

Femoroacetabular Impingement (FAI)

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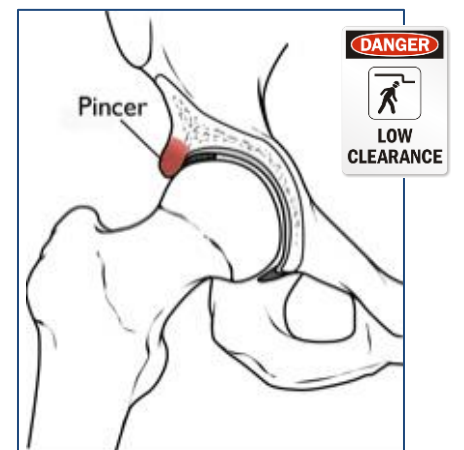
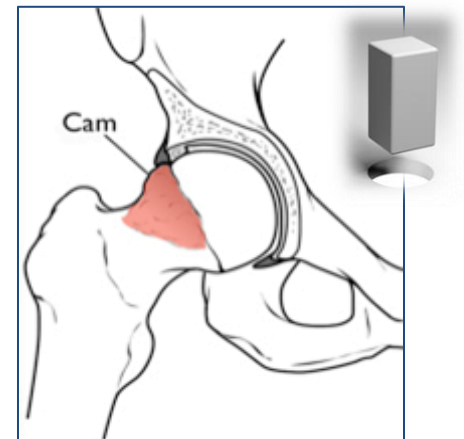
What is Femoroacetabular Impingement?

- the normal hip is a highly congruent **ball and socket** joint
- FAI occurs when there is a structural **mismatch** between the ball (femur) and the socket (acetabulum)
- **abnormal contact (impingement)** at extremes of hip range of motion leads to **dysfunction** and **damage**
- **small deformity** may become symptomatic with high-level activities while **symptoms with routine activities** may occur with **larger deformities** or **more advanced damage**
- damage usually the result of **cumulative effects** of **repetitive abnormal contact**



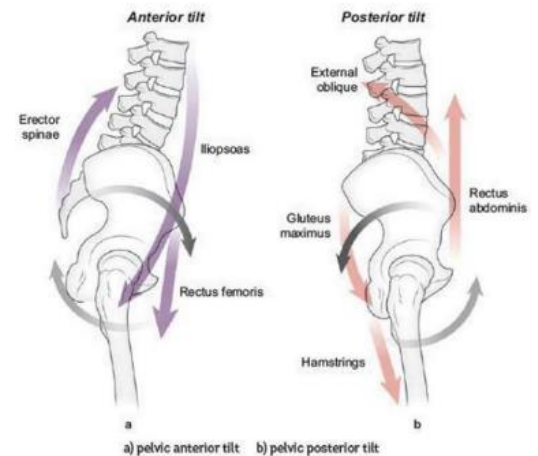
Types

- **Cam Impingement**
 - ball (femoral head) **not** completely round
 - may be a **prominent bump** or the ball may be **elliptical** in shape
 - damage occurs when the **out-of-round** area of the ball rotates into the round socket (*square peg in a round hole*)
 - pain with hip flexion, inward rotation, squats, etc.
 - may cause cartilage damage and labral tearing
- **Pincer Impingement**
 - **overhanging rim** of socket *decreases clearance* during hip motion
 - may be caused by a socket that is **too deep** or **not facing forward** (retroversion)
 - damage occurs when the **neck collides** with the rim of socket
 - pain with hip flexion, stairs, abduction, etc.
 - may cause labral pinching and tearing
- **Mixed or Combined**: elements of both cam and pincer FAI



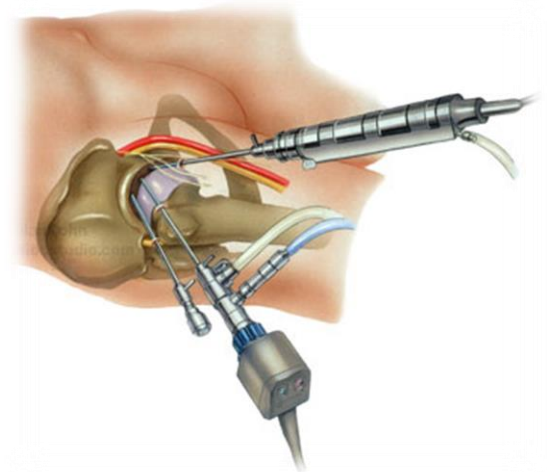
Management

- **Key concepts to consider:**
 - FAI is a **dynamic** problem... it occurs because the **hip is under stress** from the activities to which it is exposed
 - high percentage of people have hips that would meet X-ray criteria for FAI, but **only a small percentage become symptomatic**, and an **even smaller percentage require intervention**
 - high percentage of people with FAI have similar findings **on the other hip** but do not have symptoms
- goal of treatment is to return hip to **pre-symptomatic state** by **reducing inflammation** and **optimizing the mechanics** around the pelvis
- **rest** and **avoiding the inciting activity** will improve symptoms and allow healing
- **anti-inflammatory medicines** (ibuprofen, naproxen, etc.) decrease swelling and inflammation
- a **cortisone injection** may help to calm inflammation in the joint to allow more efficient rehabilitation
- **physical therapy** is essential to **improving pelvic mechanics** and **stabilizing gait**
- **most cases of FAI improve without surgery**



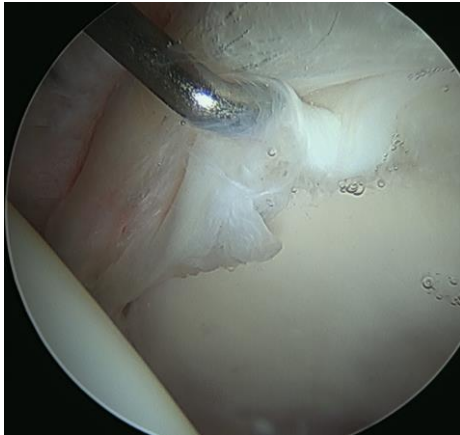
Surgery for FAI

- sometimes necessary for cases that do not improve with conservative treatment
- surgery is not effective for early arthritis, dysplasia (shallow hip), and may not help in patients with joint hyperlaxity or chronic pain
- goal is to **correct the bony abnormality** underlying the impingement and **fix the damage** to the labrum and cartilage
- surgery takes about 90 minutes and is out-patient (go home the same day)
- **traction** is required to separate ball from socket
- 2 or 3 small incisions (less than 1 cm each)
- small (4 mm) **video camera** inserted into the hip joint and **highly specialized instruments** used to perform surgery
- recovery takes **5 to 8 months** and requires rigorous therapy to restore hip function
- **potential complications** include transient or permanent nerve dysfunction, progression of labral tearing and/or arthritis, abnormal bone formation in muscles around the hip, blood clots, incomplete correction, and residual pain
- about 1 in 3 patients end up needing the surgery on the other side

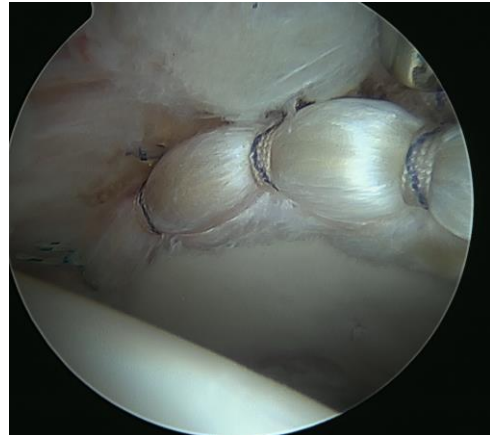


Hip Arthroscopy for Treatment of FAI

Labrum Repair: small anchors are used to fix the torn labrum and restore hip seal

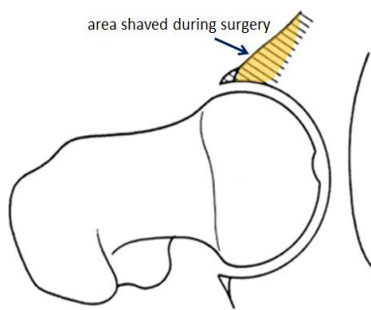


Torn labrum



Fixed Labrum

Pincer correction (acetabuloplasty): Overhanging rim is smoothed to decrease pinching

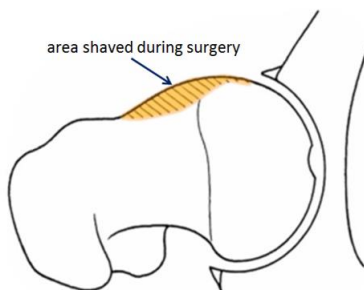


Pincer deformity



After rim trimmed

Cam correction (femoroplasty): femoral head and neck is rounded to improve fit



Cam deformity



After ball recontoured