



# Australian Shepherd Health & Genetics Institute, Inc



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## Epilepsy

Seizures can be caused by many things-- injury, a variety of diseases, toxic exposure, as well as heredity. If you have a dog that has seizures, the first thing you need to do is establish why it is doing so. Any dog that suffers a major seizure should be taken to a veterinarian for evaluation and testing.

With injury, other disease or toxic exposure treatment of the primary condition will stop the seizures in most cases, except where there is permanent brain damage. A thorough veterinary work-up should reveal the cause of the seizures due to something other than primary epilepsy. With virtually all of the other causes there will be signs or history indicating what is wrong. Early stage brain tumors may initially be misdiagnosed because the conclusive test, an MRI, is expensive.

A single seizure is not a sure indication of epilepsy. Epileptic dogs will continue to have seizures at intervals throughout their lives. Sometimes these intervals can be several months long, particularly early in the disease. Sometimes the dog will have focal seizures, minor events that may escape the notice of the owner. Seizures may occur at a time when the dog is not under human observation. Whenever a second seizure is observed, primary epilepsy becomes a very real possibility.

Seizures rarely occur in the vet's office. If you are able to video the seizure this may help your vet diagnose your dog. If it is having seizures at close intervals (weeks, days or even hours apart) keep a seizure log describing where it happens, when, and what happened before, during and after each incident as another aid to your dog's diagnosis and treatment.

If no cause is found, the seizures are classified as primary or "idiopathic" epilepsy. Idiopathic means "of unknown cause" but this type of epilepsy is generally accepted as inherited. There is not positive test for primary

epilepsy at present, so it can be diagnosed only by ruling out all other reasonable possibilities.

Primary epilepsy cannot be cured and will not go away. Seizures will occur periodically for the life of the dog, if untreated. They often get worse if not controlled by medication. Treatment is no guarantee that the dog will be fine from there on out. The drugs themselves have side effects and in some cases they become ineffective. Epilepsy can kill.

The mode of inheritance for epilepsy is clearly not simple. Research so far indicates that it may be due to multiple genes or perhaps genes plus regulatory DNA that affects gene function. This genetic complexity means that both parents of an epileptic dog contributed genes which lead to the disease. The contribution may be unequal but at present there is no way to determine what each parent contributes. It is possible that our breed might have more than one form of inherited epilepsy.

This is a very serious, potentially lethal disease that is expensive to treat that can play out over several years. It can be a source of great emotional and financial stress to those who care for the affected dog. Because of this, no epileptic dog should be bred, nor should any first-step relatives (parents, offspring, or full or half siblings). More distant relatives should be bred with great care to avoid other affected families. This disease is so common in the breed that the average risk that a dog might have the genes to produce it is high. Breeders with dogs of above average risk should seek mates for them that are of below average risk. Inbreeding or linebreeding on a pedigree associated with epilepsy heightens the risk of producing offspring that will develop the disease.