

The Emergence of Dual Mobility

Are 2 Bearings Better Than 1?

Erik Schnaser, M.D.



- **No relevant financial disclosures**



- **Picture of someone pulling their hair out**



Total hips

- **Dislocations**
 - Primary
 - 0.2%-7%
 - Revision
 - 10-25%

- **New Strategies**
 - Approach?
 - Larger heads
 - Dual mobility?...



Why is this the first we have heard of this?

- **France – 1970s**

- Bousquet & Rambert

- Monoblock

- Increased H:N

- Low friction concept

- 22.2mm head – polyethylene liner – stainless steel cup

- Cup – porous plasma sprayed alumina

- 2 pegs

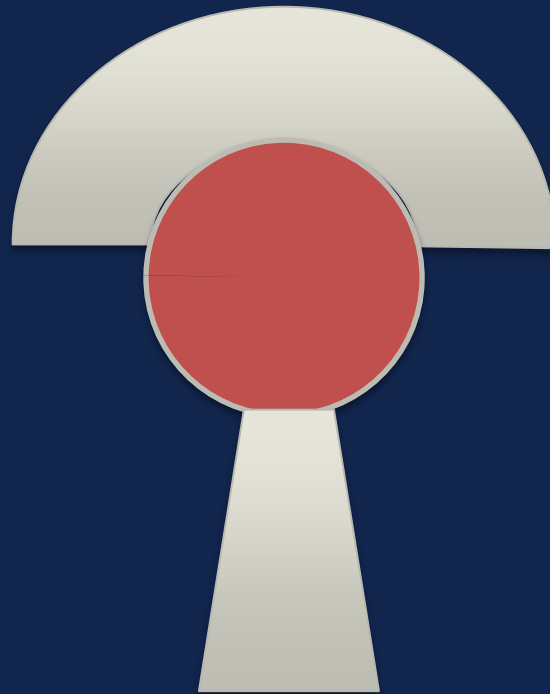
- Iliac screw

- Loss of fixation

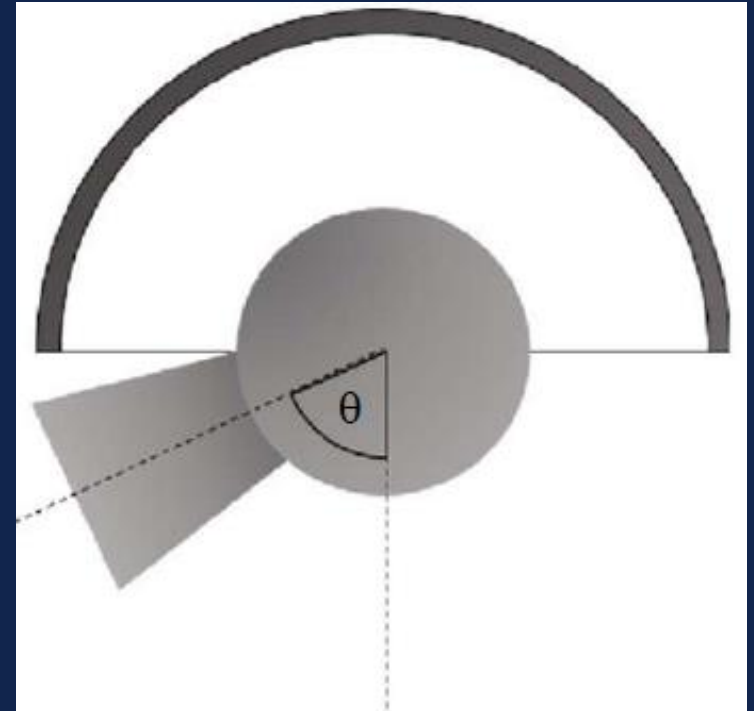
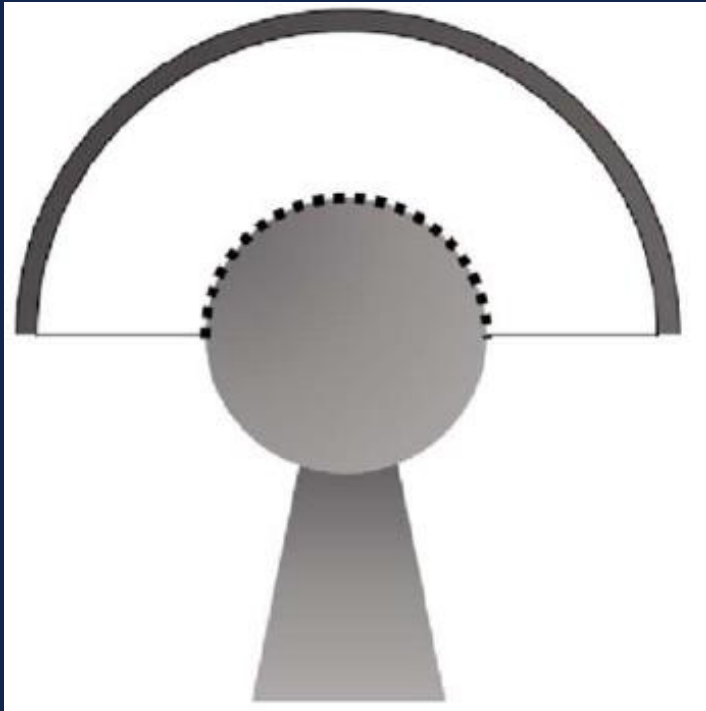
- Approved by FDA 2009



What is dual mobility?

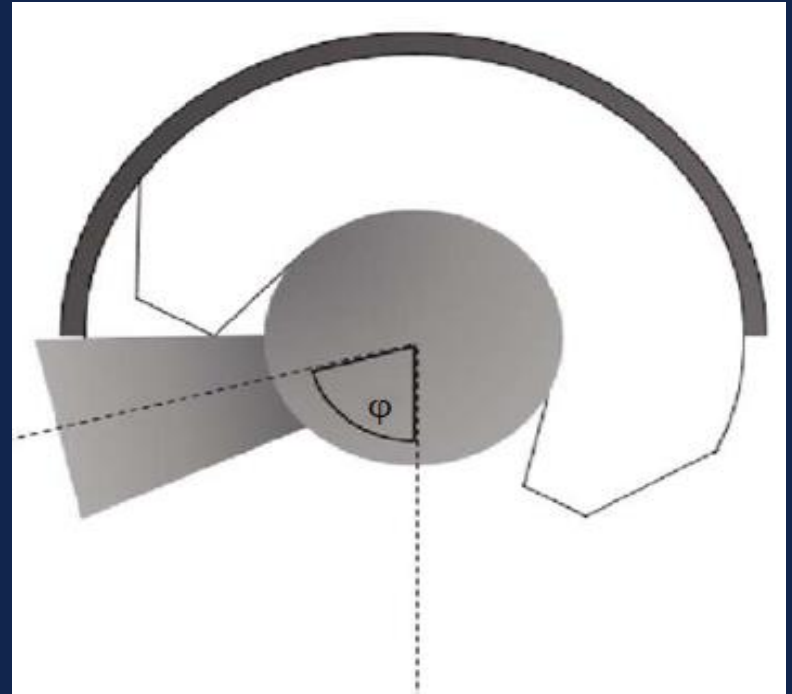
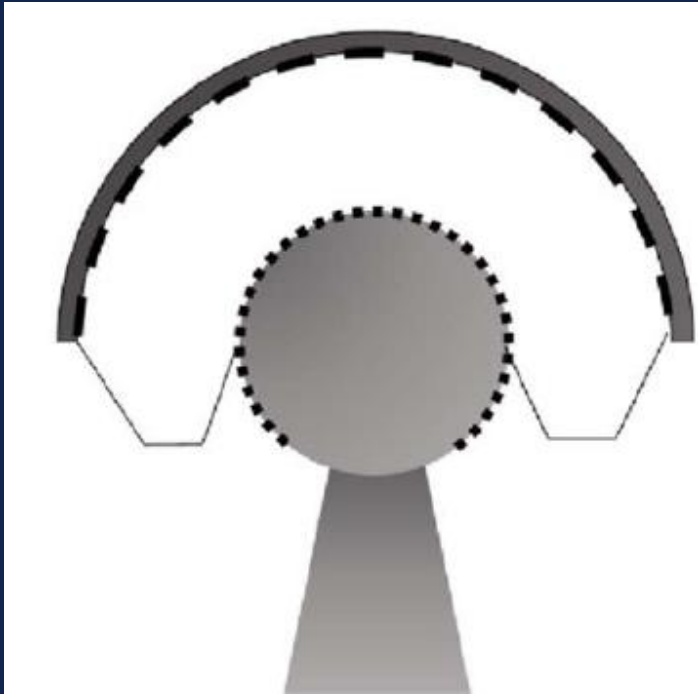


What is dual mobility?



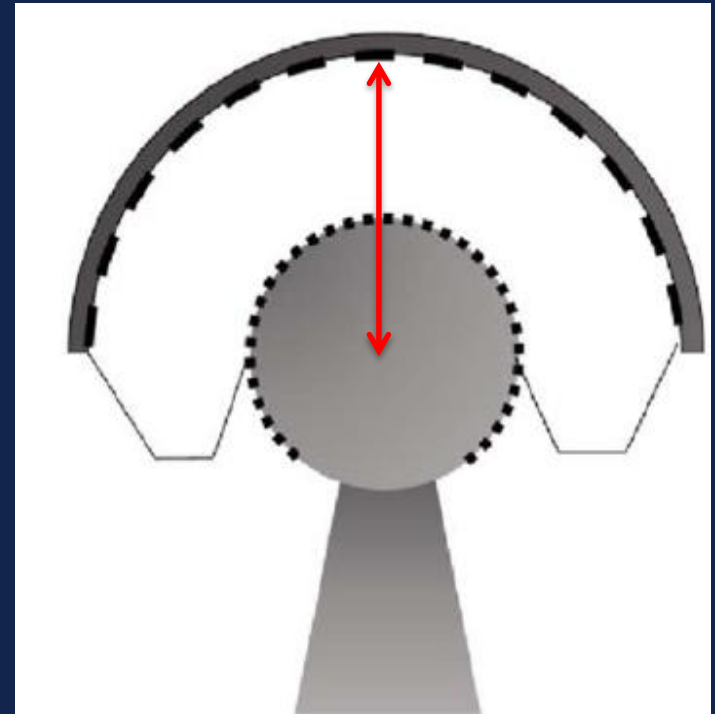
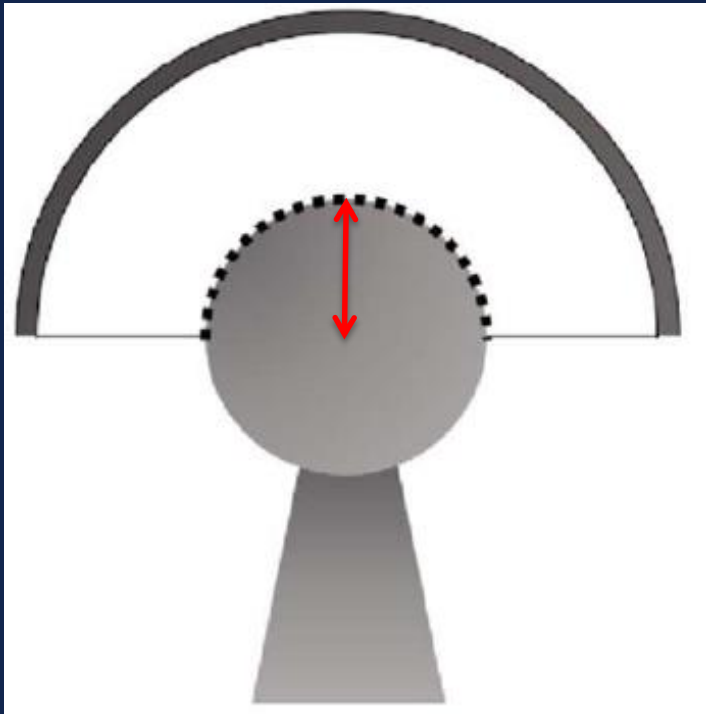
What is dual mobility?

Unconstrained tripolar



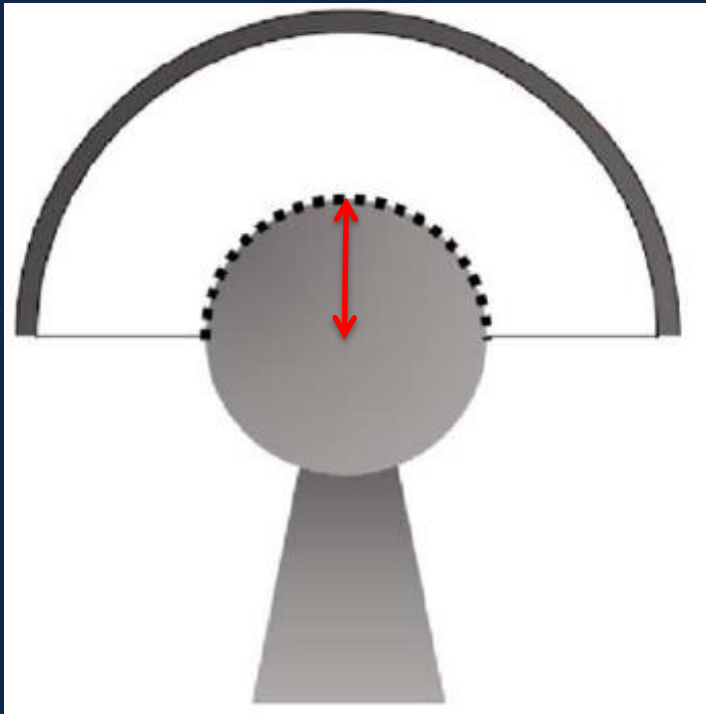
What is dual mobility?

- Jump distance

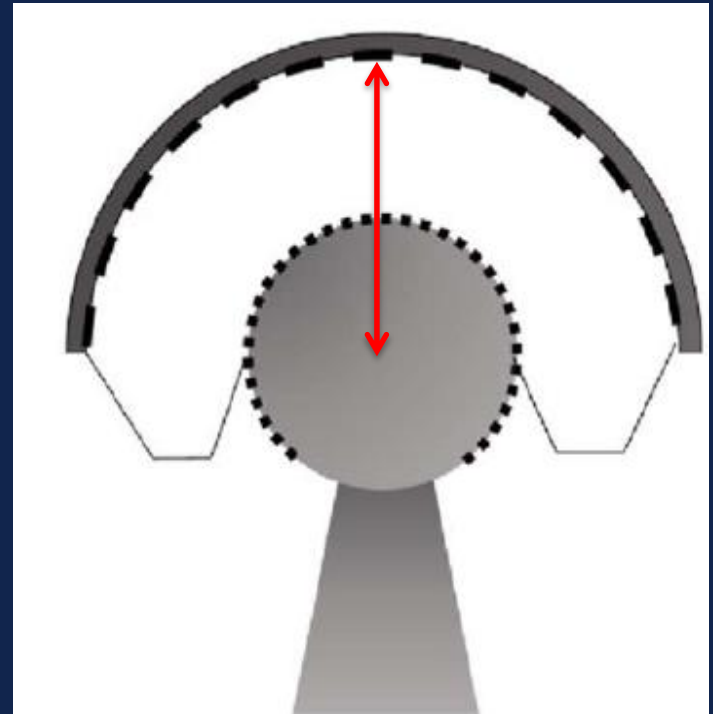


What is dual mobility?

- Jump distance

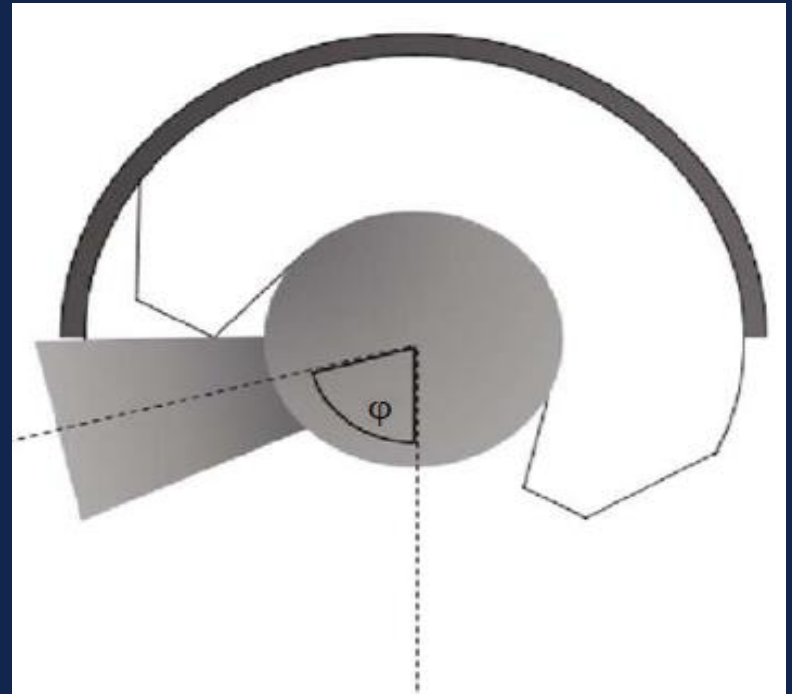
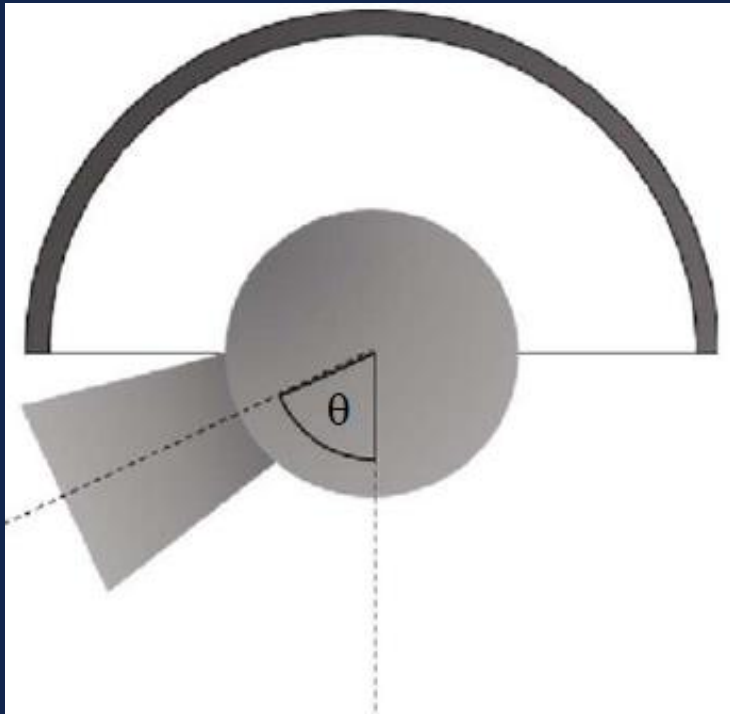


VS



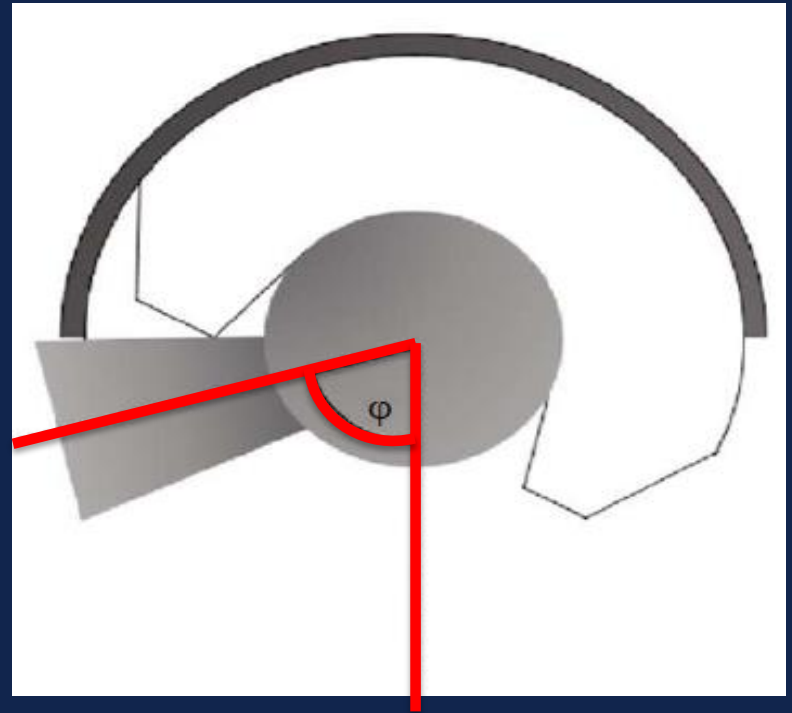
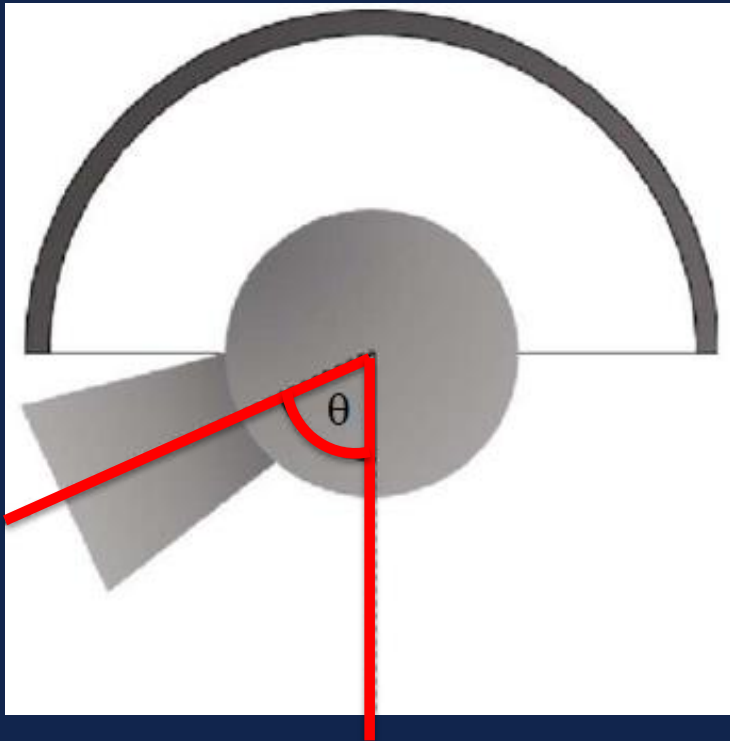
What is dual mobility?

- ROM



What is dual mobility?

- ROM



What is available in the US?

- **Many globally**
- **Smith and Nephew**
 - POLARCUP
- **Biomet**
 - Active Articulation E1
- **Stryker**
 - Anatomic Dual Mobility (ADM)
 - Modular Dual Mobility (MDM)



POLAR CUP – Smith & Nephew

- **Stainless steel cup**
- **Press fit**
 - Plasma sprayed titanium
 - Pegs
 - Screws
 - Anti-rotation fins
- **Cemented**
- **Δ 6mm Cup:Poly**



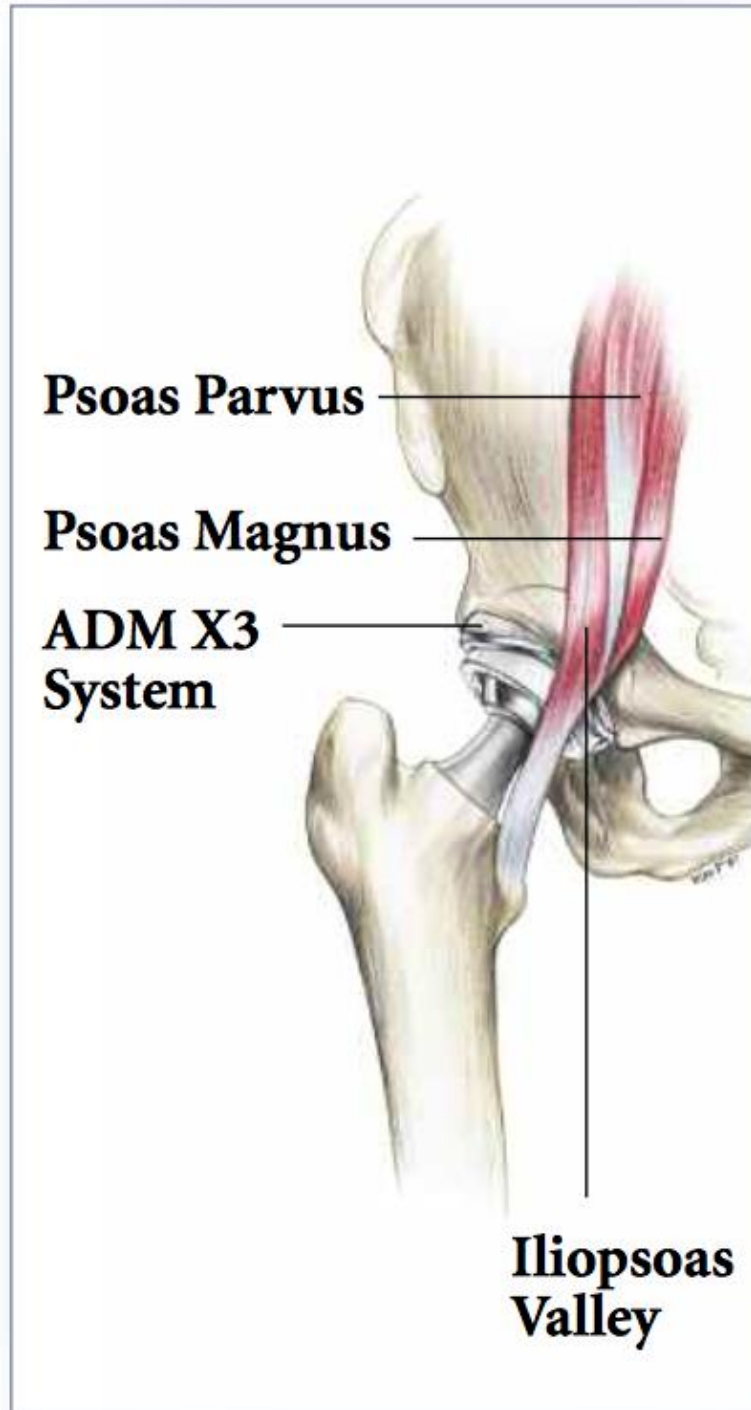
Active Articulation E1- Biomet

- Cobalt Chrome Bearing
- Plasma sprayed titanium cup
- Fins on cup
- Δ 6mm Cup:Poly
- Vitamin E poly



ADM- Stryker

- Cobalt Chrome surface
- Plasma sprayed titanium
- Δ 6mm Cup:Poly
- Cut-out for iliopsoas
 - Impingement



MDM- Stryker

- **Can use with Trident or Tritanium cup**
 - Screw options
- **Cobalt Chrome Liner**
 - MOM
- **36-58mm poly available**
- **Δ 10-12mm Cup:Poly**



What are the advantages?

- **ROM**

- 22.2 and 28mm
- Greater ROM vs conventional
- No difference in DM

- **Many clinical scenarios**

- Primaries
 - Monoblock
 - Cemented
 - Modular
- Revisions



What are the advantages?

- Slides to come on outcomes



What are the disadvantages

- **Published basic science? – industry**
- **Theoretical edge loading**
- **Loss of fixation of cup**
 - Monoblock shells – failure to ingrow?
- **Improved ROM vs 36?- computer modeling**
 - Reduction in dislocation?
- **Wear and osteolysis**
 - Young active patients
- **Intraprosthetic dislocation**
 - 0-4%



- **Slides to come on outcomes**



Intraprosthetic disassociation

- Slides to come



- **Small published series from same authors**
- **Costs**
- **Off label uses**
- **Cannot visual floor of acetabulum**
- **Relatively short follow up for current generation**
 - Improvements in cup fixation?
 - Reduction in osteolysis?
 - Younger active patients?
 - Necessary?



- **Should be better in instability cases...**
 - Paucity of data – primary THA
 - Few in Revisions
 - Many technologies looked good for a few years



Who should get them?

- **Standard THAs – Do not recommend**
- **High risk – Possible**
 - Acute hip fractures
 - Hyperlaxity
 - E danlos
 - Neuromuscular disorders
- **Revisions**
 - Recurrent instability



Conclusions

- **Good option for instability**
- **Limited data**
 - Small series
 - Minimal basic science data
 - No comparison to >36mm head
- **Limited indications**
 - low demand



Questions

