Epilepsy after stroke

In the first few days and weeks after a stroke some people have a seizure, and a small number go on to develop epilepsy. This guide explains what epilepsy is, the different types of seizure, and how epilepsy is diagnosed and managed.

Seizures and epilepsy

Epilepsy is a tendency to have repeated seizures. People can develop epilepsy at any age, and in around half of all cases there is no obvious reason for it to happen.

Epilepsy can be due to a brain injury or other condition such as stroke, an infection or a growth in the brain. Overall, stroke is the cause in around 10% of adults newly diagnosed with epilepsy.

What is a seizure?

Cells in the brain send electrical signals to one another, which pass along nerve fibres to all parts of the body. If you have epilepsy, electrical activity can become disordered, and the signals can get mixed up. A sudden abnormal burst of electrical activity in the brain can lead to a seizure.

A seizure can have many different types of symptom, which can include sensory, cognitive, emotional and physical effects. For more information see Types of seizure later in this guide.

Seizures after stroke

A first seizure after stroke usually occurs within the first few days, but they can happen two years or more after a stroke. You are more likely to have a seizure if you had a stroke caused by bleeding in the brain (a haemorrhagic stroke).

Seizures can also be more likely if you had a severe stroke, or a stroke in the cerebral cortex, the large outer layer of the brain where vital functions like movement, thinking, vision and emotion take place.

If you have a seizure after a stroke, it does not necessarily mean you have epilepsy, or will go on to develop it. Overall, your risk of having a seizure reduces over time. However, a small number of people will have repeated seizures, and be diagnosed with epilepsy.

The chances of this happening are similar for people with ischaemic stroke and haemorrhagic stroke. The risk can be higher depending on where the stroke happens in the brain, and the size of the stroke.
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Epilepsy symptoms

There are many different types of seizures, ranging from tingling sensations or ‘going blank’ for a few seconds, to shaking and losing consciousness. Some people have only one type of seizure, and some have more than one type.

If you have not been diagnosed with epilepsy and you have symptoms like pins and needles, blackouts and confusion, these could also be signs of a stroke. If you spot the signs of a stroke in yourself or someone else, you must call 999.

Types of seizure

There are three main types of seizure.

- Focal onset seizures begin in one half of the brain.
- Generalised onset seizures begin in both halves of the brain.
- In an unknown onset seizure, it is not clear where the seizure began.

Focal onset seizures

Some seizures only occur in part of the brain, known as focal onset seizures. There are two kinds of focal seizures, motor (physical signs like moving arms or falling), and non-motor (affects senses, awareness and emotions).

Focal motor seizures include physical symptoms like part of the body going stiff or floppy, or jerking rhythmically. Other signs include the head turning to one side, or repeated swallowing. A focal non-motor seizure can involve feelings like fear or pleasure, sensory changes and a feeling that the body is distorted.

Generalised onset seizures

A generalised seizure involves the whole brain and affects the whole body. Motor (physical) signs can include losing consciousness and muscle spasms.

A non-motor seizure could be a brief period of absence where the person stops moving, and looks as if they are staring into space.

Unknown onset seizure

If it’s not possible to tell where the seizure began in the brain, doctors may describe your seizure as motor or non-motor.

Motor (physical) signs might include losing consciousness and having jerking movements, and non-motor can include not moving, or repetitive actions.

Status epilepticus

Status epilepticus means that someone has an epileptic seizure lasting 30 minutes or more, or a series of shorter seizures that goes on for longer than 30 minutes. A long, convulsive seizure can make the body struggle to circulate oxygen, and this can lead to brain damage or death.

Because of this, it is important to call 999 if an epileptic seizure continues for more than five minutes. Emergency epilepsy medication can treat the seizures before damage occurs.

A non-convulsive form of status epilepticus can affect people with dementia or learning
disabilities. It can be hard to identify because of the lack of physical signs, but it needs to be identified and treated to avoid long-term damage.

**How is epilepsy diagnosed?**

If you think you have had a seizure, visit your GP. You should be referred to see a specialist within two weeks. The specialist is usually a neurologist, an expert in the brain and nervous system.

While you are waiting for the appointment, it is best to avoid any activities that could put you, or others, in danger if you have another seizure. This includes driving and swimming.

You may not be able to remember the seizure so if someone else witnessed it, they could visit the specialist with you. Or they could send a written account or, if possible, a video of the seizure. It may help to keep a seizure diary recording the date and time of your seizures, what happened and any possible triggers such as stress or drinking alcohol.

The specialist will ask you questions about what happened. This may be enough to make a diagnosis. Further tests may be needed, particularly if the seizure did not involve convulsions. These tests do not prove whether you have epilepsy, but they can give information about the possible cause, and the type of seizures you have.

**Tests used in diagnosing epilepsy**

**Electroencephalogram (EEG)**

A common test for epilepsy is an EEG. It is a painless test which involves placing electrodes on your scalp. These measure electrical activity in your brain, and can identify any unusual patterns. The test only shows what is happening in your brain at the time it is done, so a normal EEG does not necessarily mean that you do not have epilepsy. An EEG usually takes about one hour and can be done at an outpatient clinic.

**Magnetic resonance imaging (MRI)**

An MRI scan can find problems inside the brain which can cause epilepsy. These can include scarring or a growth, such as a brain tumour, and the damage left by a stroke.

**Blood tests**

You may be given blood tests or have other checks to look for health problems that can cause similar symptoms, such as diabetes, migraine and panic attacks.
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How is epilepsy treated?

Treatments for epilepsy include:

- anti-epileptic drugs (AEDs)
- surgery
- vagus nerve stimulation therapy
- ketogenic diet.

This guide can only give general information. You should always get individual advice about your own health and any treatment you may need from a medical professional such as a GP or pharmacist.

Anti-epileptic drugs (AEDs)

Medication can usually reduce seizures and allow you to lead a normal life. Which treatment you have will depend on:

- what type of seizures you have
- your age and gender
- how frequent your attacks are
- other effects of your stroke, like swallowing problems
- other medication you are taking.

There are several different types of medication available for epilepsy. These are called anti-epileptic drugs or AEDs. They usually work by changing the levels of chemicals in the brain. In some cases the normal activity of the brain may also be affected, leading to drowsiness, dizziness, confusion and other side effects. Once your body is used to the medication, these side effects may go away. Your doctor may start you on a low dose and increase it gradually to reduce the chances of you having side effects. If they are severe or last a long time, your doctor may change the dose or try a different medication.

Everyone is different, and some people experience side effects from a particular medication even at a low dose. However, you can usually try a different type if this happens, as there are many safe and reliable AEDs available.

Common types of AED include:

- sodium valproate
- carbamazepine
- lamotrigine
- levetiracetam
- oxcarbazepine
- ethosuximide
- topiramate.

You might be given a single drug or a combination of two or more. The type you are given depends on the type of seizures, and any side effects you have from a particular drug or combination.

If you have symptoms like feeling unsteady, having poor concentration or vomiting, your dose could be too high and you should contact your GP or specialist.
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**Surgery**

Surgery may be an option if anti-epileptic drugs do not help you, and if your epilepsy is due to a physical cause in your brain, such as scarring or stroke damage. Whether you can have surgery depends partly on where the problem lies inside your brain, and whether a surgeon can reach it safely. Having surgery in your brain can be very risky. You can work with your doctor to understand the risks and possible benefits to you before choosing to go ahead.

**Vagus nerve stimulation therapy**

A small electrical device is implanted in the neck, and connects to the left vagus nerve. The device sends regular electric signals to the brain via the vagus nerve, which can help regulate electrical activity in the brain that causes epilepsy.

**Ketogenic diet**

This treatment is used for children who don’t respond to AEDs, and involves a high-fat, low-carbohydrate diet. This changes the way the brain uses energy, which may reduce seizures. It should only be used with the help of a specialist doctor and dietician.

**First aid for seizures**

How you can help a person during a seizure will depend on what type of seizure they have. These tips can help you help someone who is unconscious and making jerking movements.

- protect the person from injury by removing any harmful objects nearby and cushioning their head
- loosen any tight clothing from around their neck
- look for any identity card or jewellery that might give you advice on what to do
- do not attempt to restrain the person or bring them round
- do not move them, unless they are in danger
- do not put anything into their mouth
- after the seizure has finished, turn them on their side to help them breathe more easily
- do not give them anything to eat or drink
- be calm and reassuring, stay with them until they have completely recovered
- make a note of how long the seizure lasted.

Call 999 if:

- one seizure follows another without the person recovering in between
- the seizure continues for more than five minutes
- the person is injured or seems to need urgent medical attention
- you think it is the person’s first seizure.
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Driving

If you have had a seizure, you must stop driving and notify the DVLA (England, Scotland and Wales) or the DVA (Northern Ireland) as well as your insurance company.

If and when you can start driving again will depend on the type and frequency of your seizures and the kind of licence you hold. For more information about driving regulations, visit the DVLA website at www.gov.uk/epilepsy-and-driving.

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 info@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.
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Other sources of help and information

Driver and Vehicle Licensing Agency (DVLA) (England, Scotland, Wales)
Website: www.gov.uk/dvla
Tel: 0300 790 6806
Produces online information about driving with medical conditions, including epilepsy.

Driver and Vehicle Agency (DVA) (Northern Ireland)
Website: nidirect.gov.uk/motoring
Tel: 0300 200 7861
The driver, vehicle and vehicle operator licensing authority in Northern Ireland.

Epilepsy Action
Website: www.epilepsy.org.uk
Helpline: 0808 800 5050
Email helpline: helpline@epilepsy.org.uk
Provides advice and information about epilepsy, and seizure diaries.

Epilepsy Society
Website: www.epilepsysociety.org.uk
Helpline: 01494 601 400
Provides information about epilepsy and specialist residential care for people with severe epilepsy.

Epilepsy Scotland
Website: www.epilepsyscotland.org.uk
Helpline: 0808 800 2200
Provides information, training for professionals and community support services to assist people to live independently.

Epilepsy Wales
Website: epilepsy.wales
Helpline: 0800 228 9016
Provides information, runs support groups and training, and works to raise awareness.

Glossary

AED = anti-epileptic drug

EEG = electroencephalogram: a test used to measure the electrical activity of the brain

Generalised seizure = a seizure that involves both sides of the brain

Onset seizure = a seizure that happens in the first few weeks after a stroke

Partial seizure = seizure which involves only part of the brain – sometimes called a focal seizure

Seizure = when the electrical activity of the brain becomes disorganised leading to a range of effects.

Status epilepticus = a seizure which lasts for 30 minutes or longer or a series of seizures where you don’t regain consciousness in-between. It is a medical emergency

Tonic-clonic seizure = a type of seizure in which sudden body stiffness is followed by convulsions

For more information visit stroke.org.uk
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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
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Together we can conquer stroke.

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