

## BASIC INFORMATION

### Description

The hip joint consists of the femoral head (ball) of the thigh bone and the acetabulum (socket) on the side of the pelvis. These two bony structures are held together primarily by the ligament of the head of the femur and the capsule that surrounds the joint. In canine hip dysplasia (CHD) the ligament and joint capsule are too loose, and the ball does not sit securely in the socket.

Because CHD develops in puppyhood, the socket does not form properly. The laxity (looseness) stretches the joint capsule, which is painful and results in inflammation. With time, scar tissue and osteoarthritis (degenerative joint disease) develop. The dog may actually improve for a period of time, but often the lameness gets worse as the osteoarthritis worsens and the joint is slowly destroyed. Even young dogs may have severe destruction of their hips, requiring surgery. CHD occurs most commonly in young large and giant breeds of dogs but can also occur in smaller dogs and occasionally in cats. CHD usually develops in both hips, but sometimes only one hip is affected.

### Causes

CHD is caused by multiple factors, including genetics, nutrition (especially intake of high energy and calcium), and activity.

### Clinical Signs

Sometimes CHD does not result in lameness or pain, but signs of osteoarthritis (lameness that is worse after rest and strenuous activity) are typical. Signs are often present as early as 4-6 months of age. The lameness may improve for a while as scar tissue builds up and stabilizes the joint, but arthritis and destruction of joint cartilage continues, and the dog often becomes progressively lame with time.

### Diagnostic Tests

Orthopedic examination reveals pain and loss of mobility in the affected hip, especially when the hip is extended (stretched out behind the dog). A test called the Ortolani maneuver may show looseness of the hip joint. X-rays and a thorough orthopedic examination while the dog is anesthetized are often needed to evaluate the hip joint and to determine what treatment option may be best for your pet.

Because of the inherited tendency of CHD, x-rays are also used to evaluate dogs for hip dysplasia prior to breeding. Two different x-ray methods are available and the results may be submitted to the Orthopedic Foundation for Animals (OFA) for review. For more information, visit the websites [www.offa.org](http://www.offa.org) and [www.pennhip.org](http://www.pennhip.org).

## TREATMENT AND FOLLOW-UP

### Treatment Options

Medical therapy (see the handout on **Osteoarthritis: Medical Management**) may be effective for older dogs that are mildly affected or when financial limitations eliminate the surgical options.

Very young dogs (less than 16 weeks) with signs or genetic tendencies for CHD can be treated with a simple procedure called *juvenile pubic symphysiodesis* (JPS). This procedure uses heat to destroy the growing cartilage of part of the pelvis so that the acetabulum rotates to better cover the femoral head. The procedure is only effective when done at a very early age.

If the dog is lame, still growing (5-12 months), and has appropriate physical and x-ray findings (such as minimal to no osteoarthritis), a triple pelvic osteotomy (see the handout on **Triple Pelvic Osteotomy for Hip Dysplasia**) can be performed to rotate the acetabulum and achieve the same purpose as the JPS.

If the dog is a mature adult and does not respond well to medical therapy, then femoral head and neck ostectomy or total hip arthroplasty (see the handouts on **Femoral Head and Neck Ostectomy** and **Total Hip Arthroplasty**) may be considered to resolve the pain associated with CHD and improve hip joint mobility.

### Follow-up Care

Follow-up examinations and repeated testing depend on what treatment plan is chosen. When medical therapy is used, the dog is periodically evaluated to identify subtle deteriorations and adjust the plan. Following JPS, the incision is examined daily for excessive redness, swelling, pain, or discharge. Exercise restriction is generally unnecessary. Specific postoperative care is discussed in the handouts for the **Triple Pelvic Osteotomy for Hip Dysplasia**, **Femoral Head and Neck Ostectomy**, and **Total Hip Arthroplasty**.

### Prognosis

Prognosis varies, depending on the severity and progression of the disease. Some dogs have CHD and never develop significant signs of lameness or stiffness. X-rays are a useful tool but should not be the sole criterion used to judge the severity of the disease. Dogs that are appropriately treated with JPS, triple pelvic osteotomy, femoral head and neck ostectomy, or total hip arthroplasty generally do well. More details on prognosis and complications are covered in the respective handouts for these procedures.