

About Seizures



This Information Sheet provides details about seizures and the unique types of seizures experienced by people living with epilepsy.

What are seizures?

The brain controls the body's actions, sensations and emotions through nerve cells that carry messages between the brain and the body. These messages are transmitted through regular electrical impulses. A seizure occurs when sudden bursts of electrical activity in the brain disrupt this pattern.

The kind of seizure and the parts of the body affected by it relates to the part of the brain in which the irregular electrical activity occurred. Seizures can involve loss of consciousness, a range of unusual movements, odd feelings and sensations or changed behaviour. A seizure is the physical sign that there has been a disruption to the normal functioning of the brain.

If a person is told they have epilepsy it simply means that they have started experiencing seizures on a recurring basis. Epilepsy is characterised by widely differing seizure types and causes, range of severities and varying impacts on individuals. The causes of epilepsy are varied (e.g. brain abnormalities, infections, brain injury or trauma, genetics, tumour, stroke) but in 60% of cases the cause is unknown.

What are the different types of seizures?

There are two main groups of seizures – focal and generalised. The difference between focal and generalised seizures is how they begin.

Focal seizures

Focal seizures (previously called partial seizures) start in one part of the brain and affect the function controlled by that part of the brain. Sometimes awareness is retained during focal seizures, often called auras, whereby the person experiences feelings of déjà vu, an unpleasant smell or taste or sensations such as ‘butterflies’ or nausea. These are seizures where there are no external signs the person is experiencing a seizure and an observer would be unaware it is happening unless the person talks about it. Auras are often very brief but can occur in clusters. People may also retain full awareness but have focal seizures involving motor activity such as involuntary and brief jerking of an arm or leg or autonomic behaviours such as fiddling with clothing but more frequently these focal seizures are associated with impaired awareness.

Focal seizures commonly impair or alter a person’s level of awareness and responsiveness and when this occurs, these are called focal dyscognitive seizures. The person may appear confused and dazed and may do strange and repetitive actions such as fiddling with their clothes, making chewing movements with their mouth or uttering unusual sounds. These repetitive behaviours are called automatisms. The seizure usually lasts for one to two minutes but the person may be confused and drowsy for some minutes to several hours afterwards and have no memory of the seizure or the events just before or after it. This type of seizure can be mistaken for drug/alcohol affected behaviour or psychiatric disturbance.



Sometimes an aura precedes a focal dyscognitive seizure and at times an aura or focal dyscognitive seizure can spread to involve the other side of the brain, which is now called a bilateral convulsive seizure.

Generalised seizures

Generalised seizures involve the whole brain, rather than just part of the brain. There are many types of generalised seizures, some are convulsive and others are what are known as non-convulsive. Convulsive seizures involve stiffening and jerking of limbs, whereas non-convulsive seizures are much more subtle and may involve staring or unusual activity.

Absence seizures (previously called petit mal seizures)

These are brief, non-convulsive seizures, usually occurring in children and younger people, with girls affected more frequently than boys. During absence seizures the person’s awareness and responsiveness is altered. The person simply stares and their eyes might roll back or their eyelids flutter. It can be difficult to tell the difference between absence seizures and daydreaming, however, absence seizures start suddenly, cannot be interrupted, last a few seconds, then stop suddenly and the person resumes what they were doing. Although these seizures usually last less than 20 seconds, they can occur many times daily and can be very disruptive to learning.

Myoclonic seizures

Myoclonic seizures are brief, shock-like jerks of a muscle or a group of muscles, usually involving the upper body but sometimes the whole body, which at times can result in a fall. These seizures only last a couple of seconds and can happen in isolation or in a cluster.

Atonic seizures

Atonic seizures cause a sudden loss or decrease of normal muscle tone and the person often falls to the ground. These seizures usually last less than 15 seconds. Often called 'drop attacks', these seizures can cause head or facial injury. Wearing a helmet may minimise the risk of injury.

Tonic seizures

Tonic seizures greatly increase normal muscle tone and the body, arms and legs become very stiff and rigid. These seizures often occur in clusters during sleep, but can also occur when the person is awake. If the person is standing at the onset of a tonic seizure they will fall quite heavily, often injuring their head. Wearing a helmet may minimise the risk of injury. These seizures usually last less than 20 seconds.

Tonic-clonic seizures (previously called grand mal seizures)

During a tonic-clonic seizure a person's body stiffens, air is forced past the vocal cords causing a cry or groan and, if standing, they fall to the ground (tonic phase). The person's limbs then begin to jerk in strong, symmetrical, rhythmic movements (the clonic phase). The person may dribble from the mouth, go blue in the face, or lose control of their bladder and/or bowel as the body relaxes. As consciousness returns, the person may be confused, drowsy, agitated or depressed. They may have a headache and want to sleep. This drowsiness can last for a number of hours.

Although this type of seizure can be frightening to watch, the seizure itself is unlikely to seriously harm the person unless very prolonged. They may, however, vomit or bite their tongue and can sometimes injure themselves if they hit nearby objects as they fall or convulse. Tonic-clonic seizures generally last from one to three minutes. If the active movements of the seizure last for 5 minutes it is advisable to call an ambulance. Prolonged seizures, or a series of seizures without a normal break in between, indicate a dangerous condition called convulsive status epilepticus, which requires emergency treatment.



Status epilepticus

Status epilepticus ('status') is the term used to describe prolonged seizures of 30 minutes or more, or the occurrence of repeated seizures without regaining consciousness between attacks.

Status can occur with any type of seizure and is categorised as either convulsive or non-convulsive. Status can last from hours to days or, in the case of non-convulsive status, even weeks or months. Factors that may lead to status include sudden withdrawal from medication, illness, fever and infections.

Convulsive status may ultimately lead to brain damage or death unless stopped quickly – usually with the administration of emergency medication. An important and simple strategy to reduce serious outcomes from prolonged seizures is to call an ambulance for any seizure lasting five minutes.

Non-medical carers and workers (such as parents and teachers) can be trained to administer emergency medication to someone who has a tendency to have prolonged seizures or clusters. This option would need to be discussed with the person's doctor who may then prescribe an emergency medication, such as midazolam.



An Emergency Medication Management Plan (EMMP) should be completed by the prescribing doctor and attached to the person's Epilepsy Management Plan (EMP) when an emergency medication has been prescribed for epilepsy. Emergency Medication Management Plans are available from the Epilepsy Foundation. Training in the administration of emergency medication is strongly recommended and can be provided by the Epilepsy Foundation.

Epilepsy syndromes

While epilepsy is also known as a seizure disorder, it is not just one disorder. As there are different types of seizures, so too are there different types of epilepsy disorders, called 'the epilepsies', each with its own particular set of features. When a disorder is defined by a characteristic group of features that usually occur together, it is called a syndrome.

Epilepsy syndromes are defined by a cluster of features including:

- seizure type/s and their severity and frequency
- the age of onset
- the causes of the seizures and whether there is a familial link
- the part of the brain involved
- Electroencephalograph (EEG) activity
- seizure provoking factors and the presence of other disorders in addition to seizures.



By understanding the nature and presentation of a particular syndrome the treating doctor can implement the most appropriate form of treatment and may be able to predict whether seizures will lessen or disappear over time.

Non-epileptic seizures

Around one in five people who experience seizures are found to be having non-epileptic seizures (NES). These seizures are not caused by abnormal electrical brain discharges, but by psychological or physiological factors.

Psychological factors that may make a person vulnerable to developing psychogenic non-epileptic seizures (PNES) can include inherited factors and traumatic experiences (e.g. unexpected life events). Physiological ones may be as a result of an organic cause, such as irregular heart rhythm or low blood pressure.