

A FULL LOOK AT HIP DYSPLASIA



Since my deep dive into prophylactic hip dysplasia treatment with the Triple Pelvic Osteotomy (TPO) during my residency¹, a few more answers have been firmed up toward optimal diagnosis and management of this condition. Below I will outline a Decision-Making Tree that may be useful when approaching this condition in our canine patients.

First a bit of natural history of the developmental condition using a few non-scary terms that help explain it to pet owners without forecasting doom and gloom! (The connotation of “hip dysplasia” is terrible out in the wilds of the lay-public, and it need not be so.)

Congenital hip dysplasia is simply an excessive looseness in the hip joint that starts in very young puppies. The soft tissues that normally keep the ball snugly in the socket do not do that in patients with hip dysplasia. This laxity allows the “ball” of the hip to bounce around a little too much, bruising itself and the edges of the “cup” that is the socket. A lot of bruising over weeks to months wears down these regions of the joint, changing their shape, rubbing off joint cartilage and creating inflammation that works in the background making cartilage unhappy too. Puppies do not feel the pain of hip dysplasia until they are big enough and active enough to create enough bruising. This (the pain) usually happens around 6-9mo of age; but inside, a lot is happening already that is unhealthy to the joint.

This “puppy pain period” lasts for as long as the bones are soft and susceptible to bruising, approximately 12-18mo of age. By this time the body has “tightened up the joint” with added scar tissue in the soft tissues that support the joint; laxity is reduced but the hip is not technically normal. The pain of bruising goes way down, and the joint cartilage is still good enough not to expose the sensitive underlying bone. The “adult dog pain-free period” starts around 12mo of age and continues for a variable period of time; this is the trickiest part of making decisions for a dog. As a dog continues to be a dog on the abnormal hips, the cartilage is worn away. Once the bone underneath is exposed, the dog feels the pain of arthritis. This is the “older dog arthritic pain period”, and it can start at 3yrs of age or not until 14yrs of age! It just depends.

With that preamble, now what do we do?

Starting simply, we can try to not make it worse. Well, we need to know we have it before we dive into this seriously, but some (not so) common sense things we can strongly recommend are to **maintain a lean body condition through puppy development** and **avoid high impact activities** that over-stress immature bones and joints. Data on the first point is striking! (*Briefly, starting at 8wks of age, matched Labrador retrievers were followed throughout their life, half were fed ad lib*



and half were fed 25% less than their matched partners. Ad lib dogs averaged 35kg at 8yrs and 25% fed dogs averaged 24kg. Ad lib dogs developed radiographic DJD signs at 6yrs, while 25% dogs developed DJD at 12yrs. The difference in DJD was significantly different between groups from age 1yr.)²

Getting more specific, we need to diagnose these kids early, i.e. 4mo of age to make a difference. You will see them for their rabies vaccine at 4mo (hopefully!); wrangle that pup into lateral recumbency and do an Ortolani maneuver. It's not rocket science, but it is revealing. (Practice the Nike motto...)

And this is the start of the Decision-Making Tree. Jump in depending on your patient's age.

4 months old—Positive Ortolani sign

- Recommend PennHip radiographs³ (More on this availability later! **Direct Veterinary Surgery** will help you out!)
 - ✓ If distraction index 0.4-0.7, recommend juvenile pubic symphysiodesis (JPS; “fusing the pubic symphysis”)^{4,5}.

****Window of opportunity for JPS = 5mo age; thereafter, lesser benefit.**

- ✓ If distraction index <0.4, no treatment, no significant DJD progression risk
- ✓ If distraction index >0.7, that requires a discussion; no clear data to make strong recommendations.

6-10 months old—lame, positive Ortolani sign

- Recommend standard pelvic radiographs (or PennHip)

****No strong data to guide decision making regarding TPO with distraction index numbers.**

- ✓ For all, recommend conservative management of DJD (see <https://directvetsurg.com/conservative-management-osteoarthritis/>)
- ✓ If minimal secondary changes (loss of acetabular rim, flattened head, thickened neck), discuss risks:benefits of Triple Pelvic Osteotomy.
- ✓ If significant secondary changes, discuss risks:benefits of Total Hip Replacement.

6-10 months old—NOT lame, positive Ortolani sign

- Recommend standard pelvic radiographs (or PennHip)



***PennHip is very informative about the likelihood of DJD progression based on distraction index score⁶*

- ✓ Depending on breed and distraction index, owner education and awareness will be useful with individual patient decision-making for further diagnostics or treatment (serial radiographs, TPO, THR, conservative options).

I'll continue with this lovely topic of hip dysplasia in future articles and announcements and blogs, lifting the veil of doom and gloom and promoting best practices to the best of our data! **The first of the year, Direct Veterinary Surgery will be offering PennHip radiographic studies to help demystify the loopy-goopy hips of the canine world.** Give a call or email if you want clarifications or specific opinion for one of your patients. Happy to help!

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