A JOINT Concern

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Dogs love to run and jump, whether they are agility competitors or just chasing toys, and their joints can take a pounding. Joint problems fall into two general categories: degenerative problems, such as arthritis, and developmental problems, including hip and elbow dysplasia.

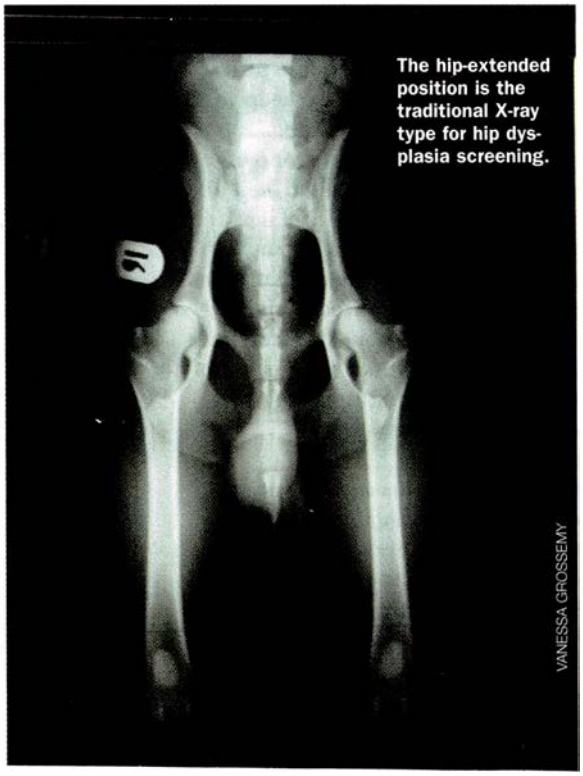
For this in-depth report, DOG FANCY consulted experts to help you recognize and deal with both hip and elbow dysplasia, provide you with a close look at the PennHIP test and how it detects joint problems in the hips, and let you know what to expect if your dog gets elbow dysplasia.

An in-depth look at tests and treatments for hip and elbow dysplasia, two common developmental problems in dogs

Hip Dysplasia and PennHIP

By Meredith Wargo

Hip dysplasia is the most commonly inherited orthopedic disease in dogs. This improper formation of the hip joint usually leads to osteoarthritis, which causes joint damage, inflammation, and pain. Dog owners spend $800 million to $2 billion annually in treatments for their pets who suffer from this debilitative disease, according to a publication in preparation from the University of Pennsylvania Hip Improvement Program, or PennHIP. Although no cure exists, tests help identify dogs who are susceptible to developing hip dysplasia. Early detection can aid in treatment and help breeders screen for the disorder.



The hip-extended position is the traditional X-ray type for hip dysplasia screening.

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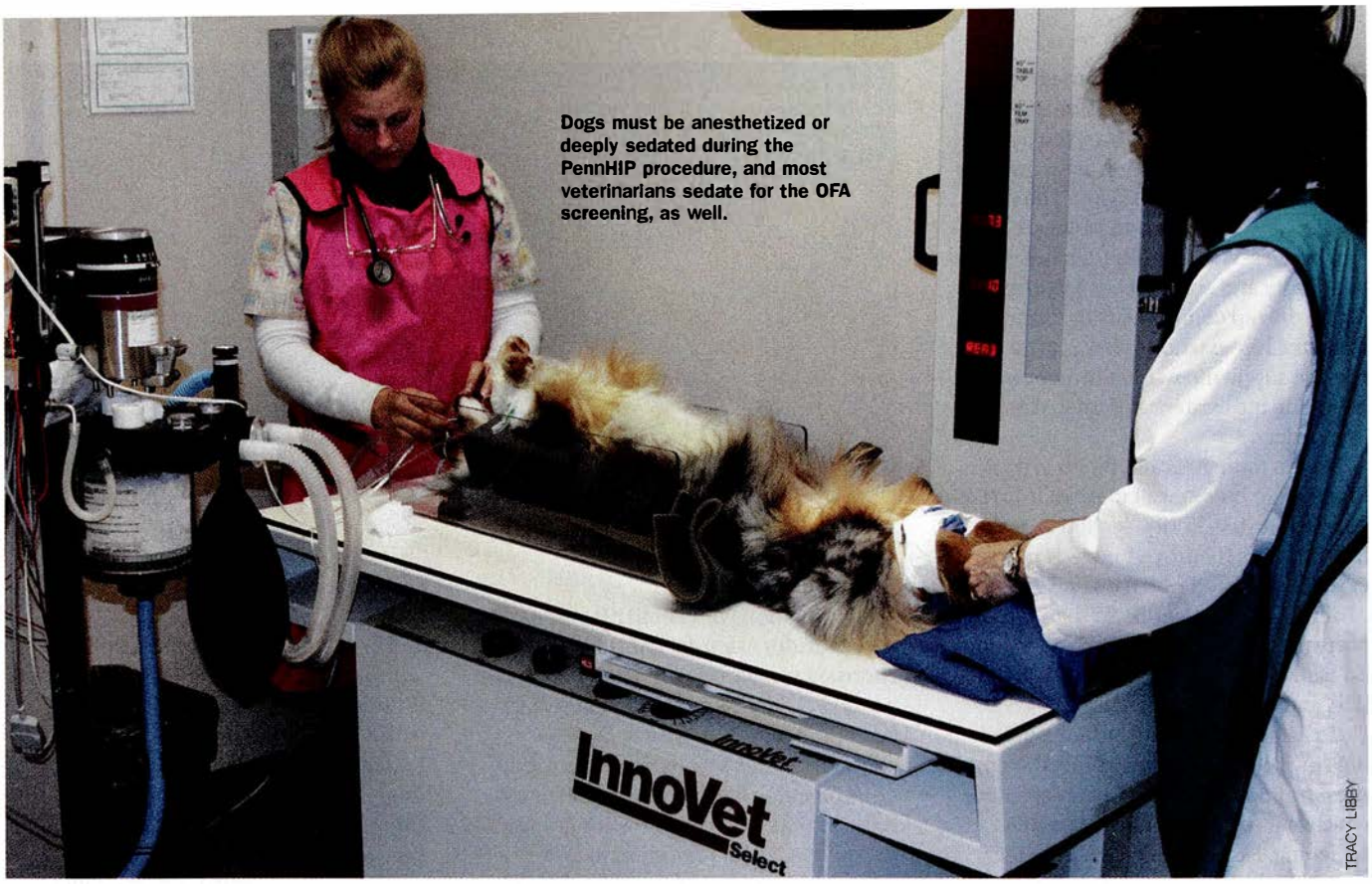

Dogs must be anesthetized or deeply sedated during the PennHIP procedure, and most veterinarians sedate for the OFA screening, as well.

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X-rays are the only definitive means to diagnose the disease. For more than 40 years, the Orthopedic Foundation for Animals has regulated the screening, which consists of taking an X-ray of an animal's hips in a certain position. The single hip-extended film is evaluated by three board-certified veterinary radiologists, who rate the condition of the hips and assign them a grade, from excellent conformation to severe hip dysplasia.

If the consensus of the three evaluations results in an excellent, good, or fair rating, the dog receives an OFA registry number. This information is entered into the OFA hip dysplasia database that functions as a voluntary screening service, which increases the probability for obtaining a dog without the condition for breeding, competition, or as a healthy pet.

"The OFA maintains a verifiable public database," says G. Gregory Keller, D.V.M., M.S., diplomate of the American College of Veterinary Radiology and chief of veterinary services for the OFA in Columbia, Mo. "If you are looking to purchase a dog and have sire and dam information (registration name or number), you can verify that what you're being told about the animal is correct."

In 1993, a procedure called PennHIP was developed to better assess a dog's risk for developing the disease. "PennHIP improves our ability to measure hip laxity," says Gail Smith, VMD, Ph.D., professor of orthopaedic surgery and founder/director of PennHIP at the University of Pennsylvania School of Veterinary Medicine in Philadelphia. The laxity, or looseness, of the hip joint is what leads to osteoarthritis.

HIP DYSPLASIA BASICS

What is canine hip dysplasia? Canine hip dysplasia is the abnormal development of a dog's hip, and is associated with looseness of the hip joint. In a dog's hind legs, the head of the femur, or thighbone, is shaped like a ball and is designed to fit tightly into the acetabulum, or socket. Dogs with hip dysplasia have looser or more moveable hip joints.

What are the signs? Hip dysplasia can be detected as early as 4 months of age. Symptoms may first appear as a swaying or unsteady gait. As the disease progresses, some dogs may move their hind legs together in what is described as "bunny hopping." Others may exhibit difficulty navigating stairs or rising from a sitting position. A distinct clicking sound can often be heard when the animal is walking or running.

Who's at risk? While gender doesn't seem to be a factor, size is. The disease is more common in large-breed dogs than in smaller breeds. Bernese Mountain Dogs, English Setters, Golden Retrievers, German Shepherd Dogs, St. Bernards, Standard Poodles, and Rottweilers are breeds that are commonly afflicted. However, dogs of all breeds and sizes are susceptible to this inherited condition.

How is it treated? Non-steroidal anti-inflammatory drugs and dietary changes, such as increasing the consumption of omega-3 fatty acids, can help decrease the inflammation and discomfort associated with this disease. A surgical option once a dog reaches maturity is total hip replacement. "The smaller the dog, the less it is probably needed, although nano total hip replacements (implants for animals generally weighing less than 10 pounds) for Poodles have been described with about 90 percent return to normal," says James Rouse, D.V.M., Doughman Professor of small animal surgery at the Kansas State University College of Veterinary Medicine. "Total hip replacement is definitely the best for any dog weighing more than 40 pounds."

Instead of the traditional method of taking a single X-ray view, PennHIP consists of three separate X-rays: the distraction view, the compression view, and the traditional hip-extended view. The distraction and compression views are used to provide accurate measurements of joint laxity and congruity — the degree to which the hip components fit together — while the hip-extended view is used to provide supplementary information regarding the existence of osteoarthritis in the hip.

What's more relevant, Smith says, is that the hip laxity measurement from the distraction view X-ray — taken only during the PennHIP procedure — is more closely associated with a dog's likelihood of developing osteoarthritis than is the laxity measurement from the hip-extended-view X-ray — taken during both the OFA and PennHIP procedures.

To X-ray the various positions of the hips in the PennHIP procedure, the dog must be anesthetized or deeply sedated, which is not required under the OFA screening. However, the OFA does recommend that dogs receive chemical restraint, or anesthesia, to the point of relaxation.

"The vast majority of veterinarians do sedate," Keller says. "It's a comfort level for both the veterinarian and the owners. It's also easier to get the dog positioned properly with sedation. But since it's an elective procedure, some owners don't want their pets chemically restrained."

One of the advantages to PennHIP is that it can be reliably performed on puppies as young as 16 weeks old. Dogs of this age can receive hip grades from veterinary radiologists at the OFA, but are not eligible for independent evaluation by three board-certified radiologists until 2 years of age.


The PennHIP procedure can be reliably performed on puppies as young as 16 weeks old.

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"(Evaluation with PennHIP at a young age) provides essential information for choosing service dogs, breeding dogs, or pet dogs," Smith says. In breeding dogs, he adds, it would be wise to double-check hip status several times during a dog's breeding life. "We know that osteoarthritis of hip dysplasia is strongly age-dependent, so it's important to radiograph older dogs to learn the reliability of our earlier predictions."

While the OFA screening can be used by any licensed veterinarian with access to an X-ray machine, veterinarians must complete specialized training before becoming certified to perform PennHIP. These vets submit X-rays of every PennHIP patient to the University of Pennsylvania for evaluation and inclusion in a database. The PennHIP database consists of 109,000 dogs, approximately 35 percent of which are from dog breeders, according to Smith. "The strict use of the PennHIP method, along with other tools such as estimated breeding values, has allowed some working dog agencies to eliminate hip dysplasia as a concern," he says.

For example, in the 1980s, Smith approached The Seeing Eye Inc., the oldest existing guide dog school in the world, to request its participation in helping him develop PennHIP procedures. In 1995, The Seeing Eye began using PennHIP as part of its selection process for breeding dogs.

"We use PennHIP to discern differences among the dogs that we are considering for breeding with respect to hip quality," says Eldin Leighton, Ph.D., Jane H. Booker Chair in Canine Genetics at The Seeing Eye Inc. in Morristown, N.J. "PennHIP is a completely different look at the structure of the hip in contrast to the extended view score. When we look at the range of values we get from PennHIP, even among dogs that on the OFA scale have excellent hips, we still find a range in PennHIP values.

"PennHIP provides us a basis for choosing our replacement breeders with respect to hip quality, which in turn helps give our dogs a longer working life," Leighton adds.

As with other medical tests, many owners may be concerned about the cost of hip dysplasia screenings. PennHIP is more expensive, usually at least 30 to 50 percent more, according to James Roush, D.V.M., M.S., diplomate of the American College of Veterinary Surgeons and Doughman Professor of small animal surgery at the Kansas State University College of Veterinary Medicine in Manhattan, Kan. Prices for both the PennHIP and OFA procedures can vary depending on the veterinarian, however.

"We don't have data on what our PennHIP members charge clients for performing the service," Smith says. "Here at

TESTS AT A GLANCE

OFA	PennHIP
One X-ray view	Three X-ray views
Can be performed by any licensed veterinarian	Can be performed by PennHIP-certified veterinarians who complete specialized training
Doesn't require dogs to be anesthetized or deeply sedated, but recommends chemical restraint to the point of relaxation	Requires dogs to be anesthetized or deeply sedated
Puppies can receive preliminary evaluations, but must be age 2 or older to be eligible for certification purposes.	Can be performed on puppies as young as 16 weeks old
Often less expensive	Often more expensive

Penn, we charge the client $330 for the PennHIP procedure, which includes sedation, the taking of radiographs, the interpretation of films (which costs $60), and reporting back to both the owner and the PennHIP veterinarian. For comparison, to perform the OFA procedure here at Penn, the total cost to the client, including sedation and the $35 OFA reading fee, is $323.50. So the difference between the two is not great."

For breeds prone to hip problems, low-protein diets and reduced activity during puppyhood may reduce the symptoms of hip dysplasia. A combination of a healthy diet, weight management, controlled exercise, and pain-relieving medication can help manage the condition. Once osteoarthritis is diagnosed, the changes caused by hip dysplasia are irreversible and usually continue to progress over time, which may require surgical hip replacement. Other surgical treatments for the condition are available, and may depend on a dog's age, weight, and whether or not his X-rays show evidence of osteoarthritis.

"Hip dysplasia is not a death sentence or close to it," Roush says. "There are treatments and surgical procedures at each phase of life that will make the dog more comfortable and improve the quality of life." **DF**

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