

## EPILEPSY AND SEIZURES – GENERAL

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# Seizure Types

### ■ What is a seizure?

A seizure is a sudden burst of electrical activity in the brain that causes a disturbance in the way brain cells communicate with each other. The kind of seizure a person has depends on which part and how much of the brain is affected by the electrical disturbance that produces seizures.

Different parts of the brain are specialized to do different things. There are parts of the brain that help us speak, understand those around us, and coordinate our movements. Our brains are involved in everything we experience, think, say, feel or do. Any one of these functions can be altered or disrupted during a seizure. A seizure may take many different forms, including a blank stare, uncontrolled movements, altered awareness, odd sensations, or convulsions.

Seizures are usually brief and can last anywhere from a few seconds to a few minutes. The brain is very good at stopping seizure activity. Immediately afterwards, a person may have no lingering effects or they could experience temporary effects, such as muscle weakness or confusion.

### DETERMINING YOUR SEIZURE TYPE(S):

This material is purely for informational purposes and should not be used for self-diagnosis. Consult your healthcare provider if you are interested in knowing the seizure type(s) that you or a family member has.

### ■ Seizure Categories

Seizures are divided into three main categories: focal, generalized, or unknown onset. The category is determined by the location of the seizure activity within the brain at the beginning of the seizure.

Seizures may also be described as either motor or nonmotor, depending on whether or not muscle movement is involved.

The description of what happens during the seizure, along with any changes that happen before or after the seizure, are important features used by a healthcare provider to determine the seizure category and the seizure type. The duration of the seizure is another important feature.

### FOCAL SEIZURES (previously called partial seizures)

Focal seizures start in a particular site, or ‘focus’, within one brain hemisphere. The location of the seizure activity in the brain will determine what the seizure will look or feel like.

A focal seizure in the part of the brain responsible for hearing could cause a sudden but temporary distortion in sound or the person could hear a sound that isn’t there (i.e. an auditory hallucination). A focal seizure in the part of the brain responsible for controlling finger movements could cause a sudden twitching of one or more fingers on the opposite side of the body.

Focal seizures can vary a lot from one person to another because of the wide range of functions that our brains control. However, an individual with a single seizure focus usually has the same experience each time their seizure starts.

## Seizure Types *continued*

For most people, this is the type of seizure they think of when they think of epilepsy. During the seizure there are two phases, tonic (a stiffening of the muscles) and clonic (rhythmic jerking of the muscles). These phases can happen in any order, but most often the tonic phase is first, followed by the clonic phase.

Tonic-clonic seizures can occur if someone has generalized onset epilepsy and the seizure is a generalized seizure from the very start. A tonic-clonic seizure can also occur if someone has focal epilepsy if their focal seizure evolves to become a bilateral convulsive seizure. Tonic-clonic seizures can also occur when people do not have epilepsy and can be brought on (or provoked) by various things such as fever, infection, low blood sugar, or alcohol withdrawal.

The typical length of a tonic-clonic seizure is from under a minute to a few minutes. Like other seizures, these seizures generally run their course and end naturally on their own. When the person regains consciousness they will usually be confused and will gradually reorient themselves to where they are and what has happened. People are often tired and sore after a tonic-clonic seizure and may want to rest.

### Absence seizures (formerly known as petit mal seizures)

These seizures are very brief, about 9 seconds on average. The most striking feature is a blank or vacant look that could be misinterpreted as a brief episode of daydreaming. The blank look may be the only outward sign, although some people have other features that could include eye movements, blinking or automatic behaviours.

An absence seizure would typically start abruptly and end abruptly. After the brief seizure, the person will generally carry on with whatever they had been doing before. These seizures can go unnoticed, or, if noticed, they may not be recognized as being a seizure.

### Clonic seizures

These seizures cause rhythmic jerking movements. When the rhythmic jerking movements are the only feature, it is a clonic seizure. These types of movements occur more frequently in association with a phase of muscle stiffening (see tonic-clonic seizures above).

These seizures may also have a focal onset.

### Tonic seizures

These seizures cause the muscles to stiffen. If a person is standing, a sudden increase in muscle tone could cause them to fall. Some people call this a “drop attack”. Generalized tonic seizures could also cause a sudden stiffening (or contraction) of the muscles in both arms. These seizures usually last less than 20 seconds, but sometimes they could be up to about 60 seconds.

These seizures may also have a focal onset.

### Atonic seizures

These seizures cause a loss of muscle tone, which means the individual suddenly becomes limp. If a person is standing, the sudden loss of muscle tone will cause them to fall. Therefore, both tonic seizures and atonic seizures can be associated with episodes that people may refer to as drop attacks.

These seizures may also have a focal onset.

### Myoclonic seizures

These seizures are extremely brief, jolt-like movements that resemble a startle response. For example, an individual could have a sudden jerk of their upper arms or shoulders. Sometimes the muscle contractions are subtle and may not be visible to an observer.

These seizures are usually less than a second in length. They may also have a focal onset.



## Seizure Types *continued*

### Questions to ask your healthcare provider about your seizures:

- Do I have focal seizures or generalized seizures, or both?
- Which seizure type (or types) do I have?
- When would a seizure be a medical emergency for me?

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