



# What is hip dysplasia— why should I test for it?

Linda Daves

Hip x-ray of a Labrador Retriever, OFA rated good | photo © S. L. Reiley-Lince <http://www.darkstarfamily.com/hips.htm>

## OFA

<http://www.offa.org/ofahd.html>

## PennHip

<http://www.vet.upenn.edu/ResearchCenters/pennhip/>

## Information on Hip Dysplasia

<http://www.northcreek.com/surg-sem2.html>

<http://www.golden-retriever.com/chd.html>

<http://www.spinone.com/hipdysplasia.htm>

## XRay examples

<http://www.thepetcenter.com/xra/xraycases.htm>

<http://www.darkstarfamily.com/hips.htm>

**A**LTHOUGH CANINE HIP DYSPLASIA (CHD) might appear to be rare in the Basenji, all breeding stock should be tested prior to breeding. Hip dysplasia refers to a developmental problem of the canine coxofemoral joint—where the femoral head connects to the acetabulum, or hip socket. Subluxation of the femoral head leads to abnormal wear and tear of this joint and eventual development of degenerative joint disease (DJD) or osteoarthritis.

Three important aspects of the disease have been repeatedly and independently documented and are generally accepted by the scientific community:

- 1 Canine hip dysplasia is caused by the presence of many genes (polygenic). While no environmental cause has been found, many environmental factors contribute to its expression in a particular dog (phenotype).
- 2 The only current means for reducing the occurrence of hip dysplasia is by selectively breeding for normal hips.
- 3 Radiography is the accepted means for evaluating hip status

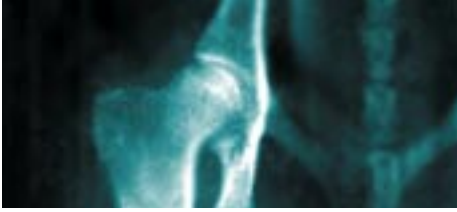
## What do you mean by subluxation?

Hip dysplasia is brought about by a laxity of the muscles, connective tissue, and ligaments that should support the coxofemoral joint. When this joint becomes lax the femoral head and the hip socket are no longer held tightly in place but actually move apart. The joint capsule and the ligament between these two bones also stretch, adding further instability to the joint. As this happens, the once connected surfaces lose contact with each other. This slight separation of the joint is called subluxation.

## Who evaluates the radiographs?

The best known, and most widely accepted

CONTINUED ON PAGE 6



## focus on health—hip dysplasia

at this time is the Orthopedic Foundation for Animals (OFA). Radiographs submitted to the OFA are independently evaluated by three, randomly selected, board—certified veterinary radiologists. Each radiologist evaluates the animal's hips and assigns either a **passing** hip rating of Excellent, Good or Fair; or a **non-passing** (dysplastic) rating of Borderline, Mild, Moderate or Severe. Passing scores are issued an OFA number, non passing scores are not. While all dysplastic hip grades are documented by the OFA, the information is not available to the general public unless the owner authorizes its release.

However the traditional diagnostic method of hip evaluation used by the OFA was, to some, associated with disappointing progress in reducing the frequency of hip dysplasia. The PennHIP method was originally developed to address this problem using a more scientific method of evaluation, as opposed to the more subjective method used by OFA. The PennHIP radiographic procedure involves actual measurements of the dog's passive hip laxity using three different radiographic views. Research has shown that the degree of passive hip laxity is an important factor in determining susceptibility to developing degenerative joint disease later in life. This measurement, or distraction index (DI), is expressed as a number between 0 and 1. A DI of zero would indicate no joint laxity and very tight hips. A DI closer to one would indicate a high degree of laxity and very loose hips.

### What do you mean 'passive laxity'?

In simple terms passive hip laxity refers to the degree of "looseness" found between the femoral head and the acetabulum. To obtain true passive hip laxity, the dog's

muscles must be completely relaxed by way of chemical restraint or sedation. PennHIP only evaluates sedated dogs, while OFA evaluations allow both sedated and non-sedated animals.

### Can't I just teach my dog to lay quietly on his back for the x-ray and avoid sedating him?



Hip x-ray of a Cavalier King Charles Spaniel  
OFA rated good | photo © S. L. Reiley-Lince  
<http://www.darkstarfamily.com/hips.htm>

Since OFA allows non-sedated dogs to be radiographed and evaluated, teaching your dog to lay quietly can be a viable alternative to sedation, but at what potential cost to the breed? As a certified veterinary technician I have assisted in hundreds of radiographs and can say, unequivocally: non-sedated animals, even those that may appear laid back and relaxed, are tense—especially upside down in such unfamiliar surroundings as a veterinarian hospital.

Regardless of how prepared a dog might be to accept laying on their backs for x-rays, tension will be evident and that tension can equate to a natural tightening of the muscle and joints. This natural tightening can give a false sense of tight hips.

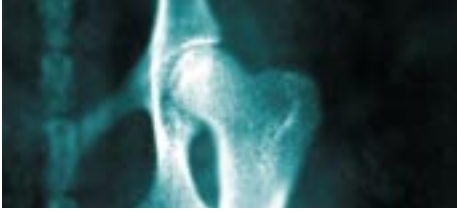
### Can a dog OFA Good or Excellent and still become dysplastic?

OFA evaluations are based not only on joint laxity, but arthritic changes. If arthritic changes are not present at the age of two, the earliest a dog is eligible for a final OFA rating, the dog might be given a passing score and bred from, despite potential future dysplasia. In other words, there is no scientific data to show that the OFA's traditional hip-extended view, the only view used by OFA, can reliably distinguish between "normal" and disease susceptible dogs when arthritic changes are not present. PennHIP investigations have confirmed, however, that dogs with tighter hips, determined by use of three different radiographs on sedated animal, are less likely to develop joint disease than their counterparts. Hip dysplasia is a chronic disease that only gets worse—meaning the older the dog at time of testing, the more accurate the diagnosis of dysplasia or lack thereof. Therefore if OFA is to be used solely by breeders for monitoring hip dysplasia it would be beneficial to test/retest dogs beyond the age of two—especially for dogs that were originally radiographed without sedation.

### Why does sedation give a more reliable result for CHD? Doesn't sedation make it easier to manipulate the joint into a better position?

Remember, true joint laxity is not always evident in non-sedated animals when using the OFA's traditional hip-extended

CONTINUED ON PAGE 7



## focus on health—hip dysplasia

view, as it can give a false impression of joint tightness since the vet actually rotates the femoral head in towards the socket and holds it in place during the x-ray. A sedated dog is as malleable as a wet noodle making it near impossible to “hold” the joint falsely in place, which explains why sedated dogs are traditionally rated lower by OFA than their non-sedated counterparts. Yes, the position of the hip is important, to the extent that joint laxity and/or arthritic changes can be adequately assessed/measured by the evaluators. While positioning will not help a true dysplastic dog get a good result, lack of true laxity can. Being completely lax via sedation in addition to proper positioning is the only way true passive laxity can be created and thus accurately evaluated.

### **My dog is ‘just a pet’ and is going to be spayed/neutered—why should I have their hips PennHIP/OFA’d?**

Traditionally breeders look at pedigrees horizontally to evaluate the health of any future breeding. Horizontal to mean pedi-



Hip x-ray of a German Shepard  
OFA non-passing | photo © S. L. Reiley-Lince  
<http://www.darkstarfamily.com/hips.htm>

**Hip dysplasia is a chronic disease that only gets worse—meaning the older the dog at time of testing, the more accurate the diagnosis of dysplasia or lack thereof.**

grees are read from the left with increasing numbers the further one reads to the right horizontally—i.e. two parents, four grandparents, eight great-grandparents, et al. A recent OFA article suggests that vertical pedigrees, vertical meaning to increase the numbers downward in a vertical line starting with the animal on the left then moving right, can offer breeders more accurate health information than the more traditional horizontal view. The premise being full siblings, as a whole, will convey the gamut of genetic possibilities of each parent more accurately than those distant relatives evaluated within the standard horizontal pedigree. That means the health status of full siblings, whether pet or show, is very important in creating the more accurate vertical pedigrees. Since all basenjis owners should be concerned about the health and well being of the breed, it would behoove us all if pet owners were to become more actively involved in available health testing.

### **What other differences are there between OFA and PennHIP?**

PennHIP can give a final evaluation as early as four months of age. OFA's final assessment is given after the age of two though preliminaries can be done anytime before the age of two.

PennHIP radiographs are evaluated by a computer program using actual/factual measurements which equates to a more objective evaluation. OFA uses three board-certified veterinary radiologist to view the radiographs and give their opinions which equates to a more subjective evaluation.

PennHIP only allows veterinarians to perform radiographs and are trained by PennHIP staff on proper positioning/techniques. OFA radiographs can be performed by either a veterinarian or technician.

PennHIP requires all radiographs to be submitted regardless of any possible DJD signs noted by the attending veterinarian which makes for a more accurate tool used in breeding. Any veterinarian failing to submit these films will have their PennHIP certification revoked. OFA has no requirement regarding film submission, therefore any hips that appear dysplastic need not be submitted for inclusion in their database which can equate to a more one sided database..

PennHIP, due to the need for three x-rays and sedation, is more expensive than OFA.

