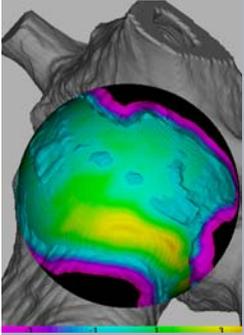


# Hip Resurfacing in London 2007

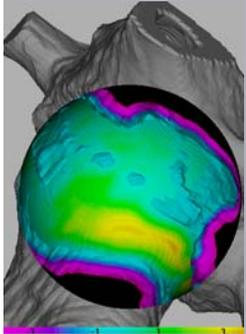
Justin Cobb

Imperial College London



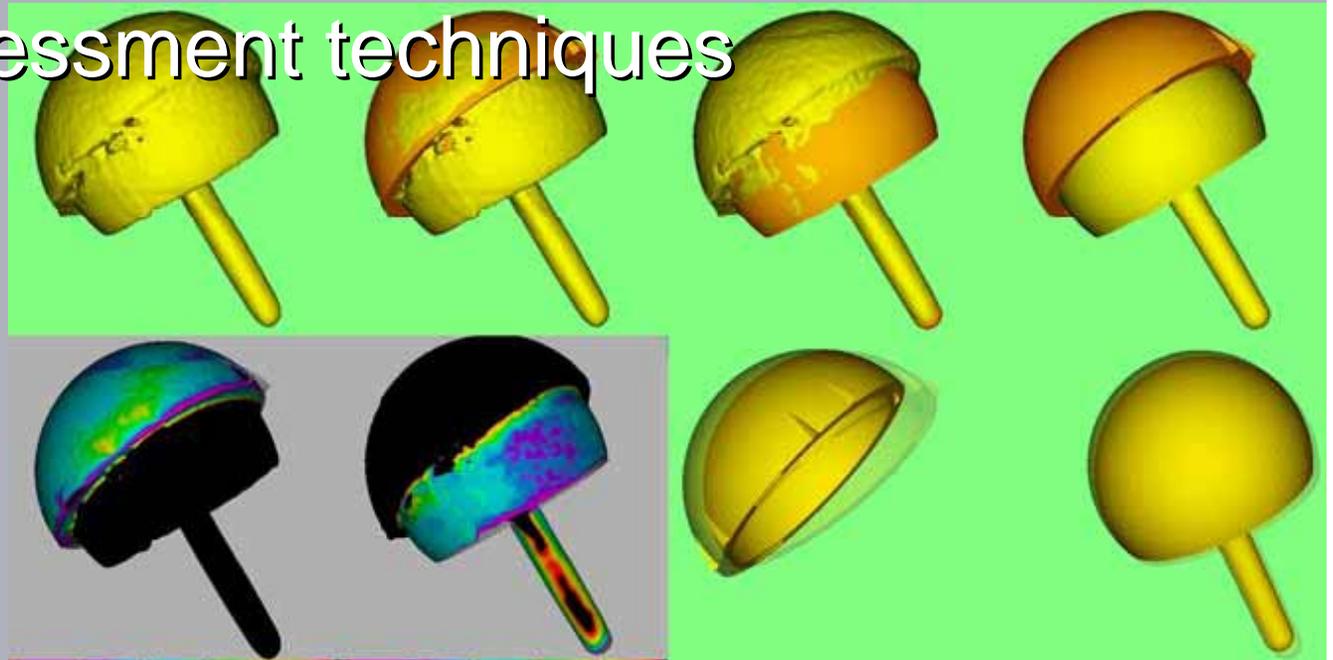
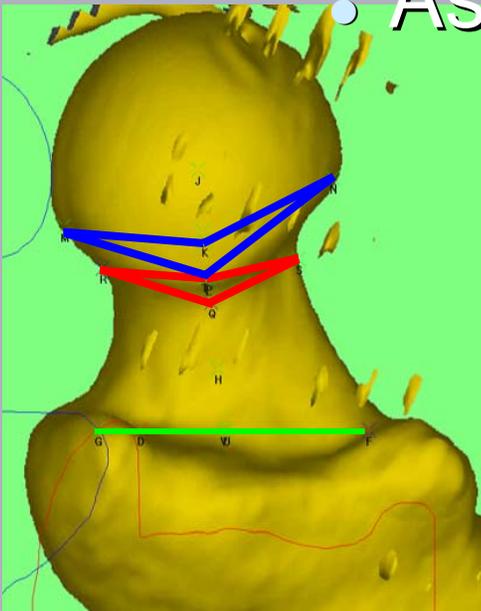
- Chair of Orthopaedics
  - Imperial College
- Orthopaedic Surgeon
  - Charing Cross Hospital
  - King Edward VII Hospital for Officers
  - Civilian Advisor to the Royal Air Force
  - Institute of Materials, Board Member

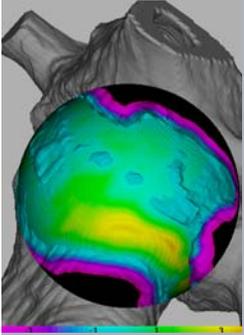




# In our lab

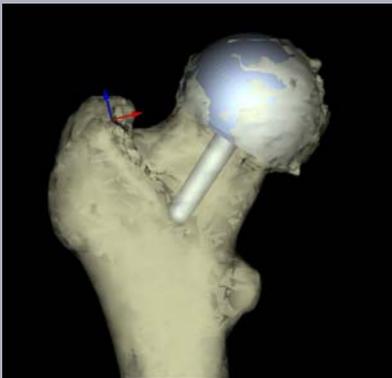
- Accuracy in arthroplasty
  - Causes of early joint disease
  - Mechatronics, robotics
  - Metal Ion measurements
  - Assessment techniques

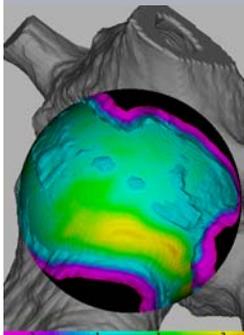




# Resurfacing in Practice

- My personal practice
  - Started in 2001
    - Initially with the BHR
    - Changed to Cormet 4 years ago
      - Have also used the ASR occasionally.
      - Personally performed 188.
      - 1 fracture, BHR, case 5.
      - 2 revisions, both BHR in women over 65





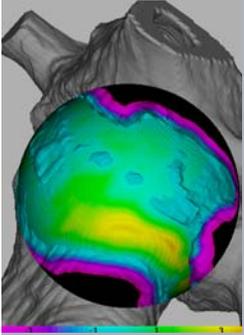
# Resurfacing in the UK

## What do you think of hip resurfacing?



➤ 230 delegates

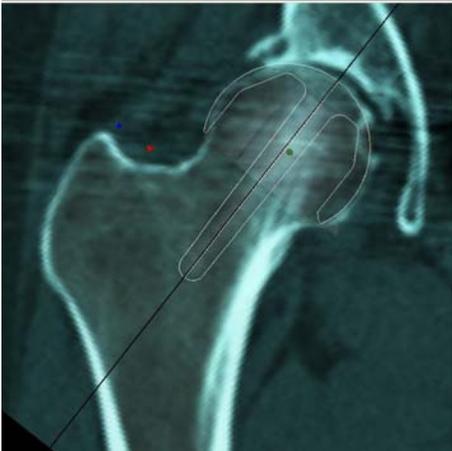
• Cobb et al, Early Intervention Meeting Jan 2007

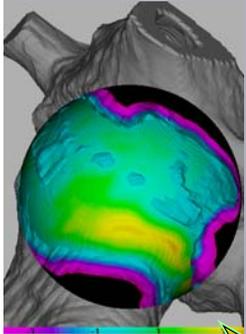


# Is resurfacing safe?

➤ Relative to

- hard on hard total hip arthroplasty
- How do we measure this?
  - Revision Rate
  - Function
  - Metal Ions

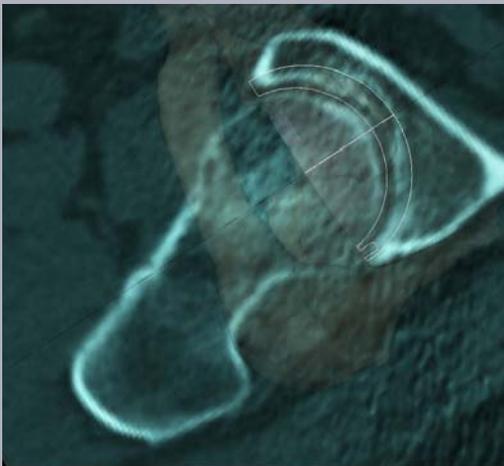


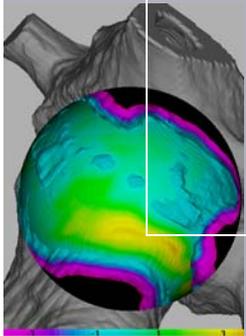


# 1 Metal Ions

## ➤ McKee-Farrar MOM bearings

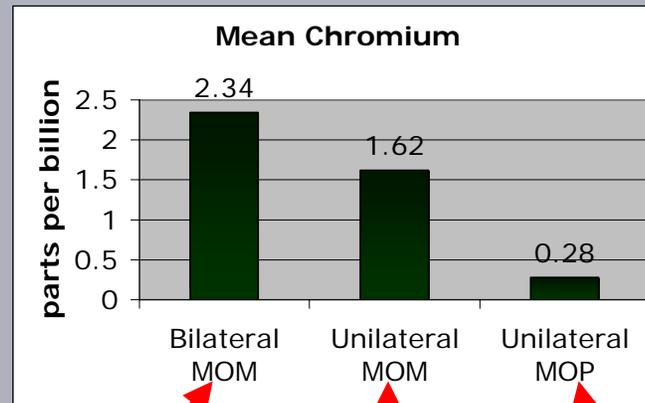
- 30 year follow up, all now dieing
  - No overall increase in cancer risk
    - *Visuri 1996, 2007*



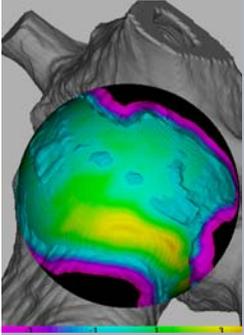


# Wear rate from blood levels

➤ We can now measure blood levels accurately

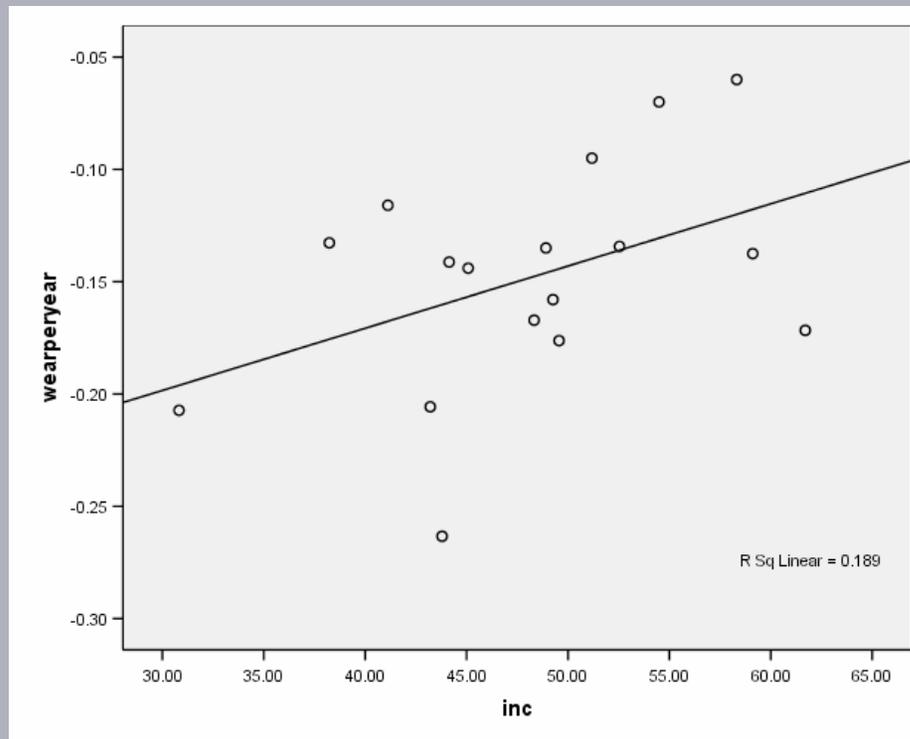


*Alister Hart, Imperial Orthopaedics 2006*

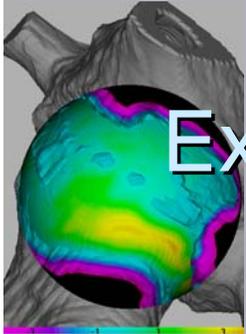


# Wear and Excessive Inclination

- Are related in all bearings
  - Faster in MoP

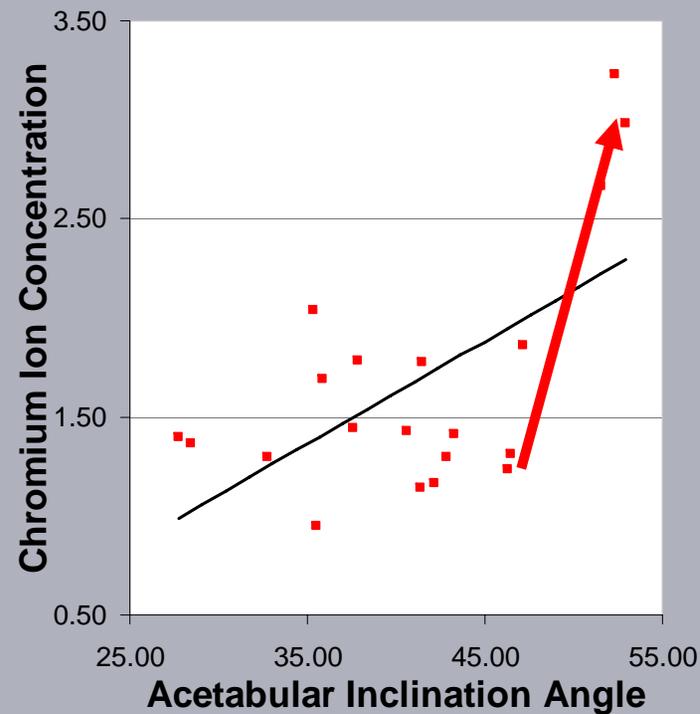


*Cobb, Kannan et al, 2006*



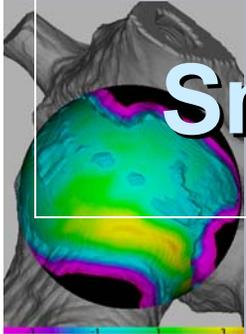
# Excessive Inclination and Metal Ion Levels

- Are related
  - may be a measure of volumetric wear



*Alister J Hart et al, 2007*

# Small Tcell effect of MOM bearings



68 Patients

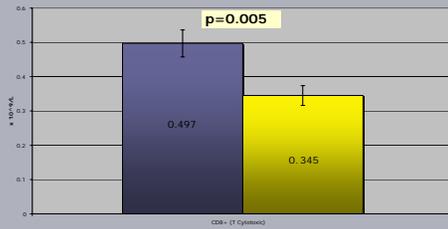
MOP



MOM

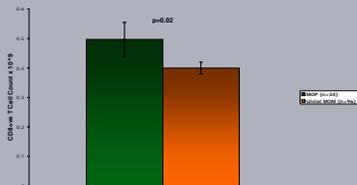


Mean Absolute CD8+ T Cell Count



96 Patients

Mean (+/- SEM) CD8+ve T Cell Count: MOP (n=34) & Unilateral MOM (n=96)



N=21



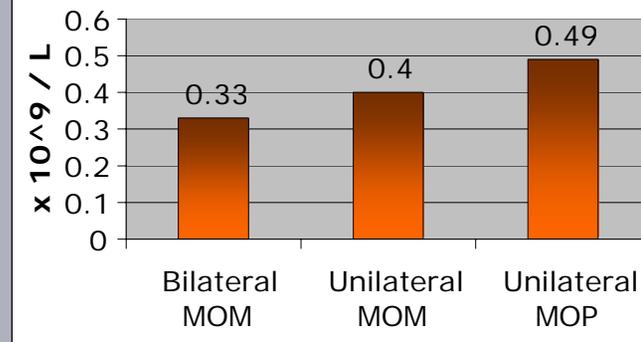
N=96



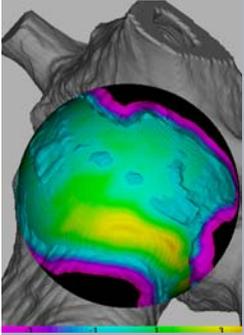
N=34



Mean CD8 Cour

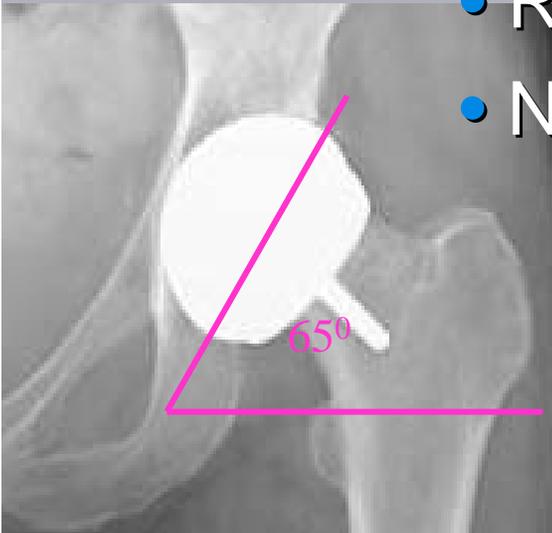


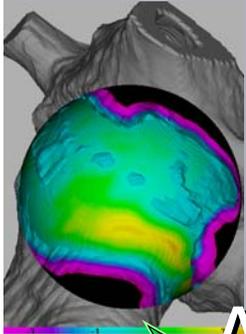
Alister J Hart et al, 2007



# Metal Ion Conclusion

- Still work in progress,
  - Common to bhr and cormet
  - Interesting science
  - Small effect
    - Related to accuracy of placement
    - No evidence of any serious effects



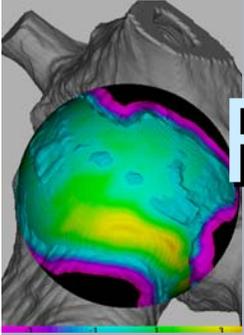


## 2 Function

➤ Activity is good for you

- Vigorous & Frequent Activity
  - Important to Cardiovascular Health
    - *10% increase in Survivorship ages 40-70*
      - *Paffenbarger et al 1986*
- Participation in Activity related to
  - Confidence in ability to be active,
  - Perceived barriers to activity
    - *Pate et al 1995*





## Function: how do THR's do?

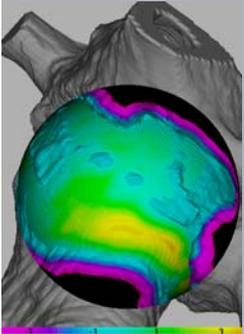
- 187 Total Hip pts vs 435 controls
  - Total hip fared significantly worse
    - mean F/U of 15 yrs

• *Franzen et al 1997*

- 7,130 hip arthroplasties

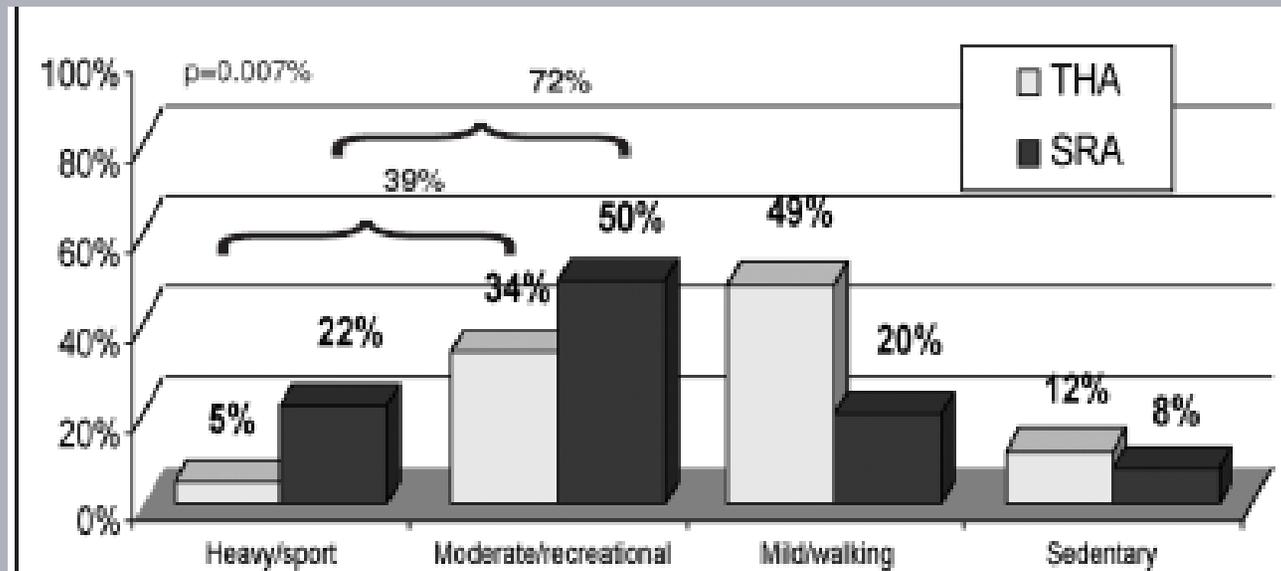
- Only 29% report little or no problems

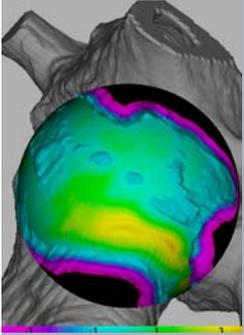
• *NJR, 2006*



# Function: THA vs HRA

- PRCT: THA (metasul) vs HRA
  - Moderate to high level of activity
    - 39% vs 72%,  $P=0.007$
- *Venditolli et al 06*

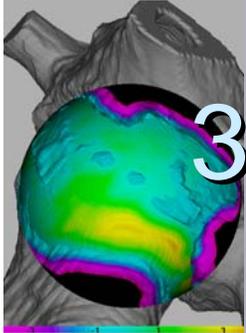




# Function Conclusion

- In UK today,
  - Resurfacing is perceived as
    - Allowing people to be
    - as active as they wish
  - Total Hip replacement
    - Although good
    - Still brings restrictions





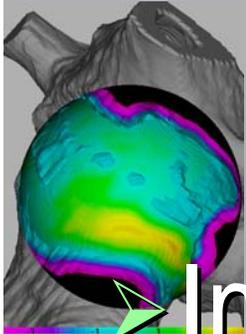
# 3 Revision Rate=Learning Curve

Most failures are technical

*Mont 2007*

- “Learning curve” is an issue
  - Not an acceptable excuse
    - The world has changed
  - Training is essential
  - Documentation of competence

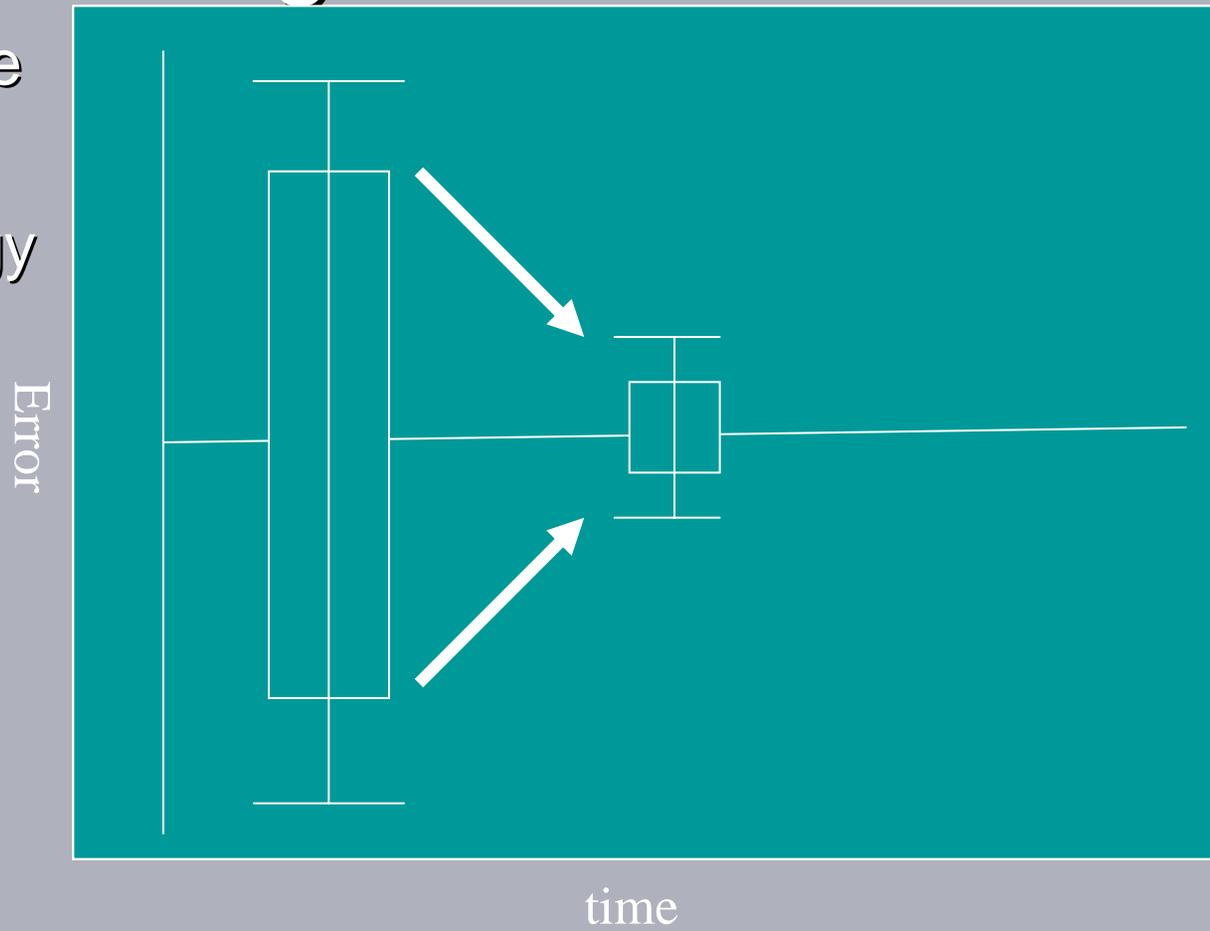


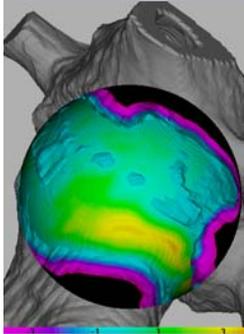


# Resurfacing Training

## Imperial College and Corin

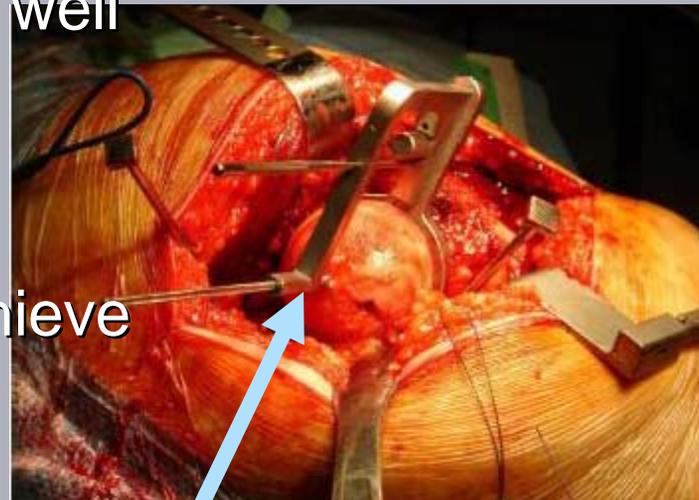
- Knowledge
- Skills
- Technology





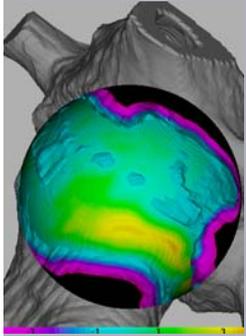
# Conventional Skills

- Learn to use the instruments
  - Corin instruments work well
- Acquire familiarity
- And dexterity
  - Know what you can achieve



Guide wire entry point



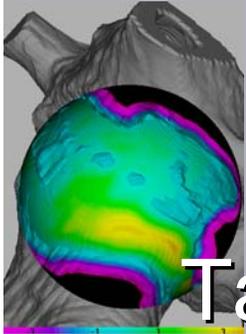


# CT plan station

## ➤ Detailed 3D plans

- Enhanced understanding
  - Entry point
  - Trajectory
  - Relative to instruments

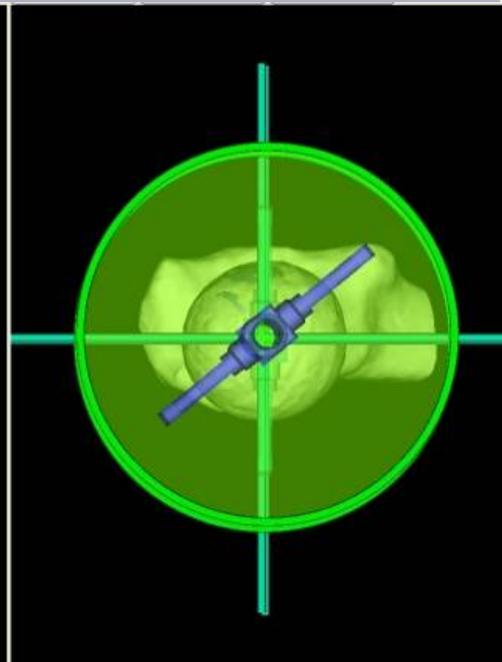
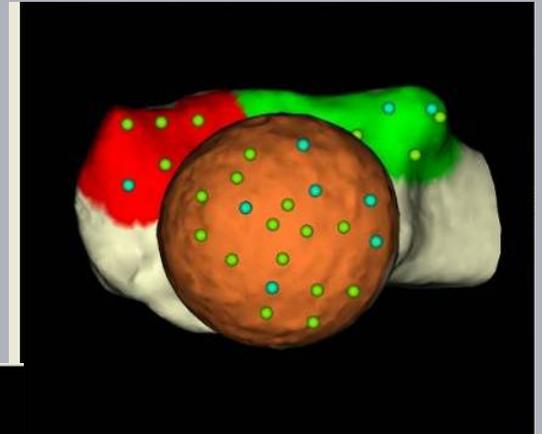


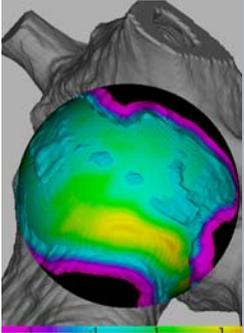


# Navigation station

Task:

Orientation  
virtual surgery  
Feedback  
accuracy

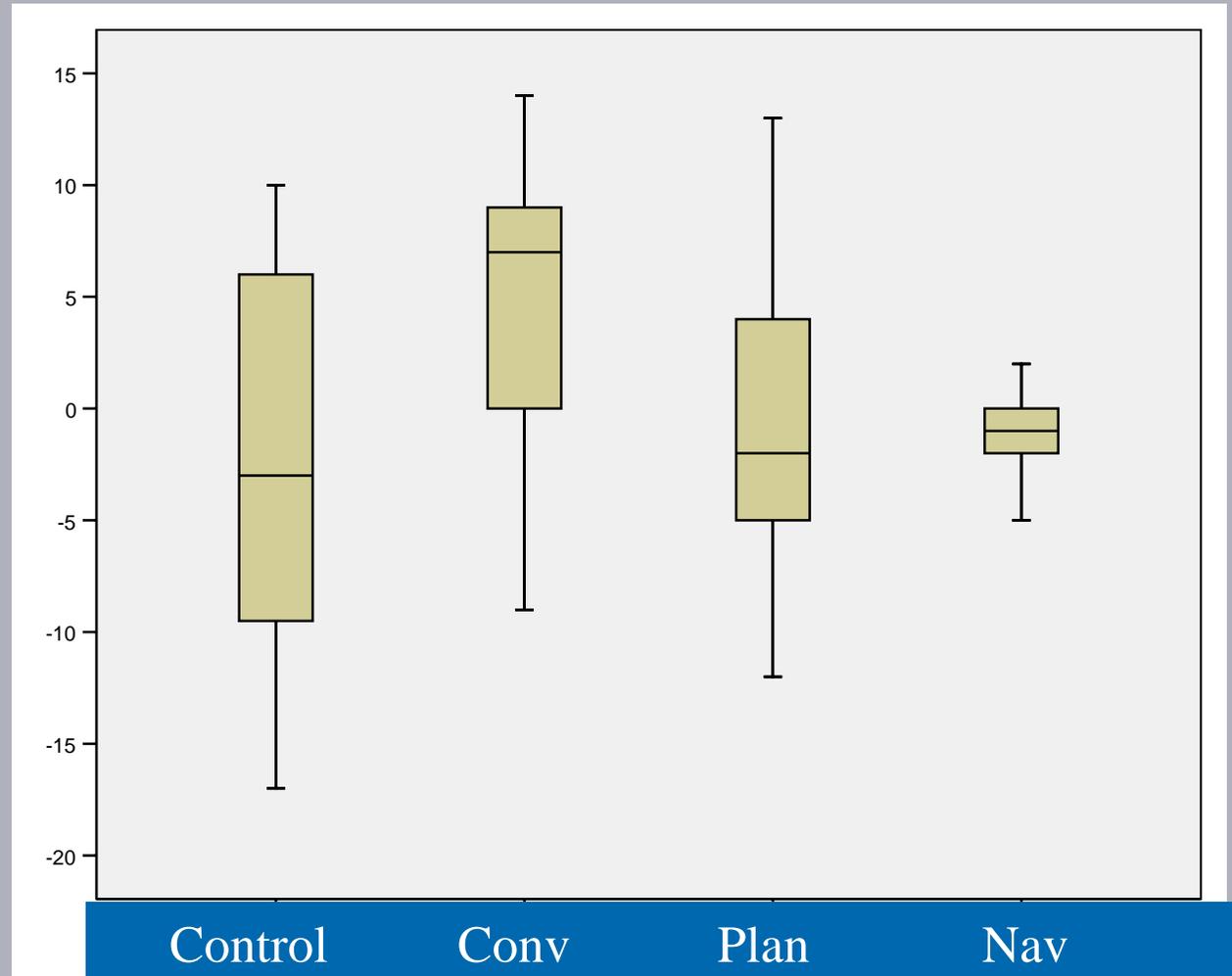


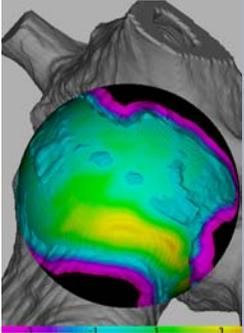


# Comparison with control

## ➤ Control group

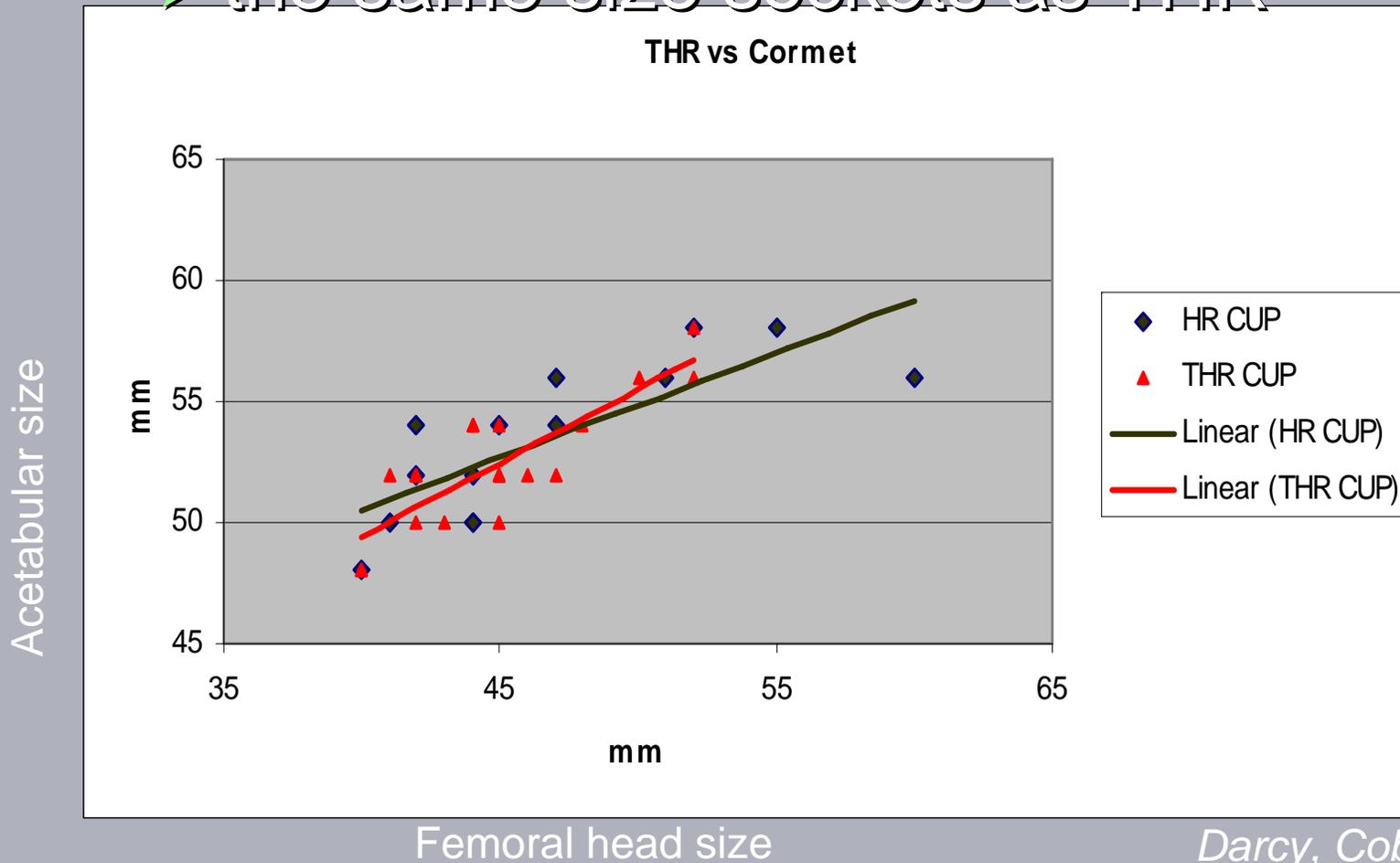
- 75 cases
  - BHR, ASR
  - from elective unit
- Ranges
  - Clinical Controls
    - 27 degrees
  - Conventional
    - 23 degrees
  - Planned
    - 20 degrees
  - Navigated
    - 7 degrees

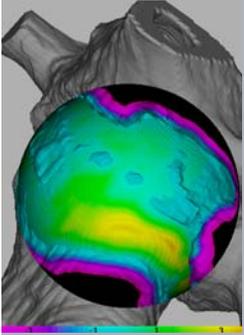




# Acetabular conservation

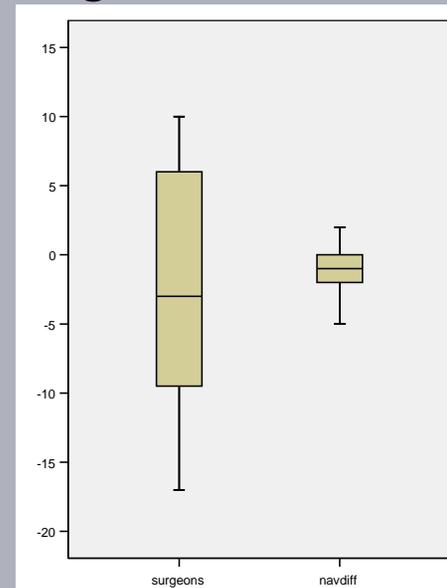
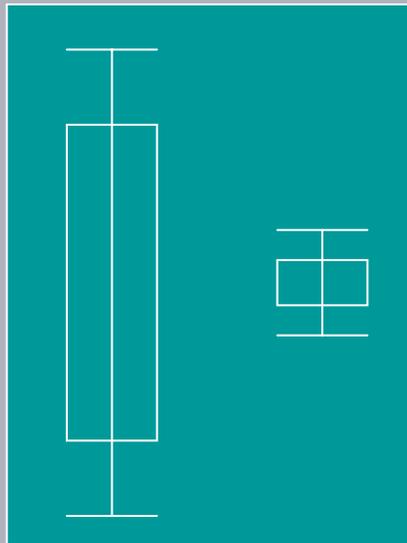
- In our unit,
- the same size sockets as THR

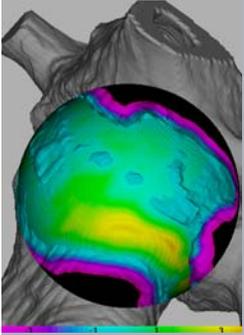




# Training Conclusion

- Resurfacing requires surgical skills
- With appropriate training and technology
  - These are acquirable
  - Minimising clinical learning curve

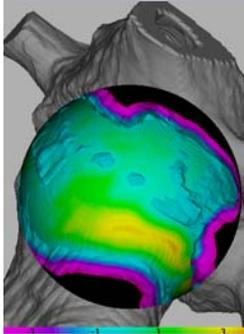




# My current indications:

- In men of any age for
  - Activities in which dislocation
    - would be very adverse
      - Country sports
      - Skiing sailing etc
- In women under 65....
  - Not rheumatoid
  - Bone mass?
    - used as part of consent





# Conclusions

- 1 In our unit, the Cormet is a safe device
  - offering reliable results
- 2 Metal ions are interesting
  - But very small print
- 3 Function may be better with a cormet
  - Patients feel free to exercise
- 4 Early failures will be technical
  - Precision Matters, training is important

