

What is a seizure or epilepsy?

Seizures are one of the most frequently reported neurological conditions in dogs. A seizure may also be called a convulsion or fit, and is a temporary involuntary disturbance of normal brain function that is usually accompanied by uncontrollable muscle activity.

"Epilepsy is a term used to describe repeated episodes of seizures."

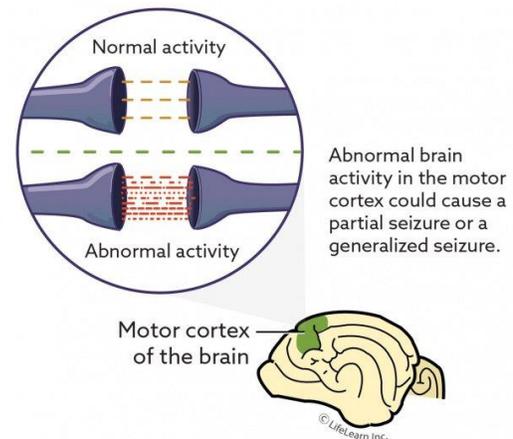
Epilepsy is a term used to describe repeated episodes of seizures. With epilepsy, the seizures can be single or may occur in clusters, and they can be infrequent and unpredictable or may occur at regular intervals.

What causes seizures?

There are many causes of seizures. Idiopathic epilepsy, the most common cause of seizures in the dog, is an inherited disorder, but its exact cause is unknown. Other causes include liver disease, kidney failure, brain tumors, brain trauma, or toxins.

"Idiopathic epilepsy is the most common cause of seizures in the dog."

Seizures often occur at times of changing brain activity, such as during excitement or feeding, or as the dog is falling asleep or waking up. Affected dogs can appear completely normal between seizures.



What happens during a typical seizure?

Seizures consist of three components:

1) The pre-ictal phase (aura), is a period of altered behavior in which the dog may hide, appear nervous, or seek out the owner. It may be restless, nervous, whining, shaking, or salivating. This may last a few seconds to a few hours. This period precedes the seizure activity, as if the dog senses that something is about to occur.

2) The ictal phase can last from a few seconds to several minutes, and can vary in appearance. The ictal phase can range from mild changes in mental awareness, such as a dazed look, mild shaking, staring aimlessly, licking lips, to a complete loss of consciousness and body function. If the dog experiences a **grand mal**, or full-blown seizure with loss of consciousness, all of the muscles of the body move spastically and erratically. The dog usually falls over on its side and paddles its legs while seeming to be otherwise paralyzed. The head will often be drawn backward. Urination, defecation, and salivation may occur. If the seizure has not stopped within five minutes, the dog is said to be in **status epilepticus** or prolonged seizure (see below).

3) During the **post-ictal phase** or the period immediately after the end of the seizure, there is confusion, disorientation, salivation, pacing, restlessness, or even temporary blindness. There is no direct correlation between the severity of the seizure and the duration of the post-ictal phase.

Is a seizure painful or dangerous to the dog?

Despite the dramatic and violent appearance of a seizure, seizures are not painful, although the dog may feel confusion and perhaps panic. Contrary to popular belief, dogs do not swallow their tongues during a seizure. If you put your fingers or an object into its mouth, you will not help your pet and you run a high risk of being bitten very badly or of injuring your dog. The important thing is to keep the dog from falling or hurting itself by knocking objects onto itself. As long as it is on the floor or ground, there is little chance of harm occurring.

"The dog may feel confusion and perhaps panic."

A single seizure is rarely dangerous to the dog. However, if the dog has multiple seizures within a short period of time (**cluster seizures**), or if a seizure continues for longer than a few minutes, the body temperature begins to rise. If **hyperthermia** (elevated body temperature) develops secondary to a seizure, another set of problems need to be addressed.

What is status epilepticus?

Status epilepticus is a serious and life threatening situation. It is characterized by a seizure that lasts more than five minutes. Unless intravenous anticonvulsants are given immediately to stop the seizure activity, the dog may die or suffer irreversible brain damage. **If status epilepticus occurs, you must seek treatment by a veterinarian immediately.**

Now that the seizure is over, can we find out why it happened?

After a dog has a seizure episode, your veterinarian will begin by taking a thorough history, concentrating on possible exposures to poisonous or hallucinogenic substances or any history of head trauma. The veterinarian will also perform a physical examination, blood and urine tests and sometimes an electrocardiogram (ECG). These tests rule out disorders of the liver, kidneys, heart, electrolytes, and blood sugar levels. A heartworm test is performed if your dog is not taking heartworm preventative monthly.

If these tests are normal and there is no exposure to poison or recent trauma, further diagnostics may be recommended, depending on the severity and frequency of the seizures. Occasional seizures (less frequently than once a month) are not as worrisome, but they can become more frequent or more severe. In this instance, a spinal fluid analysis may be performed.

Depending on availability at a referral center or teaching hospital, specialized techniques such as a CT scan or MRI may also be performed to look directly at the structure of the brain.

How are seizures treated or prevented?

Treatment is usually begun only after a pet has:

- 1) more than one seizure a month,
- 2) clusters of seizures where one seizure is immediately followed by another, or
- 3) grand mal seizures that are severe or prolonged in duration.

The two most commonly used medications to treat seizures in dogs are phenobarbital and potassium bromide. Research into the use of other anticonvulsants is ongoing, and newer anticonvulsants such as zonisamide (brand name Zonegran®) and levetiracetam (brand name Keppra®) are becoming more popular. Combination therapy is often used for dogs that are poorly responsive to standard treatments.

"Once anticonvulsant medication is started, it must be given for life."

Once anticonvulsant medication is started, it must be given for life. There is evidence that, if anticonvulsant medication is started and then discontinued, the dog may have a greater risk of developing more severe seizures in the future. Even normal dogs without a history of seizures or epilepsy may be induced to seizure if placed on anticonvulsant medication and then abruptly withdrawn from it. If anticonvulsant medication must be discontinued or changed for some reason, your veterinarian will give you specific instructions for doing this.