



Shakey Puppy Syndrome (Tremor Syndrome) Research

Through a collaborative effort, the WCA Health Committee is pleased to advise the membership that the WCA is supporting Dr. Ian Duncan's continuing research for a genetic marker of Hypomyelination or Shakey Puppy Syndrome in Weimaraner puppies.

Several years ago, Dr Betta Breuhaus wrote about "Shakey Puppy" in The Weimaraner Magazine in an effort to educate the membership about this disorder, and to garner support for Dr. Duncan's early research. The Weimaraner Foundation Fund (WFF) and WCA members generously supported Dr. Duncan's research both financially and by supplying samples. Unfortunately, that early research was uninformative.

The WCA Health Committee recently became aware that Dr. Duncan was continuing his research and had applied for an AKC/Canine Health Foundation Acorn Grant. The Health Committee reviewed the new grant request and evaluated the basis of the research. New developments and techniques in genetic studies have enabled Dr. Duncan's team to continue its work in a very promising direction. The Health Committee unanimously petitioned the WCA BOD to allocate monies from the WCA AKC/CHF Donor Advised Funds to support this effort. The WCA BOD approved the committee's request, and Dr. Duncan's Acorn Grant was approved. We thank Dr. Duncan for providing our membership with the following synopsis of this research.

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Tremor syndrome in Weimaraners

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It is now 24 years since the first description of the inherited tremor syndrome in Weimaraner pups. While the exact prevalence of the disease is not known, it has been reported in all parts of the USA and Canada. In addition it has been reported in the UK, Spain, Italy and Holland. It is likely that affected dogs in Europe are related to dogs exported from North America. The disease is inherited as an autosomal recessive trait, which means that the parents are carriers of the gene (heterozygotes) and about 25% of their litter, either males and females, will be affected (homozygotes) and 50% will be carriers. As affected dogs may recover completely, it is possible for a homozygous dog to mate thus increasing the gene pool even more. The tremor is seen at 10-12 days of age and is dramatic and alarming for people who have not seen the disease. The tremor affects the entire body and may vary in intensity between littermates. In most cases the tremor dissipates over 2-3 months and usually disappears entirely though severely affected dogs may have a persistent, mild defect. The tremor can be a problem with feeding at early time

points and can make finding homes for affected pups difficult as the tremor is likely to persist at least up to 10-12 weeks of age.

The disorder is caused by a delay in myelination of the brain and of specific tracts of the spinal cord. We are attempting to identify the gene responsible for this defect using a genome-wide association study. Previous studies using DNA from affected, carrier and normal dogs from across the USA, and analyzing these samples using a whole genome scan were uninformative. Our current study using a smaller cohort, but in which we are confident of the source, has allowed us to successfully map the gene. However we are left with a challenge as the area of the chromosome where the gene is located is large and contains 16 genes. Sequencing of two possible candidate genes showed no mutations. None of the remaining genes are obvious candidates that we could deduce are responsible for the defect, based on

current knowledge. With our latest Acorn Grant from the AKC/ Canine Health Foundation, we are planning to sequence all the genes in the mapped area of the chromosome that we have identified.

The long range goal is to identify the gene involved and the mutation so we can develop a bench test (PCR reaction) and then use this to identify heterozygous (carrier) animals. By so doing, we hope to be able to offer the breed a test that they can use to identify carriers and use this information to selectively breed dogs and reduce or eliminate the mutation from the breed. A note of caution however is that unexpected complications can arise in these analyses and based on the limited funds available to complete the project, the rate of progress will be unlikely to be fast. We are grateful to the AKC/CHF and the WCA for their support of this research.

Breeder Referral

Please ensure your contact information is correct when registering with the WCA Breeder Referral program.

Send litter information to.

Billie Thompson
513-688-0943
wcareferral@fuse.net

Illustrated Standard

The Weimaraner Illustrated Standard is available from the WCA National Office. It is not only a great tool for judges, but also a great publication for every Weim enthusiast to have on hand; to educate puppy buyers, for mentoring and for general reference.

\$10.00 each

Send payment to:

WCA, PO Box 489, Wakefield, RI
02880