

Visual problems after stroke

About two thirds of people have vision problems after a stroke. This guide explains the different types of vision problems and how they can be treated, and gives sources of further information and support.

The impact of vision problems

A stroke can affect your vision in several different ways. If you have vision loss after a stroke, it can make a lot of daily activities difficult, from getting around in and outside the home, to reading, shopping and watching television.

You may need support for returning to work, such as help with travel or new ways of doing your job.

Sight loss is linked to an increased risk of emotional problems like anxiety and depression. If this happens to you, it can affect your ability to take part in rehabilitation.

Sometimes the practical and emotional difficulties that sight loss causes are not apparent in hospital, and you may only become aware of them when you return home.

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Assessing vision

You should have your vision assessed before leaving hospital, and any sight problems

should be treated. When you have an assessment, the healthcare team should ensure you have your glasses or other aids you may use with you. If you notice new vision problems after you go home, visit your GP or local optician, who can refer you for an assessment.

If you had sight problems before your stroke, it is important to carry on with any treatment like eye drops, and keep having regular sight checks. This includes conditions like cataracts, age-related macular degeneration, diabetic retinopathy or glaucoma. Your vision, and the effects of a stroke, can change over time, so it's important to get advice if you notice any changes in your sight.

How can a stroke affect my vision?

Like the other effects of stroke, vision problems can improve over time, as the brain recovers. How you are affected depends on exactly where the stroke occurred in your brain. There are four main

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areas of visual problem, and you may have one or more:

- visual field loss
- eye movement problems
- visual processing problems
- other sight problems.

Visual field loss

Your visual field is everything you can see – including straight ahead (central vision) and out to the side (peripheral vision).

Visual field loss means that you are unable to see a section of your field of vision, usually because the vision areas of your brain have been damaged by the stroke. The eyes themselves work normally, but the brain can't process the images from one area of vision.

Where the visual field loss happens depends on where the stroke occurred in your brain. It almost always affects the same side of the visual field in both eyes (this is called 'homonymous' visual field loss). How much visual field is lost varies between people.

The most common type is homonymous hemianopia, which means losing the left or right visual field of both eyes. A less common type is scotoma, when there is a small patch of vision loss, often near the centre of vision. Often people think that the vision in one eye has been affected, but it is actually one side of the visual field of both eyes.

If just one eye is affected, often with central vision loss, it may be due to damage to the blood supply to the eye itself (see *Retinal vessel occlusion* at the end of this section).

How do I know if I have visual field loss?

You may not be aware of the missing area of vision. People with hemianopia often have difficulty reading, and may bump into things on the affected side. You might only notice the field loss if you look in a mirror and can only see one side of your face. When reading, it can be difficult to locate the start of a line if you have left-sided field loss. If you have right-sided field loss, it's harder to see ahead along the line of text. It can be difficult to get around, particularly in unfamiliar or crowded places.

How is it treated?

An eye specialist can assess your eye problems and advise you on what will work best for you. The missing area of vision can't be restored, but you can get help to make the most of your vision. The technique that seems to help most is visual scanning training. Using special lenses and optical aids may help some people.

Visual scanning training

This encourages you to look to your left and right sides in a systematic way. It is commonly used to help you be more aware of your visual field loss, and reminds you to look into your blind side. *Eyesearch* and *Readright* are free online therapies designed to improve the speed and accuracy of eye scanning and reading (see *Other sources of help and information* for further details). Other options include using line guides when reading, having good lighting, and using edge markers on books and newspapers.

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Widening your field of view with optical aids

This involves using a plastic prism on your glasses. The prism is worn on either one or both lenses). It creates an image of part of the side of visual field loss (your blind side) and reflects it over to your good side. This acts as a prompt or cue for you to look towards your blind side, or may help you to notice things on that side.

Vision restorative treatment

There are some treatments available privately that aim to restore part of the lost area of visual field, using computer-based therapy. Research has not yet shown if vision restorative therapies can improve eyesight. They are not available through the NHS, and it's a good idea to consult your stroke nurse or eye specialist before choosing this kind of treatment.

Making the most of your sight

Ask your orthoptist or optometrist (optician) about low vision aids such as magnifiers. An eye health specialist or GP can give you a referral to the local low vision service, where you can get low vision aids and advice.

You may be given magnifiers for use with near objects and reading, or telescopes for distance. You can try anti-glare glasses or overlays, to reduce excessive glare. You can try using brighter lighting, and using colours to make household objects easier to find.

You might need someone to help you get around in the early days and weeks after the stroke. With support, and by learning techniques like visual scanning, people can regain confidence and become more independent.

Visual hallucinations

Sometimes people with visual field loss see things that aren't there in their blind area, known as visual hallucinations. This might be the only time that someone notices the area of visual field loss. Medication can help some people, and reassurance or self-help strategies can assist a person living with the condition. RNIB has information about coping with hallucinations.

Retinal vessel occlusion

Occasionally, a loss of central vision is due to a type of stroke affecting the retina, the light-sensitive area of nerves at the back of the eye. This is called a retinal vessel occlusion. It happens when there is a blockage in one of the blood vessels to your eye. The main sign of a blockage in a retinal artery (the vessel carrying blood to the retina) is sudden loss of sight, but you may be aware of some brief periods of sight loss before having permanent vision loss.

It's possible to treat a blockage in a retinal artery if you are seen at a hospital within four hours. However, the retina is very sensitive to loss of blood supply, and it may not be possible to avoid permanent sight loss. If you notice any sudden loss of vision, you should visit your local hospital emergency department straight away.

With a blockage in a retinal vein (vessel carrying blood away from the retina), your sight can become dim or blurry over a few days.

If you have retinal vessel occlusion, you will be given tests and checks for the main risk factors for stroke such as high blood pressure, diabetes and high cholesterol. You should be advised on taking steps to improve your health such as stopping smoking, reducing waist size and eating healthily.

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Eye movement problems

A stroke can lead to a variety of problems with the fine nerve control that is needed to move your eyes. We have listed the main ones below.

Impaired eye movements

These may affect your eyes' ability to move from looking at one object to another or to follow a moving object, like someone walking past. These problems can make reading more difficult and can also affect your general mobility. For example if you are unable to look around quickly, walking outside is likely to be more challenging.

Inability to move both eyes together

If the nerve control to your eye muscles is affected, one of your eyes may not move correctly. This may cause you to have blurred vision or double vision (diplopia). This is sometimes called a squint or strabismus.

Eyes move constantly, or wobble

This can make it hard to focus on objects, or cause double vision. This condition is called nystagmus.

Impaired depth perception and difficulty locating objects

For example, when making a cup of tea, you may misjudge the position of the cup, and pour water over its edge rather than into it.

How are these problems treated?

There are a number of treatment options. Exercises can help if you have difficulty moving your eyes to look at objects held

close to your face. Prisms can improve double vision or allow you to see things to one side if you are unable to look in that direction. Like glasses, prisms are prescribed for each individual after a sight test.

A patch over one eye can also be used to avoid double vision. This makes it easier to see, but using only one eye (monocular vision) can also cause some difficulty. You can work with an optometrist or orthoptist to choose which option works best for you.

Visual processing problems

Some vision problems after stroke are due to the brain having difficulty processing the information received from the eyes and other senses. This can happen in many ways, for example difficulty recognising objects or people by sight, or recognising colours. It can cause difficulty when you try to reach for objects or make it harder to see more than one object at the same time.

Visual neglect

The commonest type of visual processing problem is visual neglect, which means that you are unaware of your surroundings to one side. You may not realise that you are missing things around you. For example, you may be unaware of objects and people on your affected side, and may ignore people or bump into things without realising they are there. Visual neglect can reduce your ability to look, listen or make movements towards part of your environment.

Neglect is more common in people who have had a stroke on the right side of the

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brain, which affects their awareness of the left side. The person is not aware that they are missing part of their vision. When neglect is severe it may be impossible to draw someone's attention round to their affected side.

Visual field loss and neglect can occur together, which can make it hard to use strategies like visual scanning or patches.

How are visual processing problems treated?

Many people recover well from visual neglect. If you have neglect you might be able to learn scanning and awareness strategies. If you have problems such as difficulty recognising colours, faces, objects, complex scenes or text, you may be taught to use your other senses (for example touch or hearing) to process the information in a different way and to help you to improve your awareness of the affected side.

Other sight problems

Dry eyes

If you have weakness in your facial muscles and eyelid muscles, you may have difficulty closing the eyelids fully, or your eyes could stay open when you are asleep. This can lead to a dry eye and irritation. It is important that this is treated early with lubrication drops or ointment to prevent more serious eye complications such as ulcers. Taping the lid closed at night is also very important if the eye does not always close fully.

Light sensitivity

You could also become more sensitive to light (photophobia) and may benefit from tinted glasses or sunglasses.

Accessing an eye specialist

After a stroke, you should be referred to an orthoptist or ophthalmologist specialising in stroke and brain injury. They can assess you and arrange treatment for poor vision, double vision or visual field loss. Ideally this assessment should happen before you leave hospital, as visual problems can affect daily life and rehabilitation of other problems after stroke. You might have a full vision assessment in an outpatient clinic. You may be referred to a low vision clinic where you can have an assessment and advice on using magnifiers or other visual aids. You can ask your GP or local optician for a referral.

If you have sight problems, there is a wide range of specialist equipment and household items available to help. These include clocks and watches with large numbers, big button telephones and large print

books and calendars. Contact the Royal National Institute of Blind People (RNIB) or the Disabled Living Foundation for more information (see *Other sources of help and information* at the end of this guide).

Eye health professionals

- An orthoptist can assess and treat a range of eye problems, particularly eye movements.
- An ophthalmologist is a medical doctor who specialises in diagnosing and treating diseases of the eye. Only an ophthalmologist can certify people partially sighted.
- An optometrist (optician) tests sight, prescribes and dispenses glasses or contact lenses and can screen you for eye disease.
- Support workers and eye clinic liaison officers (ECLOs) can give additional support. They can provide you and your family or carer with information on practical aids and emotional support. ECLOs provide a bridge between the eye care professionals in hospital and other organisations that can provide you with support at home.
- Visual rehabilitation officers help you make use of your remaining vision and other skills to increase your independence.

Driving

One of the most common queries after a stroke is whether you can return to driving. The DVLA (DVA in Northern Ireland) states that after a stroke or TIA you cannot drive a car for one month, but you may return to driving after this time if there are no lasting effects. The rules are different for lorry drivers, who must inform the DVLA/DVA after a stroke or TIA.

The DVLA/DVA state that you cannot drive with:

- double vision
- blurred vision
- visual field loss, particularly central vision.

If you have vision problems after a stroke you should get a proper visual assessment before attempting to return to driving, even if you think your vision has recovered. This can take place in a hospital eye department. You should be given clear information about your condition and offered treatment if it is appropriate, which may help improve your vision to the level needed for driving.

If you have visual problems in the longer term after stroke, you can get further advice about adapting to the effects and to see whether returning to driving may be an option. For more general information about driving see our guide F02, *Driving after stroke*.

Employment and sight loss

If you are having problems with your work because of your vision, you can ask your employer to make reasonable adjustments to help you. You can get information on your rights at work and how to return to employment after a stroke in our guide F45, *A complete guide to work and stroke*, and The Royal National Institute of Blind People (RNIB) has advice and resources on sight loss and work.

Should I register my sight loss?

If you are assessed as being partially sighted or blind, you can choose to register your sight loss. This can make it easier to get practical help from social services, as well as entitling you to concessions such as council tax reduction, the Disabled Person's Railcard and local travel schemes. It can also help when claiming certain state benefits.

If your ophthalmologist recognises that you are severely sight impaired (blind) or sight impaired (partially sighted), they will issue you with a certificate. In England and Wales this certificate is called the Certificate of Vision Impairment (CVI). In Scotland it is called BP1, in Northern Ireland it is called A655.

To register your sight loss, contact your local social services department and they will add you to the register. RNIB has more information on the benefits of registering your sight loss and how to do it (see *Other sources of help and information*).

Tips for coping with vision problems

- If you have double vision, try closing one eye or using a patch when reading or watching television.
- If you have lost your vision to one side, it is important to move your eyes and head towards the weaker side, for example on entering a room. The more you scan and move your eyes and head to that side, the quicker you will detect objects on that side and reduce your risk of bumping into objects or tripping.
- When reading, use rulers and markers to highlight the beginning and end of sentences and to help you keep your position along a line of text.
- Make sure your lighting is good and where possible, have it positioned to your side and not behind you, as this causes shadows.
- Reduce the number of objects that are on your surfaces at home, particularly in the kitchen. If there is too much clutter, it can be more difficult to pick out individual items.
- Vision problems are not always obvious for other people to see. You might find it helpful to explain your sight problems to friends, family and colleagues to help them understand the support you need.
- If you lack confidence in going out and about, a visual rehabilitation officer can help you to learn strategies for safe travel on foot and using public transport.

Where to get help and information

From the Stroke Association

Talk to us

Our Stroke Helpline is for anyone affected by a stroke, including family, friends and carers. The Helpline can give you information and support on any aspect of stroke.

Call us on **0303 3033 100**, from a textphone **18001 0303 3033 100** or email **helpline@stroke.org.uk**.

Read our publications

We publish detailed information about a wide range of stroke topics including reducing your risk of a stroke and rehabilitation. Read online at **stroke.org.uk** or call the Helpline to ask for printed copies.

My Stroke Guide

My Stroke Guide is the online stroke support tool from the Stroke Association. Log on to find easy-to-read information, advice and videos about stroke. And our chat forums can connect you to our online community, to hear how others manage their recovery. Log on at **mystrokeguide.com**.

Our dedicated Enquiry Line is on hand to support you with using My Stroke Guide. Call **0300 222 5707** or email **mystrokeguide@stroke.org.uk**.

Other sources of help and information

Organisations offering information, support and equipment

Royal National Institute of Blind People (RNIB)

Website: www.rnib.org.uk

Helpline: 0303 123 9999

Provides information about all aspects of visual impairment, including low vision aids and the process of being registered as partially sighted or blind. Offers an emotional support service and over 100 social groups that meet weekly. They can also provide details of transcription services. Merged with Action for Blind People in April 2017.

Other services include Big Print – a weekly large print newspaper which includes TV and radio listings, a national library service – a specialist library including audiobooks for people with sight loss, and Insight radio – a station for people with visual problems with a wide range of programmes.

Disabled Living Foundation (DLF)

Website: www.dlf.org.uk

Helpline: 0300 999 0004

Provides information about aids and equipment for people with disabilities, as well as advice on everyday tasks such as shopping and eating.

Eye Search

Website: www.eyesearch.ucl.ac.uk

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

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Nystagmus Network

Website: www.nystagmusnet.org

Produces publications including *Adults with acquired nystagmus*. You can get in contact with the charity using their online form, which can also be used to request a call back.

Partially Sighted Society

Website: www.partsight.org.uk

Tel: 01302 965 195

Offers a catalogue of resources including: easy-to-see and talking clocks, watches and timers; large-print games, crossword books, calendars and diaries; bold-lined stationery; and magnifying screens for TVs and computer monitors.

Read Right

Website: 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.

Visionary

Website: www.visionary.org.uk

Helpline: 020 8090 9264

Email: visionary@visionary.org.uk

UK network of local charities for blind and partially sighted people.

Audio books

Calibre

Website: www.calibre.org.uk

Tel: 01296 432339

Free postal lending library of unabridged books. Membership is open to children and adults who are blind or partially sighted, or have dyslexia.

Listening Books

Website: www.listening-books.org.uk

Tel: 020 7407 9417

A postal audio library service. Annual membership starts from £20. This fee may be paid by social services or your local authority.

Playback

Website: www.play-back.com

Tel: 0141 334 2983

Provides a free service recording text to audio for people with visual problems. Also has a wide range of publications in audio format that you can borrow.

RNIB Newsagent

Website: www.rnib.org.uk/newsagent

Helpline: 0303 123 9999

A service run by RNIB that provides audio versions of more than 200 national newspapers and magazines in various different formats including CD and online download. Call the Helpline for a free sample.

Professional bodies

British and Irish Orthoptic Society

Website: www.orthoptics.org.uk

Tel: 020 3853 9797

Provides information on the eye problems that occur following brain injury, including stroke. They have a stroke specialist interest group and support research on visual impairment following stroke.

College of Optometrists

Website: www.college-optometrists.org

Tel: 020 7839 6000

Professional body for optometrists in the UK.

Royal College of Ophthalmologists

Website: www.rcophth.ac.uk

Tel: 020 3770 5327

Professional body for eye doctors. Offers a range of information on eye conditions.

Driving organisations

Driver and Vehicle Licensing Agency (DVLA) England, Scotland, Wales

Website: www.dvla.gov.uk

Tel: 0300 790 6806

Produces online information for drivers with a medical condition.

Driver and Vehicle Agency (DVA) Northern Ireland

Website: www.nidirect.gov.uk/motoring

The driver, vehicle and vehicle operator licensing authority in Northern Ireland.

Glossary

Depth perception = the ability to see the world in three dimensions

Hemianopia = loss of vision on one side

Homonymous hemianopia = losing half of the field of vision in both eyes

Monocular vision = vision with one eye only

Nystagmus = a condition where the eyes move constantly

Ophthalmologist = a medical doctor specialising in diagnosing and treating diseases of the eye

Optometrist (optician) = a specialist who tests sight, prescribes glasses and contact lenses and screens people for eye disease

Orthoptist = an eye care specialist who assesses and treats a range of visual problems, particularly eye movement problems

Peripheral vision = the field of vision out to both sides

Prism = a plastic membrane which is applied to a person's glasses and which moves the position of objects when they are seen through the prism

Retinal vessel occlusion = a blockage in a blood vessel to the eye

Visual field = the whole of your vision

Visual scanning = training which encourages you to look in a systematic way to the right and left sides

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About our information

We want to provide the best information for people affected by stroke. That's why we ask stroke survivors and their families, as well as medical experts, to help us put our publications together.

How did we do?

To tell us what you think of this guide, or to request a list of the sources we used to create it, email us at feedback@stroke.org.uk.

Accessible formats

Visit our website if you need this information in audio, large print or braille.

Always get individual advice

Please be aware that this information is not intended as a substitute for specialist professional advice tailored to your situation. We strive to ensure that the content we provide is accurate and up-to-date, but information can change over time. So far as is permitted by law, the Stroke Association does not accept any liability in relation to the use of the information in this publication, or any third-party information or websites included or referred to.

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Together we can conquer stroke.

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