



HEALTH ISSUE: Cone Degeneration (CD) or Day Blindness

DESCRIPTION: Cone Degeneration (CD) is actually relatively rare in Alaskan Malamutes and is caused by a distinct mutation in gene CNGB3. It causes day blindness due to the degeneration of the retinal ‘cones’, cone-shaped cells in the retina that respond primarily to bright daylight.

The retina of an affected dog initially appears normal when examined by an ophthalmologist, as does the electroretinogram (ERG). However, the ERG response from the degenerating cones declines with age and is non-recordable once a CD-affected dog reaches maturity.

In contrast to Progressive Retinal Atrophy (PRA), which is the more common type of retinal disease in many dog breeds, CD does not affect night vision. A second type of cell in the retina, the ‘rods’, rod-shaped cells that respond primarily to dim light and detect movement, are not involved in this disease. The CD-affected dog retains the ability to see at night or in dimly lit areas.

CD is an autosomal recessive condition and we can now 100% reliably identify the genotype of each dog through the use of a DNA test that has been developed by Optigen in the US.

A CD tested dog will fall into one of three categories:

Normal (N) - genetically clear, non-carrier or, more formally, homozygous normal.

Carrier (C) – heterozygous.

Affected (A) – homozygous for CD.

(Homozygous means that both copies of the gene are the same (either both normal or both CD) whilst heterozygous, the carrier, means there is one normal and one CD.)

A ‘normal’ will never develop CD and can only pass on the normal gene to all their pups, meaning none of the pups can ever be ‘affected’. Even if you breed a ‘normal’ to a ‘carrier’ or an ‘affected’, the pups can only ever, at worst, be carriers themselves and, therefore, will never suffer from CD and, provided they are tested and, if found to be carriers, put only to clear dogs, will not produce affected stock either.

SYMPTOMS: The condition can be diagnosed very early in an affected dogs life as, between 8 and 12 weeks of age, when retinal development is normally completed, signs of vision problems are noticeable. Affected pups become day blind and are photophobic, they find exposure to bright light to be irritating and will shun brightly lit areas, though vision in dim light remains normal.



Alaskan Malamute Rescue is run by the Alaskan Malamute Club of the UK



A CD affected dog can lead a normal life in virtually every way, except that special consideration needs to be given in well-lit environments where help may be needed in negotiating obstacles, though dogs will readily learn to adapt to their condition. Additionally, care must be taken not to 'surprise' the affected dog (for example, the sudden face-to-face approach of another dog) as this may lead to an unexpected reaction.

KNOWN TESTING: A test for CD is available through Optigen in the US.
OptiGen, LLC. Cornell Business & Technology Park, 767 Warren Road, Suite 300, Ithaca, New York 14850.

Tel: 00 1 607 257 0301 Fax: 00 1 607 257 0353

Email: genetest@optigen.com
www.optigen.com

The test involves providing a single blood sample along with supporting documentation, which must be shipped to Optigen under strict conditions, the details of which are provided at the time of booking the test.

To make this easier, regular collection clinics are held in the UK and participation in one of these not only makes the process far simpler, it also usually carries a reasonable discount from the standard Optigen fees.

Details of UK collection clinics can be found on the Optigen website and are regularly advertised in the UK dog press. Where possible, they will also be detailed on this page.

CURRENT RESEARCH: CD is the canine version of the human genetic disease Achromatopsia, total colour blindness and day blindness. Another name for day-blindness is Hemeralopia and gene therapy research aimed at correcting this condition (in dogs as a model for human disease) is currently being conducted at the University of Pennsylvania.



Alaskan Malamute Rescue is run by the Alaskan Malamute Club of the UK