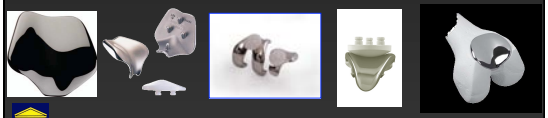
Different types of prosthesis for patellofemoral joint arthroplasty

K.F. Almqvist
M. Vandekerckhove
R. Verdonk

Dept. of Orthopaedic Surgery and Traumatology, Ghent University Hospital, Ghent University, Belgium

Isolated PF arthritis

- PFJ arthroplasty since more than 20years
- More than 15 different devices on the market



Strict Indications for PF arthroplasty

- Radiographically proven severe osteoarthritis PFJ
- No significant axial deformity
- "Normal" tibiofemoral joint
- Extended Indications
- Final decision at arthrotomy?

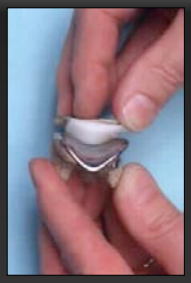
Extended Indications

- Failed Realingment - Fulkerson/Elmslie
- Younger Patient with Early Disease
- Dislocation / Subluxation
- Failed Patellectomy
- Post - trauma (fracture)

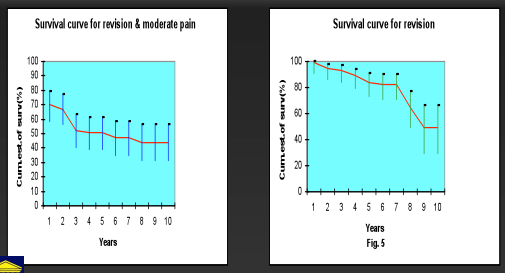
Relative Contra-indications

- Early Chondral Disease
- Patella Baja
- True Algodystrophy
- Pain Enhancement Syndrome

Lubinus



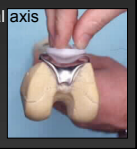
Lubinus: Survivorship @ 8years



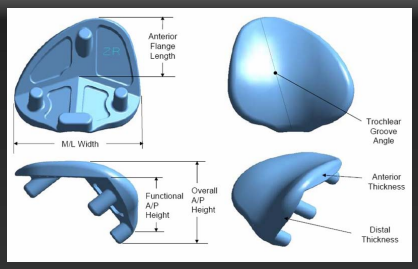
Avon

The Avon™ PF Arthroplasty

- Design Criteria: 1994
  - Surface replacement (minimal bone resection)
  - External rotation of femoral component
  - Broad trochlea surface, unconstrained in extension
  - Patella captured and stable in flexion
  - Congruous articulation throughout range
  - Improved patello-femoral tracking in mechanical axis
  - 4 (today 5) component sizes

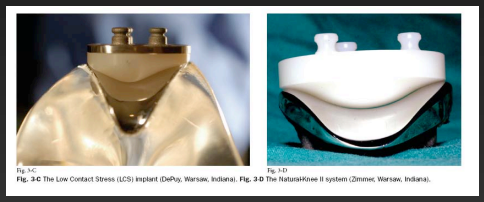


Zimmer Gender Specific



Avon Vanguard

LCS Depuy Natural Zimmer

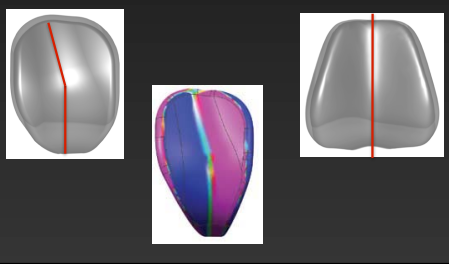


Sigma DePuy

Sizing Considerations

- How much flexibility does the implant allow for proper restoration of natural anatomy?
- Is the implant sized to potentially be compatible with a unicondylar knee replacement if the indications are appropriate?
- Are there any tracking, balancing, or overhang issues that must be considered?

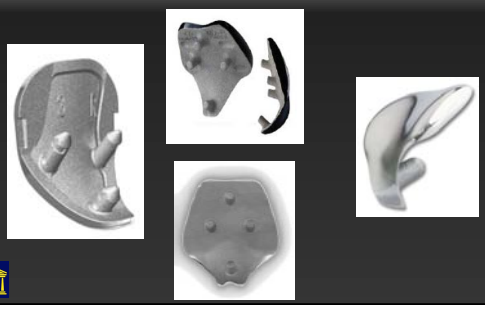
Symmetric or Anatomic?



Symmetry Considerations

- Is the objective of PFA to restore natural trochlear anatomy or to be a staging treatment leading to TKA? Is a symmetric device more likely to ensure a TKA-like placement mentality to ensure repeatability?
- What is the effect of properly establishing correct and repeatable patella tracking on the kinematics of the knee, and does and anatomic implant support this objective better?

Fixation: single or multiple pegs



Fixation Considerations

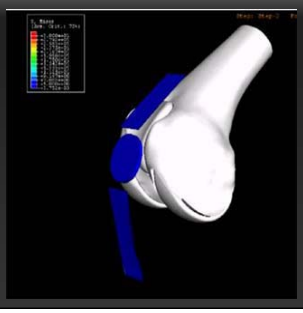
- What is the optimum distribution and number of pins to ensure both fixation and proper distribution of forces at the bone to implant interface?
- Which surface is the key priority for fixation (anterior or distal)?

Trochlear Constraint Level

Less More

Optimized design

- Smooth Transitions
- Resistance to Subluxation
- Absence of Edge Loading
- Low Contact Stress



Constraint Considerations

- How much does a constrained implant limit optimum placement in restoring natural trochlear anatomy by increasing its control of patellar tracking?
- What additional patellar forces may be generated by a high constraint level on the trochlear implant?
- What additional soft tissue considerations exist with a less constrained implant?
- How do the failure modes change with implant constraint level?

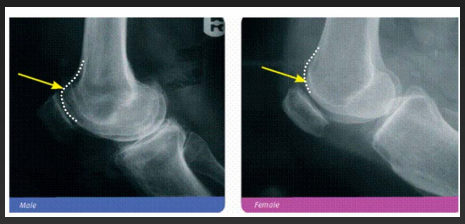
Patellar Component Design

Dome Bi-Concave Tri-Concave

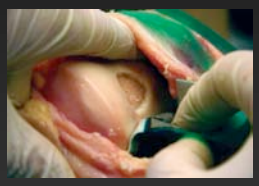
Performance is strongly linked to:

- Constraint
- Surgical technique

Trochlear Morphology?



Limited resurfacing of the trochlea?



Conclusion

- Good indication for a well-selected patient population: very few indications!
- New anxillarity for better and more reproducible positioning (ML and rotational)
- Careful analysis of anatomy and alignment
- Surgical technique & experience!!

Thank you for your attention!!!

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