

## Health Matters: The Hype on Hips

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One of the most commonly recommended health screening tests for breeding dogs is a hip evaluation. There are a few breeds that don't list this for their CHIC (Canine Health Information Center) certification, due to low incidence of problems, but most breeds do require it.

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Hips are evaluated through a radiograph (X-ray) by OFA (Orthopedic Foundation for Animals) or series of radiographs by the PennHIP method (developed at the University of Pennsylvania and now owned by Antech). The primary disease being screened for is hip dysplasia. Via OFA, a single position is evaluated for criteria of joint anatomy. In PennHIP, multiple views are used to determine joint laxity. Faulty anatomy and/or joint laxity increase the chances of a dog developing degenerative joint disease. This can be painful and limit a dog's working career as a performance or show dog.

A similar radiograph is used to evaluate small and toy breeds for a problem called Legge-Calves-Perthes. This is a genetic predisposition to necrosis of the femoral head of the hip joint. Dogs can be evaluated for this as young as 12 months of age — not the standard 2 years of age for a regular hip dysplasia certification.

Hip dysplasia itself is a multifactorial disease, which has both genetic and environmental components. Hip screening methods hopefully remove some dogs with very poor joint structure from the gene pool. Owners need to also make sure their dogs have a correct diet and proper exercise.

All of that sounds very scientific and clear-cut. In reality, hip dysplasia can be difficult to predict. Most dog fanciers have come across a dog at some point with a stunningly beautiful floating gait that on X-ray turned out to have basically no hip sockets at all. There was no lameness due to friction because there was no joint action. Eventually that dog would break down, but early on, it might be the stunning mover in the crowd.

There are also cases where an X-ray shows poor anatomy, a loose joint and maybe even degenerative changes in the joint. The dog in question might be lame, or it might not. The X-ray makes us wince, but the dog shows no pain or problems. On the other hand, a dog with minor joint laxity and maybe an OFA rating of Fair may show signs of degeneration along with pain at a fairly young age. The chant of veterinary radiologists comes to mind: "Treat the dog, not the X-rays!"

Beyond an individual dog, breeders want to screen future breeding stock. If possible, they would like to prevent any hip problems from cropping up in future litters. Therefore, recommendations are always to breed the dogs with the best hips to each other (all other factors being considered equal, which rarely happens out in the "real world"). Diligent breeders breed their OFA-rated dogs or their dogs with PennHIP readings better than 50 percent of the other dogs in their breed.

The results? A slightly mixed bag. Breeding dogs with good hips certainly increases the odds for puppies with good hips. If you breed two dogs with good hips and tight joints together, you still might get 25 percent of puppies with a problem (or hips not as good as their parents). If you breed two dysplastic dogs together, the incidence of problems in puppies goes up to about 75 percent. This is a result of many genes interacting and the environmental factors chiming in as well.

There are currently groups at work to find a DNA screening test for hip dysplasia. Both Cornell University and Vet Gen labs are looking at finding a test for this problem. Vet Gen is currently looking for samples from a variety of breeds with multiple members of the family affected. The Cornell research is centered on Labrador Retrievers.

It is important to realize that a hip dysplasia DNA test is very, very unlikely to be a clear-cut, simple one-gene test. Some DNA tests give you very black-and-white results, such as, Dog A is either totally normal and can't pass on the problem; Dog A is a heterozygote, and while he may be normal himself, there is a 50/50 chance he will pass on the defect; or Dog A has the defect. Those are the "dream" genetic tests.

With hip dysplasia so far, there does not seem to be one all-important deciding gene. Instead, researchers are coming up with a number of "marker genes." A dog having many of those marker genes has a higher risk of developing hip problems. So any test coming out in the near future is likely to have "predictive risk" — not a black-and-white answer. It will still be important for individual dogs to have correct diet and exercise.

What can breeders do to minimize the risk of passing on hip dysplasia in a litter? Start with parents whose hips are better than the average for the breed. That may be determined based on a number in the PennHIP system or a rating from OFA. In Belgian Tervuren, for example, very few dogs with a Fair rating are bred. Most dogs being bred are OFA Good or Excellent.

Look beyond the two dogs you are planning to mate. Look at all of their siblings. Then look at their parents and the siblings of their parents. The more in depth — both horizontally and vertically — you can go with a health pedigree, the better your chances are for healthy pups. Do not breed dogs that have not had screening done.

If at all possible, breeders need to get health screenings on all their puppies. Simply checking hips on the show/breeding puppies isn't enough. At least theoretically, those are the puppies with the best structure and movement to begin with. If you only evaluate those pups, you may be getting a false sense of security on the health of hips in your lines.

Hip dysplasia is a challenge, but with careful research and widespread screening, you should be able to reduce the incidence of problems in your kennel.

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