




Degenerative Myelopathy in Dogs

Symptoms and Progression



DM is not a painful disease

Initial

- Loss of coordination in the hind limbs
- Rear feet knuckling or dragging
- Mild hind-end weakness

6 Months

- Hind limbs become weaker
- Dog has difficulty standing
- Dog may lose ability to walk

1 Year

- Urinary and fecal incontinence
- Weakness in front limbs as well as hind
- Eventual paralysis in hind limbs

Degenerative Myelopathy (DM), is a disease that affects the spinal cord, resulting in slowly progressive hind limb weakness and eventually paralysis. This disease is also referred to as chronic degenerative radiculomyelopathy (CDRM) or German shepherd degenerative myelopathy. DM is similar to some forms of human amyotrophic lateral sclerosis (ALS).

The exact cause of DM is unknown, although a genetic mutation is highly suspected. The gene in question is known as canine superoxide dismutase 1 (SOD-1). Dogs that are middle-aged to geriatric are the most commonly affected. There are some breeds that are more at risk for developing DM, including: German shepherds/mixes, Siberian huskies, Collies, Bernese mountain dogs, Boxers, and Chesapeake Bay retrievers. However, DM can affect any breed of dog. DM is an

autosomal recessive genetic disease, meaning inheriting one or two copies of the gene (SOD1) increases the risk of developing the disease. However, not all dogs who carry these genes, even both copies, will develop DM. Other factors, both genetic and environmental, are believed to contribute to developing DM. At-risk breeds should be tested for the SOD-1 mutation prior to breeding to avoid passing on the abnormal gene. DNA testing is offered through the Orthopedic Foundation of Animals and they can identify:

- Dogs that are clear of DM (2 normal copies of the gene)
- Dogs that are carriers (1 normal copy and 1 abnormal copy)

- Dogs that are at a much higher risk for developing DM (2 copies of the mutated gene)

Diagnosis of DM is based on breed, medical history, physical examination, and diagnostic testing. X-rays and other spinal imaging techniques are performed to rule out other orthopedic issues, such as hip dysplasia and chronic arthritis; if the pet has one or both of these issues, it can contribute to loss of function of the hindquarters. Other more in depth testing consists of cerebrospinal fluid (CSF) analysis, tissue biopsies, and neuromuscular tests. DNA testing for SOD-1 abnormalities is recommended for any at-risk breed that is displaying symptoms of DM. The diagnosis of this disease is a challenging, often time-consuming endeavor, requiring many tests before a definitive diagnosis is made.

There is no cure/treatment currently for DM, but some of the symptoms can be managed to ensure more comfort for the dog. Treatment of other concurrent problems, such as arthritis or hip dysplasia, may provide some relief. It is important to avoid obesity, so diet and exercise (walking and swimming) are vital components of treatment. The goal is to maintain the dog on its feet for as long as possible. Physical therapy has been shown to slow progression, prolong quality of life and preserve muscle mass. Any dog with DM should be kept as physically active as possible for as long as possible. Therapeutic laser or photobiomodulation therapy has shown promising results, but more research is still needed.

Unfortunately, degenerative myelopathy is a progressive, incurable disease. Although bladder and bowel control are not affected initially, the dog has more difficulty controlling urination and defecation as the spinal cord continues to degenerate and the dog's mobility becomes severely restricted. Some dogs make good candidates for a cart or wheelchair, providing a better quality of life for a period of time. As symptoms progress, your veterinarian will help determine the most appropriate treatment options for your dog.

