, paralysis and eyesight.

As seeing involves not only our eyes but the brain as well, stroke related vision problems can be very complex to understand and treat.

## How can a stroke affect vision?

Vision problems are common after you have a stroke. This is because our eyes send visual information to different parts of the brain involved in seeing. If a stroke affects certain parts of the brain then this can affect your sight. Stroke can affect the visual pathways of your eye and this can affect your vision in different ways including:

* visual field loss
* blurry vision
* double vision
* moving images
* other problems such as dry eye and sensitivity to light.

When stroke affects the areas of your brain that process information you see, it can cause problems such as:

* visual neglect
* judging depth and movement
* recognising objects and people
* visual hallucinations.

## Is there any treatment?

The main focus following a stroke is on rehabilitation. Part of the rehabilitation program for someone who has had a stroke should include an assessment of their vision and eyes. Orthoptists and low vision specialists can assess and work with you on visual training with or without optical aids. The stroke team, GP or ophthalmologist can refer you for an orthoptic assessment and / or to the low vision clinic.

There are different techniques that can be used to try to help deal with the visual effects of stroke. These will depend on how the stroke has affected your vision but can include glasses, prisms, patching, magnifiers and scanning information. There’s also computer based rehab programs which may help improve your ability to scan if you have field loss.

Some people may see some improvement in their vision up to six months following a stroke. Again, this is highly dependent on where the damage in your brain has happened as well as the type of stroke suffered and other existing health problems. Unfortunately for many people, especially those with loss of visual field, sight loss may be permanent.

### Visual field loss

A common problem that can affect your sight after a stroke is loss of part or whole sections of your visual field. Visual field is the term used to describe the whole area of your vision. It refers to everything you can see in the periphery (side) of your vision as well as what you can see looking directly at something (central vision).

Strokes can cause central vision loss as well as missing outer patches of your visual field. You may have a quarter of your visual field missing known as quadrantanopia or more commonly you may have a whole half of your field missing known as hemianopia.

#### Hemianopia

Hemianopia is 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 both eyes. If you have a stroke to one side of your brain, you may develop field loss to the opposite side. The extent of field loss can vary and depends on the area of your brain that has been affected by the stroke. It is directly related to the area of your brain that has been affected by the stroke.

If hemianopia occurs in the right half of each eye, it’s called right homonymous hemianopia and if it occurs in the left visual field, it’s called left homonymous hemianopia.



**Left homonymous hemianopia** – this picture gives a rough idea of what a person with left hemianopia may see. However, a photo isn’t able to show exactly what the person sees.

Reading can be a very frustrating experience with hemianopia. If you have right hemianopia, then you will miss the end of words or end of the line. Missing the end of words will result in changing the meaning of words and sentences. Sometimes using a marker at the end of the sentence or a post it note to indicate where the end of the line is can be helpful. A typoscope (a piece of card with a piece cut out) can help. If you have left hemianopia then you may have difficulty finding the beginning of the sentence and finding the next line of text. Once again, using a post it note or ruler to mark the beginning of the text and underneath text can be helpful. It may also be helpful to tilt the text and read it vertically.

Sometimes with hemianopia you may not be aware that you’re not able to see from a part of your field. You can be taught scanning techniques (eye movement patterns) in the direction of the hemianopia in order to compensate.

Scanning exercises are easy to do and can be done in different ways. You can practice scanning by keeping your head still and moving your eyes around the room to your affected side of vision. You could also use games and puzzles in books or on computers and tablet screens. There are free, scanning training programmes on the internet which can be helpful ([www.eyesearch.ucl.ac.uk](http://www.eyesearch.ucl.ac.uk)). These computer based scanning programs will not help you recover any field loss but can help you get the most out of your remaining field of vision. Scanning exercises have shown to be beneficial as a treatment to improve your speed and accuracy in finding objects on your affected side.

Optical aids may also be used to help increase your field of view and must be fitted by an eye care professional. This may be in the form of prisms which can either be temporary or permanent and applied on the affected side.

Prisms don’t change the focus or prescription of the lens but can shift an image either to the right, left, above, below or diagonally as needed. Training with prisms can include learning to scan and also to make sure any safety issues are addressed while you’re using them. Many people experience headaches and confused visual images with prisms for hemianopia, so care must be taken with these. With the appropriate training, prisms may help you with field loss in areas of day to day living including navigating around obstacles better while walking.

Other optical aids that may be used include small mirrors that can be attached to spectacles (hemianopic spectacles). Inverted telescopes can increase your visual field, but they do require you to have good central vision.

These techniques can’t help bring back any field that you’ve lost, but may help you get the most of the field of vision you have. They don’t work for everyone and training is needed to make sure you can use these techniques safely.

### Eye movement problems

A stroke may lead to problems with your eye movements which can result in both your eyes not working together as a pair. This can make it difficult to focus on things because of blurred vision as well as double vision. This in turn can cause problems with reading, walking and performing everyday activities.

People may also experience problems with their fast (saccades) or slow (pursuit) eye movements which make it very difficult for the person to focus visually. In addition, their eyes may wobble (a condition known as nystagmus) or they may not be able to move both eyes together in a particular direction (gaze palsy). However, recognising these problems can help the person affected by stroke and carers to understand what’s going on.

Treatment can involve prisms and occlusion or patching. Prisms for eye movement problems are used to help eliminate double vision and are a very effective treatment. A temporary prism would be used initially; it looks like a transparent, plastic sheet which can be stuck to the surface of your spectacles. The temporary prisms will be applied to your spectacles to make sure it’s positioned correctly. Permanent prisms are mounted into the spectacle frame - into the lens itself. Occluding one eye can also be an effective solution for double vision; however, it will mean that you will have monocular vision which is having vision in one eye only.

Being monocular can also cause problems with reduced 3D or depth perception and mobility issues due to reduced field of vision. For example, judging how high a step is or how far away something is can be difficult. There are ways to try to cope with some of these difficulties such as using a cane to help with judging steps and kerbs or feeling for the table before you place a cup on it, etc. Occlusion doesn’t have to cover the entire lens. Sometimes it’s possible to cover only a part of your lens in the line of sight that is causing you double vision. This form of patching will not result in you being monocular and therefore you may not encounter as many problems with navigation and mobility.

### Visual neglect

Visual neglect is where you are unaware of objects to one side. It’s caused by a problem with the way information is being processed in the brain.

Visual neglect is more common when you have a stroke in the right side of the brain which affects the left side of the body. It may occur when you have field loss but can also occur on its own as well.

If you are suffering from neglect then you may ignore food on one half of your plate, avoid shaving or applying make-up to one side of your face as well as being unaware of objects and people that are on your affected side which can cause you to ignore or bump into objects that are on that side of you.

Treatment for neglect can include prisms but most often you’re advised on scanning and awareness strategies to help you cope with the neglect. Unfortunately if you have both visual field loss and neglect, you’re less likely to respond to scanning techniques or compensate for the problem.

## Visual hallucinations

Some people who have lost some sight following a stroke may start to see things that are not really there known as visual hallucinations. Charles Bonnet syndrome (CBS) is a common condition among people who have lost a lot of sight and causes people to have visual hallucinations. The main cause of CBS is loss of vision and the way your brain reacts to this loss.

The things that people with CBS see can range from simple patterns, shapes or colours to detailed pictures of people, animals, insects, landscapes and buildings. With CBS, the hallucinations only affect your sight which means that you don’t hear, smell or feel things that aren’t there.

CBS can be distressing, but many people find that the hallucinations can get less frequent with time. It was initially thought that hallucinations resolved within 12 to 18 months, but a recent study found that most people still have occasional hallucinations five years after they first started.

You can find more information about CBS on our website, or by calling our Helpline on 0303 123 9999.

### What other problems can stroke cause to my eyes?

Other problems that can affect your eyes or vision after a stroke include increased sensitivity to light, dry eye, visual balance disorders and processing problems.

Sensitivity to light can occur when the brain seems to have difficulty adjusting to different levels of light. You might notice that bright lights are uncomfortable. Tinted glasses or sunglasses can help in alleviating the discomfort you might have.

Dry eye is another problem you may experience following a stroke. The rate that you blink may be slower following a stroke and/or you may not be able to close your eyelids completely. If you’re not able to blink or close your eyes completely, it can cause a part of your cornea, the clear front surface of your eye to dry out causing your eye to feel uncomfortable and gritty. Using artificial tears to keep your cornea lubricated and reminding yourself to try to blink completely and often may be a possible solution for dry eyes. You can find more information about dry eye on our website, or by calling our Helpline on 0303 123 9999.

Often a person may be able to read text readily, but are unable to make sense of the text. They may attribute this to not being able to see the text properly when it’s actually due to processing the information that they’ve read.

## Can I still drive?

The Driver and Vehicle Licensing Authority (DVLA) have strict guidance about driving with a medical condition. After having a stroke, you are not able to drive for one month.

As stroke can affect you in different ways, it would be important for you to speak to your doctor or specialist about whether you can still continue to drive.

If you’re left with visual field loss or double vision after your stroke, then it may mean that you won’t be able to continue driving. The law states that if you develop a condition which may affect your sight, you must let the DVLA know. You may also wish to discuss your sight and DVLA sight standards with your optometrist or ophthalmologist.

## Where can I find sources of help?

Orthoptists play an essential role in assessing and managing many of the visual problems that may result after a stroke. Visual training with or without optical aids can be led by orthoptists as well as professionals in low vision and optometrists. In addition, doctors, physiotherapists, speech therapists, rehab workers, nurses and occupational therapists all play a major role in the rehabilitation and recovery process of people who have had a stroke. If you experience any visual difficulties following a stroke, it’s important that you have your eyes examined by eye care specialists.

If you have vision loss then you may want to ask your ophthalmologist whether you’re eligible to register as sight impaired (partially sighted) or severely sight impaired (blind). Registration can act as your passport to expert help and sometimes to financial concessions. Even if you aren’t registered, a lot of this support is still available to you.

## Coping

It’s completely natural to be upset when you’ve been diagnosed with vision loss. Often there can be a lot of life changes in a short space of time. You may find that you are worried about the future and how you will manage with a change in your vision. All these feelings are natural.

Some people may want to talk over some of these feelings with someone outside their circle of friends or family. At RNIB, we can help you with our telephone Helpline and our Sight Loss Counselling Team. Your GP or social worker may also be able to help you find a counsellor if you feel this may help.

Your eye clinic may also have a sight loss adviser (also known as an Eye Clinic Liaison Officer, ECLO or Vision Support Officer), who can be on hand to provide practical and emotional support about your eye condition.

## Help to see things better

If you do have some sight loss, there are lots of things that you can do to make the most of your remaining vision. This may mean making things bigger, using brighter lighting or using colour to make things easier to see. We have a series of leaflets with helpful information on living with sight loss, including how to make the most of your sight. You can find out more about our range of titles by calling our Helpline.

### Where can I get more support?

If you have questions about anything you’ve read in this leaflet, or just want someone to speak to about your eye condition, please get in touch with us. We’re here to support you at every step.

**RNIB Helpline**

**0303 123 9999**

**helpline@rnib.org.uk**

Our Helpline is your direct line to the support, advice and products you need. We’ll help you to find out what’s available in your area and beyond, both from RNIB and other organisations.

Whether you want to know more about your eye condition, buy a product from our shop, join our library, find out about possible benefit entitlements, be put in touch with a trained counsellor, or make a general enquiry, we’re only a call away.

We’re ready to answer your call Monday to Friday 8am to 8pm and Saturday 9am to 1pm.

**The Stroke Association**

240 City Road

London

EC1V 2PR

Helpline: 0303 3033 100

Website: [www.stroke.org.uk](http://www.stroke.org.uk)

**Chest Heart & Stroke Scotland Head Office**Third Floor, Rosebery House  
9 Haymarket Terrace  
Edinburgh  
EH12 5EZ

Telephone: 0131 225 6963

Advice line 0808 801 0899

Website: [www.chss.org.uk](http://www.chss.org.uk/)

**British and Irish Orthoptic Society**

Salisbury House

Station Road  
Cambridge

CB1 2LA  
Telephone: 0203 853 9797

Website: [www.orthoptics.org.uk](http://www.orthoptics.org.uk)

**Thomas Pocklington Trust**  
Entrance D  
Tavistock House South  
Tavistock Square  
London  
WC1H 9LG

Telephone: 020 8995 0880  
Website: [www.pocklington-trust.org.uk](http://www.pocklington-trust.org.uk)

**Driver and Vehicle Licensing Authority (DVLA)**

Drivers’ Medical Enquiries

Swansea SA99 1TU

Telephone: 0300 790 6806

Website: [www.dvla.gov.uk](http://www.dvla.gov.uk)

## We value your feedback

You can help us improve our information by letting us know what you think about it. Is this factsheet useful, easy to read and detailed enough – or could we improve it?

Send your comments to us by emailing us at [eyehealth@rnib.org.uk](mailto:eyehealth@rnib.org.uk) or by writing to:

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