



## **What causes a seizure?**

Seizures are caused by abnormal electrical firing in the brain. In some cases, seizures are caused by an identifiable problem inside the brain (for example, cancer, infection, inflammation, or congenital brain malformation). Animals with a known cause are said to have symptomatic epilepsy. These dogs often have other neurologic signs (e.g. changes in behavior, difficulty walking, circling). In some animals with symptomatic epilepsy, the seizures stop with anti-seizure treatment and/or treatment of the underlying disease process.

In animals with primary or idiopathic epilepsy, there is no identifiable abnormality inside the brain to cause the seizures. This form of epilepsy is believed to be genetic or inherited. Primary epilepsy occurs in approximately 5% of dogs. Common breeds include German shepherds, German shorthaired pointers, Labrador retrievers, golden retrievers, border collies, Shetland sheepdogs, and English springer spaniels. Epilepsy in cats is much rarer than in dogs.

Seizures in dogs with primary epilepsy typically begin between six months and five years of age. Juvenile or late adult onset epilepsy occurs in some dogs but is very rare.

## **How do I know whether my pet is having a seizure?**

There are many different types of seizures. The most common is called a generalized or “grand mal” seizure and is characterized by violent movement of all four limbs while lying down. Chomping or tightening of the jaw may occur. Animals are typically unresponsive during a seizure and commonly urinate, defecate, and salivate. Some animals have partial or focal seizures, which may manifest as twitching of the face, chomping of the jaw, movement of a limb, or moments of unresponsiveness, confusion, or staring into space.

Many animals with primary epilepsy have a classic pattern to their seizures. They may occur at a certain time interval (e.g. every three weeks, every four months), a certain time of day (commonly in the early morning) or in association with a particular stressful activity or event (for example, guests in the home, going to the groomer, owner out of town).

Some dogs have a pattern of “cluster” seizures, characterized by two or more seizures within a defined period (e.g. six seizures in 48 hours). Dogs with cluster seizures are often more difficult to control with the standard anti-seizure medications.

Many dogs have a period before the seizure (called the pre-ictal period) where they demonstrate particular behavior patterns (e.g. neediness, anxiety, isolation, sedation), which may last hours to days. Similarly, many dogs have a classic period after the seizure (called the post-ictal period) where they exhibit unusual behaviors (seeming blind, unsteady when walking, excessively hungry or thirsty, excessively sedate), which may also last hours to days.

Some conditions can look similar to seizures including fainting episodes caused by heart or respiratory disease, episodes of loss of balance (called vestibular episodes or events), behavioral conditions (fly biting, tail chasing), and head bobbing syndromes (occur commonly in English bulldogs, Doberman pinschers, and Labrador retrievers).

## **Are seizures harmful for my pet?**

Although extremely stressful to witness, short seizures (ranging from under a minute to two minutes) are typically not harmful. Seizure activity becomes dangerous when patients enter a stage called status epilepticus, which is defined as a seizure lasting longer than five minutes or having multiple seizures without regaining



consciousness in between. Possible consequences of status epilepticus include swelling in the brain, extremely high body temperature, and systemic complications, including abnormalities in blood clotting.

### **Why and when is it important to treat seizures?**

We recommend treating epilepsy when dogs have frequent seizures (i.e. a seizure occurs more often than every 1-2 months) or severe seizures (lasting longer than 3-5 minutes). In untreated animals, seizures may become more severe or more frequent over time.

### **What are the most common anti-seizure medications and their side effects?**

The most common anti-seizure medications used in veterinary medicine are Phenobarbital and Potassium Bromide. They have the advantage of being inexpensive. There are newer drugs available now such as Zonisamide and Keppra that have minimal side effects and require less routine bloodwork and monitoring. They are relatively inexpensive when purchased as generics. Often a combination of these medications is used to most effectively control seizures.

#### **Phenobarbital**

##### **Common side effects:**

- Sedation, incoordination when walking
- Increased drinking, urination, and appetite
- Increased liver metabolism resulting in increased liver enzyme values

##### **Very rare side effects:**

- Reversible liver damage
- Reversible bone marrow damage
- Behavior changes (i.e. aggression)

#### **Potassium bromide**

##### **Common side effects:**

- Sedation, incoordination when walking
- Increased drinking, urination, and appetite
- Gastrointestinal upset

##### **Rare side effects:**

- Inflammation of the pancreas

#### **Zonisamide**

**Side effects:** rare, sedation is most common

#### **Keppra**

**Side effects:** rare, sedation, incoordination, behavior change

### **Is it okay to leave my pet alone? What happens if a seizure occurs when I'm not home?**

Many owners fear leaving their pets at home and feel that they need constant monitoring. Although it is natural to be concerned, in reality we cannot be with our pets 24 hours/day. Most animals have short seizures and will recover on their own. Signs that your pet has had a seizure while you were gone include finding urine, feces, or drool in the house or finding your pet seeming dazed or disoriented (in the post-ictal phase) when you come home.

### **The long-term outlook for epilepsy**

Animals with well-controlled epilepsy typically lead normal lives. In animals with severe epilepsy requiring several medications at high doses and multiple trips to the emergency room for help controlling seizures, the quality of life can be compromised for both the pet and the owner.