

Papillon Club of America Health & Genetics



HOW TO SELECT AGAINST GENETIC DISEASE WITH KNOWLEDGE, NOT HOPE ?

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High anxiety about genetic diseases comes with the territory for anybody who is considered to be a responsible breeder these days. In fact, if you are breeding dogs, and you aren't worried about genetic disease, you'd better hold off on that next mating until you've done your homework.

Canine geneticists estimate that the average purebred dog is carrying at least 4-5 defective genes. To put it another way, when you are looking at that gorgeous champion with normal hips you are also looking at a dog who is carrying the genes that can cause several types of genetic disease.

And unless his owner has a detailed genetic pedigree on this dog and is willing to share it with you, you have no way of knowing what those disease genes are.

That champion may be carrying a recessive gene for PRA, and if he's bred with a bitch who is also carrying the PRA gene, the disease will show up in the puppies.

And even though he has normal hips, he may be carrying some of the recessive genes involved in hip dysplasia. If you mate him with a bitch who is normal but also carrying recessive genes for dysplasia, you'll suddenly find yourself, heartbroken and bewildered, with dysplastic puppies.

"I'm not worried," you may say, "because soon we'll have DNA tests that will solve these problems."

That's all well and good if researchers have developed a test for the single gene disease your line is troubled by. But if that test doesn't exist, are you willing to wait five or ten years for your turn to come? And that's assuming you'll persevere as a breeder beyond the six-year average when most people give up, often because they can't seem to stop producing puppies with genetic diseases.

Of course, we are only talking about tests for single gene diseases. Most of the severe diseases like hip and elbow dysplasia, cancer and epilepsy, are polygenic, caused by the complex interplay of many genes, and no researchers have come close to developing a polygenic gene test.

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Are you willing to wait 20 years for a gene test for hip dysplasia? Are you willing to watch another 30 years go by with no significant decrease in hip dysplasia among purebred dogs ?

Breeders in Sweden in 1976 weren't willing to wait, and so they set up an open registry and started screening all their dogs. By 1989 they had achieved a 50 percent decrease in moderate to severe hip dysplasia in almost all breeds

("Breeding Healthier Dogs in Sweden": Ake Hedhammar, *Tijdschrift voor Diergeneeskunde*, April 1991).

What is the secret of this astonishing success ? Nothing more profound than the fact that each breeder made it his or her business to find out where the carriers and affecteds were in a dog's close family – siblings, half-sibs, offspring, parents and parents' siblings. Using relatively simple methods, they could then predict the risk of inheritance of defective genes in any mating.

A few breed clubs in the US have shown similar successes with targeted genetic diseases. But the majority of our purebred dog breeders have shown little interest in using open registries combined with proven breeding methods to reduce genetic diseases.

Times are changing, however. In 1990 GDC : Institute for Genetic Disease Control in Animals, www.vetmed.ucdavis.edu established an international all-breed open registry based on the success of the Swedish model. In the following decade thousands of breeders began to register their dogs and to make breeding decisions in accord with the knowledge of where the carriers and affecteds were in a particular dog's family.

Additionally, in 2001, OFA began offering customers the option of sharing all results openly on their web site, both unaffected and affected. OFA reports a strong increase in the number of people taking advantage of this option.

During this past year, GDC started an advocacy campaign to call for the widespread use of open registries and appropriate breeding methods. The strong response they got from breeders throughout the purebred community confirmed that the demand for open registries is increasing rapidly.

But the reality is that no open registry, whether it is the international GDC registry, or an open registry set up by a breed club, can be useful until it contains significant number of dogs registered in close family groups. Detractors of the open registry concept point to this weakness but ignore the fact that even without enough information in an open registry, breeders can still make progress against genetic disease by doing the legwork themselves.

In the summer of 2002, GDC closed all of its registries except the Eye and Tumor registries, and in early 2003 will merge its database with OFA. OFA will be upgrading its web site to make gathering information on family groups of dogs much easier.

WHAT CAN YOU DO ?

- * Register your dogs in an open registry and urge every breeder you know to register also. If you register with OFA, choose the full disclosure option.
- * Do whatever you have to do to find out where affecteds and carriers are among a dog's siblings, offspring and other close relatives.
- * Don't breed to a dog whose owner will not supply that information.
- * Screen as many of your own dogs as possible, and supply that information to buyers and breeders.
- * Contact your breed's health committee and the AKC and strongly urge them to actively promote the use of open registries. Urge your health committee to promote use of the full disclosure option at OFA.

For specific information on breeding methods and genetic disease, start with these books:

Control of Canine Genetic Diseases ; George A. Padgett,
DVM, Howell Book House, New York, 1998
Genetics of the Dog ; Malcolm B. Willis,
Howell Book House, New York, 1989

Several very good articles on basic genetics for dog breeding :
<http://www.canine-genetics.com/>