

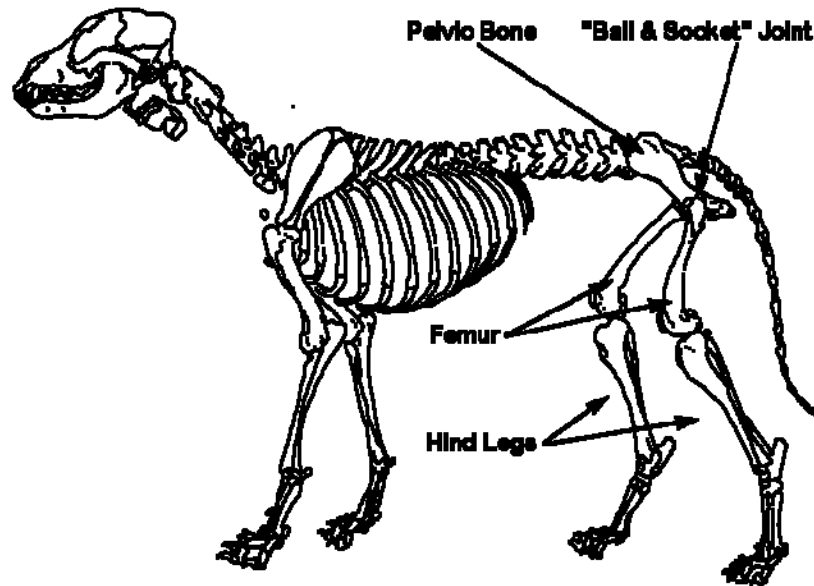
Hip Dysplasia

Understanding the condition and its treatment.

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From *Pet Pause*, a Drs. Foster & Smith Inc. Publication, 2253 Air Park Road, Rhinelander, WI 54501, Spring 1996, Vol. 2 No. 2

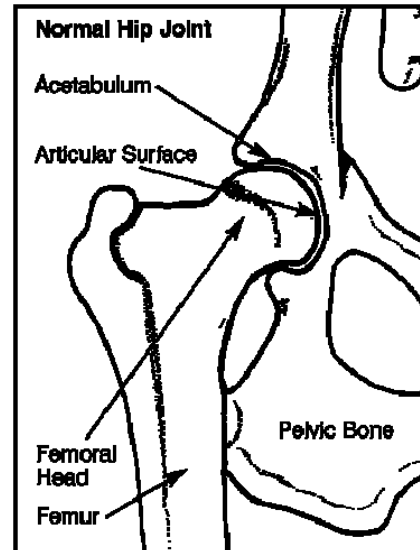
Canine Hip Dysplasia is a relatively common disorder in veterinary medicine. The highest incidence occurs in larger, rapidly growing dogs. We find many people have misconceptions about dysplasia, considering it to be a form of arthritis affecting the hip joints. It is true that we see severe arthritis in dogs with this condition but this is the secondary result of dysplasia, not the primary problem. Once you understand the disease, you can easily understand its treatment. This article will explain what Hip Dysplasia is, its progression over the life of a dog, and the treatment of an affected pet. We will also consider its significance in breeding programs.



Canine Skeleton

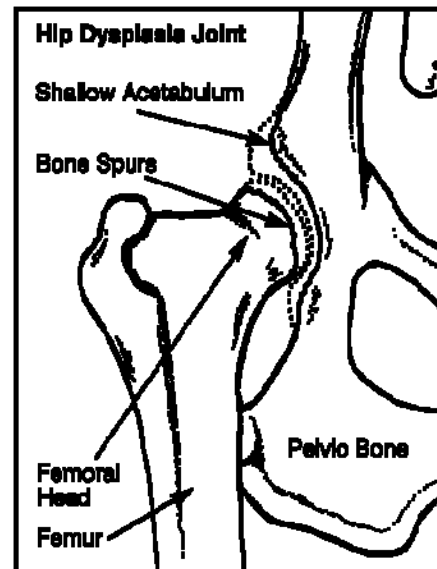
To better understand the condition, let's look first at the hip joint of the dog. It forms the attachment of the hind leg to the body with a "ball and socket" joint. The ball portion is the head of the femur, the long bone between hip and knee. The socket, called the *acetabulum*, is located on the pelvic bone. These two form the joint of a normal dog where the ball rotates freely within the socket. To facilitate movement, the bones are shaped to perfectly match each other with the socket surrounding the ball.

To strengthen the joint, the two bones are held together by a ligament going directly from the femoral head into and attaching to—the acetabulum. Also attaching to both bones and completely encircling the joint is the joint capsule. This thick band of connective tissue additionally acts to hold the bones together. The area where the bones actually touch each other is called the *articular surface*. It is perfectly smooth and cushioned with a layer of spongy cartilage. In the normal dog, all of these factors work together for smooth and stable joint function.



Hip Dysplasia is a disease that affects development of the hip joint in a young dog. It may or may not be bilateral (*affecting both the right and left hip joints*). It is brought about by a laxity of the muscles, connective tissue, and ligaments that should support the joint. Even dysplastic dogs are born with normal hips but the soft tissues that surround the joint start to develop abnormally as the puppy grows. This is because of genetic factors in the individual dog. The most important result of the change is that the two bones are not held in place but actually move apart. The joint capsule and the ligament between the two bones also stretch, adding further instability to the joint. As this happens, the articular surfaces of the two bones lose contact with each other. The slight separation of the two bones of the joint is called *subluxation*; this—and this alone—causes all of the resulting problems we associate with this disease.

It is important to remember that if two bones within any joint lose their normal position in relationship to each other, their articular surfaces no longer correctly contact each other. The surrounding muscles of the dog's joint work to force the bones back together but they are never totally successful. Because of the dog's weight, the femoral head often rides up onto or over the rim of the socket. With every movement of the leg, there are now two abnormal areas of bone grinding against each other instead of contacting on a smooth articular surface. A disaster is about to occur.



Wherever these bones come in contact, new abnormally-shaped bone will grow. It is a vicious cycle; new bone growth causes further irritation which causes more abnormal bone growth. This is what we refer to as arthritis and it is usually a very painful condition. The femoral head that

once looked like a smooth billiard ball now looks more like a head of cauliflower. The acetabulum (*socket*) that was once deep enough to enclose the femoral head is now shallow due to the grinding away of the rim. The edge is covered with bone spurs. As the condition progresses, more new abnormal bone forms and along with it comes further pain and distortion of the bone.

The puppy with Hip Dysplasia usually starts to show signs between five and 13 months of age. These range from mild discomfort to extreme pain when using the hind limbs. This will occasionally be seen following prolonged activity or when the dog gets up or lies down. Later in life the signs become more consistent, noted daily regardless of activity levels. Adult dogs that are in severe pain will usually decrease their activity. They are unwilling to run or climb stairs and, with decreased use, the muscles of their rear legs atrophy and become weakened. A few will learn to alter their gate and posture, often showing little or no signs of discomfort even though the bone changes are severe.

Signs of Hip Dysplasia in young dogs are generally thought to be from small irritations or even minor fractures occurring in the bone spurs that form around the socket. Fractures may be caused by the pup's increasing weight or exercise. Sudden periods of discomfort usually follow prolonged activity. In the adult, the discomfort is simply from arthritis of the deformed joints and chronic irritation.

DIAGNOSIS

How can Hip Dysplasia be diagnosed? The answer to that question also provides the hope for elimination of this debilitating disease. Only with x-rays can we truly diagnose dysplasia and hope to eliminate it. Regardless of what you have been told, you can never be positive that a dog showing rear leg lameness has dysplasia unless it is x-rayed. And you can never be sure that a dog showing no signs is disease-free without an x-ray. You can be fooled either way.

The good news about Canine Hip Dysplasia is that most cases can be treated to help eliminate or decrease pain, allowing fairly normal levels of activity. Very few dogs today have to be put to sleep to alleviate suffering. There are always choices to be made, but the vast majority of affected animals can live quite comfortable lives.

TREATMENT

Treatment is always directed at the stage of the disease. In the young suddenly showing discomfort, treatment is usually combined with rest. Bufferin combined with cage rest for five to seven days is usually adequate to "put out the fire" until the next flare-up. As the dog matures, surgery is the solution of outward signs of discomfort are consistent. Although a few patients can be maintained for long periods, even years, with pain medication and anti-inflammatory drugs, this is usually not the answer. There are three basic surgeries, all of which attempt to eliminate or reduce the pressure between the two arthritic surfaces.

The first surgery involves the cutting of *the pectinious*, which is one of the muscles that try to add stability to the joint by forcing the two bones back together. When it is cut or has a portion removed, the two bones move apart. We have had varied success with this procedure in our practice. It sometimes eliminates all pain and further surgery is not required.

The second type of surgery is the removal of the femoral head. No bony attachment between the leg and the rest of the body sounds radical, but the dog's body will compensate as the outer muscles in the area become stronger and hold the leg in place. This allows near-normal motion and use. Remember that the front leg of the dog is held to the body by muscles only; there is no bone-to-bone connection between the front legs and the rest of the skeleton. By removing the femoral head we eliminate the pain of the two bones coming in contact with each other. We have many active dogs in our practice that were able to continue their active lifestyles because of this surgery.

The final surgical technique available to a patient with dysplasia is total replacement with an artificial joint made of steel and high-impact plastic. This is very expensive and rarely necessary.

Throughout all of this, please remember that the individual dog affected with dysplasia can usually be helped to live a life that *is generally free of pain*. We would like to stress that fact. However, we cannot forget that some dogs do not respond well to medication or surgery.

Finally remember Hip Dysplasia is genetically spread from one generation of dog to the next. A veterinarian can certify that a dog is not dysplastic by having it x-rayed after 24 months of age. The x-rays are sent to the Orthopedic Foundation for Animals (OFA) for grading and certification. By breeding only those dogs certified as free of dysplasia, we continue our efforts to eliminate the disease. We want to point out that the system is working. It has been shown that in those breeds actively using OFA certification, the incidence of the disease is decreasing. If you are not x-raying your breeding animals, then you may contribute to the problem rather than the solution.