

## Polyneuropathy

**Affected breeds:** Alaskan Malamute

Polyneuropathy in the Alaskan Malamute typically starts to appear between 3-19 months of age. Initial signs include noisy breathing and weakness of the legs. This can develop to an intolerance of exercise and abnormal, uncoordinated movement, and finally difficulty standing and walking. There is significant variation in the extent of these signs between individuals.



Polyneuropathy is caused by a recessive genetic mutation. This means that dogs which carry the mutation ("CARRIERS") are normal but will pass the mutation on to an average of 50% of their offspring. Puppies which inherit two copies of the mutation will have Polyneuropathy ("AFFECTED").

### **This test is particularly useful for breeders:**

- To identify carriers among their breeding stock so that they can avoid CARRIER X CARRIER mating combinations which would risk AFFECTED puppies.
- To conclusively confirm Polyneuropathy

### **This test will be reported as:**

**CLEAR** : no evidence of the Polyneuropathy mutation

**CARRIER** : carries one copy of the defect, which will be passed to 50% of offspring

**AFFECTED** : carries two copies of the defect, and will have Polyneuropathy

### **The genetic status of dogs can be used to predict breeding outcomes when different combinations are mated:**

CLEAR X CLEAR = 100% CLEAR

CARRIER X CLEAR = 50% CARRIER, 50% CLEAR

CARRIER X CARRIER = 25% AFFECTED, 50% CARRIER, 25% CLEAR

### **References**

Brun CS, Jaderlund KH, Berendt M, Jensen KB, Spodsberg EH et al. (2013) A *Gly98Val* Mutation in the N-Myc Downstream Regulated Gene 1 (*NDRG1*) in Alaskan Malamutes with Polyneuropathy. PLoS ONE 8(2): e54547. doi:10.1371/journal.pone.0054547