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# CANINE HIP DYSPLASIA

## NON-SURGICAL MANAGEMENT

### Introduction

CHD has both a genetic (heritable) component and an environmental component. By controlling the environmental components we can attempt to minimize the expression of the genetic component. Environmental factors will worsen a genetically predisposed individual but will not cause CHD in an individual not genetically at risk.

The goals of nonsurgical therapy are to alleviate clinical symptoms, improve quality of life, improve function and slow the progression of clinical disease.

The majority of adult dogs with pain and lameness associated with hip dysplasia can be effectively managed with conservative methods. Mature animals that have been diagnosed with CHD but are not displaying any clinical signs do not require any treatment other than management of their exercise types and weight.

It should be noted that approximately 70% of juvenile animals will grow out of the pain associated with the first phase of CHD by 18-24 months. However a high percentage of these animals will later develop signs of pain associated with the development of osteoarthritis in the joint. These two phases of clinical disease may occur together otherwise a variable period of months to years may exist between the two phases of CHD associated pain.

### Nutritional Management - Juvenile

For juvenile animals nutritional risk factors include ad lib (free access) feeding, high energy foods and excessive calcium intake.

Ad lib feeding and high energy foods tend to result in rapid weight gain which causes increased stress being placed on the young dogs bones. The bones are softer than adult bones due to their ongoing growth and are unable to effectively support the excessive weight.

Therefore large and giant breed dogs which are at risk of CHD should have a moderate restriction of their energy intakes. A guide is to feed approximately 3 x their resting energy requirements (RER) up to 16 weeks of age and then reduce to approximately 2 x their RER until 12-18 months of age.

$RER \approx 70 + 30 \times \text{Body weight (kg)}$ .

The aim should not be to grow the puppy to the maximum of its genetic potential.

High and low calcium level in the diet can result in a variety of bone problems in juvenile dogs, most particularly in large and giant breeds where the demands of bone growth are greater. Generally a food with a calcium level of 0.7 – 1.2% calcium on a dry matter basis will be suitable. Commercial large breed puppy diets should NOT receive any additional supplements (particularly calcium, phosphorus and vitamin A or D) as they are a complete, balanced diet as they are.

## Nutritional Management – Adult

In adult dogs the bones have matured and hardened, however the main problem is now wear and tear on the loose hip joints. The greater the weight that the joint has to bear then the greater the wear and tear that will occur. Reducing a dogs weight will greatly reduce the stress on the hip joints and therefore slow the progression of CHD and reduce the amount of other supportive treatments required.

A body condition score of 4 to 5/10 is the ideal goal. This would be considered a normal to low-normal body weight for most dogs. This should mean that your dog has a clearly visible waist when observed both from the side and above (hour-glass shape), all of the ribs should be able to be felt and the last 2-3 ribs should be visible (if the dog was wet or had their fur shaved off).

Please ask us for assistance with assessing your dogs weight and providing a weight management program suited to your pet and home environment.

Weight management is mainly achieved through dietary management rather than exercise management.

Weight management is critical to the successful management of CHD in adult animals.

Supplementation with Omega 3 and 6 fatty acids (fish oil) helps to naturally regulate inflammation within the body. While the ideal doses have not been established it is usually recommended to provide from 100-250 mg of Omega 3 fatty acids (ALA, EPA, DHA) per kg of body weight per day. A number of commercially manufactured diets are available for joint support.

## Pain Management

Pain associated with CHD is describes a occurring in two phases (biphasic).

In juvenile animals the joint laxity, which is inherent in an animal with CHD, tears the surrounding soft tissues trying to support the hip joint. Very small fractures (micro fractures) may occur in the soft bones of the developing socket (acetabulum). These both cause pain however minimal changes will be visible on normal X-rays (Fig.1).

Eventually bone on the edge of the socket and end of the ball begin to wear away where the two bones are scraping past each other every time the joint pops in and out. The joint reacts by laying down arthritic bone around the joint (Fig.2B). These changes are visible on normal X-rays but are only visible until later in the development of CHD in more mature animals. The joints are now painful due to the arthritic changes occurring within the joint.

Both of these phases of pain may be managed medically and a variety of drugs are available:

- **Disease modifying osteoarthritis drugs:**

A variety of agents including glycosamine, chondroitin sulphate, omega-3/6 fatty acids and pentosan polysulphate (Cartrophen Vet®) may have a role to play in CHD management. The science behind the various products is quite variable and should be discussed individually for each pet concerned.

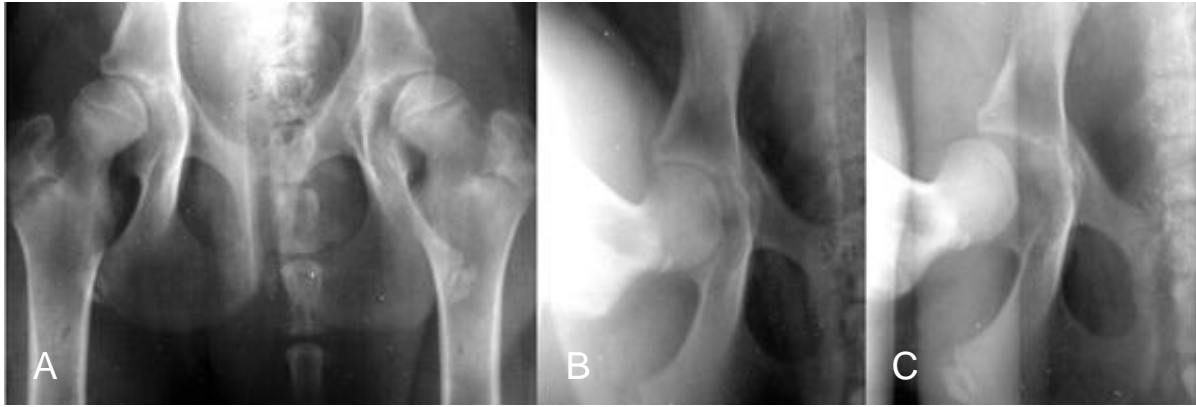
- **Nonsteroidal anti-inflammatory drugs (NSAIDs):**

A wide variety of NSAID drugs are available and are commonly used to manage the pain and inflammation associated with CHD.

- **Other drugs**

Gabapentin, tramadol, tricyclic antidepressants and a variety of other drugs may be used to manage the pain associated with CHD in some individuals

Medical management must always be supported by weight and exercise management. A complete management program will allow medications to be used at the minimal dose required. It should be remembered that all drugs have some risk of unwanted side effects and therefore their use should be kept to the minimum effective dose were ever possible.

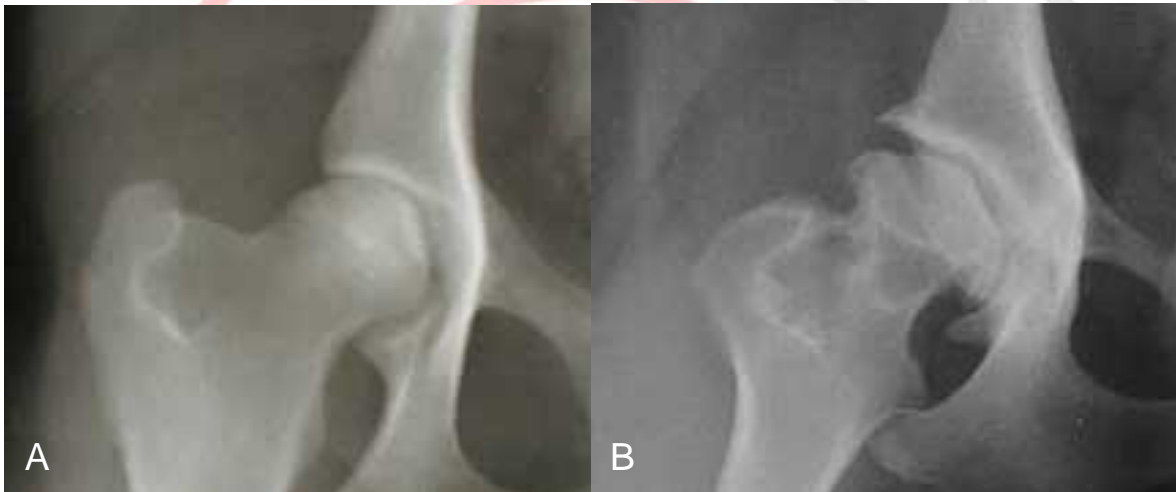


**Figure 1.** Hip X-rays from a young dog being assessed for CHD.

**A.** Standard extended ventrodorsal (BVA/KC style) hip X-ray. Note the lack of degenerative changes present around the joint due to this being a juvenile dog.

**B.** Compressed PennHip® hip X-ray. The ball seats itself deeply within the socket when it is compressed into the socket.

**C.** Distracted PennHip® hip X-ray. The ball moves a long way out of the socket when a force is applied to try to move it out of the joint. This indicates the presence of significant joint laxity and therefore CHD in this young dog. The severity of the CHD can be calculated.



**Figure 2.** Standard hip X-rays from two mature dogs being assessed for CHD.

**A.** Normal hip joint. Ball seated well within the socket without any secondary degenerative changes.

**B.** Severe CHD with massive degeneration of the hip joint with multiple bone changes.

## Exercise Management and Physiotherapy

For both juvenile and adult animals high impact exercise types will increase the stress, and the wear and tear on the hip joint. Also due to the pain associated with CHD the animals 'guard' the joint and do not allow the joint to move through a normal range of motion. This results in painful muscle spasms and loss of muscle bulk around the hip joint which is critical in helping to support the unstable hip joint.

Regular low impact exercises such as walking or controlled running are critical to help maintain the muscles which aid in stabilizing the hip joint, as well as helping to maintain the health of the joint. Exercising on soft surfaces will impart less shock through the joints and will also allow better purchase with the feet which will lower the risk of slipping.

Hydrotherapy (swimming or a tread mill) can be highly beneficial in both maintain joint mobility, and muscle spasm and bulk.

Provision of warm, comfortable bedding at a sensible height can also be helpful. Passive range of motion exercises (PROM) and deep muscle massage are also of benefit. A exercise management / physiotherapy program should be designed individually and performed on a routine bases for the best results. Traumatic exercise types such as hard acceleration, jumping and cornering will place a high degree of strain on the joint should be avoided.

## Summary

- Both juvenile and adult CHD cases may be managed medically.
- Juvenile CHD cases should be assessed for other surgical management options before instituting medical therapy otherwise potential management options may be lost (see CHD pamphlet available on this site).
- Conservative management of CHD uses a multimodal approach where dietary management, weight management, exercise management, physiotherapy and medications are combined to optimise the animals discomfort and quality of life.
- A percentage of animals may not respond to conservative management initially, or their CHD may progress to a point where conservative management does not maintain a suitable quality of life. Other options such as surgical management or euthanasia may need to be considered at this time.

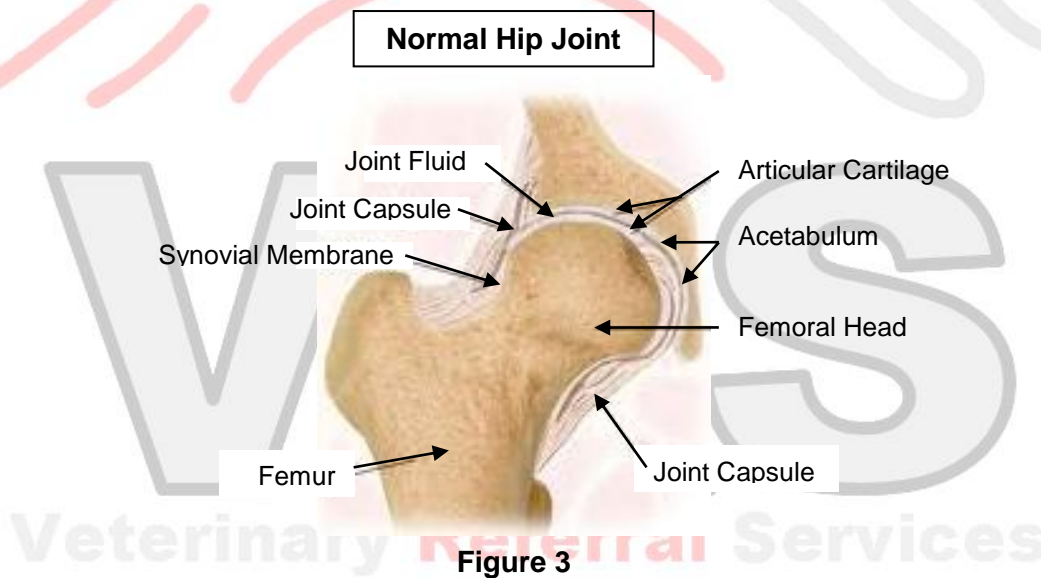


Figure 3