Breeding to Avoid Hip Dysplasia

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Certain facts are important considerations for Airedale breeders regarding hip dysplasia. The first is that Airedales are a medium sized breed. Therefore, dysplastic dogs may exhibit no, or only mild symptoms. This is good, in that many dysplastic Airedales will not suffer. However, it is bad, because the disease in more difficult to detect in our breed.

The next item for consideration is the frequency of the disease in our breed. It is unknown. An educated guess would put the prevalence somewhere between 25% and 33%. I base this number on the reported incidence of the disease by the Orthopedic Foundation for Animals (OFA). They report the incidence of hip dysplasia as greater than 50% for many common large breeds and state the overall incidence of the disease in various breeds ranges from 10% to greater than 80%. Note that one large breed, Greyhounds has almost no hip dysplasia. This is consistent with the purpose of the breed, where harsh selection for efficient movement (racing) is the primary goal.

The next consideration is the heritability of the condition. This, loosely defined, is the percent of the trait that is associated with an animals genetic heritage. Highly heritable traits have scores of 0.4 (40%)or more, poorly heritable traits would have scores below 0.2 (20%). Estimates on the heritability of hip dysplasia varies widely in the scientific literature, but reasonable numbers have been in the 0.26 to 0.4 range. This means that simply relying on genetic selection to eradicate the disease will be only moderately successful. This has proven to be the case. Controlled, intensive breeding programs, like the Seeing Eye Foundation, (using both OFA and PennHip techniques) have been able to improve the ratio of dysplastic dogs, but they still report about a 5% dysplasia rate. They estimate that greater than 60% of the general population of German Shepherds (their breed) are dysplastic. They further note, that with their selection the conformation of their dogs has diverged from the current conformation (phenotype) of German Shepherds in the general population.

The OFA reported in an American Veterinary Medical Association research article in 2000, that if you bred an OFA “good” (middle OFA positive rating) to an OFA “good”, you would still get about 13% dysplastic offspring. An

OFA “excellent” to OFA “excellent” would get about 2% dysplastic, and and OFA “fair” (a positive rating) to an OFA “good” would get a 15% dysplastic rate. Making matters more difficult for breeders to understand, a “mildly dysplastic” rated dog bred to a “mildly dysplastic” rated dog gets a 25% dysplastic ratio. In other words, 75% would NOT be dysplastic! The study also indicated that the genetic contribution from both the sire and the dam were equally important. The breeds in the study were English Setters, Portugese Water Dogs, Shar peis, and Bernese Mountain Dogs. If it is not just genetics, what else could be going on?

The most common breeds submitted for OFA evaluations are German Shepherd, Rottweilers, Labrador Retrievers, and Golden Retrievers. Based on the AKC registration numbers for these breeds, the OFA estimates that only 5% of the dogs used in breeding are submitted for OFA evaluation.

In 1992, Purina published an article on the effect of nutrition on dysplasia rates. Half the dogs were fed ad libitum (all they wanted/free fed), the other half was fed only 75% of the first group (limit feeding). Labrador Retrievers were used in the study. The dysplasia rate in the limit fed group was ONE HALF the dysplasia rate in the free fed dogs. Overfeeding will increase the incidence of dysplasia. A continuation of the same study showed that the free fed dogs lived shorter lives as well.

The 2001 National Breed Health Survey showed an association between dogs that were overweight and the development of hip dysplasia. There is an experimental study on Great Danes reported that dogs fed 20 to 30% less than littermates had a lower incidence and severity of joint disease as adults, although they eventually reached the same adult height.

Excessive exercise during boney development has also be implicated in degenerative joint diseases like hip dysplasia. Exercise should be moderate only, until dogs are eighteen months old.

All breeders that breed in any significant numbers and who track their offspring will see dysplasia. Texter Airedales have experienced a 2-3% dysplasia rate based on health surveys and owner contacts with our puppy owners. Breeders that report “no hip dysplasia in their line” are likely either not breeding much or are not monitoring their breeding program carefully enough. Since Airedales are medium-sized, they are less likely to exhibit symptoms than larger breeds, so dysplastic dogs can easily go

undiscovered. Luckily, none of our dogs discovered to be dysplastic to date have been affected in a manner severe enough to significantly affect their lifestyle.