



## Education Newsletter

Edition 1, February 28, 2020 Wendy Peirce, BARRC Education Committee Chair and Editor

As the new Bay Area Rhodesian Ridgeback Club (BARRC) education chair, I welcome you to the first 2020 edition of the BARRC Education Newsletter. This will be a recurring newsletter published bi-monthly, at a minimum, and will cover a variety of topics including Rhodesian Ridgeback health and training. The first topic covered in this issue, current research related to Degenerative Myelopathy, was requested by a member. If there are any specific areas of interest that you would like covered, please send an email with your request to me at [wendypeirce@gmail.com](mailto:wendypeirce@gmail.com). Comments, critiques, and compliments are also welcome! - Wendy Peirce

### Degenerative Myelopathy, an update

Degenerative Myelopathy (DM) or chronic degenerative radiculomyelopathy (CDRM) is a devastating diagnosis for Rhodesian Ridgeback owners. We don't really know what causes it, there is no cure for it, and we can't definitively diagnose it while the dog is still alive. This chronic, progressive condition destroys the spinal cord causing a slow deterioration of function in the rear legs, ultimately resulting in paralysis. Usually, within a year of diagnosis, the paralysis is so severe that euthanasia is performed.

Early in the 1990s, it was discovered that human victims of Lou Gehrig's disease, amyotrophic lateral sclerosis (ALS), had an associated mutation in the SOD1 gene. The symptoms of ALS in humans are very similar to those of DM in dogs. Seeing the similarities, veterinary researchers subsequently found that a mutated SOD1 gene also is a major factor contributing to the development of DM in over 43 breeds with an over-representation by German Shepherds, Pembroke and Cardigan Welsh Corgis, Boxers, Chesapeake Bay Retrievers and Rhodesian Ridgebacks. Recently it was found that Bernese mountain dogs, who can also be plagued with DM, have a unique mutation of the SOD1 gene.

So, what is the SOD1 gene and what does it do? The SOD1 gene provides instructions for making an enzyme called superoxide dismutase (SOD), which is abundant in cells throughout the body, including the cytoplasm of the central nervous system. This enzyme attaches to molecules of copper and zinc to break down toxic, charged oxygen molecules called superoxide radicals. These

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### RATTLESNAKE BITE AVOIDANCE

Wildlife experts say rattlesnakes are emerging from hibernation earlier this year in the west due to the mild winter. They are typically out and about from April through September but, this year, they are expected to start foraging in March. The mild winter is also providing the snakes with plentiful prey so there is an expectation that their population will rise and, along with that, there will be an increase in snake bites. Dogs are 20 times more likely than humans to be bitten by a venomous snake and 25 times more likely to die from a bite, according to the Animal Medical Center of Southern California.

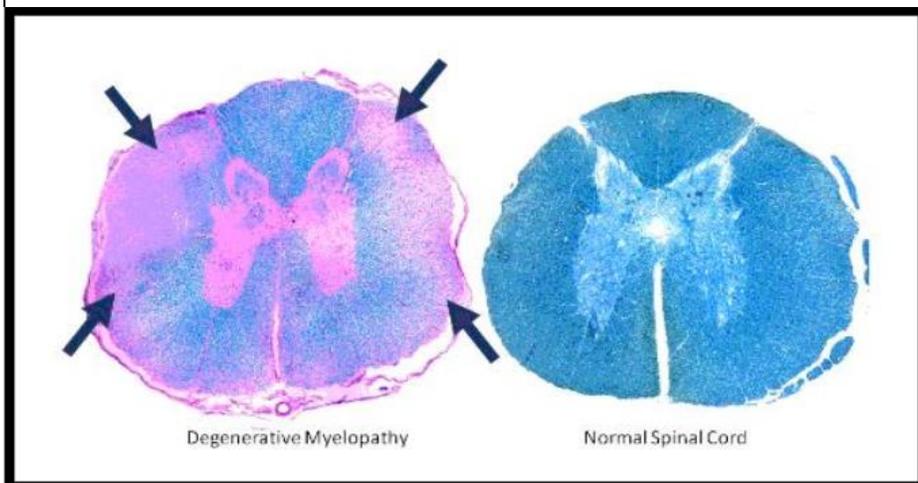
Want to minimize the risk of your dog being bitten? Enroll your Ridgeback in one of many different Rattlesnake avoidance classes offered in Northern California such as the one sponsored by the Hangtown Kennel Club of Placerville, CA on May 2<sup>nd</sup> and 3<sup>rd</sup> and June 27<sup>th</sup> and 28<sup>th</sup>. For more information go to [www.hangtownkc.org](http://www.hangtownkc.org).

## Degenerative Myelopathy, an update.... continued from page 1

free radicals can cause damage to cells, including spinal nerve cells.

The cause of DM is still unknown. Recent research supports a 30-year-old hypothesis that it is an inflammatory autoimmune disease caused by the dog's immune system attacking the spinal cord. This results in the degeneration of the myelin sheath protecting the spinal column and progressive nerve damage. This damage results in the loss of voluntary and involuntary motor control.

In non-DM affected dogs, the SOD enzyme is abundant in the central nervous system (CNS) protecting spinal nerves from damage. In DM affected dogs the SOD mutation results in an enzyme that is ineffective in protecting nerve cells. The mutated SOD gene seems to allow the inflammatory autoimmune response that may be causing DM. The following is a comparison of a DM spinal cord with a normal spinal cord.



As most of you are aware, since January 2011, there is a commercially available screening test for DM that is recommended for all dogs who may be bred to reduce the risk of DM in their offspring. The cheek swab genetic test is to check for the mutated SOD1 gene. Two mutated copies of SOD1 (one from each parent) increases the risk for DM but, even then, not all dogs with two copies of the mutation will develop the disease. Experts suggest that other genetic or environmental factors also are critical to the development of the disease.

### DM and Rhodesian Ridgebacks - what you should know:

- DM usually affects older dogs (at least 8 years old).
- Disease progresses more rapidly in big breeds like Ridgebacks.
- Progression of disease is highly variable.

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## Aspergillus

### *an opportunistic killer*

Recently one of our family of Ridgeback owners lost their girl to Aspergillosis. The Aspergillus fungus is common in Northern California especially on farms, in barns, compost piles, leaves and decaying vegetation. It is generally harmless but can cause respiratory problems in both dogs and humans with allergies, compromised immune systems or asthma but it isn't commonly deadly.

Aspergillosis begins when the mold spores are inhaled. In some dogs, the spores trigger an allergic reaction. In others, the spores cause an infection. Most infections are localized in the nose (nasal aspergillosis) but some dogs will develop mild to serious lung infections as well. The deadliest form - systemic or disseminated aspergillosis - occurs when the infection spreads beyond the lungs to other organs. Even when discovered and treated early, systemic aspergillosis is often fatal.

The diagnosis of systemic aspergillosis can be very challenging. It is uncommon and symptoms can mimic many other more common illnesses. It is also very difficult to treat and cure effectively.



# Education Newsletter, continued

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## **Degenerative Myelopathy, an update....** [continued from page 2](#)

- Early signs include muscle weakness and lack of coordination
- Dogs afflicted may drag one or both rear paws when they walk
- DM does not cause the dog pain
- DM test kit ordering and results for Ridgebacks can be found on the Orthopedic Foundation for Animals site [www.ofa.org](http://www.ofa.org)

Out of 4,155 Rhodesian Ridgeback OFA reported evaluations for DM, 2,445 (58.8%) were clear for the mutated SOD1 gene. 1,479 (35.6%) of the Ridgebacks carried 1 copy of the mutated gene and 231 (5.6%) are considered affected, carrying two copies of the mutated SOD1 gene.

Although there is no cure for DM, there are suggested treatments that may prolong mobility and quality of life for a dog that appears to have DM. These treatments include:

- Physiotherapy to keep nerve impulses firing through stimulation.
- Therapeutic exercises started when the dog is still ambulatory.
- Treatment modalities including electrotherapy and/or therapeutic laser therapy.
- Alternative therapy such as hydrotherapy and acupuncture.
- Diets rich in antioxidants and anti-inflammatory ingredients.

Physiotherapy appears to be most successful and proactive treatment currently available to improve the quality of life for dogs with DM. Studies have shown little impact on the progression of DM through changes in diet.

### **What's coming next?**

The Morris Animal Foundation, who has been involved in DM research for over three decades, is currently funding two studies to help solve the diagnostic and treatment challenges of degenerative myelopathy in dogs. The first is on imaging to improve DM diagnosis. Researchers are gathering data using diffusion tensor imaging, an advanced MRI technique that may help detect white matter lesions within the spinal cord which is an indication of DM. The second research project uses a new gene silencing technology to see if they can reduce the expression of the mutation in the SOD1 gene. If effective with no adverse results, researchers will explore this strategy further as a potential novel therapy for dogs with degenerative myelopathy.

### **References:**

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**LIKE THE EARLY  
ONSET OF  
RATTLESNAKE  
SEASON, TICKS  
WILL BE OUT EARLY AS  
WELL!**

Please send me your favorite tick and flea remedies for the next edition of the newsletter. It will also include an article on tick removal, tick identification and more creepy crawly information!



## **The Puppy Corner**

There is growing evidence that poor traction in the whelping box is a risk factor for the development of hip dysplasia in dogs. So, most breeders provide material on the floor of the whelping box to improve traction for the puppies. But is the material provided really helping? Carol Beuchat, who manages the Institute of Canine Biology, has been researching how the type of material can impact puppy locomotion and potential hip dysplasia. For more info on what she is doing: <https://www.facebook.com/groups/ICBHipDysplasiaProject>