Vision problems after stroke

Stroke Helpline: **0303 3033 100**
or email: **helpline@stroke.org.uk**

Stroke Association

Read this online

About two thirds of people have vision problems after a stroke. This guide looks at the different ways your vision can be affected, and how you can get treatment and support.

Vision problems after a stroke can affect your daily life in many ways. You could find it more difficult to do things like reading, shopping and watching videos. You may struggle to get around, or need support for returning to work, such as help with travel or new ways of doing your job.

It's not always obvious right away how your vision is affecting you, as different practical and emotional difficulties can emerge over time.

How do I know if I have a vision problem?

You won't always be aware that you have a vision problem, which is why it's important to have your vision checked after a stroke. Things like visual field loss and visual processing problems may only be picked up by a test. You or other people might notice that you are bumping into things, or that you're not aware of things happening to one side. To find out some of the signs to look out for with different types of vision problem, see later in this guide.

Diagnosing vision problems

You should have your vision checked before leaving hospital. If this does not happen, or you don't remember having your eyes tested, you can ask your GP to refer you to your local eye clinic or visit your local optician.

If you notice new vision problems after you go home, tell your GP, local optician or specialist stroke nurse. They can refer you to the hospital eye clinic for a further assessment.

When you have a vision assessment, make sure that you have any glasses you usually use with you.

If you had vision problems before your stroke, it is important to carry on with any treatment like eye drops, and keep having your 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.

Eye tests for people with communication or cognitive problems

Eye tests can be adapted for people with communication difficulties or cognitive problems. Some tests use pictures, symbols or numbers. A retinoscope uses light reflections to check someone's glasses prescription, eye movements or peripheral vision. See 'Other sources of help and information' for organisations that can help you find an eye specialist with experience in this area.

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

- Visual field loss, where you have missing areas of your vision.
- Eye movement problems, where you have trouble with the nerve control of the muscles that focus and move your eyes.
- Visual processing problems, where you are not aware of things to one side of you.
- Other sight problems, including light sensitivity.

It is possible to have more than one of these types of visual problem after a stroke.

Driving

After a stroke or transient ischaemic attack (TIA), by law you cannot drive a car for one month. Whether you can return to driving depends on the type of stroke you had and the vehicle you drive.

If your vision is affected, you must get a specialist visual assessment before attempting to return to driving, even if you think your vision has recovered.

The rules about driving with medical conditions state that you cannot drive with visual inattention. For some eye conditions, an assessment can find out whether you can go back to driving.

To get individual advice about driving with vision problems and stroke contact a driving assessment centre. Search for your local centre online **drivingmobility.org.uk**.

For information about driving after stroke, visit **stroke.org.uk/driving** or call our Helpline.

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.

It almost always affects the same side of the visual field in both eyes (this is called 'homonymous' visual field loss). The part of the visual field that is lost and how big it is depends on where the stroke occurred in your brain.

Types of visual field loss

- Hemianopia means losing the left or right half of the visual field of both eyes. It's the most common type. It's sometimes called homonymous hemianopia.
- Scotoma is a small patch of vision loss, often near the centre of vision. It's a less common type of visual field loss.

Often people think that the vision in one eye has been affected, but it is usually one side of the visual field of both eyes.

If just one eye is affected, often with combined central and peripheral 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?

Some people with visual field loss may not be aware of the missing area of vision. Hemianopia can make reading difficult because it is hard to find the beginning or end of a line and find the next line. You might only notice the field loss if you look in a mirror and can only see one side of your face. It can be difficult to get around, particularly in unfamiliar or crowded places.

Will visual field loss recover?
Visual field loss can improve and some people make a complete recovery. Many people will have a permanent visual field loss, but there are techniques to help you make the most of your remaining vision.

An eye specialist can assess your eye problems and advise you on what will work best for you.

Visual scanning training
This encourages you to look to your left and right sides in a more efficient way. 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').

Other options include using line guides when reading, having good lighting, and using edge markers on books and newspapers. These therapies aim to improve visual function by training eye movements to be more efficient.

Widening your field of view with optical aids
This involves wearing glasses with a plastic prism in one or both lenses. The prism creates an image of part of the side of visual field loss and reflects it over to your good side. Some vision on the good side is sacrificed, and some people find it gives them double vision and headaches.

Vision restorative treatment
Some privately-available treatments offer to restore part of the lost area of visual field, using computer-based therapy. This technique currently lacks research evidence to support it. If you are thinking of trying it out, it's a good idea to get advice from your stroke nurse or eye specialist first.

Eye movement problems

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

Impaired eye movements
These may affect your eyes' ability to move between objects, 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 give you 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 and cause moving images and 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 the 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.

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 orthoptist to find out 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 inattention (also known as visual neglect)

The commonest type of visual processing problem is visual inattention or neglect, which means that you are unaware of things to one side of you. It's often due to strokes on the right side of the brain so the left side of visual space is affected. For example, you may be unaware of objects and people on your affected side, and may ignore people or bump into things because you don't realise they are there.

Visual inattention can reduce your ability to look or make movements towards part of your environment. It can be mild or more severe. When neglect is severe it may be impossible to draw someone's attention round to their affected side.

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

How are visual processing problems treated?

Many people recover well from visual inattention. 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. You might be advised to tape the lid closed at night if the eye does not always close fully.

Light sensitivity

Light sensitivity is common after a stroke. It's sometimes called photophobia. You might be bothered by bright light, or glare from light coloured surfaces. Some people find that a yellow or orange tinted overlay helps them read. Wearing tinted sunglasses can reduce glare.

Visual hallucinations (Charles Bonnet syndrome)

Visual hallucinations happen when the brain generates images in the missing area of vision. The images most often appear in your blind area. You might see simple patterns, or more complex images of people and places. For some people, it is the only time they notice the area of vision loss. It is also known as Charles Bonnet syndrome.

Visual hallucinations caused by sight loss are not a symptom of a mental health problem. They often start after a sudden loss of vision. They almost always improve with time as your brain gets used to the loss of vison. They can return or get worse if your sight gets worse or if you are unwell due to an infection.

Hallucinations can be caused by other conditions affecting the brain, so if you start having them tell your GP, eye health specialist or specialist stroke nurse.

There is no medication or treatment for Charles Bonnet syndrome, but you can find organisations that support people with hallucinations in 'Other sources of information' at the end of this guide. RNIB publishes a guide to Charles Bonnet Syndrome available at **rnib.org.uk** and Esme's Umbrella is a campaign group raising awareness of the condition.

Retinal vessel occlusion

Retinal vessel occlusion is due to a blockage in one of the blood vessels to the retina (retinal arteries). This is called a retinal vessel occlusion. It is also called an 'eye stroke' but unlike a stroke, it does not affect the brain.

Retinal vessel occlusion shares many of the risk factors for stroke, so you will be given tests and checks for conditions like high blood pressure, diabetes and high cholesterol. You should be advised on taking steps to improve your health such as stopping smoking, maintaining a healthy weight and eating a balanced diet.

Eye health professionals

- An **orthoptist** can assess and treat a range of vision problems, particularly eye movements.
- An **ophthalmologist** is a medical doctor who specialises in diagnosing and treating diseases of the eye. Only a consultant ophthalmologist can certify people as sight impaired.
- 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 health 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.

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 at any time.

If you have vision 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.

Visit the RNIB website to find out more **rnib.org.uk**.

Should I register my sight loss?

If you are assessed as being sight impaired (partially sighted) or severely sight impaired (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.

A consultant ophthalmologist can complete the request to issue you with a certificate and referral for support services. In England and Wales this certificate is called the Certificate of Vision Impairment (CVI). In Scotland this is called the CVI (Scotland) form, and in Northern Ireland it is called A655.

To register your sight loss, contact your local social services or hospital eye clinic, 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 at **rnib.org.uk**.

Tips for coping with vision problems

Making the most of your sight

Ask your orthoptist or optometrist (optician) if you need new glasses, and if you would benefit from low vision aids. 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.

- If you have double vision, try using a patch when reading or watching television.
- 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. A white stick or cane also tells people you have a sight issue.
- 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.

Reading problems after stroke

If you are finding reading difficult, ask your stroke nurse or local optician to refer you for some specialist advice about practical things you can try to improve your reading.

Three common stroke-related reading problems are:

Hemianopic alexia

This is when visual field loss interferes with text reading. You might be able to read accurately but slowly. There is a free practice-based app to help improve your reading: Read-Right: **readright.ucl.ac.uk**.

Pure alexia

A stroke can damage a key part of the brain that lets you identify words on the page.

You might read slowly, find it hard to recognise words, and sometimes mix up letters that look similar (such as p, b and d). There is a practice-based app for alexia called iRead-More: find out more at **ucl.ac.uk/icn/research/research-groups/neurotherapeutics** or download the app on the Apple or Google Play stores.

Alexia can also affect people with aphasia, and you can find out more at **stroke.org.uk/communication-problems**.

Neglect dyslexia

Damage to brain regions that deal with spatial analysis of the world can mean you get lost on the page. There is a free reading aid app that helps you with visuo-spatial challenges of text reading by presenting text one line or even one word at a time. Find out more at Read-Clear **makingreadingreal.org/en-gb**.

Employment and vision problems

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 'A complete guide to work and stroke'. The Royal National Institute of Blind People (RNIB) has advice and resources on vision problems and work **rnib.org.uk**.

Where to get help and information

From the Stroke Association

Helpline

Our Helpline offers information and support for anyone affected by stroke, including family, friends and carers.

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

Read our information

Get more information about stroke online at **stroke.org.uk**, or call the Helpline to ask for printed copies of our guides.

My Stroke Guide

The Stroke Association's online tool My Stroke Guide gives you free access to trusted advice, information and support 24/7. My Stroke Guide connects you to our online community, to find out how others manage their recovery.

Log on to **mystrokeguide.com** today.

Other sources of help and information

Help with finding an optician for people with communication or cognitive difficulties

Specsavers

Specsavers do home visits on request.
Website:
specsavers.co.uk/home-eye-tests
You can also contact your local optician to ask if they do home visits.

Seeability – Find an Optometrist

Website: **seeability.org/find-an-optometrist**

Visioncall

Website: **vision-call.co.uk**

Free online therapy for vision problems

Eye Search

Website: **eyesearch.ucl.ac.uk**
A website from University College London Institute of Neurology. Provides free online therapy for people with visual search problems due to hemianopia and spatial neglect.

Read Right

Website: **readright.ucl.ac.uk**
Free online practice-based therapy to improve reading speeds in people with hemianopia from the University College London Institute of Neurology.

Organisations offering information, support and equipment

Esme's Umbrella
Website: **charlesbonnetsyndrome.uk**
Helpline: **020 7391 3299**
Support and information for people with visual hallucinations due to sight loss (Charles Bonnet syndrome).

Nystagmus Network
Website: **nystagmusnet.org**
Information and support for people with nystagmus.

Partially Sighted Society
Website: **partsight.org.uk**
Tel: **01302 965 195**
Resources, products and support for people with sight loss.

Royal National Institute of Blind People (RNIB)
Website: **rnib.org.uk**
Helpline: **0303 123 9999**
Information about all aspects of sight loss plus products such as large print and audio publications, and an emotional support service.

The Vision Group
Website: **liverpool.ac.uk/population-health/research/groups/vision/**
The VISION group has developed a number of resources that are available free of charge to patients and their families. Many are written by stroke survivors who have visual problems.

Visionary
Website: **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: **calibreaudio.org.uk**
Tel: **01296 432 339**
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: **listening-books.org.uk**
Tel: **020 7407 9417**
Postal audio library service with a small annual membership fee.

Playback
Website: **play-back.com**
Tel: **0141 776 3395**
Provides a free service recording text to audio for people with sight loss. Also has an audio publication library.

Professional bodies

British and Irish Orthoptic Society
Website: **orthoptics.org.uk**
Tel: **020 3853 9797**
Provides information on the eye problems that occur following brain injury, including stroke. Search the site for 'Stroke and neuro rehabilitation' for useful resources.

The College of Optometrists
Website: **college-optometrists.org**
Tel: **020 7839 6000**
Professional body for optometrists in the UK.

Royal College of Ophthalmologists
Website: **rcophth.ac.uk**
Tel: **020 3770 5327**
Professional body for eye doctors. Offers a range of information on eye conditions.

Driving licensing agencies UK

Driver and Vehicle Licensing Agency (DVLA) England, Scotland, Wales
Website: **dvla.gov.uk**

Driver and Vehicle Agency (DVA) Northern Ireland
Website: **nidirect.gov.uk/motoring**

Glossary

Depth perception: the ability to see the world in three dimensions.

Diplopia: seeing two images of a single object (double vision).

Hemianopia: loss of vision on one side.

Homonymous hemianopia: losing half of the field of vision in both eyes.

Monocular vision: vision in only one eye.

Nystagmus: a condition where the eyes move constantly, or 'wobble'.

Ophthalmologist: a medical doctor specialising in eye conditions.

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

Orthoptist: an eye health specialist who tests and treats eye movement problems, and problems with vision and visual co-ordination.

Photophobia: abnormally high sensitivity to light.

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.

Ptosis: drooping of the upper eyelid.

Retinal vessel occlusion: a blockage in a blood vessel to the eye.

Scotoma: area of visual field loss.

Strabismus: the two eyes do not line up together (squint).

Visual field: the whole of your vision.

Visual neglect/inattention: the inability to notice things to one side.

Visual perception: how the images received by the brain are processed.

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

Notes

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

This guide contains general information about stroke. But if you have a problem, you should get individual advice from a professional such as a GP or pharmacist. Our Helpline can also help you find support. We work very hard to give you the latest facts, but some things change. We don't control the information provided by other organisations or websites.

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Every five minutes, stroke destroys lives. We need your support to help rebuild them. Donate or find out more at **stroke.org.uk**.

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