

# Epileptic seizures explained



Epilepsy Action and NHS Tayside –  
working together to support  
people with epilepsy.



Epilepsy Action aims to improve the quality of life and promote the interests of people living with epilepsy.

## **Our work...**

- We provide information to anyone with an interest in epilepsy.
- We improve the understanding of epilepsy in schools and raise educational standards.
- We work to give people with epilepsy a fair chance of finding and keeping a job.
- We raise standards of care through contact with doctors, nurses, social workers, government and other organisations.
- We promote equality of access to quality care.

Epilepsy Action has local branches in most parts of the UK. Each branch offers support to local people and raises money to help ensure our work can continue.

## **Join us...**

You can help us in our vital work by becoming a member. All members receive our magazine *Epilepsy Today*, free cover under our unique personal accident insurance scheme and access to our services and conferences.

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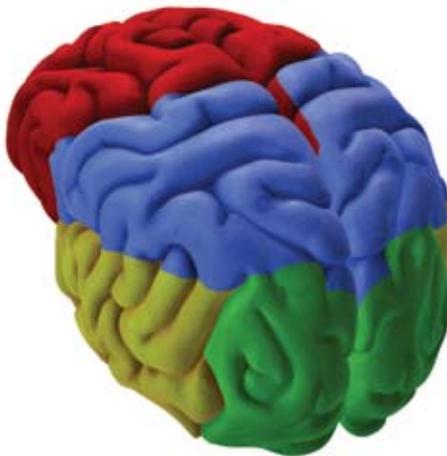


## Introduction

If someone is diagnosed with epilepsy, it means they have a tendency to have seizures (sometimes called fits). Epilepsy is usually only diagnosed after the person has had two seizures or more. Seizures can happen in any part of the brain. The brain is responsible for all the functions of our mind and body. What any of us experiences during a seizure will depend on where in the brain the seizure is happening. *Epileptic seizures explained* gives a brief explanation of the most common types of epileptic seizure. The booklet is only about epileptic seizures. There are other publications available that cover different aspects of epilepsy. Contact Epilepsy Action for details.

First aid for seizures can be found on page 20.

## The structure of the brain



■ Occipital lobes   ■ Parietal lobes   ■ Frontal lobes   ■ Temporal lobes

## Why seizures happen

Electrical activity is happening in our brain all the time. A seizure happens when there is a sudden burst of intense electrical activity. This intense electrical activity causes a temporary disruption to the way the brain normally works, meaning that the brain's messages become mixed up. The result is an epileptic seizure.

In this booklet, the term 'epileptic activity' is used to talk about this intense electrical activity.

## When seizures start

Seizures can start at any age. Certain seizure types are more likely to start at certain times of life. For example, absence seizures mainly happen in childhood. Some children go on to have them when they are adults, but this is rare. In older people, focal seizures (also called partial) are the most common seizure type.

## Seizure classification

The International League Against Epilepsy (ILAE), a world-wide organisation of epilepsy professionals, has compiled a list of the names of different seizure types. This is called the ILAE seizure classification. The names given to different types of seizures in this booklet are based on this classification.

Giving seizures the right names is important for doctors, because specific drugs and treatments can help some seizure types but not others.

## Seizure types

There are many different types of seizure. They can be classed by where in the brain the epileptic activity starts.

### Focal (partial) seizures

In these seizures the epileptic activity starts in just a part of your brain. You may remain alert during this type of seizure, or you may not be aware of what is happening. You may have movements that you can't control, or unusual sensations or feelings.

Sometimes, onlookers may not be aware that you are having a seizure. Focal seizures can be very brief or last for minutes.

Sometimes, epileptic activity starts as a focal seizure, spreads to the rest of your brain and becomes a generalised seizure.

### Generalised seizures

These seizures involve epileptic activity in both hemispheres (halves) of your brain. You usually lose consciousness during this type of seizure, but sometimes it can be so brief that no one notices. The muscles in your body may stiffen and/or jerk. You may fall down.



Close up render of neuron brain cells. Image courtesy of [www.istockphoto.com/billnoll](http://www.istockphoto.com/billnoll)

## **Focal (partial) seizures**

The next section is about symptoms of focal seizures that start in the different lobes (areas) of your brain.

### **Focal (partial) seizures in the temporal lobes**

Focal seizures starting in the temporal lobes are common.

The temporal lobes are responsible for many functions. Some examples of these functions are hearing, speech, memory, and emotions.

Here are some common symptoms of focal seizures in the temporal lobes.

- Flushing, sweating, going very pale, having a churning feeling in your stomach
- Seeing things as smaller or bigger than they really are
- Seeing or hearing something that is not actually happening
- Smelling non-existent smells
- Tasting non-existent tastes
- Feeling frightened, panicky, sad or happy
- Feeling detached from what is going on around you
- Feeling sick
- Having vivid memory ‘flashbacks’
- Having an intense feeling of ‘deja vu’, when you are convinced you have experienced something before – even when you haven’t
- Being unable to recognise things that are very familiar to you – sometimes referred to as ‘jamais vu’

- Chewing, smacking your lips, swallowing or scratching your head
- Fumbling with your buttons or removing items of your clothing
- Wandering off, without any awareness of what you are doing, or where you are going

### **Focal (partial) seizures in the frontal lobes**

Focal seizures starting in the frontal lobes are common.

Your frontal lobes are responsible for many different functions. These include movement, emotions, memory, language, and social and sexual behaviour. The frontal lobes are also considered to be home to your personality.

Not all frontal lobe seizures will be noticed by an onlooker. However, some frontal lobe seizures can look quite dramatic and unusual. Because of this, it is common for them to be wrongly diagnosed as something other than epilepsy.

Here are some common symptoms of focal seizures in the frontal lobes.

- Turning your head to one side
- Your arms or hands becoming stiff and drawing upwards
- Cycling movements of your legs
- Thrashing of your arms
- Carrying out strange and complicated body movements
- Having problems speaking or understanding
- Experiencing sexual feelings and showing sexual behaviour
- Screaming, swearing or crying out
- Losing control of your bladder and/or bowels



A particular type of frontal lobe seizure is a ‘Jacksonian’ seizure. This is usually brief and consists of jerking or trembling movements. These begin in a finger and then slowly march upwards to the whole hand and arm. Afterwards, there could be a short period of muscle weakness.

Following a focal seizure, particularly a frontal lobe seizure, some people have what is known as Todd’s paralysis or Todd’s paresis. This is paralysis, lasting from minutes to hours, in the area of your body that was involved in the seizure.

### **Focal (partial) seizures in the parietal lobes**

Focal seizures starting in the parietal lobes are uncommon.

The parietal lobes are responsible for your bodily sensations. Focal seizures in this part of your brain cause strange physical feelings. A tingling or warm feeling down one side of your body is typical. These types of seizures are also known as ‘sensory’ seizures.

### **Focal (partial) seizures in the occipital lobes**

Focal seizures starting in the occipital lobes are uncommon.

The occipital lobes are responsible for your vision. Focal seizures happening in this part of your brain affect the way you see things. Seeing flashes, or balls of light, or having brief loss of vision, are typical symptoms.

## Focal (partial) seizures progressing to generalised seizures

Some people have a warning – known as an aura – that they are about to have a tonic-clonic seizure (see page 15). This warning is, in fact, epileptic activity in a part of your brain (a focal seizure). Once the epileptic activity spreads to both halves of your brain, you have a tonic-clonic seizure. If you have a warning, you tend to have the same warning every time. And the warning is usually brief.

The warning can be very useful, as it may give you time to get to a place of safety, or to alert someone else that you are going to have a seizure. Sometimes, however, the epileptic activity spreads to both halves of your brain so quickly that you appear to go straight into a tonic-clonic seizure.



Close up render of neuron brain cells.

# Generalised seizures

In generalised seizures the epileptic activity is in both halves of your brain. The main types of generalised seizure are tonic-clonic, absence, myoclonic, tonic and atonic. In tonic-clonic seizures you will fall to the floor. In some other types of generalised seizure the epileptic activity misses a small part of your brain and makes your symptoms more limited. For example, in absence seizures, you don't fall to the floor. In a myoclonic seizure, the symptoms are jerking in just a part of your body, and you rarely fall to the floor.

## Tonic-clonic seizures

This is the most common and widely recognised generalised seizure. There are two phases to this type of seizure: the 'tonic' phase, followed by the 'clonic' phase.

**The tonic phase** – you lose consciousness and, if standing, will fall to the floor. Your body goes stiff because all your muscles contract. You may cry out because your muscles contract, forcing air out of your lungs. Your breathing patterns change, so there is less oxygen than normal in your lungs. Because of this, the blood circulating in your body is less red than usual. This causes your skin (particularly around your mouth and under your finger nails) to appear blue in colour. This is called 'cyanosis'. You may bite your tongue and the inside of your cheeks.

**The clonic phase** – after the tonic phase has passed, the clonic phase of the seizure begins. Your limbs jerk now because your

muscles tighten and relax in turn. You may occasionally lose control of your bladder and/or bowels. It is not possible to stop the seizure, and no-one should attempt to control your movements, as this could cause injury to your limbs.

After a short time, your muscles relax and your body goes limp. Slowly you will regain consciousness, but may well be confused. You will gradually return to normal but may not be able to remember anything for a while. It's usual to feel sleepy and have a headache and aching limbs. Recovery times can be different for different people. Some people will quickly want to get back to what they were doing. Some people will need a short sleep and others will need plenty of rest.

**Post-ictal state** – ‘post’ means after and ‘ictal’ refers to a seizure. After a tonic-clonic seizure, some people may be very confused, tired or have memory loss. This is known as a post-ictal state. A post-ictal state can last from minutes to days.

### **Absence seizures**

During an absence seizure, you are unconscious for a few seconds. You appear to be daydreaming or switching off. You don't know what is happening around you, and you can't be brought out of it. Because anybody can daydream at any time, absences can be very hard to spot. It's possible to have hundreds of absence seizures a day, preventing you from fully taking part in daily activities. You could also miss out on tiny pieces of information or events. This may be mistaken for lack of attention or concentration.





## **Myoclonic seizures**

The word myoclonic comes from 'myo' meaning muscle, and 'clonus' meaning jerk. So in a myoclonic seizure your muscles jerk. Myoclonic seizures can sometimes cause your whole body to jerk. More usually, they only cause jerking in one or both arms and sometimes your head. Although it may not be obvious, during the seizure you are unconscious for a very brief time. Even though the seizures are brief, they can be extremely frustrating. For example, they often result in spilt drinks or similar accidents.

The most common time for myoclonic seizures to happen is first thing in the morning.

Myoclonic seizures are similar to the jerks that some people have when falling asleep. These jerks when falling asleep are not epilepsy.

## **Tonic seizures**

In a tonic seizure all your muscles tighten. Your body stiffens and you fall over unless you are supported. Tonic seizures usually last less than 20 seconds and most often happen during sleep.

## **Atonic seizures (drop attacks or akinetic seizures)**

In an atonic seizure you lose all muscle tone and drop heavily to the floor. The seizure is very brief and you are usually able to get up again straight away. You are not confused afterwards. Because your body usually falls forward in an atonic seizure, you are at

risk of banging your head on furniture or other hard objects. If you have frequent atonic seizures, extra safety precautions – like protective headgear – make sense. Epilepsy Action can provide further information on this.

## Conclusion

In this booklet, we have looked at the most common types of seizure and the areas of the brain where they happen. It is worth remembering that everybody's seizures are individual to them. Even if your seizures appear to be similar to someone else's, it doesn't mean that they have the same cause or should be medically treated in the same way.

If you need more information about your epilepsy, speak with your epilepsy specialist nurse, GP, or consultant.



## **About this publication**

This booklet is written by Epilepsy Action's advice and information team, with guidance and input from people living with epilepsy, and medical experts. If you would like to know where our information is from, or there is anything you would like to say about the booklet, please contact us.

Epilepsy Action makes every effort to ensure the accuracy of information in its publications but cannot be held liable for any actions taken based on this information.

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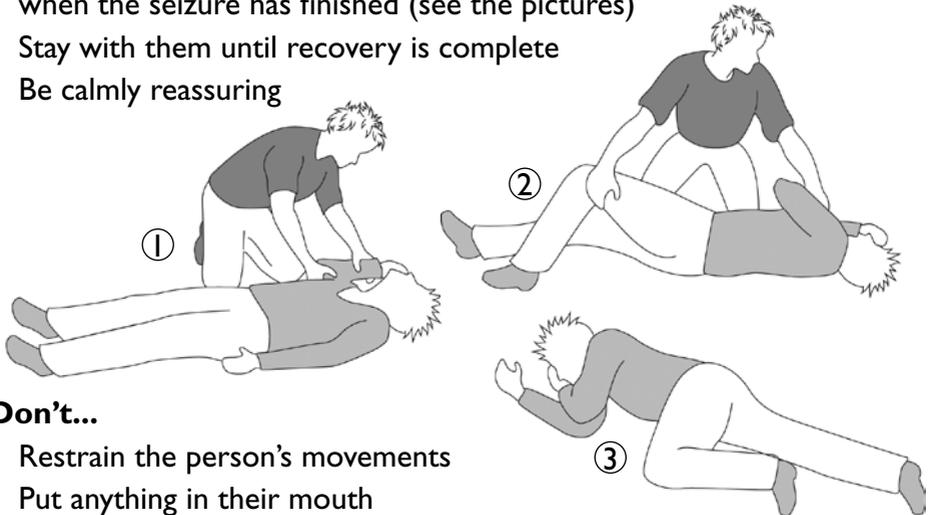
Epilepsy Action would like to thank Dr Mark Manford, consultant neurologist, Addenbrookes Hospital, for his contribution. Dr Mark Manford has declared no conflict of interest.

# First aid for tonic-clonic seizures

The person goes stiff, loses consciousness and falls to the floor

## Do...

- Protect the person from injury (remove harmful objects from nearby)
- Cushion their head
- Aid breathing by gently placing the person in the recovery position when the seizure has finished (see the pictures)
- Stay with them until recovery is complete
- Be calmly reassuring



## Don't...

- Restrain the person's movements
- Put anything in their mouth
- Try to move them unless they are in danger
- Give them anything to eat or drink until they are fully recovered
- Attempt to bring them round

## Call 999 for an ambulance if...

- You know it is the person's first seizure
- The seizure continues for more than five minutes
- One seizure follows another without the person regaining consciousness between seizures
- The person is injured
- You believe the person needs urgent medical attention

## **First aid for focal (partial) seizures**

The person is not aware of their surroundings or of what they are doing. They may pluck at their clothes, smack their lips, swallow repeatedly or wander around.

### **Do...**

- Guide the person away from danger
- Stay with the person until recovery is complete
- Be calmly reassuring
- Explain anything that they may have missed

### **Don't...**

- Restrain the person
- Act in a way that could frighten them, such as making abrupt movements or shouting at them
- Assume the person is aware of what is happening, or what has happened
- Give them anything to eat or drink until they are fully recovered
- Attempt to bring them round

### **Call 999 for an ambulance if...**

- You know it is the person's first seizure
- The seizure continues for more than five minutes
- The person is injured
- You believe the person needs urgent medical attention

## Further information

If you have any questions about epilepsy, please contact the Epilepsy Helpline.

Epilepsy Action has a wide range of publications about many different aspects of epilepsy. Information is available in the following formats: booklets, fact sheets, posters, books, videos and DVDs.

## Information is also available in large text.

Please contact Epilepsy Action to request your free information catalogue.



## **Epilepsy Action's support services**

**Local meetings:** a number of local branches offer support across England, Northern Ireland and Wales.

**forum4e:** our online community is for people with epilepsy and carers of people with epilepsy. For people aged 16 years or over. Join at [www.forum4e.com](http://www.forum4e.com)

**Epilepsy awareness:** Epilepsy Action has a number of trained volunteers who deliver epilepsy awareness sessions to any organisation that would like to learn more about epilepsy. The volunteers are able to offer a comprehensive introduction to epilepsy to a range of audiences.

If you would like more information about any of these services, please contact Epilepsy Action. Contact details are at the back of this booklet.



## Epileptic seizures explained

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## How to contact the Epilepsy Helpline

Telephone the Epilepsy Helpline freephone **0808 800 5050**

Monday to Thursday 9.00 am to 4.30 pm Friday 9.00 am to 4.00 pm

Our helpline staff are Tynetalk trained

Write to us free of charge at

**FREEPOST LS0995, Leeds LS19 7YY**

Email us at [helpline@epilepsy.org.uk](mailto:helpline@epilepsy.org.uk) or visit our website:

[www.epilepsy.org.uk](http://www.epilepsy.org.uk) Text your enquiry to **07797 805 390**

Send a Tweet to [@epilepsyadvice](https://twitter.com/epilepsyadvice)

## About the Epilepsy Helpline

The helpline is able to offer advice and information in 150 languages.

We provide confidential advice and information to anyone living with epilepsy but we will not tell them what to do. We can give general medical information but cannot offer a medical diagnosis or suggest treatment. We can give general information on legal and welfare benefit issues specifically related to epilepsy. We cannot, however, take up people's cases on their behalf.

Our staff are trained advisers with an extensive knowledge of epilepsy related issues. Where we cannot help directly, we will do our best to provide contact details of another service or organisation better able to help with the query. In doing this, Epilepsy Action is not making a recommendation.

We welcome comments, both positive and negative, about our services.

To ensure the quality of our services we may monitor calls to the helpline.

## Epilepsy Helpline:

freephone 0808 800 5050  
[www.epilepsy.org.uk](http://www.epilepsy.org.uk)



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