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Dog Tips

Breakthrough Supplement Treatment for Seizures in Dogs

Could a simple yet essential supplement have a significant effect on seizure frequency in dogs? Apparently so, according to this recent study out of Tokyo. All of the dogs experienced at least a 50% reduction in seizure frequency within only two to three months.

Analysis by Dr. Karen Shaw Becker

STORY AT-A-GLANCE

- A small study out of the University of Tokyo delivers the encouraging news that high-dose DHA (an omega-3 essential fatty acid) appears to significantly reduce the seizure frequency in dogs with idiopathic epilepsy (IE)
- The DHA was given as an adjunctive therapy during a 6-month clinical trial, and reduced seizure frequency in all the dogs by at least 50% within the first 2 to 3 months, with no clear adverse events reported
- An earlier study investigated the role of different diets in the management of canine IE; the researchers concluded at the time that, "only MCT-enriched diets can be supported with a satisfactory level of scientific evidence in veterinary medicine"
- Anecdotal studies show that achieving the metabolic state of nutritional ketosis with a ketogenic diet (i.e., high fat, adequate protein, very low carbohydrate) is very helpful in managing epilepsy in pets
- Nutritional interventions and other potentially beneficial adjunctive therapies, including a well-formulated ketogenic diet and CBD, can also prove very successful in managing epilepsy in dogs

A team of researchers at the University of Tokyo in Japan has very recently published a small but encouraging **study** in the Open Veterinary Journal evaluating the effects of high-dose **DHA** (docosahexaenoic acid, an omega-3 essential fatty acid) as an add-on therapy for treatment of idiopathic (no known cause) epilepsy (IE) in dogs.[1]

DHA Supplementation Significantly Reduced Seizure Frequency

The pilot study was an open-label clinical trial involving 6 dogs: a Chihuahua, a Sheltie, 2 Toy Poodles, a Pomeranian, and a Saluki. The median age of the group was 6 years; all suffered seizures of unknown origin. The dogs were diagnosed with the disorder using magnetic MRI and cerebrospinal fluid examination and experienced from 5 to 45 seizures and/or auras (median was 9) in the month prior to the start of the clinical trial.

During the 6-month trial, the dogs received **DHA from marine products** at doses of 69 – 166 mg/kg/day, with no change in their other prescriptions. Four of the 6 completed the full trial, with the following results:

- All 4 dogs showed a decrease in seizure frequency of 50% or more within 2 to 3 months of DHA administration
- 3 of the 4 showed seizure frequency decreases to 0 – 1 per month after 5 to 6 months
- No clear adverse events were observed in either the general health or blood test results in any of the dogs

The two dogs who were withdrawn from the trial were the Pomeranian and the Saluki. In the case of the Pom, incorrect dosing was the issue, but even though she was pulled from the trial early, her owner felt that the severity and frequency of her seizures had decreased.

The Saluki was pulled from the trial after there was a change to her antiepileptic medication, her owner also reported a reduction in seizure activity prior to her withdrawal.

According to the study authors, the mechanism by which DHA reduces seizure frequency in epilepsy is not well understood. In mice, it is thought DHA may "increase serotonin secretion, promote serotonin receptors in postsynaptic membranes, and increase neurosteroid secretory activity (Patrick and Ames, 2015; Ishihara et al., 2017)."

In addition, omega-3 fatty acids including DHA are "abundant in nerve cells in the cerebral cortex and are known to increase the fluidity of cell membranes and cell plasticity (Lauritzen et al., 2016)."

The authors note that identifying the mechanism of action of DHA was beyond the scope of their study; however, their findings suggest a positive effect and should support future research analyzing the physiological effects of DHA in epilepsy.

> *"After several months of supplementation, the frequency of seizures and auras decreased without any apparent adverse effects," the co-authors wrote. "A large-scale study will likely prove its effectiveness as a supplement in idiopathic epilepsy."*

The Role of Diet in Managing Seizure Disorders in Dogs

In a 2022 **study**, an international team of veterinary researchers published a literature review on the role of nutrition in canine idiopathic seizure management,[2] which was prompted by a growing body of scientific evidence that suggests diet affects the disease process in dogs with the disorder. According to the study co-authors:

> *"Diets can serve their functions through many pathways. One potential pathway includes the microbiota-gut-brain axis, which highlights the relationship between the brain and the intestines. Changing the brain's energy source and a number of dietary sourced anti-inflammatory and neuroprotective factors appears to be the basis for improved outcomes in IE."*[3]

Research shows that the gastrointestinal microbiome plays an important role in both the development and management of epilepsy. Both humans and canines with epilepsy have different GI microbiota compared to healthy counterparts, which suggests that **dysbiosis** (leaky gut syndrome) plays a role.

In addition, a 2018 **study** in mice demonstrated that a ketogenic diet increased seizure threshold (resulting in fewer seizures),[4] and another 2018 **study** showed that performing **fecal transplants** from stressed to non-stressed rats increased the latter group's susceptibility to epilepsy.[5]

Nutrition Should Be Further Evaluated as a Treatment for IE

For the 2022 study, the research team reviewed scientific literature on ketogenic and medium chain triglyceride (MCT)-enriched diets, along with other types of dietary interventions (e.g., elimination diets and gluten-free diets).

Ketogenic diets were used as far back as the 1920s in human medicine as a treatment for drug-resistant epilepsy. However, as more anti-seizure drugs (ASDs) were developed, the diets became less popular. Nowadays, they are re-gaining traction given that the percentage of drug-resistant patients has not significantly improved. The study co-authors concluded that:

> *"It is a fact that nutrition should be considered in the management of dogs with IE alongside ASDs. However, only MCT-enriched diets can be supported with a satisfactory level of scientific evidence in veterinary medicine, whereas scientific evidence for the majority of the nutritional interventions discussed remains limited, thus leaving important opportunities for future research."*[6]

Dietary Management of Canine Epilepsy

If your dog has a seizure disorder, nutrition-related health issues can cause or exacerbate the condition. 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 ultraprocessed pet food contains synthetic chemicals, chemical dyes, preservatives, emulsifiers, and other ingredients that can also cause systemic inflammation and decrease seizure thresholds. In some cases, the potentially seizure-inducing contaminants in pet food are many times higher than the legal human limits.[7]

If done correctly, achieving the metabolic state of nutritional ketosis with a **ketogenic diet** has proven very successful in managing epilepsy in pets, and in fact, it's the standard of care for human pediatric epilepsy.[8] Thankfully, the veterinary community is also recognizing the neuro-metabolic benefits of reducing dietary starch (sugar) and increasing brain-friendly fats (specifically medium chain triglycerides, MCTs), which are increasingly being used in veterinary nutrition protocols (and "prescription diets") to decrease seizure potential.

This way of feeding respects your dog's evolutionary biology, and in addition, 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, lower level, which reduces metabolic stress on every cell in the body.

Additional Natural Therapies for Seizure Disorders

Seizure disorders are unfortunately fairly common in dogs, and some don't do well on traditional epilepsy drugs like phenobarbital and potassium bromide, and virtually all these drugs produce adverse side effects and long-term consequences that should be concurrently managed. My preferred drug for epilepsy, levetiracetam (Keppra), is often cost-prohibitive for many pet parents who don't have insurance.

The good news is there are several natural adjunctive therapies available that can help increase a dog's seizure threshold. One or more of the following can be used in conjunction with nutrition and conventional medications to decrease seizure potential, including:

- **Chiropractic and acupuncture**
- Traditional Chinese medicinals (TCM), go **here** to find a vet that has TCM training
- Herbal formulas (including cannabis extracts)

In a recent **successful pilot study** published in the Journal of the American Veterinary Medical Association,[9] a CBD (cannabidiol) product derived from a hemp plant significantly reduced seizure frequency in 89% of epileptic dogs. (Hemp-based CBD typically contains 0.3% or less of the psychoactive component of cannabis, THC.)

The study involved 16 family dogs who received either the treatment (CBD-infused oil) or a placebo for 12 weeks. All the dogs remained on standard anticonvulsant drugs throughout the study.

The researchers found that 89% of dogs who received CBD experienced a significant reduction (median change of 33%) in the frequency of seizures. The research team also noticed an important correlation between the degree of seizure reduction and the amount of CBD concentration in the dogs' blood.

In mild cases of canine seizure disorder, 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 automatically re-vaccinated, and should never receive chemical pesticide application.

While seizures can be a very serious and truly frightening condition in pets, the best way to care for your dog is to arm yourself with knowledge about what to expect and how to react, along with designing a proactive preventive protocol with the help of an integrative veterinarian.

Sources and References

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