Hip Dysplasia

What is Hip Dysplasia?

Hip Dysplasia refers to abnormal growth and development of the hip joint, which causes joint inflammation and secondary osteoarthritis, leading to significant hip pain. It is characterised by laxity (looseness or instability) of the hip joint, which occurs during development, whereby the femoral head (ball) and acetabulum (socket) move apart from each other during weight bearing. Affected dogs are born with normal hips, but this abnormal development that occurs during growth leads to laxity and subluxation of the hip joint.

What causes Hip Dysplasia?
The exact cause of hip dysplasia is unknown, but it is accepted to be a genetic disorder that acts in combination with environmental influences, such as rapid growth and obesity.

What breeds are predisposed to developing hip dysplasia?
Hip dysplasia can affect any breed of dog, but the most common breeds affected include German Shepherds, Rottweilers, Labrador Retrievers, Golden Retrievers, Saint Bernards, and many more. Hip dysplasia is virtually non-existent in breeds such as the Greyhound and Borzoi.

What are the clinical signs of hip dysplasia?
The clinical signs of hip dysplasia are highly variable, ranging from slight discomfort to severe acute or chronic pain. The most common signs include unilateral or bilateral hind limb lameness, bunny-hopping, difficulty rising after rest, reluctant to walk, run or jump, exercise intolerance, restlessness or licking the skin over the hip.

Clinical signs can develop when the dog is immature (around 5-10 months of age) or when it is an adult up to a few years of age. Young dogs will be showing pain due to the instability in the hip joint, whereas osteoarthritis is usually the cause of pain in older dogs.

How is Hip Dysplasia Diagnosed?

At consultation, both an orthopaedic and neurological examination will be performed to localise the source of pain or instability to the hip joint. Diagnosis is based on physical examination findings of laxity (a positive Ortolani test) or pain in the hips. Often your pet will present with protrusion of part of their femur due to subluxation of the hip joint, and dogs often stand with their hind legs wide apart or close together, depending on the stage of disease. Your dog will also be observed walking, trotting and running to enable us to detect a characteristic gait.

A common clinical test to diagnose hip dysplasia is called the Ortolani test. This enables the veterinarian to determine the ability of the hip joint to subluxate and subsequent relaxation (denoted by a clunk) denotes a positive Ortolani test.
Radiography is the principle diagnostic tool for confirmation of hip dysplasia. A number of different radiographic views are required for us to be able to accurately assess your pets hip joint. These views include a ventrodorsal hip-extended, a compressed and a distracted view of the pelvis. A North Coast Veterinary Specialists and Referral Centre, we perform a technique known as “PENN Hip”.

What are PENN Hip Radiographs?

PENN Hip radiographs are the most effective hip screening tool for hip dysplasia in dogs. This technique is typically used on immature dogs to help determine their suitability for breeding or help determine their risk of developing arthritis.

The PENN Hip technique is performed on anesthetized dogs and uses a padded distraction device placed between the hind limbs while the x-ray is taken. Evaluation of these images will generate a distraction index (DI) that will help give an objective assessment of the degree of hip laxity present and help predict the likelihood that your pet will develop arthritis.

Dogs with a distraction index of less than 0.3 are very unlikely to develop arthritis, while those with a DI greater than 0.7 are highly likely to develop arthritis.

PENN hip can be performed as young as 16 weeks of age.

How is Hip Dysplasia treated or controlled?

The control or prevention of hip dysplasia is the first step in reducing the prevalence, and this should be undertaken throughout selective breeding processes. Ensuring you purchase your pet from a reputable breeder whose breeding dogs have been tested negative for hip dysplasia will play a large part in ensuring your animal does not develop hip dysplasia.

Hip dysplasia may be managed non-surgically in select cases and is considered palliative therapy. The goals of medical management are to reduce the clinical signs of pain, improve limb function and slow the degenerative changes. This is achieved by a combination of weight loss, controlled activity, physiotherapy and anti-inflammatory drugs or nutraceuticals such as glucosamine, omega 3 and fish oils.

There are a variety of different surgical options that can be used in the management and treatment of hip dysplasia. The best surgical option for your pet depends on their age and degree of joint disease and discomfort.

In skeletally immature (young) dogs, surgery primarily aims to prevent clinical signs associated with subluxation. In the immature dog, juvenile pubic symphysiodesis and triple pelvic osteotomy are commonly performed surgeries. In skeletally mature (adult) dogs, surgical options are all salvage procedures that aim to eliminate osteoarthritis and any associated pain. Total hip arthroplasty and femoral head and neck excisional arthroplasty are salvage procedures for advanced hip dysplasia.

- **Juvenile Pubic Symphysiodesis:** This is a minimally invasive, rapid technique that prevents progression of juvenile hip dysplasia. It is ideal for dogs between 12 and 16 weeks of age that have hip laxity with no radiographic signs of arthritis. This surgery prematurely closes the pubic symphysis by thermal destruction, resulting in an increased rotation of the pelvis over the femur during growth. Complications with the procedure are rare but include infection and incisional complications. Most patients can be discharged the day of surgery and recovery is complete by 2 weeks after the procedure.

- **Triple Pelvic Osteotomy (TPO):** Pelvic osteotomy is a prophylactic surgery to decrease hip laxity and improve hip joint congruity by increasing femoral head coverage via reconstruction of the
pelvis. It is suitable for dogs that have hip laxity but no radiographic signs of severe arthritis, typically between 6 and 12 months old. In this procedure, three cuts are made into the bones of the pelvis, which are then rotated and a section of the pelvis is stabilised with a bone plate and screws. The goal of this surgery is to decrease pain and the progression of arthritis. Long term evaluation of dogs after TPO has shown excellent results. Complications include infection, incision complications and implant complications, however are uncommon. We also perform a similar procedure, the double pelvic osteotomy, in select cases.

- **Femoral Head and Neck Osteotomy (FHO):** This procedure is a salvage procedure that aims to eliminate most of the pain caused by hip laxity or secondary arthritis. It achieves this aim by reducing bone-on-bone contact of the femoral head with the diseased acetabulum. This is a good procedure when the lameness and pain cannot be alleviated by analgesia (pain relief), weight loss or other non-surgical means. Small dogs and cats are better candidates for this procedure than large and giant breed dogs. Gait abnormalities may persist after FHO and post-operative physical therapy is critical to the success of the procedure. Contrary to most other orthopaedic procedures, complete rest and cage restriction are contraindicated after this procedure. Complications include surgical infection, continued lameness, muscle atrophy and decreased range of motion.

- **Total Hip Replacement (THR):** Total hip replacement surgery is another salvage procedure which involves replacing the painful hip joint with manufactured implants. We offer both “cemented” and “cementless” options for dogs and our surgeon will discuss which would be best for your pet. The availability of many different implant sizes makes this the best option for most dogs with severe signs of hip problems. The goal of THR is to return chronically lame dogs that are non-responsive to medical treatment to near-normal or normal function. Ideal candidates are over six months of age. As with any surgery, complications exist with THR and include infection, dislocation, implant failure and femur fractures. Most dogs able to walk on the affected leg the day after surgery.

**What is the prognosis for my dog with hip dysplasia?**

The prognosis for dogs with hip dysplasia is generally good. Many dogs can be managed well with conservative medical management, with those that fail to respond well requiring reconstructive or salvage surgical procedures. The prognosis for dogs requiring surgical intervention is generally good, but there are potential complications associated with any surgery. The success rate of THR is excellent with 90-95% of dogs able to have normal use of the affected limb after surgery.