

NSDTR Degenerative Encephalopathy

Dennis O'Brien DVM PhD, Nicolas Granger DVM PhD & Gary Johnson PhD DVM

Recently, we have identified a new brain disease in Nova Scotia Duck Tolling Retrievers. The purpose of this article is to provide information about the condition so that breeders and veterinarians can be alert to any future cases and help us find the gene responsible.

What is NSDTR Degenerative Encephalopathy?

The term encephalopathy comes from the Greek words encephalo- (the brain) and -pathy (disease) and simply refers to a disorder of the brain. There is still much that we need to learn about this disease but we are beginning to get a picture of the symptoms of this disease.

Affected dogs show progressive neurologic signs. They can be more anxious than normal at a young age, but learn basic obedience. With age, they become more anxious and have difficulty concentrating and learning complex tasks. Coordination problems are noticed around 4-6 months of age. Often these are first noticed when swimming as the dog swims more upright in the water than normal. These signs progress to difficulty jumping, a "choppy" gait and falls when making turns by 12-18 months of age. They often show excessive running movements during sleep and can be difficult to awaken. Affected dogs can be hypervigilant, bark at inanimate objects, and be aggressive towards other dogs and sometimes people. Affected dogs have shown characteristic changes in the brain on MRI, which can be used to diagnose the disease.



NSDTR with encephalopathy can show excessive movements during the dream phase of sleep.

What else can look like NSDTR Degenerative Encephalopathy?

There are other, much more common diseases that can cause similar symptoms. Metabolic diseases such as liver disease or low blood sugar could cause weakness and personality changes. Infections of the brain, such as canine distemper, can cause inflammation and similar symptoms. Injuries to the spine could cause weakness and loss of coordination. Consult your veterinarian to determine if any of these potentially treatable diseases could be the cause. In necessary your veterinarian can refer you to a board certified neurologist who could provide further advice.

Is this a hereditary disease?

Further research is needed, but the pedigrees analyzed thus far suggest that this is inherited as a recessive trait. In a recessive disease, both parents of an affected pup are normal. All animals have two copies of each gene, one that is inherited from the mother and one inherited from the father. A dog that has one normal gene and one gene that causes a disease is a carrier of the trait. They show no symptoms because the one good gene is enough for their brain to function normally, but they will pass that bad gene on to about half of their offspring. If a carrier dog is bred to another carrier, then some of the pups (25% on average) will get a bad gene from each parent. Without one good gene to carry the day, the brain cannot function normally and the unlucky pup has the disease.

How do we find the gene responsible?

The goal in dealing with a hereditary disease is to identify the gene responsible. Genes contain the genetic code that programs everything about an animal from the color of their coat to how their brains function. Genetic disease occurs when a mutation interferes with the ability of a gene to function normally. We now have the tools to find that mutation. Then we can develop a DNA test that will aid breeders in avoiding the disease in the future.

How can I help?

If you have a dog that might be affected, please contact us. We can help your veterinarian determine whether or not this is the problem in your dog. We also ask your help in collecting DNA samples and information necessary to continue searching for the gene responsible for this disease. Your continuing support will help us achieve our goal.

All information will be kept strictly confidential

Liz Hansen (573)882-3712 Animal Molecular Genetics Laboratory, University of Missouri HansenL@missouri.edu	Dr. Dennis O'Brien Department of Veterinary Medicine & Surgery, University of Missouri OBrienD@missouri.edu	Dr. Nicolas Granger School of Veterinary Sciences, University of Bristol nicolas.granger@bristol.ac.uk
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For more information, see our website <http://www.caninegeneticdiseases.net/Toller>