



epilepsy  
society

# seizures

An introduction to epileptic seizures



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Further information is available.

You can find any further updates at  
[epilepsysociety.org.uk/epileptic-seizures](http://epilepsysociety.org.uk/epileptic-seizures)

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This leaflet was reviewed by  
Professor Ley Sander, Medical Director,  
Epilepsy Society, and Dr Fergus Rugg-Gunn,  
Consultant Neurologist, Epilepsy Society.

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**helpline**

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# an introduction to epileptic seizures

Any of us could potentially have a single epileptic seizure at some point in our lives. This is not the same as having epilepsy, which is a *tendency* to have seizures that start in the brain. This leaflet covers different types of epileptic seizures and what they can look like.



**See our leaflet *what is epilepsy?***

Whether you, or someone you know, has had a single seizure or has been diagnosed with epilepsy, it may help to identify the type of seizures that are relevant to you, and how they affect you. Also, page 14 has information on what to do if someone has a seizure.



**Call our helpline for information or time to talk. See opposite for contact details.**

## are all seizures the same?

Epileptic seizures start in the brain. There are other types of seizures which may look like epileptic seizures but they do not start in the brain.

Some seizures are caused by conditions such as low blood sugar (hypoglycaemia) or a change to the way the heart is working. Some very young children have 'febrile convulsions' (jerking movements) when they have a high temperature. These are not the same as epileptic seizures.

In this leaflet when we use the word 'seizure' we mean an epileptic seizure.

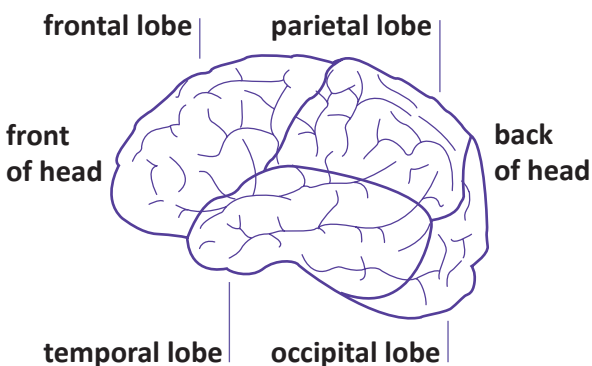
# the brain and epileptic seizures

The brain has millions of nerve cells which control the way we think, move and feel. The nerve cells do this by passing electrical signals to each other. If these signals are disrupted, or too many signals are sent at once, this causes a seizure (sometimes called a 'fit' or 'attack').

The brain has many different functions. Mood, memory, movement, consciousness and our senses are all controlled by the brain, and any of these can be affected if someone has a seizure. They may feel strange or confused, behave in an unusual way, or lose some or all awareness during the seizure.

The brain has two sides called hemispheres. Each hemisphere has four parts called lobes. Each lobe is responsible for different things such as vision, speech and emotions.

## One hemisphere of the brain (side view)



## some facts about seizures

- Most seizures happen suddenly without warning, last a short time (a few seconds or minutes) and stop by themselves.
- Seizures can be different for each person.
- Just knowing that someone has epilepsy does not tell you what their epilepsy is like, or what type of seizures they have.
- Calling seizures ‘major’ or ‘minor’ does not tell you what happens to the person during a seizure. The names of seizures used in this leaflet describe what happens in a seizure.
- Some people have more than one type of seizure, or their seizures may not fit clearly into the types described in this leaflet. But even if someone’s seizures are unique, they usually follow the same pattern each time they happen.
- Not all seizures involve jerking or shaking movements. Some people seem vacant, wander around or are confused during a seizure.
- Some people have seizures when they are awake, called ‘awake seizures’. Some people have seizures while they are asleep, called ‘asleep seizures’ (or ‘nocturnal seizures’). The names ‘awake’ and ‘asleep’ do not explain the *type* of seizures, only *when* they happen.
- Injuries can happen during seizures, but many people don’t hurt themselves, and don’t need to go to hospital or see a doctor.



See our leaflet *first aid*.

# types of seizures

In March 2017 the International League Against Epilepsy (ILAE), a group of the world's leading epilepsy professionals, introduced a new method to group seizures. This gives doctors a more accurate way to describe a person's seizures, and helps them to prescribe the most appropriate treatments.

Seizures are divided into groups depending on:

- where they start in the brain (onset);
- whether or not a person's awareness is affected; and
- whether or not seizures involve other symptoms, such as movement.

Depending on where they start, seizures are described as being focal onset, generalised onset or unknown onset.

## focal onset

Focal onset seizures start in, and affect, just one part of the brain, sometimes called the 'focus' of the seizures. They might affect a large part of one hemisphere or just a small area in one of the lobes.

Sometimes a focal seizure can spread to both sides of the brain (bilateral). The focal seizure is then a warning, sometimes called an 'aura', that another seizure will happen (see focal to bilateral tonic-clonic seizures, page 9).

## levels of awareness

Seizures are also described depending on a person's level of awareness during their seizures; this means whether or not they are aware of the seizure and what is happening around them.

### **Focal aware seizures (FAS)**

In focal aware seizures (previously called simple partial seizures) the person is conscious (aware and alert), will usually know that something is happening and will remember the seizure afterwards.

Some people find their focal aware seizures hard to put into words. During the seizure, they may feel 'strange' but not be able to describe the feeling afterwards. This may be upsetting or frustrating for them.

### **Focal impaired awareness seizures (FIAS)**

Focal impaired awareness seizures (previously called complex partial seizures) affect a bigger part of one hemisphere (side) of the brain than focal aware seizures.

The person's consciousness is affected and they may be confused. They might be able to hear you, but not fully understand what you say or be able to respond to you. They may not react as they would normally. If you speak loudly to them, they may think you are being aggressive, and so they may react aggressively towards you.

FIAS often happen in the temporal lobes but can happen in other parts of the brain.

After the seizure, the person may be confused for a while. This is sometimes called ‘post-ictal’ (after-seizure) confusion. It may be hard to tell when the seizure has ended. The person might be tired, and want to rest. They may not remember the seizure afterwards.

## what happens during focal seizures?

What happens during focal aware and focal impaired awareness seizures depends on where in the brain the seizure happens and what that part of the brain normally does.

Some focal seizures involve movements, called motor symptoms, and some involve unusual feelings or sensations called non-motor symptoms.

### **Motor symptoms can include:**

- making lip-smacking or chewing movements, repeatedly picking up objects or pulling at clothes;
- suddenly losing muscle tone and limbs going limp or floppy, or limbs suddenly becoming stiff;
- repetitive jerking movements that affect one or both sides of the body;
- making a loud cry or scream; or
- making strange postures or repetitive movements such as cycling or kicking.





## **Non-motor symptoms can include:**

- a 'rising' feeling in the stomach or déjà vu (feeling like you've 'been here before');
- getting an unusual smell or taste;
- a sudden intense feeling of fear or joy;
- a strange feeling like a 'wave' going through the head;
- stiffness or twitching in part of the body, (such as an arm or hand);
- a feeling of numbness or tingling;
- a sensation that an arm or leg feels bigger or smaller than it actually is; or
- visual disturbances such as coloured or flashing lights or hallucinations (seeing something that isn't actually there).

## **Focal to bilateral tonic-clonic seizures**

Sometimes focal seizures spread from one side to both sides of the brain. This is called a focal to bilateral tonic-clonic seizure (previously called a secondarily generalised tonic clonic seizure).

When this happens the person becomes unconscious and will usually have a tonic clonic (jerking or shaking) seizure.

When focal seizures spread very quickly, the person may not be aware that it started as a focal seizure.

## generalised onset

Generalised onset seizures affect both sides of the brain at once and happen without warning.

The person will be unconscious (except in myoclonic seizures), even if just for a few seconds and afterwards will not remember what happened during the seizure.

### **Tonic clonic seizures (previously called grand mal)**

These are the seizures most people think of as epilepsy.

At the start of the seizure:

- the person becomes unconscious;
- their body goes stiff, and if they are standing up they usually fall backwards;
- they may cry out; and
- they may bite their tongue or cheek.

During the seizure:

- they jerk and shake as their muscles relax and tighten rhythmically;
- their breathing might be affected and become difficult or sound noisy;
- their skin may change colour and become very pale or bluish; and
- they may wet themselves.

After the seizure (once the jerking stops):

- their breathing and colour return to normal; and
- they may feel tired, confused, have a headache or want to sleep.

A person's seizures usually last the same length of time each time they happen, and stop by themselves. However, sometimes seizures do not stop, or one seizure follows another without the person recovering in between. If this goes on for five minutes or more it is called status epilepticus, or 'status'.

Status is not common, but can happen in any type of seizure and the person may need to see a doctor.

Status in a tonic clonic seizure is a medical emergency, and the person will need urgent medical help. It is important to call for an ambulance if the seizure goes on for more than five minutes.



**See page 15 for when to call for an ambulance.**

## **Clonic seizures**

Clonic seizures involve repeated rhythmical jerking movements of one side or part of the body or both sides (the whole body) depending on where the seizure starts. Seizures can start in one part of the brain (focal motor) or affect both sides of the brain (generalised clonic).

## **Tonic and atonic seizures**

In a **tonic** seizure the person's muscles suddenly become stiff. If they are standing they often fall, usually backwards, and may injure the back of their head. Tonic seizures tend to be brief and happen without warning.

In an **atonic** seizure (or 'drop attack') the person's muscles suddenly relax, and they become floppy. If they are standing they often fall, usually forwards, and may injure the front of their head or face. Like tonic seizures, atonic seizures tend to be brief and happen without warning. With both tonic and atonic seizures people usually recover quickly, apart from possible injuries.

## **Myoclonic seizures**

Myoclonic means 'muscle jerk'. Muscle jerks are not always due to epilepsy (for example, some people have them as they fall asleep).

Myoclonic seizures are brief but can happen in clusters (many happening close together in time), and often happen shortly after waking.

In myoclonic seizures the person is conscious, but they are classified as generalised seizures. This is because the person is likely to have other seizures (such as tonic clonic seizures) as well as myoclonic seizures.

## **Absence seizures**

Absence seizures (previously called petit-mal) are more common in children than in adults, and can happen very frequently.

## Typical absences

During a typical absence the person becomes blank and unresponsive for a few seconds. They may appear to be 'daydreaming'. The seizures may not be noticed because they are brief.

The person may stop what they are doing, look blank and stare, or their eyelids might blink or flutter. They will not respond to what is happening around them. If they are walking they may carry on walking, but will not be aware of what they are doing.

## Atypical absences

Atypical absences are similar to typical absences (see above) but they start and end more slowly, and last a bit longer than typical absences. As they also include a change in muscle tone, where the limbs go limp or floppy, some people may fall.

## unknown onset

This term is sometimes used to describe a seizure if doctors are not sure where in the brain the seizure starts. This may happen if the person was asleep, alone or the seizure was not witnessed.

If there is not enough information about a person's seizure, or if it is unusual, doctors may call it an unclassified seizure.



**See our factsheet *recording seizures*.**

# what to do if someone has a seizure

How you can help someone during a seizure will depend on the type of seizures they have, and how much you know about their epilepsy. For example, if you find someone having a seizure in public, and you are not aware of their circumstances or when the seizure started, always call an ambulance.

If they seem confused, stay with them, talk calmly and quietly, and gently guide them away from any danger.

## **During tonic clonic seizures**

- try to keep calm;
- check the time to see how long the seizure lasts;
- move objects away from them so that they don't hurt themselves;
- put something soft under their head to protect it;
- don't hold them down;
- don't put anything in their mouth;
- don't move them, unless they are in direct danger;
- after they have stopped shaking, gently put them into the recovery position; and stay with them until they have recovered.

Usually the person does not need an ambulance.



**See our leaflet *first aid* and our factsheet *the recovery position*.**

### Call 999 for an ambulance if:

- it is the person's first seizure;
- they have injured themselves badly;
- they have trouble breathing after the seizure has stopped;
- one seizure immediately follows another with no recovery in between;
- the seizure lasts **two minutes longer** than is usual for them; or
- the seizure lasts for more than **five minutes**.

Some people with epilepsy use a seizure diary to keep track of when their seizures happen, to see if their seizures change in frequency or length over time.

If their seizures do change, it might be helpful for them to have their epilepsy reviewed by their doctor.



## further information

### Epilepsy Society information

First aid

Recording seizures

Seizure diary

The recovery position

What is epilepsy?

Every effort is made to ensure that all information is correct at the time of printing. Please note that information is intended for a UK audience. This information is not a substitute for advice from your own doctors. Epilepsy Society is not responsible for any actions taken as a result of using this information.



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Epilepsy Society

Chesham Lane, Chalfont St Peter, Bucks SL9 0RJ

01494 601 300

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