



Australian Shepherd Health & Genetics Institute, Inc



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Cataracts

Cataracts, the most common eye disease in Australian Shepherds, can occur for reasons other than heredity (other diseases, injury, nutritional imbalance) but these causes are uncommon. If in doubt, consult a veterinary ophthalmologist.

Hereditary cataracts are bilateral, occurring in both eyes, but they may not appear at the same time. If a cataract is noted on one eye, recheck in six months to a year to see if one develops in the other. Hereditary cataracts progress starting as small opacities and advancing, sometimes to the point of clouding the entire lens.

Dogs with these generalized cataracts are unable to see anything but extremes of light and dark. Cataracts do not cause the dog any pain and usually progress slowly enough that the dog adjusts to its vision loss. In Aussies cataracts almost never occur in young puppies. Affected dogs most commonly present signs as mature adults, though cataracts may start in early adulthood or not until old age.

This wide range in onset has made the disease extremely difficult to predict or eliminate; affected dogs are often bred before the owner realizes they will develop the disease. Most cataracts in Aussies start in the posterior cortex of the lens, the outer layer on the back side.

The mode of inheritance for most Aussie cataracts is dominant with incomplete penetrance, meaning not every dog with the mutation will develop cataracts. It is also extremely variable in the age of presentation. It is possible that some dogs that ultimately are or would have been affected are not detected

because they die first or the owner stops doing eye exams before the cataracts develop.

The release of a DNA test for one form of hereditary cataracts in early 2008 should help reduce the frequency of cataracts in the breed. This mutation, in a gene called HSF4, is associated with 70% of the inherited cataracts in Australian Shepherds. It is a risk factor – not every dog with the mutation gets cataracts. The mutation is dominant, so dogs with even one copy are at risk of developing cataracts at some point in their lives. Dogs with the mutation who remain healthy will pass the mutation to their offspring, who will also be at risk for cataracts. This mutation is extremely common in the breed: Approximately one in four Aussies has it. Because it is so common, eliminating all of them from breeding is not an option.

Because the HSF4 mutation is only a risk factor and because there are hereditary cataracts that are not caused by HSF4, all breeding stock should receive annual exams by a veterinary ophthalmologist.

Dogs with cataracts should not be bred.

- Dogs with one copy of the HSF4 mutation should be bred only to clear-tested dogs.
- If a dog has two copies of the HSF4 mutation it would be better to use a clear or single-mutation full sibling of equal quality for breeding. If a two-mutation dog is bred, it should only be to a clear-tested mate. First-step relatives (parents, offspring, full and half siblings) of an HSF4-clear dog diagnosed with hereditary cataracts should be bred only to mates who have no family history of non-HSF4 cataracts or those whose status isn't known.