

## Don't Ignore This Odd Behavior – It Can Be a Sign of a Major Medical Emergency

Fortunately it's fairly rare, but if it does happen, you'll be glad you read this now so you can act at the speed of light to save your dog's life. Find out where to get help fast, how to protect yourself in the process and advanced warning signs that something's amiss.

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### STORY AT-A-GLANCE

- Seizures are the result of abnormal electrical activity in the brain
- Seizures can range from mild (petit mal) to life-threatening (grand mal), and occur in three phases: preictal (before), ictus (during) and postictal (after)
- There are many potential causes of seizures in dogs, including congenital malformations, brain tumors, infections, exposure to toxins and vaccines
- Natural therapies, including acupuncture and homeopathic remedies, can often control mild cases of seizure disorder in dogs; a ketogenic diet is one of the best ways to naturally reduce seizure potential, and can be used with drugs or supplements
- Dogs with frequent grand mal seizures benefit from an integrative protocol of natural therapies and drugs

**Editor's Note: This article is a reprint. It was originally published July 10, 2017.**

In science-speak, a seizure is an incidence of unanticipated, abnormal electrical activity in the brain. There are two types of electrical impulses that occur in the brain: excitatory and inhibitory. In a healthy pet, there's a constant and proper ratio of excitatory to inhibitory impulses. In a seizing animal, the excitatory impulses temporarily overwhelm the inhibitory impulses. Whether your pet has a minor twitch or a grand mal event depends on what part of the brain is involved and how many excitatory impulses are generated.

The point at which excitatory impulses overtake inhibitory impulses is called the seizure threshold. In a healthy pet the seizure threshold is high, meaning the potential for a seizure is low. There are a few things that influence your dog's seizure threshold, including genetics, head trauma, infection and exposure to toxins.

### Types of Seizures

There are a few different types of seizures that affect pets. A petit mal is the mildest type of seizure and can be as insignificant as an abnormal eye movement. A grand mal seizure is the other extreme and affects both sides the brain and the body.

Status epilepticus is a grand mal seizure that doesn't resolve. This is a medical emergency in which breathing ceases and the animal can die. If your pet is experiencing a grand mal seizure and isn't coming out of it, it's critical you get her to an emergency veterinary hospital right away in order to save her life. Small dogs more commonly have focal motor seizures involving only a part of the body. These seizures can look like nothing more than a twitch, tremor or cramp.

Cluster seizures are events that occur several times a day. Many cluster seizures are urgent care situations. If your dog has had more than one seizure in a day, I recommend you make an appointment with your veterinarian. This type of seizure can lead to continual seizing and/or progressively more intense seizures. Generally speaking, the younger the affected dog is, the more severe the seizure disorder will be.

## The Three Phases of a Seizure and What to Expect

What you'll see if your dog has a seizure can range from an almost undetectable twitch, to a full-blown grand mal event during which your furry family member loses consciousness. Needless to say, if the latter situation occurs you'll be scared silly, and rightfully so.

Every seizure has three phases: preictal, ictus and postictal. The preictal phase occurs just before the seizure. It can last a few seconds to a few minutes. Humans can often tell when a seizure is coming on, and we suspect some animals can as well. During the preictal phase, your dog may become restless or nervous, look dazed or stare off into space and seem unsteady or confused. He may come to you and want to be soothed because he can sense there's something abnormal going on inside his body.

The seizure itself is called the ictus phase. During a grand mal seizure, your dog may collapse onto his side and make paddling motions with his legs. He may have some muscle twitching or stiffening, drooling and chomping. Grand mal seizures can also result in tongue chewing, foaming at the mouth and loss of bladder and/or bowel control.

After the seizure passes there is the postictal phase, which can last from a few minutes to several hours. In the postictal period, you may see a wide variety of responses in your pet. He may seem disoriented or fearful. He may be wobbly and stumble about. He might be temporarily blind and bump into things.

You might also notice nervousness, tension or that he wants to be left alone or immediately go outside. I suspect animals are very confused after a seizure because they don't know what just happened to their bodies. Seizures can last from just a few seconds to several minutes.

## Seizure Causes

There are a number of potential causes for a dog's seizures, including:

- Head trauma that results in brain swelling
- Cervical subluxation, which is often the result of tugging at a leash attached to a collar instead of a harness
- Metabolic disorders such as hypothyroidism
- **Brain tumors**, especially in older dogs
- Congenital malformation of the brain stem or spinal cord

- Lead, mercury and plant poisoning, as well as exposure to fertilizers, pesticides, insecticides and herbicides
- Bacterial, viral, fungal and parasitic infections
- Liver disease (a damaged liver can't process toxins efficiently, causing poisons to accumulate in the bloodstream and cross the blood-brain barrier)
- Certain human and veterinary drugs, including neurotoxic topical chemicals like flea and tick preventives
- Certain immune-mediated diseases
- Low blood sugar, especially in diabetic dogs and dogs with pancreatic tumors
- Heatstroke

Another cause of seizures are vaccines. Veterinary vaccines still contain thimerosal, organomercury compounds or aluminum as adjuvants to boost the body's response to the immunization. Heavy metals are able to cross the blood-brain barrier, and since the central nervous system doesn't have the ability to detoxify itself, there's no way to remove those heavy metals.

Vaccines can also spark an autoimmune reaction that causes secondary swelling in the brain, which in turn can bring on a seizure disorder in your pet. An example of this is the condition known as **autoimmune encephalitis**.

## **An Underreported Contributor to Seizures: Diet**

Many pet parents don't realize that nutritionally related health issues can also cause or exacerbate a seizure disorder. One problem is food allergies, which can cause a systemic inflammatory response that can decrease your dog's seizure threshold. Another issue is that most commercially available **processed dog food** contains synthetic chemicals, preservatives, emulsifiers and/or other ingredients that can also cause systemic inflammation and decrease seizure thresholds.

Humans with epilepsy are often told by their doctors to switch to a ketogenic diet, which means very low net carbs, reduced protein, and high amounts of healthy fats. It's very important to measure blood glucose, with the goal of keeping glucose less than 80 mg/dL and ketone levels above 0.3 mM to assure your pet is actually in ketosis.

For years veterinarians thought this nutritional intervention was not successful at managing epilepsy in pets, but a review of past studies showed that carbs (which convert to sugar) were not restricted adequately, so the results were not impressive. If done correctly, nutritional ketosis has not only proven to be very successful in managing epilepsy in pets, it's the standard of care for pediatric epilepsy.<sup>1</sup>

This way of feeding is not only a part of your dog's evolutionary biology, but other symptoms may also improve on this diet, including a reduction in inflammatory disease. By keeping net carbs low, the body's level of insulin is reset to a much healthier (and lower) level, which reduces metabolic stress on every cell in your pet's body. Visit **KetoPet Sanctuary** to learn more about nutrition ketosis in dogs.

## **Does Rosemary Induce Seizures in Healthy Pets?**

The answer is no. But you'll find confusing comments about this topic within the holistic pet community. There are some herbs that can decrease the seizure threshold (they INCREASE seizure potential). These include kava kava, skullcap, evening primrose oil, borage seed oil, goldenseal, ginkgo, ginseng and wormwood. A common sense

precaution is to avoid these substances for all seizure patients, however, this suggestion has been taken to the extreme in the pet world.

Essential oils such as eucalyptus, fennel, hyssop, pennyroyal, rosemary, sage and tansy have also been implicated in decreasing seizure thresholds.<sup>2</sup> These essential oils should also be avoided in seizure patients. Rosemary, as an herb, does not increase seizure potential. The essential oil, in large quantities, can decrease seizure potential in epileptic animals, but it will not INDUCE seizures in healthy animals.

In the last five years within the holistic community I have seen many blog posts suggesting the herb rosemary will CAUSE seizures in pets, which simply isn't true. I have been feeding foods with fresh rosemary or preserved with rosemary extract to epileptic animals my entire veterinary career and have never had a problem, not a single one.

Recently I undertook a mission to see where this urban legend originated and more importantly, if there is any legitimate reason to exercise caution when using rosemary extract in certain situations. I started by emailing Dr. Jean Dodds and asked her if she knew of any research articles providing insights into this myth.

She didn't know of any factual information pertaining to dogs, but did point me to a human neurology textbook that cites Wikipedia in referencing an active compound found in some plants, including rosemary, called thujone:

*"Thujone is a ketone and a monoterpene that has a menthol odor. Though it is best known as a chemical compound in the spirit absinthe, which contains only small quantities of thujone, it is unlikely to be responsible for absinthe's alleged psychedelic effects. Thujone acts on GABA and as a component of several essential oils, is also used in perfumery.*

*Thujone is found in a number of plants, such as arborvitae (genus Thuja, hence the derivation of the name), Nootka cypress, some junipers, mugwort, rosemary, oregano, common sage, tansy, and wormwood, most notably grand wormwood (Artemisia absinthium), usually as a mix of isomers in a 1:2 ratio. It is also found in various species of Menta (mint).*

*Based on studies that looked only at molecular shape, for many years thujone was thought to act similarly to THC on the cannabinoid receptors; however, this has since been proven false. Thujone is a GABAA receptor antagonist."*

Thankfully, some pet food manufacturers have swapped out toxic preservatives such as BHA and BHT for more natural preservatives like rosemary extract (not oil!). Rosemary extract has become a popular natural preservative because the plant contains four powerful antioxidants: carnosic acid, carnisol, rosmarinic acid and rosmarinol.

This is a huge step forward in cleaning up commercially available pet foods, and people who own epileptic pets should not be nervous about feeding their pets foods preserved with rosemary extract. Rosemary rarely exceeds 50 mgs a kilogram of products in the pet food industry, which translates to miniscule levels of this natural preservative being ingested by pets.

# Are Drugs the Best Treatment for Dogs With Seizure Disorder?

If your pet has a seizure, it's important to speak with your veterinarian about it. Obviously, if the seizure is a grand mal and your pet isn't coming out of it, you need to seek emergency veterinary care immediately. Many owners of epileptic dogs keep a dose of rectal Valium on hand to bring their dogs out of a major seizure. Gentle pressure over your pet's closed eyelids may help bring them out of a mild seizure.

Try to stay calm. Take care when handling your dog to avoid being accidentally bitten. Use a blanket or pillow to prevent her from falling off a couch or bed, or down the stairs during a seizure. If you need to quickly get her to your veterinarian or an emergency animal clinic, gather her up in a thick towel or blanket to keep both of you safe during the drive.

If your vet rules out all potential causes of your pet's seizure, then you're left with a diagnosis of idiopathic epilepsy, which means seizure of unknown origin. At this point, many vets recommend an anti-seizure medication, however, a significant number of pets don't do well on traditional drugs like phenobarbital and bromide. Some animals do much better on human anti-seizure medications, such as Keppra, but pet parents often find the cost to be a problem.

Some pets' seizures aren't well-controlled by these drugs, and there can be substantial side effects as well. That's why my rule of thumb for dogs with the disorder is they must have in excess of one seizure episode a month, or a history of seizures that are increasing in intensity before I even consider drug therapy.

## Beneficial Natural Therapies

There are a whole host of natural substances than can help increase your dog's seizure threshold and decrease the potential for these events, including acupuncture, chiropractic, herbal formulas (including cannabinoid extracts), homeopathic remedies, traditional Chinese medicinals and nutraceutical therapies.

In mild cases, natural treatments plus a dietary change are often all that is needed to successfully manage the condition. For animals with frequent grand mal seizures, I typically create an integrative protocol of natural therapies and drug therapy.

I always ask pet parents to keep a log of the dates, times and intensity of seizures. Often there are links between seizures and a particular time of month or year. If we identify a cycle, we can develop a plan to control the episodes using the safest effective treatment options available. Animals with seizures should be titered, not vaccinated.

## Sources and References

[PetMD](#)

<sup>1</sup> [The Charlie Foundation](#)

<sup>2</sup> [Journal of Neurology, 1999 Aug;246\(8\):667-70](#)

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