

**THE PENNHIP METHOD OF DIAGNOSING HIP DYSPLASIA
NEW X-RAY TECHNOLOGY FOR ASSESSING CANINE HIP HEALTH
BY KATHLEEN R. HUTTON, DVM**

Introduction

When canine hip dysplasia (CHD) was first described in the 1930s, it was thought to be a rare condition. Today we know it as the most common inherited joint problem of large breed dogs. Despite years of research and the combined effort of the Orthopedic Foundation for Animals and responsible dog breeders, it has been impossible to eliminate hip dysplasia from breeds of dogs like the Akita, German Shepherd Dog, Labrador and Golden retrievers, and the Rottweiler.

Diagnosis of CHD is based on breed, history, physical exam findings, and an x-ray of the dog's pelvis. The standard "hip-extended" view is taken with the dog on his back, his legs fully extended, and his knees inwardly rotated. The x-ray film is then evaluated for the general appearance of the hip joints as well as for signs of degenerative joint disease (DJD).

For 30 years, this same x-ray view has been used to subjectively grade hips as having excellent, good, or fair conformation and to try to predict which dogs are less likely to develop CHD. Breeders hoped that breeding the best dogs and removing others from the breeding program would eliminate hip dysplasia. Unfortunately, there is still a 20-25 percent chance of producing a puppy with CHD even when using the OFA method of hip evaluation. Clearly, a better diagnostic method is needed.

A New Test

In 1983, Dr. Gail Smith, an orthopedic surgeon at the University of Pennsylvania School of Veterinary Medicine, began researching early diagnosis of CHD. Through his work, he has created the PennHip method for measuring joint laxity (looseness) the primary cause of degenerative joint disease. The distraction index (DI) used in the PennHip method serves as a measurement of passive hip laxity, the degree of looseness of the hip joint when the dog's hips are completely relaxed. Dogs with a DI of 0.3 have tighter hips and are less likely to develop DJD, while those with looser hips whose DI values approach 0.7 or more are at greater risk. The PennHip x-ray method is unique for several reasons:

- First, it is a well-researched, objective method following strict scientific protocols and published in peer-reviewed veterinary literature.
- Second, the distraction index assigned to each hip joint is based on precise measurements and mathematical calculations. Dr. Smith and his colleagues feel this is superior to a subjective description of "shallow acetabulum" as found in an OFA report.
- Third, veterinarians who wish to submit films to PennHip are required to be trained in the techniques and to be certified. This assures that standard protocols will be used in obtaining the films and helps insure accurate data.

PennHip and OFA: A comparison

OFA x-rays can be done by any veterinarian, with or without anesthesia or muscle relaxants. The x-rays are examined by three radiologists who report their findings to OFA; the dog is rated severely dysplastic, mildly dysplastic, fair, good, or excellent or may be given a non-rating letter requesting submission of new x-rays in six months. Although dogs must be two years old or older to get an OFA rating, the foundation will evaluate preliminary x-rays on younger dogs. Recent

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