



# Epilepsy

**Epilepsy is recurring brief episodes of abnormal electrical activity in the brain leading to uncontrolled convulsions and unconsciousness, or a momentary loss of awareness.**

## In this article

- What is epilepsy?
- Diagnosis of epilepsy
- Links between epilepsy and brain injury
- Treatment and management of epilepsy
- First aid

## What is epilepsy?

Epilepsy is a chronic condition produced by temporary changes in the electrical function of the brain, causing seizures which affect awareness, movement, or sensation. Its effects can be very similar to general seizures, but these usually occur due to causes other than abnormal electrical activity in the brain (e.g. stress, drugs, fever, low blood sugar or sodium).

Seizures can vary from a brief lapse of awareness to unconsciousness and jerking convulsions of the body. The majority of recurring seizures can be prevented by medications.

## Diagnosis of epilepsy

One seizure alone is not enough for a diagnosis of epilepsy - it may be a once-off occurrence. In primary epilepsy, there is no discoverable abnormality in the brain and therefore no known cause. In secondary epilepsy the seizures are caused by an abnormality in brain tissue which can be found by a CT or MRI scan. A brain injury can lead to secondary epilepsy.

## Links between epilepsy and brain injury

Epilepsy has a close relationship with traumatic brain injury and other brain disorders. It can cause neural damage by itself, and epilepsy is a risk factor for a traumatic brain injury (TBI) through a fall or violent convulsion.

Epilepsy can also result from acquiring a brain injury. Epilepsy caused by a brain injury does not usually start with a severe seizure. It may begin with absence seizures categorized by memory loss, attention problems or other subtle symptoms that may not be recognized as a seizure.

## Treatment and management of epilepsy

The most common techniques for managing epilepsy include:

- Take medication on time
- Avoid alcohol, coffee and other stimulants
- Sleep well and minimize stress
- Avoid conditions that trigger seizures
- Wear a Medic-Alert bracelet
- Ensure friends and family know all about epilepsy and managing a fit.

There is frequently an "aura" before a seizure, which can include sensory hallucinations, dizziness or light-headedness, feelings of panic or déjà vu. On the other hand, there may be no warning at all. Recognizing and acting on pre-seizure sensations can be an important technique for preventing serious physical injury.

In some cases there are triggers that may increase the chances of a seizure. These can include alcohol, caffeine, missing meals, infections, lack of sleep, flickering lights and missing medication.



There is no cure for epilepsy, but seizures are controllable with medication in the majority of cases.

Different medications may be tried until the most effective treatment is found. Families and partners can play an important role by ensuring medication is taken when needed. They can also obtain first aid certificates to know how to provide first aid if a fit occurs.

In a small number of cases, people may benefit from a ketogenic diet - food that is high in fats and oils and low in carbohydrates to stress the body into burning fat for energy. It is only used under strict medical supervision and when drugs are proving ineffective.

In severe cases that don't respond to medication, surgery might be used. It does not guarantee any benefit and there is the risk of brain injury.

### **First aid**

See a doctor immediately or call an ambulance. A seizure may indicate a serious medical condition. If the seizure is severe, calling for an ambulance is the very first priority. If you are alone and have a severe seizure, it may take time to recover but call an ambulance when possible.

Don't attempt to restrain the person during a fit. If possible, roll them into the recovery position and ensure the airway is clear e.g. no vomit in the mouth. Make sure there are no objects like chairs or tables nearby that they could hurt themselves against when fitting.

Ensure they are still breathing and time the duration of the fits as the ambulance officers will want this information when they arrive.

When the fit has passed, the person will normally be quite groggy and tired when consciousness returns. Make sure they rest until they have recovered enough to get up.

### **References and further information**

Effect of Epilepsy on neural circuits: <http://www.cerebromente.org.br/n16/question/epilepsia.html>

Epilepsy Queensland: <http://www.epilepsyqueensland.com.au/>

Epilepsy Action of Australia: <http://www.epilepsy.org.au/>

Epilepsy.com: Epilepsy and seizure information for patients and health professionals: <https://www.epilepsy.com>

Temporal lobe epilepsy: <https://www.epilepsy.com/learn/types-epilepsy-syndromes/temporal-lobe-epilepsy-aka-tle>