

# Total Hip Replacement Teatime Teaser



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Felipe graduated from the University Complutense of Madrid in 2003. Since graduating he has completed a surgical residency in Dublin and has worked as a Small Animal Surgery Specialist in both private practice and academia. He joined the surgery team at Pride Veterinary Centre in September 2018.

His areas of clinical interest are joint replacement, minimally invasive osteosynthesis and arthroscopy.

# Test yourself with these Teatime Teaser questions

Theo is a 20 months old, 42kg, American Bulldog that presented to Pride Veterinary Centre for further investigation of a 9-10 month history of reluctance to exercise for more than 10 minutes, after which he was very weak and shaky on the pelvic limbs. Theo also struggled to stand and go up the stairs.

Theo was bright on consultation. On orthopaedic examination he showed bilateral pelvic limb lameness, being worse on the right pelvic limb. Theo had moderate bilateral pelvic limb muscle atrophy, and he was painful and behaved aggressively when trying to examine his pelvic limbs, especially in hip palpation and range of motion (ROM).

Theo was admitted to the hospital and underwent an orthopaedic examination under sedation, which showed bilateral crepitus on ROM of the hips. Ortolani, Bardens and Barlow tests were negative. Orthopaedic examination on the rest of the pelvic limbs was normal, with no signs of effusion, instability or crepitus elsewhere.

Orthogonal radiographs of the pelvis were taken (Figure 1), showing advanced bilateral hip dysplasia. After discussion with the owners of conservative versus surgical treatment of hip dysplasia, it was decided to perform a total hip replacement (Figure 2).



Figure 1



Figure 2

- Q1. At what age is hip dysplasia commonly diagnosed? What are the reasons for the clinical signs?**
- Q2. What radiographic signs of hip dysplasia are present on Theo's radiographs (Figure 1)?**
- Q3. Theo had negative Ortolani, Bardens and Barlow tests. Why were they negative?**
- Q4. What other surgical procedures are possible for hip dysplasia? Which would have been a possibility as a treatment for Theo?**
- Q5. What is the long-term outcome of a hip replacement.**
- Q6. How long after this procedure can the contralateral hip replacement be done?**

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the next  
page

### Reason to refer

# #22

Our sophisticated on-site imaging equipment includes a 1.5T MRI and 16 slice CT

### Q1. At what age is hip dysplasia commonly diagnosed? What are the reasons for the clinical signs?

Hip dysplasia has a multifactorial origin, with a combination of genetic and environmental factors. There are 2 populations of dogs in which we typically diagnose hip dysplasia, with some patients being younger than 1 year old while other patients are adults. In animals younger than 1 year old the clinical signs are typically secondary to hip laxity, while in adult animals signs are due to hip osteoarthritis.

### Q2. What radiographic signs of hip dysplasia are present on Theo's radiographs (Figure 1)?

Theo's radiographs show bilateral hip subluxation. The dorsal acetabular rim is covering approximately 10-15% of the femoral head, while in a normal hip the femoral head should be covered at least 50% by the dorsal acetabular rim.

When measuring the Norberg angle Theo's hips have a Norberg angle of 75-76 degrees bilaterally indicating again hip subluxation. Radiographs also show femoral periarticular osteophyte formation, with a circumferential femoral head osteophyte line (CFHO) and a Morgan line, sclerosis in the acetabular subchondral bone and acetabular osteophytosis.

### Q3. Theo had negative Ortolani, Bardens and Barlow tests. Why were they negative?

These tests measure the presence of hip laxity in the hips and give us a subjective measurement of the amount of hip laxity. At the time of our consultation Theo was 20 months old, and by that time it is common that the clinical signs are secondary to hip osteoarthritis rather than to hip laxity.

### Q4. What other surgical procedures are possible for hip dysplasia? Which would have been a possibility as a treatment for Theo?

Surgical management options for hip dysplasia are relatively limited. A pubic symphysiodesis can be performed in very young animals (less than 20 weeks old) with mild hip laxity and no osteoarthritis changes. In older animals (typically up to 10 months) with hip subluxation and mild or no osteoarthritic changes a triple or double pelvic osteotomy can be performed to increase the femoral coverage by the acetabulum. In Theo's case both of these techniques were not appropriate, as Theo was 20 months old and the degree of

acetabular and femoral head changes were very significant.

Although a femoral head and neck excision would have been a surgical option for Theo, the outcome of this technique is variable in large animals, and a total hip replacement gives a better and more consistently good outcome.

### Q5. What is the long-term outcome of a hip replacement.

Animals are expected to return to a full pain-free function after total hip replacements. In Theo's case a BFX Biomedtrix total hip replacement was used, which relies on bone ingrowth into the cup and stem and osteointegration to provide this long-term stability. The stability provided by these implants allow us to perform this procedure in very young animals (as young as 8-10 months of age).

### Q6. How long after this procedure can the contralateral hip replacement be done?

There is not a clear time limit as to when to perform the contralateral total hip replacement, but it is generally accepted to wait at least 2-3 months. At Pride Veterinary Centre we assess the clinical progress of our patients over the 2-4 months after surgery before deciding if performing the contralateral total hip replacement is indicated, which will mainly depend on the clinical signs of the patient at that stage.