

Epilepsy after stroke

In the first few weeks after a stroke some people have a seizure, and a small number go on to develop epilepsy – a tendency to have repeated seizures. These can usually be completely controlled with treatment. This factsheet explains what epilepsy is, the different types of seizures, and how epilepsy is diagnosed and treated. It also includes advice about coping with a seizure, and a glossary.

Epilepsy is a tendency to have **repeated seizures** – sometimes called ‘fits’ or ‘attacks’. It affects just under one per cent of people in the UK. Stroke is one of many conditions that can lead to epilepsy.

Around five per cent of people who have a stroke will have a seizure within the following few weeks. These are known as acute or **onset seizures** and normally happen within 24 hours of the stroke. You are more likely to have one if you have had a severe stroke, a stroke caused by bleeding in the brain (a haemorrhagic stroke), or a stroke involving the part of the brain called the cerebral cortex. If you have an onset seizure, it does not necessarily mean you have or will develop epilepsy.

A small number of people will have more than one seizure and will develop epilepsy.

Your risk of having a seizure lessens with time following your stroke. If you have recovered and have not yet had a seizure, you are at very low risk of developing epilepsy.

What causes seizures?

Cells in the brain communicate with one another and with our muscles by passing electrical signals along nerve fibres. If you have epilepsy this electrical activity can become disordered. **A sudden abnormal burst of electrical activity in the brain can lead to a seizure.**

There are over 40 different types of seizures ranging from tingling sensations or ‘going blank’ for a few seconds, to shaking and losing consciousness.

This can mean that epilepsy is sometimes confused with other conditions, including stroke. If you experience symptoms like tingling, you may worry that you are having another stroke or transient ischaemic attack (TIA – sometimes called a mini stroke). This may be a seizure and not a stroke, but if you experience symptoms like tingling, you should **seek medical attention straightaway.**

Types of seizures

Partial seizures

Some seizures only **occur in part of the brain**. These are called partial or focal seizures. You may remain conscious and aware of your surroundings during a partial seizure (called a simple partial seizure) or you may become confused and unable to respond (a complex partial seizure). The symptoms you experience during a partial seizure will depend on which part of your brain has been affected. Possible **symptoms** include:

- Changes in sensation such as a tingling feeling, which spreads to other parts of your body – commonly people experience a rising feeling in their stomach (a bit like when you go over a humpback bridge). This is called an epigastric rising sensation.
- Uncontrollable stiffness or twitching in a part of the body such as your arm or hand.
- Disturbances in your vision, such as seeing flashing lights.

Generalised seizures

Generalised seizures involve both the left and right side of the brain. The most common and widely recognised type is a **tonic-clonic seizure**. In this type of seizure, you lose consciousness, your muscles go stiff and you usually fall backwards. After this, your muscles tighten and relax in turn, causing your body to jerk (convulse). Your breathing may become difficult and you may lose control of your bladder. This convulsive phase of the seizure should only last a minute or two.

There are several other types of generalised seizures:

- tonic seizures – where your muscles go suddenly stiff but you do not have convulsions
- clonic seizures – where you have convulsions but no muscle stiffness beforehand
- atonic seizures – where you suddenly lose all muscle tone and go limp
- myoclonic seizures – where you experience a brief muscle jerk similar to the jerk you sometimes get as you fall asleep.

Sometimes a partial seizure can spread to both sides of the brain. This is known as a secondary generalised seizure. Stroke onset seizures are often of this type.

Most seizures stop by themselves and last between two and five minutes. After a seizure you may feel tired or confused. The time it takes to recover varies from person to person. Sometimes after a seizure associated with stroke, you will have **temporary weakness**, which may feel very similar to your stroke. This is called Todd's paralysis or Todd's paresis and it may last for a few hours.

Status epilepticus

Status epilepticus is a seizure that lasts for 30 minutes or longer, or a series of seizures without consciousness being regained in-between.

During these seizures, your body struggles to circulate oxygen properly, so **status**

epilepticus is an emergency. Call 999 if you witness someone having a seizure that lasts for more than five minutes or if one seizure follows another without them regaining consciousness in-between.

How is epilepsy diagnosed?

If you are not in hospital and you think you have had a seizure you should see your GP. You should be **referred to see a specialist as soon as possible.**

You may not be able to remember the seizure so if someone else witnessed it, it might help if they see the specialist with you. The specialist will ask you questions about what happened. This may be enough to make a diagnosis. However further tests may be needed, particularly if the seizure did not involve convulsions.

A common test for epilepsy is an electroencephalogram (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 test usually takes about one hour and can be done at an outpatient clinic.

It may help to keep a **seizure diary** recording the date and time of your seizures, what happened and any possible triggers. For example, some people find that drinking alcohol or being under stress can trigger a seizure. Flashing lights are a trigger for people with a type of epilepsy called photosensitive epilepsy, though this only affects a small proportion of people with epilepsy.

How is epilepsy treated?

You will not normally be treated for a single seizure that has happened soon after your stroke, but you may be prescribed medication if you have any more.

There is currently no cure for epilepsy, but **medication can usually prevent seizures** and allow you to lead a normal life. Which treatment you have will depend on:

- what type of seizures you have had
- 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 preventing the excessive build up of electrical activity in the brain which causes seizures. Unfortunately, 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.

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The drugs used to treat epilepsy are often referred to as first-line and second-line drugs. First-line drugs were developed first and have been used to treat epilepsy for many years, whereas second-line drugs are much newer.

First-line drugs are usually the first choice of treatment to control seizures. Examples include sodium valproate, carbamazepine, phenytoin, phenobarbital and primidone.

Second-line AEDs are usually recommended if there is a reason why you cannot take one of the first-line drugs, for example if it interacts with other medication you are taking. Examples include gabapentin, lamotrigine, levetiracetam, oxcarbazepine, tiagabine, topiramate and vigabatrin.

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, see our factsheet *F2, Driving after stroke*.

First aid for seizures

How you can help a person during a seizure will depend on what type of seizure they have. The following guidelines are particularly relevant for tonic-clonic seizures:

- protect the person from injury by removing any harmful objects nearby and cushioning their head

- loosen any tight clothing from around their neck
- 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 for an ambulance if:

- one seizure follows another without the person recovering in-between
- the seizure continues for more than five minutes, or the person is unconscious for more than 10 minutes
- the person has injured themselves, or has trouble breathing after the seizure
- you know it is the person's first seizure.

For more detailed first aid advice about seizures, see the *Useful organisations* section.

Useful organisations

All organisations listed are UK wide unless otherwise stated

Stroke Association

Stroke Helpline: 0303 3033 100

Email: info@stroke.org.uk

Website: stroke.org.uk

Contact us for information about stroke, emotional support and details of local services and support groups.

Epilepsy Action

Helpline: 0808 800 5050

Email: helpline@epilepsy.org.uk

Website: www.epilepsy.org.uk

Provides advice and information about epilepsy, and seizure diaries. Has a network of local branches which organise social events.

The National Society for Epilepsy

Helpline: 01494 601 400

Website: www.epilepsysociety.org.uk

Provides information about epilepsy and specialist residential care for people with severe epilepsy.

Epilepsy Scotland

Helpline: 0808 800 2200

Website: www.epilepsyscotland.org.uk

Provides information, training for professionals and community support services to assist people to live independently.

Epilepsy Wales

Helpline: 0800 228 9016

Website: public.epilepsy-wales.org.uk

Provides information, runs support groups and training, and works to raise awareness of the condition.

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

Tel: 0300 790 6806

Email: eftd@dvla.gsi.gov.uk

Website: www.dvla.gov.uk

Produces a *Customer Service Guide for Drivers with Medical Conditions* and an *At A Glance Guide to the Current Medical Standards of Fitness to Drive*.

Driver and Vehicle Agency (DVA) Northern Ireland

Tel: 0845 402 4000

Website: www.dvlni.gov.uk

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

Disclaimer: The Stroke Association provides the details of other organisations for information only. Inclusion in this factsheet does not constitute a recommendation or endorsement.

Glossary of terms

AED = anti-epileptic drug.

Carbamazepine = a commonly used AED.

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

Epilepsy = the tendency to have repeated seizures that start in the brain.

Generalised seizure = a seizure which involves both sides of the brain.

Lamotrigine = a commonly used AED.

Levetiracetam = a commonly used AED.

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

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

Phenytoin = a commonly used AED.

Sodium valproate = a commonly used AED.

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

Status epilepticus = a seizure which lasts for 30 minutes or longer, or a series of seizures where the person doesn'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.

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For sources used, visit stroke.org.uk

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