



Hip Dysplasia in Dogs

From Juvenile Pubic Symphysiodesis (JPS) > to Femoral Head and Neck Excision (FHNE) and Total Hip Replacement (THR)

Quick Take

Hip dysplasia is one of the most common orthopaedic diseases in dogs. It occurs when the **hip joint develops abnormally**, resulting in **looseness (laxity)**, **instability**, **pain**, **inflammation**, and **eventually osteoarthritis**.

Hip dysplasia affects dogs across a **broad spectrum**:

Young puppies may have **hip laxity** but no arthritis.

Adolescent dogs often develop **pain during exercise**.

Older dogs commonly suffer from **severe osteoarthritis and chronic discomfort**.

The good news is that veterinary medicine offers an **unusually wide range of treatment options**, from **preventive surgery in puppies to total hip replacement in adults**.

Treatment options include:

- Weight management and rehabilitation
- Juvenile Pubic Symphysiodesis (JPS)
- Double or Triple Pelvic Osteotomy (DPO/TPO)
- Femoral Head and Neck Excision (FHNE)
- Total Hip Replacement (THR)

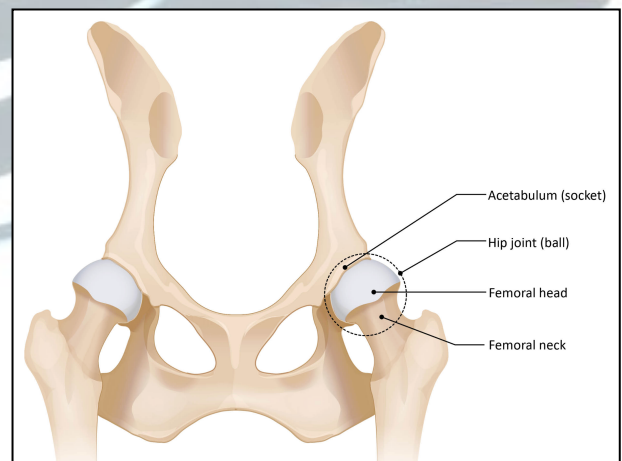
Choosing the right treatment depends largely on:

- Age
- Severity of hip laxity
- Degree of arthritis
- Size and activity level of the dog
- Owner expectations

1) What Is Hip Dysplasia?

Normal Hip Anatomy

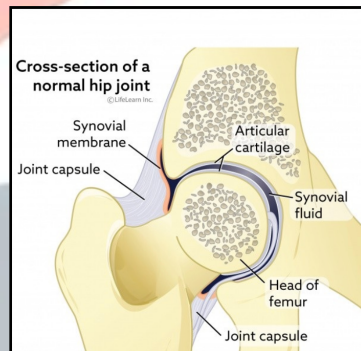
The hip is a ball-and-socket joint:
The femoral head forms the ball.
The acetabulum forms the socket.





A healthy hip:

- Fits tightly
- Moves smoothly
- Distributes weight evenly



What Happens in Hip Dysplasia?

The ball and socket do not fit together properly.

This causes:

1. Joint laxity

The femoral head moves excessively.
The hip becomes unstable.

2. Cartilage damage

Repeated abnormal movement causes:

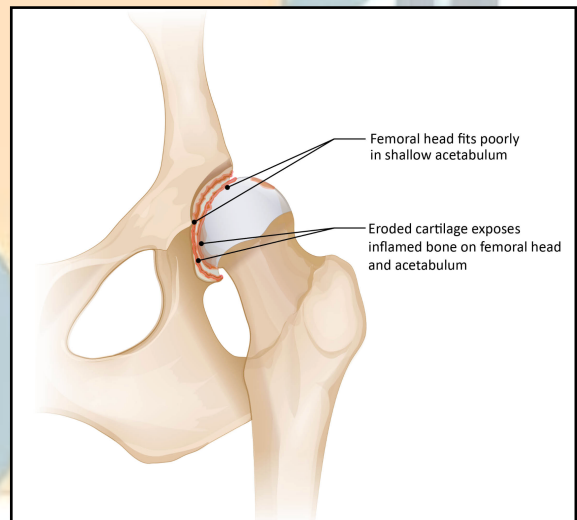
- cartilage wear
- inflammation
- microtrauma

3. Osteoarthritis

Over time:

- bone spurs form
- the socket becomes shallow
- pain worsens

This is often what owners notice later in life.





2) Why Does Hip Dysplasia Occur?

Hip dysplasia is strongly influenced by **genetics**.

Contributing factors include:

- rapid growth
- excessive calorie intake
- obesity
- excessive exercise during development
- breed predisposition

Commonly affected breeds include:

- Labrador Retriever
- Golden Retriever
- German Shepherd Dog
- Rottweiler
- Bernese Mountain Dog
- Newfoundland

3) Signs owners may notice

Young Dogs

Bunny-hopping gait
Difficulty rising
Reluctance to jump
Reduced activity
Hindlimb stiffness

Adult Dogs

Difficulty climbing stairs
Exercise intolerance
Muscle loss
Chronic lameness
Pain after activity

Advanced Disease

Severe osteoarthritis
Constant discomfort
Marked muscle wasting
Reduced quality of life

4) Diagnosis

Physical examination:

A simple physical examination by an experienced orthopaedic surgeon can already detect most of the early stages

- hip pain
- range of motion
- laxity
- muscle development

X-rays

- Radiographs evaluate:
- hip congruity
- arthritis
- acetabular coverage
- remodeling



PennHIP

PennHIP measures **joint laxity** and can **identify dogs at risk long before arthritis develops**. This is especially important when considering **preventive surgery**.



5) Treatment Overview

Treatment falls into three categories:

Preventive surgery

Performed before arthritis develops.

Joint-preserving surgery

Improves joint mechanics.

Salvage surgery

Used when arthritis is already severe.

6) Juvenile Pubic Symphysiodesis (JPS)

JPS is the **earliest surgical intervention** available for hip dysplasia.

It is performed in **very young puppies**.

Typically:

12–20 weeks of age

Ideally before:

16 weeks

How Does It Work?

A small portion of the **pelvic growth plate is permanently closed using electrocautery**.

As the puppy grows:

- the pelvis develops differently
- the socket rotates over the femoral head
- coverage improves

Advantages

- Minimally invasive
- Short surgery
- Rapid recovery
- Can dramatically reduce future dysplasia severity

Limitations

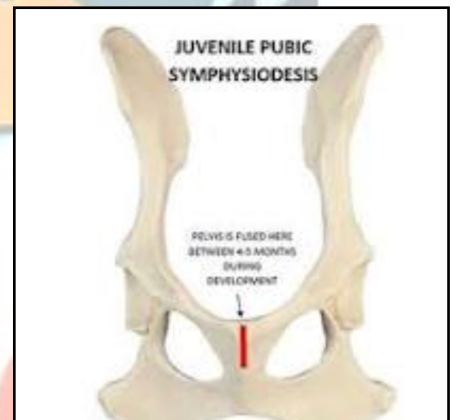
Only effective in **very young puppies**.

Once arthritis develops: JPS is no longer beneficial.

Outcomes

Many studies show **substantial improvement in acetabular coverage** and long-term hip function when performed early.

Dogs **treated before severe laxity develops** often enjoy near-normal lives.



7) Double or Triple Pelvic Osteotomy (DPO/TPO)

What Is It?

DPO and TPO are **joint-preserving surgeries** performed in young dogs before arthritis develops.

The pelvis is cut and rotated to improve femoral head coverage.

The new position is stabilised using specialised plates.

Candidates

- **Generally 6–12 months old**
- minimal arthritis
- significant hip laxity
- **good overall joint shape**



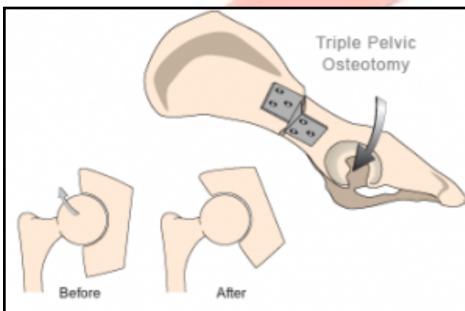
Benefits

- Preserves normal hip
- Excellent long-term outcomes
- Allows return to athletic function

Limitations; Not appropriate **once arthritis exists.**

Outcomes

Published success rates often exceed: **80–90% for appropriately selected patients.**



8) Medical Management

Some dogs that are **already too old to prevent the development of osteoarthritis** can be managed **conservatively**.

Includes:

- weight control
- physiotherapy
- hydrotherapy
- NSAIDs
- joint supplements
- injectable therapies

However:

Medical treatment does not correct instability.

9) Femoral Head and Neck Excision (FHNE)

Classic Salvage Procedure

FHNE removes:

- femoral head
- femoral neck

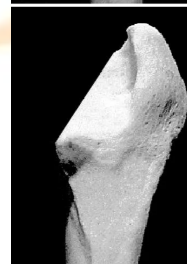
The painful bone-on-bone contact disappears.

How Does It Work?

The body forms a **fibrous "false joint"** and it eliminates arthritic pain.

Best candidates

- Traditionally: dogs under 15 kg,
- cats
- lower-demand patients





However, experienced surgeons and rehabilitation teams can achieve good results in larger dogs.

Advantages

- No implant required
- Lower cost
- Useful when infection is present
- Effective pain relief
- Definitive solution, no need for revision in the hands of an experienced surgeon.

Limitations

- Some loss of limb function is expected.
- A visible gait change can be seen, however usually not pain related
- Athletic performance usually does not return to normal.

Outcomes

Most dogs experience:

- 70–90% improvement in comfort and quality of life.
- Function generally improves further with physiotherapy.
- Keeping these patients active and strong is primordial.

10) Total Hip Replacement (THR)

Gold Standard for End-Stage Hip Dysplasia

THR replaces the femoral head and the acetabulum with prosthetic components.

Goal

Restore normal biomechanics, normal range of motion and normal function

Candidates

- mature dogs
- severe dysplasia
- severe arthritis
- failure of medical therapy

Advantages

- Most effective procedure available
- Restores near-normal function
- Eliminates arthritic pain
- Excellent long-term outcomes

Limitations

- Anticipate cost over 70000 HKD
- Requires a **very strict aftercare** for over **three months**;
- Complications can occur, often requiring an additional surgery

Outcomes

Modern studies consistently report: **90–95% excellent outcomes**

Many dogs return to:

- running
- hiking
- agility
- working careers



Complication/ approximate rate

- Luxation; 1–5%
- Infection: 1–3%
- Femoral fracture <3%
- Implant loosening <5%
- Revision surgery: 3–10%
- Overall **success exceeds: 90%** in most modern referral centres, in the hands of a specialist

11) Recovery Expectations

JPS
Recovery: a few days
Return to
activity: very rapid

DPO/TPO
Recovery: 6–8 weeks

FHNE
Recovery: 6–12
weeks
Aggressive
rehabilitation is
critical.

THR
Recovery: 8–12
weeks
Most dogs regain
near-normal gait.

12) Long-Term Prognosis

JPS
Excellent when performed early.

DPO/TPO
Excellent in properly selected dogs.

FHNE
Good pain relief.
Moderate reduction in athletic performance.

THR
Excellent pain relief and function.
Often considered the closest procedure to restoring a normal hip.

Selected Veterinary References

- ACVS – Hip Dysplasia in Dogs
- Fossum TW – Small Animal Surgery
- Smith GK et al. – PennHIP methodology and predictive studies
- Slocum B & Slocum TD – Triple Pelvic Osteotomy
- Vezzoni A et al. – Juvenile Pubic Symphysiodesis outcomes
- Liska WD – Total Hip Replacement in Dogs
- Fitzpatrick N et al. – Modern canine hip replacement outcomes
- OFA (Orthopaedic Foundation for Animals) guidelines on canine hip dysplasia

Hip dysplasia is a progressive disease that can often be addressed at different stages of life.

JPS can prevent severe disease in young puppies.

DPO/TPO can preserve the natural hip in young dogs before arthritis develops.

FHNE remains an excellent salvage procedure for pain relief when arthritis is advanced.

Total Hip Replacement is the gold standard for restoring comfort and near-normal function in dogs with end-stage hip dysplasia.

With modern surgical techniques, the vast majority of dogs with hip dysplasia can achieve an excellent quality of life and return to comfortable, active living.