**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

- fundamental to management is returning the hip to the **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
- **physical therapy** is essential to **improving pelvic mechanics** and stabilizing gait
- most cases of FAI improve without surgery

Arthroscopic Surgery for FAI

- goal is to **correct** the **bony abnormality** underlying the impingement
- small (4 mm) **video camera** inserted into the hip joint and **highly specialized instruments** used to perform surgery
- **traction** is required to separate ball from socket
- **cam FAI** – the ball is **recontoured** to improve congruity
- **pincer FAI** – the rim is **trimmed** to increase clearance
- secondary damage (labral tears, cartilage damage) fixed or cleaned up
- recovery takes **4 to 6 months** and requires rigorous therapy to restore hip function
- **potential complications** include traction-related injury, nerve damage, progression of labral tearing and/or arthritis, abnormal bone formation in muscles around the hip, blood clots, incomplete correction, and residual pain

Cam correction

Pincer correction