

# Healthwise

## PennHIP: An Advanced Tool for Evaluation and Prediction of Canine Hip Dysplasia

By: Paisley Lyne Stevens

While in the midst of breeding and puppy season, it is important to understand the basics of canine orthopedic health, specifically hip health when making breeding decisions for your own kennel or choosing a Boykin Spaniel puppy. The Boykin Spaniel is currently listed as #13 in the Orthopedic Foundation for Animals (OFA) list for occurrence for hip dysplasia. OFA suggests that 37% of the Boykin Spaniels that they have evaluated have presented as positive for the presence of the disease. The incidence of hip dysplasia is high considering the weight and size of the breed, but not unusual for a rare breed with a small genetic pool. Historically OFA has been the leader in providing evaluation services for canine hip health. Most recently the PennHIP procedure has gained in popularity and as a result many Boykin owners and breeders are using it as an alternative or adjunct evaluation to traditional OFA hip evaluations.

The PennHIP procedure is an advanced radiographic technique used to quantitatively measure and identify hip joint laxity and serve as a predictor and indicator of degenerative joint disease (DJD) or canine hip dysplasia (CHD). PennHIP stands for University of Pennsylvania Hip Improvement Program. Throughout the United States and worldwide there is a network of veterinarians who have been trained in this highly specialized method. Results become part of the University of Pennsylvania's comprehensive research database. As this database grows, it has been structured to generate increasingly precise data aimed at supporting improvement within breeding programs and to provide owners and breeders with data with which to predict DJD and to identify CHD.

Currently results are sent to an owner and the veterinarian post the evaluation. PennHIP hopes to have its public database online by the end of the year. Radiographs and identification materials are never handled by an owner and the entire process is managed by a trained PennHIP veterinarian to prevent any and all possibility of fraud. Participation in the database is required and once an evaluation has been completed, the PennHIP veterinarian is required to submit the radiographs, unlike other evaluation methods that are subject to an owner's option.

The PennHIP method is different in the manner that it evaluates canine hips vs. other methods such as that recommended by the Orthopedic Foundation for Animals (OFA). PennHIP involves three separate radiographs: the distraction view, the compression view and the hip-extended view. The hip-extended view used historically by OFA is employed as supplementary information regarding

the actual presence of DJD. PennHIP uses actual qualitative measures by providing scoring vs. traditional methods that tend to be subjective, ranging from Excellent to Severe, based on a single view evaluation without any scientific measurement.

PennHIP is performed only by veterinarians who have undergone extensive training in the method and have demonstrated their expertise in performing the procedure. A searchable database of veterinarians is available on the PennHIP website (<http://www.pennhip.org>). The costs tend to be higher than those of traditional OFA evaluations but involve a series of radiographs. To obtain diagnostic quality radiographs, the musculature around the hip joint must be completely relaxed. For the comfort and safety of the animal, this requires either heavy sedation or general anesthesia. The selection of the individual sedation/anesthesia protocol is left to the PennHIP veterinarian's discretion, so long as the dog is sufficiently sedated to obtain a diagnostic quality radiograph.

Upon request, most PennHIP veterinarians can make a copy of the hip-extended radiograph for submission to the OFA at the time your dog has a PennHIP evaluation. You do not have to abandon participating in the OFA database or receiving an OFA certificate for your dog. It does not have to be an "either or" decision.

PennHIP evaluations and reports consist of a distraction index (DI) for each hip, expressed in the form of a decimal. DI is a measurement of maximal passive hip laxity. It is a unitless number between 0 and 1. A smaller DI means less laxity (tighter hips) and less susceptibility for DJD. A DI of 0.50 is interpreted to mean that the femoral head is 50% displaced from the acetabulum (hip socket). The DI has been shown to correlate strongly with a dog's probability of developing hip DJD. The larger the DI, the greater the probability for DJD. PennHIP has identified a threshold DI of 0.30; dogs with a DI of < 0.3 are essentially considered unsusceptible to hip dysplasia.

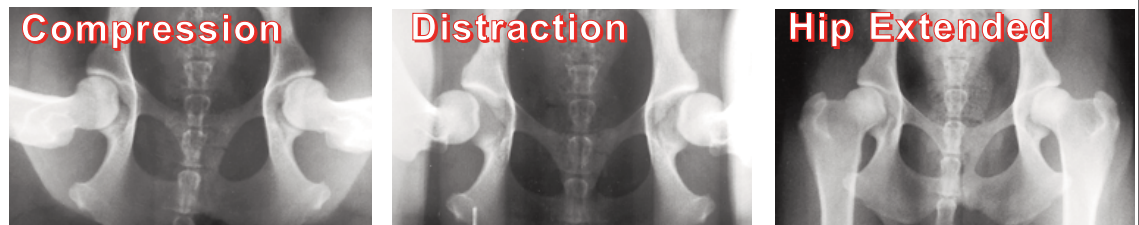
PennHIP reports also include a "percentile" rating. The current median DI score for the Boykin Spaniel, and 50th percentile mark was .66, which means that 50% of dogs tested scored better than .66 and 50% tested worse. PennHIP recommends that breeding stock be selected from dogs with hip scores that are tighter (lower DI number) than the median, and

have no evidence of degenerative joint disease. PennHIP further recommends breeding only dogs whose hips are in the 60th percentile or tighter. Mating dogs with hips much tighter than average, (i.e., higher selection pressure) equates to more rapid expected genetic change per generation. Tighter-hipped parents produce tighter-hipped puppies. Dogs that are used for breeding should have hip radiographs at intervals throughout the dog's life to be sure that the prediction of normal hips is borne out.

It is important to understand, that median and percentile ratings are statistical values and are not fixed. They are subject to change as more Boykin Spaniels are evaluated using this procedure. The breed median and percentile figures are updated by PennHIP on a semiannual basis. The percentiles score represents the dog's percentile ranking at the time they were evaluated as indicated on their PennHIP certificate, so it is important to know the DI scores and to monitor a breed's progress as the database grows. PennHIP represents a true scientific database that can be used as a tool in evaluating one's own breeding program and improvement and also in viewing the direction of the breed at large.

Both the DI and percentile score should be made available by any reputable breeder, not just a percentile score. Copies of the actual certificates of evaluation should also be shared when breeding and puppy buying decision are being considered. One of its greatest advantages of the PennHIP procedure is that it can be performed on dogs as young as 4 months old compared with two years using others methods. The ability to receive an early evaluation of a dog's hip health is important whether the dog's intended purpose will be for breeding, for hunting, for showing or as a family pet.

PennHIP data allows breeders to confidently identify the dogs within their breeding stock with the tightest hips. It also supports breeders in assessing the progress they are making with their breeding program as they strive to improve orthopedic health of their dogs. Pet owners are able to assess their dog's risk of developing DJD or CHD. This enables them to make lifestyle adjustments for their dogs and to enhance the quality of their pet's life. The PennHIP method surpasses other methods in its accuracy and its employment of qualitative measurement and scientific method.







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