

Hip Dysplasia in Dogs: Causes, Symptoms, and Tests

Hip dysplasia is the most common cause of rear leg lameness in dogs. The highest incidence occurs in large-breed dogs, including St. Bernards, Newfoundlands, Rottweilers, Chesapeake Bay Retrievers, Golden Retrievers, German Shepherd Dogs, Labrador Retrievers, and many others. Smaller breeds are also affected, but are less likely to show symptoms.

Hip dysplasia is a polygenic trait. That is, more than one gene controls the inheritance. Environmental factors such as diet are also involved. The hip is a ball-and-socket joint; the ball is the head of the femur and the socket is the acetabulum of the pelvis. In a dysplastic hip, the head of the femur fits loosely into a poorly developed, shallow acetabulum. Joint instability occurs as muscle development lags behind the rate of skeletal growth. As the stress of weight-bearing exceeds the strength limits of the supporting connective tissue and muscle, the joint becomes loose and unstable. This allows for free play of the femoral head in the acetabulum, which promotes abnormal wear and tear.

Feeding a very high-calorie diet to growing dogs can exacerbate a predisposition to hip dysplasia, because the rapid weight gain places increased stress on the hips. Being overweight supports the genetic potential for hip dysplasia, as well as other skeletal diseases. A diet with an imbalance of calcium and phosphorous is bad for bone development.

Another factor that can bring on the symptoms of hip dysplasia is inappropriate exercise during the period of rapid bone growth. Young dogs should be discouraged from jumping up and down from heights in situations where they land on their back legs (such as jumping up to catch a ball), and from standing up on their back legs (which dogs do when they stand up against a fence or window to get a better view). They should also avoid running on pavement.

Dogs with hip dysplasia are born with hips that appear normal but progressively undergo structural changes. The age of onset is 4 to 12 months. Affected puppies may show pain in the hip, walk with a limp or a swaying gait, bunny hop when running, and experience difficulty in the hindquarters when getting up. Pressing on the rump can cause the pelvis to drop. With the puppy on his back, the rear legs may not extend into the frog-leg position without causing pain.

An X-ray of the hips and pelvis is the only reliable way of determining whether a dog has hip dysplasia. Good X-rays require heavy sedation or anesthesia. The standard view is taken with the dog lying on his back with his rear legs parallel and extended. The knees (stifles) are rotated internally. Care is taken to be sure the pelvis is not tilted.

Hip dysplasia is graded according to the severity of X-ray findings. In ideal hips, the femoral head fits tightly into a well-formed hip socket with a minimum of space between the head of the femur and the acetabulum. The hip ball is almost completely covered by the socket.

Normal hips are rated Excellent, Good, or Fair, depending on how closely they match the ideal. Dysplastic hips are rated Mild, Moderate, or Severe. If the findings are not clear, the hips are rated Borderline.

In a dog with mild hip dysplasia, the X-rays will show mild subluxation (increased space in the joint) with the hip ball partway out of the socket. There are no changes associated with degenerative arthritis.

In a dog with moderate hip dysplasia, the hip ball is barely seated into a shallow acetabulum. Arthritic changes begin to appear. These include wear and flattening of the femoral head, a rough appearance to the joint surfaces, and the beginning of bone spurs.

In a dog with severe hip dysplasia, the head of the femur is completely out of the joint and arthritic changes are marked. Once arthritis is noted, the condition is irreversible. But even with arthritis, some dogs are not lame. The

onset of lameness is unpredictable, and some dogs may go most of their lives with dysplastic hips but no lameness. Others develop lameness as puppies.

The OFA maintains a hip dysplasia registry for purebred dogs. An OFA-certified radiologist will review hip X-rays taken by your veterinarian and, if the conformation of the hips is normal for the breed, certify the dog as Excellent, Good, or Fair and assign him an OFA number. As an optional step, you can have the OFA number added to your dog's AKC registration papers.

Dogs must be 24 months of age or older to be tested. Some female dogs will show subluxation when X-rayed around an estrus cycle, so OFA recommends not X-raying females around a heat period or within three to four weeks of weaning a litter.

The OFA registry is closed. That means if the dog is found to have hip dysplasia, the information remains confidential unless the owner marks off on the application that all results may be made public.