

Hip Dysplasia and Radiographic Certification in the Phu Quoc Ridgeback Dog

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Hip dysplasia is a hereditary condition typically found in large-breed dogs, leading to hip joint laxity and resulting in dysfunction, instability, and pain. As the dog ages, wear and tear on the hip's cartilage and bone lead to complications like arthritis, muscle atrophy, and restricted mobility.

Hip dysplasia is believed to have a hereditary component, but its heritability is relatively low, and its genetic basis remains largely unexplained. Research shows that genetic factors account for only a modest portion of hip score variation, implying that environmental influences also play a significant role. This challenges the effectiveness of rigorous selection in reducing hip dysplasia in some breeds over the years.

According to AAHA, The American Animal Hospital Association, which accredits veterinary practices and hospitals in the U.S. and Canada:

“Currently the test regarded as the "gold standard" used to determine a dog's susceptibility to hip dysplasia is the Orthopedic Foundation for Animals (OFA) hip joint scoring system. This system rates a dog's hip joint on a seven-point scoring system. The test relies on interpretation of a radiograph of the dogs' hips, which are then assigned a score by three independent radiologists: Excellent, Good, Fair, Borderline, Mild, Moderate and Severe.

Another, more recently developed test, is the University of Pennsylvania Hip Improvement Program (PennHIP) test. Unlike the OFA test, PennHIP requires the dog to be anesthetized. Three radiographs are taken to measure the hip joint laxity. A score between 0-1 is assigned, with 0 being very tight hips and 1 being very loose. The test is not pass-fail, and the score is actually based on a measurement of the hip's distraction index (DI).”

While both the Orthopedic Foundation for Animals (OFA) and the PennHIP (University of Pennsylvania Hip Improvement Program) are organizations that evaluate hip health in dogs, they have significant differences in their approaches and methodologies. Here are the major differences between OFA and PennHIP:

1. Evaluation Technique:

- A. OFA: OFA uses a standard radiographic method to evaluate hip health. It assesses hip conformation based on a single X-ray image taken when the dog is at least 24 months old.
- B. PennHIP: PennHIP uses a different radiographic technique that includes multiple X-rays to measure hip joint laxity. This method can be performed on dogs as young as 16 weeks old, allowing for early detection of hip joint issues.

2. **Purpose:**

- A. OFA: OFA primarily focuses on providing certification of hip health for breeding purposes. It assigns hip scores (Excellent, Good, Fair, Borderline, Dysplastic) based on radiographic findings.
- B. PennHIP: PennHIP is designed not only to assess hip health but also to predict the likelihood of hip osteoarthritis later in life. It provides a distraction index (DI) value to measure joint laxity.

3. **Predictive Ability:**

- A. OFA: OFA's evaluation primarily determines the current state of the dog's hips, but it may not predict the likelihood of future hip issues.
- B. PennHIP: PennHIP's DI value is a predictive measure of a dog's risk for developing hip osteoarthritis. It provides information about the long-term health of the hips.

4. **Age of Evaluation:**

- A. OFA: Dogs evaluated by OFA must be at least 24 months old.
- B. PennHIP: PennHIP evaluations can be performed on dogs as young as 16 weeks old, making it possible to identify potential hip issues at an earlier age.

5. **Certification Process:**

- A. OFA: OFA provides certification based on the evaluation results, and the certification is used for breeding decisions and records.
- B. PennHIP: PennHIP does not provide certification in the same way OFA does. It offers the DI value as a measurement of hip joint laxity, and breeders use this information in their breeding programs.

6. **Geographic Availability:**

- A. OFA: OFA evaluations are widely available and commonly used in the United States and other countries.
- B. PennHIP: PennHIP evaluations are available but may be less commonly utilized compared to OFA in some regions.

It's worth noting that both OFA and PennHIP have their own merits and are valuable tools in assessing and managing hip health in dogs. The choice between the two may depend on factors such as the breed, age of the dog, and the specific preferences and practices of the breeder or owner.

Traditionally, X-rays have been used to assess hip dysplasia, but some veterinarians and experts argue against exclusive reliance on them for several reasons:

- A. Limited Information: X-rays offer a two-dimensional perspective of the hip joint, potentially missing complex three-dimensional aspects, soft tissue condition, joint flexibility, or early signs of osteoarthritis.
- B. Anesthesia Risks: Clear X-ray images necessitate proper positioning and stillness, often requiring sedation or anesthesia, which carries inherent risks.
- C. Variability in Interpretation of X-rays: Interpretation of X-rays can be subjective and may vary between veterinarians and radiologists. This subjectivity can lead to inconsistent results and confusion about a dog's joint health.
- D. False Negatives: OFA evaluations, like any diagnostic test, are not infallible. They may miss early or mild cases of joint dysplasia, leading to false-negative results. A dog with passing OFA scores may still develop joint problems and may still produce puppies with joint problems.
- E. Breed Variability: Different dog breeds have different hip and elbow joint conformations, making it challenging to establish a universal standard for diagnosing joint issues through X-rays. What might be considered normal in one breed may be deemed abnormal in another.

In the case of the Phu Quoc ridgeback breed, known for its robust, lean, active nature, joint issues are a rarity. Since our involvement with the breed in 2015, we have encountered no instances of hip, knee, or elbow problems among Phu Quoc dogs. Although official health data concerning joint abnormalities isn't maintained in Vietnam, oral history highlights the breed's sturdy constitution with no mention of hip and joint issues.

However, in breeds where hip dysplasia is a hereditary concern, the use of X-rays becomes crucial to ensure that only dogs with healthy hips are selected for breeding. Although it cannot guarantee perfect hips in offspring, it significantly enhances the likelihood of producing puppies with sound hip health and prevents the transmission of genes linked to hip dysplasia.

While Orthopedic Foundation for Animals (OFA) or PennHip certification through hip x-rays is recommended for breeds with known high propensity for hip dysplasia, we don't find it necessary for the Phu Quoc ridgeback since joint abnormalities are uncommon. X-rays, while informative, don't guarantee that puppies from cleared parents won't develop hip issues. Factors like excessive jumping, trauma, obesity, poor nutrition, and others contribute to hip problems. Moreover, we discourage unnecessary anesthesia and radiation exposure. Instead, breeders should possess thorough knowledge of their lineage and offer robust health guarantees, rather than relying solely on x-rays.

Given the relatively low occurrence of hip dysplasia in the Phu Quoc ridgeback breed, hip certification is recommended but not obligatory. Instead, both breeders and prospective buyers should place greater importance on the breeder's health guarantee. This is because dogs with "cleared" hips may not necessarily yield puppies with

"excellent" hip health, and a comprehensive health guarantee offers a more reliable assurance of the dog's overall well-being.

NOTE: Dr. Lieu's insights into canine hip dysplasia draw from her expertise in radiology, stemming from her role as a podiatric physician practicing in Southern California. Given that Podiatry is a subspecialty of orthopedic medicine, Dr. Lieu possesses a deep understanding of assessing bone and joint health, dedicating a significant portion of her daily routine to evaluating X-rays related to bones and joints. On numerous occasions, her keen eye has detected details overlooked by radiologists, prompting amendments to their reports.

Additionally, Dr. Lieu is deeply involved in the preservation of the Phu Quoc ridgeback dog breed. Together with her husband, Peter Lai, she actively oversees a preservation breeding program and a non-profit 501(c)(3) dog rescue for the breed in Southern California, demonstrating their commitment to the breed's well-being and future.

