

## **CATARACTS**

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The gene mutation that causes juvenile cataracts in the French Bulldog was confirmed to be the same as the one in Boston Terriers and Staffordshire Bull Terriers. A DNA test for the gene is now available in the UK, and it's hoped that it will soon be offered in the US at a much lower cost. While inherited cataracts are not as common in Frenchies as they are in Bostons, they are in our population and breeders should now consider testing for this recessive gene before breeding a Frenchie.

Until now, the only way to detect cataracts was a physical exam by an ophthalmologist. However, removing from the breeding population only those dogs with cataracts (those homozygous for the gene, *c/c*) will not solve the problem. Only by also removing from the breeding population normal individuals who carry the gene will we reduce the incidence of the gene in the population.

Here's a review of how this recessive gene works.

If a dog with (or genetically destined to develop) inherited cataracts (*c/c*) is bred to another one with cataracts (*c/c*), all of the puppies will also develop cataracts (*c/c*). If a dog with cataracts (*c/c*) is bred to a normal dog who does NOT carry the gene (*C/C*), ALL of the puppies will be carriers of, but will not develop, cataracts (*C/c*). If a normal dog who is a carrier of cataracts (*C/c*) is bred to a normal non-carrier (*C/C*), we'd expect half of the puppies to be carriers (*C/c*) and half to be normal non-carriers (*C/C*). If two carriers are bred together (*C/c* X *C/c*), we would expect 1/4 of the puppies to develop cataracts (*c/c*), 1/2 to be carriers (*C/c*), and 1/4 to be normal non-carriers (*C/C*).

Some mistakenly believe that if no cataracts have been produced in several generations, that means that their dog can't be carrying the cataract gene. That's wrong, because a recessive gene can pass undetected through an unlimited number of generations of carriers, until one day a carrier is bred to another carrier (as when linebreeding is done) and an affected pup is produced. Should that happen, the parents should be removed from the breeding program because then their carrier status will have become known. Also, any other puppies produced by this pairing have a 2/3 chance of being carriers as well, and their owners should be notified of this.

This is where DNA testing can be most helpful. The normal puppies produced by known carriers can now be tested to see whether they are carriers or not. While the safest and most efficient way to eliminate cataracts is by spaying and neutering all proven carriers, that is not necessarily beneficial to the breed as it further reduces the gene pool. DNA testing allows breeders to responsibly breed carriers (*C/c*) to noncarriers (*C/C*) without producing cataracts. However, this method of responsible breeding can only be done with the use of DNA testing. One problem, though, is that the cataracts in an affected dog can develop at variable times, as early as a few months, or as late as about 5 years. So to be safe, any breeding animal — especially a stud who is to be widely used — should be tested.

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