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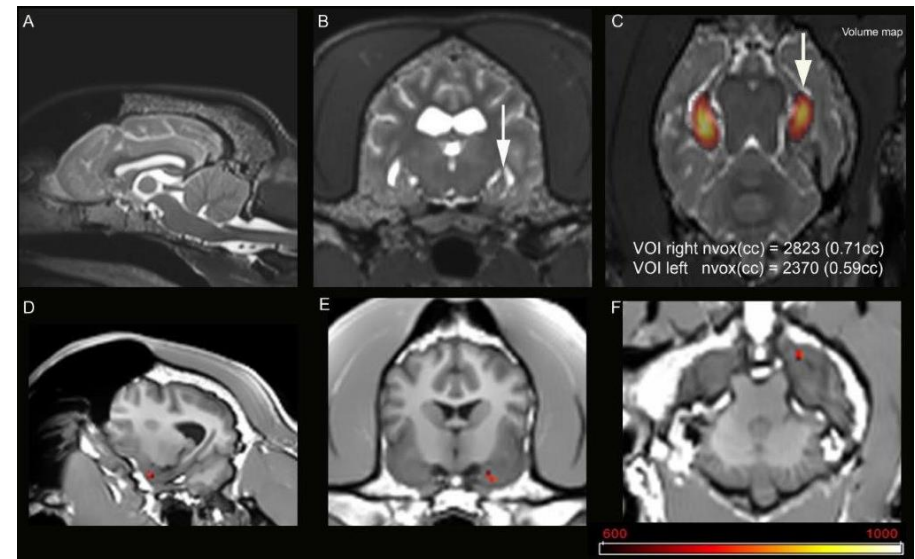
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# **Epilepsy in Dogs**

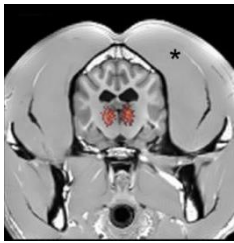
## **Magnetic Resonance Imaging Study**



**Divisions of Clinical Radiology and Clinical Neurology**  
Department of Clinical Veterinary Medicine

**VETSUISSE FACULTY - BERN**

## Progress in the diagnosis of idiopathic epilepsy in dogs:



**Idiopathic epilepsy** is one of the most common neurological diseases in dogs. Although there are pharmacological options for the treatment of epilepsy of unknown cause (idiopathic epilepsy), about 30% of dogs suffer from refractory epilepsy, which responds poorly to medical therapy. In humans, the origin of the epileptogenic focus in the brain can be determined in certain cases of refractory epilepsy, which opens up a surgical option for these

patients. However, there is still very little information on this topic in veterinary medicine.

A new **magnetic resonance imaging (MRI)** technique, developed at the Inselspital Bern, enables non-invasive detection of abnormally active brain areas during the interictal phase (the time between seizures) in human epileptic patients. We were able to show in a pilot study conducted in 17 dogs that this technique also works in dogs: **we have found abnormal neuronal currents in different areas of the brain in dogs with epilepsy.** To progress with this technique, it needs now to be applied to a variety of dogs with different seizure types and be compared with other MRI sequences. This will allow us to learn more about the disease mechanisms in dogs and to develop new therapeutic options in the future.

## Who can participate in the study?

We are looking for:

- **Dogs with epileptic seizures** (dogs that need a diagnostic workup before starting therapy or dogs who continue to have seizures despite medical treatment)
- **Dogs who do not have seizures**, and are either **healthy** or **require MRI examinations of the brain for other reasons (control group)**

## Does your dog have epileptic seizures?

As for any **epilepsy diagnostic workup**, an **MRI of the brain** and a **cerebrospinal fluid (CSF) analysis** are recommended to rule out/diagnose structural changes of the brain. The MRI examination is a non-invasive and painless diagnostic method that is performed on a daily basis in dogs with epilepsy in clinical neurology. In order to prevent the dog from moving, MRI and CSF tap (collection of cerebrospinal fluid), are performed under general anaesthesia.

## Study protocol :

Within the framework of this study, a **neurological examination**, an extended **blood analysis** and an **electroencephalogram (EEG)**, which consists in recording the brain electric activity through the skin, will be performed at the Vetsuisse Faculty, University of Bern. Your dog will be sedated for the EEG recording.

**MRI examination** of the brain and **cerebrospinal fluid tap**, for which general anaesthesia is required, will be performed at the Inselspital Bern/Translational Imaging Center of the SITEM.

Please film your dog with your mobile phone during a seizure and bring the **video recording** to the examination so that we can assess the seizure type.

Thanks to the financial support of this project, we are able to offer these examinations at a **reduced rate** to epileptic dogs or control dogs who require a diagnostic workup by the division of clinical neurology for any other reasons included in the study. There will be no charge for healthy dogs included in the control group.

**By participating in this study, you make an important contribution to improving the diagnosis of epilepsy in dogs.**

**We thank you for your cooperation and participation!**