

# NOAH

North Dublin Orthopaedic Animal Hospital

## Canine Hip Dysplasia

### Contents

.....	1
What is hip dysplasia?.....	2
What happens in hip dysplasia? .....	2
Schemes for Normal and Abnormal Hip Development .....	3
What are the symptoms? .....	3
How does it spread and how can it be prevented? .....	3
What are the treatments? .....	5
Treatments Gallery .....	5
Pennhip .....	6
Breed Scores for Hip Dysplasia .....	7

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# What is hip dysplasia?

Hip dysplasia is an inherited disease that causing hip pain in puppies and leads to osteoarthritis from an early age. It is a terrible disease that stops happy lively little puppies having a happy go lucky living and later as adults a pain-free existence.



Figure a: Example of Hip Dysplasia

## What happens in hip dysplasia?

Many breeds are afflicted with very serious disease, large and small, and even cats. The suffering caused by hips that are loose and slipping in and out of their socket can be so severe that it can be unresponsive to standard painkilling medications. Bone rubbing against bone does lead to osteoarthritis that can present in puppies as young as 5 months of age. The long term affects are devastating.



Example of Normal Hips



Dysplastic Hip Example

## Schemes for Normal and Abnormal Hip Development

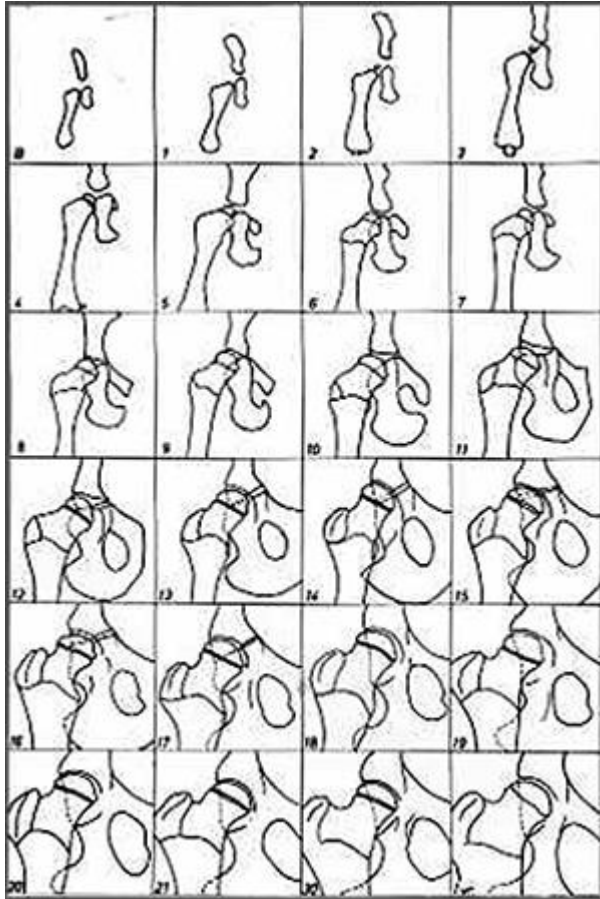


Figure b: Scheme For Normal Hip Development from Puppy to Adult

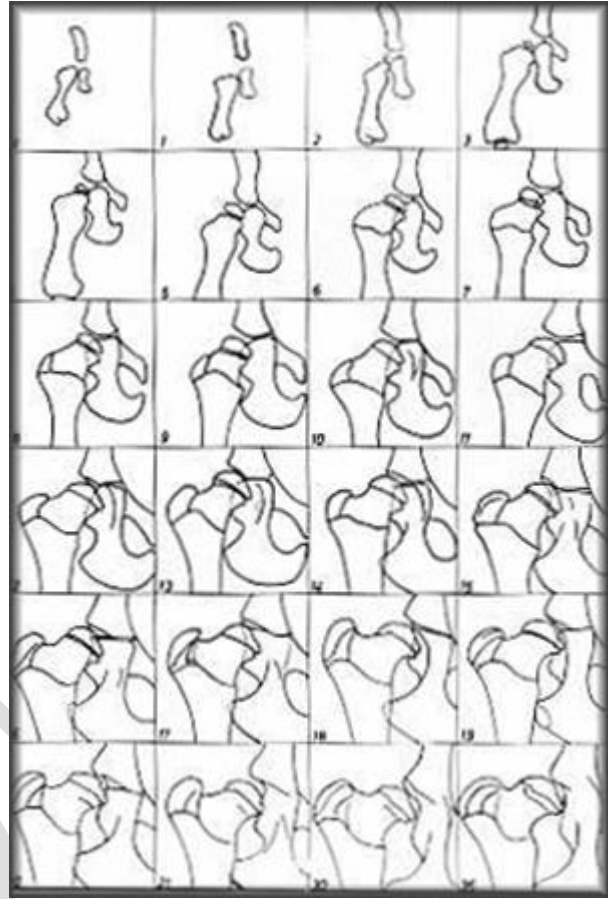


Figure c: Scheme for Abnormal Development from Puppy to Adult (Dysplastic Hips)

### What are the symptoms?

The symptoms can range from lameness to difficulty rising from a sitting position. Also puppies may run in a characteristic bunny hopping fashion with both legs moving simultaneously, and dogs may be reluctant to move or be lethargic. The hips are painful to move and the muscles are wasted.

### How does it spread and how can it be prevented?

The disease is inherited but not in a simple fashion and there are many genes involved in the development of the condition. For this reason it is very difficult to eradicate the disease absolutely

and the best that can be achieved is a significant reduction in the disease levels by controlled breeding programs.

The controlled breeding programs are based on X-Rays taken of parents to score the hips before breeding. Standard screening X-Rays are used with the hips pulled back and this screening is used in the BVA/Kennel Club. This has been a very useful screening tool but does have its limitations and will miss some cases of hip dysplasia. Another screening process is the Pennhip technique used in USA and involves applying some dynamic forces to the hips to check for laxity.

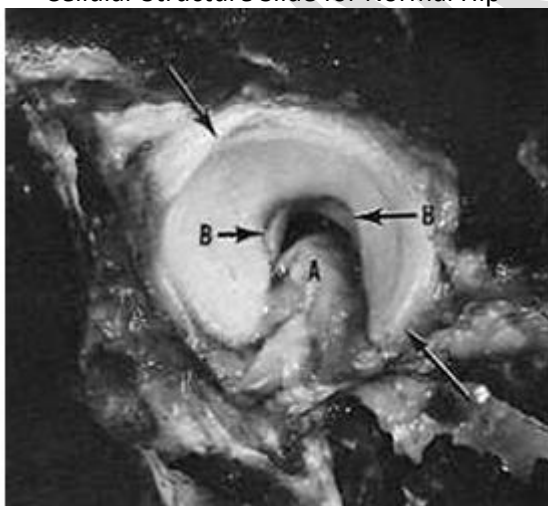
This technique can detect hip dysplasia at a very early age and is more sensitive than the standard screening X-Rays. It is critical that all breeders have a screening method performed to significantly reduce the incidence of hip dysplasia in follow up generations.



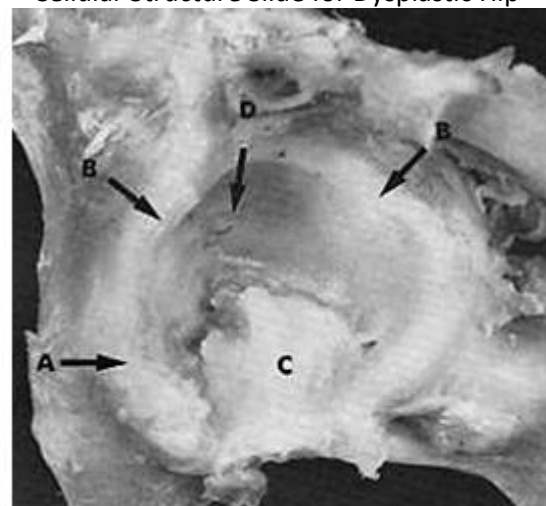
Cellular Structure Slide for Normal Hip



Cellular Structure Slide for Dysplastic Hip



Gross Pathology of a Normal Hip



Gross Pathology Specimen of a Dysplastic Hip

# What are the treatments?

Treatment options available are usually surgical although long term painkillers can be chosen as an option, to avoid surgery. However long term medications will be expensive and side effects are not uncommon. Joint supplements of fish oils and glucosamine can be beneficial, as can physiotherapy. Weight control is critical no matter what treatment route is chosen.

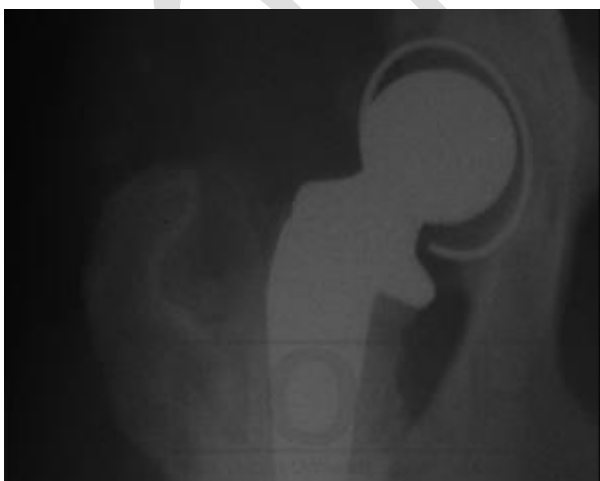
The surgical options are juvenile pubic symphysiodesis which has to be performed by 20 weeks of age. This operation changes the growth pattern of the pelvis leading to increased acetabular cup depth. Triple pelvic osteotomy is performed between 5 and 12 months and involves rotating the pelvis outward to increase cup dorsal (upper) catchment of the femoral head.



Figure d: Preview of the Implant

Total hip replacement is not dissimilar to the human operation and involves replacing the cup with a metal (usually Titanium) and polyethylene and a metal stem and head. These operations are all specialist operations which need experienced surgeons to perform. All carry a good prognosis when selected correctly for the dog involved.

## Treatments Gallery



Total Hip Replacement Example 1



Total Hip Replacement Example 2



Total Hip Replacement Example 3



Total Hip Replacement Example 4



Total Hip Replacement Example 5



Total Hip Replacement Example 6

## Pennhip

The Pennhip score is 2-11 (depending on the breed) times more sensitive for detecting hip dysplasia compared to the traditional hip score. The Pennhip score method is used in the USA to detect hip dysplasia and is administered from the University of Pennsylvania as a not for profit organisation. The technique can be used from 4 months of age to detect hip dysplasia.

A special day of Pennhip scoring took place at NOAH on the 8th and 9th of December 2010, and we had an interesting case in that using the standard extended hip view the dog had one dysplastic hip but using the Pennhip method we discovered that both hips were dysplastic. So under the usual hip scoring method this dog would not have had the degree of hip dysplasia detected.

Upon examination, each dog will receive an official certification and score from the Pennhip organisation thus enabling a 4 month old puppy to have a score for hip dysplasia.

Penn hip is twice more sensitive at least for detecting hip dysplasia compared to the standard hip screening with BVA/Kennel club scheme. Dogs as young as 4 months can get an official certified score. The brilliant aspect of this method is that a dog at 4 months diagnosed with hip dysplasia can have an operation called pubic symphysiodesis which will allow the hips to grow normally, but the operation can only be done at 4 months of age. So using the combination of Pennhip, pubic symphysiodesis and neutering then the clinical impact of hip dysplasia can be eliminated.



Pennhip Example 1



Pennhip Example 2

## Breed Scores for Hip Dysplasia

HIP SCORES-BREED MEAN AVERAGE (NOT ALL BREEDS)	
Akita	10
Belgian Shepherd Dog	11
Bernese Mountain Dog	15
Doberman	10
Flat Coated Retriever	19
German Shepherd Dog	19
Golden Retriever	18
Gordon Setter	23
Hungarian Vizsla	12
Irish Setter	15
Labrador Retriever	15
Newfoundland	26
Old English Sheepdog	19
Rottweiler	12
Welsh Springer Spaniel	18
Alaskan Malamute	13
Briard	18
Bullmastiff	26
Clumber Spaniel	37
Dogue De Bordeaux	22
St Bernard	21
Bouvier Des Flandres	18

Boxer	16
Cavalier King Charles Spaniel	16
Great Dane	10
Mastiff	18
Otterhound	43
Pyrenean Mountain Dog	12
Beagle	22
Estrela Mountain Dog	26
Russian Black Terrier	37
Basenji	7
Bloodhound	20
Bulldog	45
Hungarian Kuvasz	22
Neopolitan Mastiff	27
Pug	23
Standard Schnauzer	23
Welsh Corgi Pembroke	25

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# NOAH

North Dublin Orthopaedic Animal Hospital

NOAH provides an orthopaedic referral service  
for injured or ill dogs and cats from the  
Republic of Ireland and Northern Ireland