

Unicondylar Arthroplasty Implant Issues Full Polyethylene, Metal- backed, Mobile-bearing

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Disclosure

- *Designer (Royalty income)* - DePuy A Johnson & Johnson Company
- *Consultant* on Knee Products for Smith & Nephew Orthopaedics
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- *Investor* - Alexandria Research Technology

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Anderson Orthopedic Research
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Personal Practice Patterns

(2004 - Present)

	TKA	UKA	Deuce	PFR
'04	45.6% (134 of 294)	53.7% (158 of 294)	-	0.7% (2 of 294)
'05	55.1% (146 of 265)	42.3% (112 of 265)	-	2.6% (7 of 265)
'06	52.8% (146 of 277)	43.5% (130 of 299)	2% (6 of 299)	1.7% (53 of 299)
'07	51.6% (141 of 273)	30.8% (84 of 273)	14.7% (40 of 273)	2.9% (8 of 273)
'08	51% (153/298)	30% (90/298)	18% (52/298)	1%

Why 40% UKA's / 15% Deuce

- Focal disease process most knees
- Highly satisfied patients- pts prefer unis
- Lower risk of infection- Swedish registry
- Easy revision-outcomes equivalent to 1° TKA
- Progression of arthritis rare

UKA implant preferences

- All polyethylene tibia
 - Less bone removal
- Metal backed tibia (deeper tibial cut)
 - Better bone support
- Fixed bearing implant
 - Retrieval data
- Why not mobile-bearing Unis
 - Registry data
 - The surgeon variable
- The Deuce option

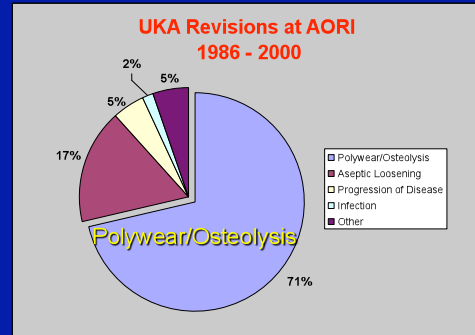
Unicondylar Arthroplasty

- Favor mostly poly tibia:
 - Less bone resection
- Favor metal-backing whenever bone resection accommodates thicker implant
 - easier to implant
 - access to posterior compartment

Why fixed bearing? implant retrieval studies

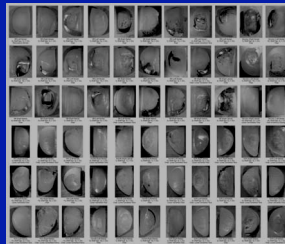
- Wear not an issue with
 - Gamma in inert
 - Non-gamma sterilization (Ethylene Oxide & Gas Plasma)

UKA revisions 1986-2000



AORI UKA Retrievals

- Limiting factor to UKA survival: Polyethylene Quality
- Problem confined to γ -air implants
- 0/42 non- γ -air implants revised



Why fixed bearing? Retrieval Studies

32 Ethylene Oxide non-irradiated inserts

- No delamination
- No subsurface white bands
- Linear penetration: 0.09mm/year



6 implants in vivo >15 years

Williams et al, CORR 1998

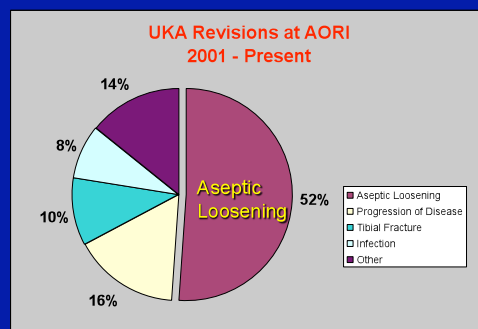
Personal Experience (2001 – 2008)

25 revisions (3.6%) within 4 years

- Aseptic loosening:
 - Tibial component (10)
 - Femoral component (4)

– No revisions for wear/osteolysis

UKA revisions 2000-2008



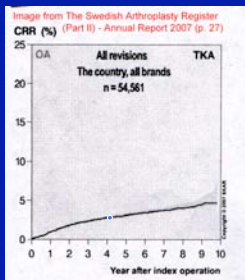
Relevance

Wear is not a clinical issue with currently used mobile or fixed bearing tibial implants

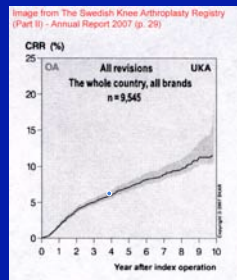
Why not mobile-bearings? Registry data

Early revisions is secondary to
– “the surgeon variable”

? UKA and Early Revisions



TKA's < 2% revisions at 5 years



UKA's > 5% revisions at 5 years

New Zealand Registry

3122 UKAs Jan 2000 – Dec 2006

revised % revised

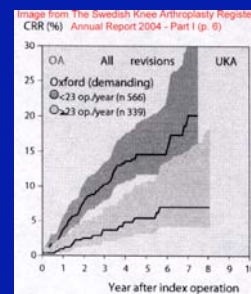
• Preservation	11	3.4
• Oxford Phase 3	94	4.7
• Miller-Galante	22	4.8
• Genesis Uni	13	6.4

% UKA Revisions by Model Australian Knee Registry 2004

Model	1 yr	2 yr	3 yr	4 yr
Oxford 3	2.4	4.7	6.4	7.9
Preservation	2.7	6.2	7.4	7.9
Allegretto	3.0	5.0	5.9	7.4

UKAs with > 100 revisions

Surgeon Experience Makes a Difference



Oxford UKA

Experience is Important for UKA Survivorship

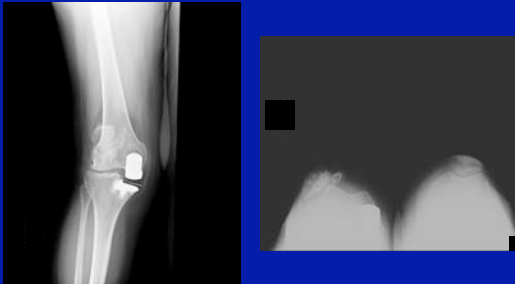
< 8% of knee arthroplasties in the U.S. are UKAs

Is there a threshold for doing UKAs?

Early Failures “The surgeon variable”

Implant (authors)	Preservation (Hamilton, et al)	Oxford (Dervin et al)
Total patients	507	600
Patients w/ minimum 2 yr f/u	445	350
Revisions	26	27
Revision rate	5.8%	7.7%

Gross mal-alignment only possible with ligament damage.

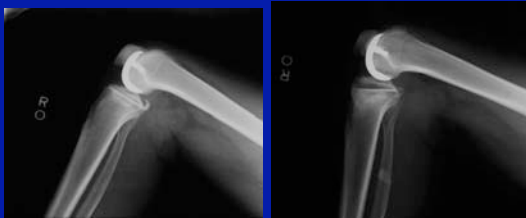


Over-correction of Alignment

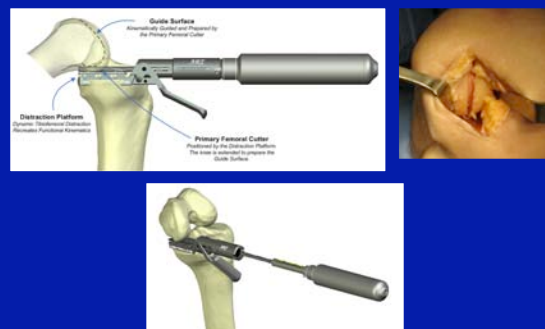
- Uncommon
- Indicates medial structures destabilized - MCL damage



Tibial Collapse

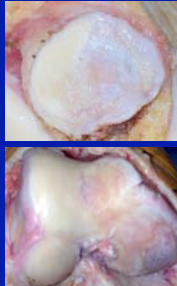


Tissue Guided Surgery

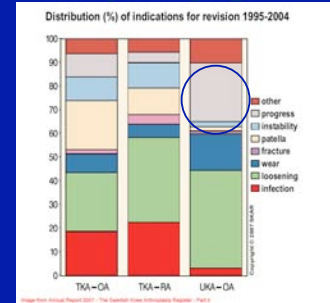


Why the Deuce?

- Expanded arthroplasty options
 - Most knees varus arthritis with variable patellofemoral disease
- Equivalent clinical results to TKA with better knee kinematics



Can patellofemoral arthritis be completely ignored?



Swedish Arthroplasty Registry

Why the Deuce?

- 59 medial UKAs: Grade 2 or less PF change
- At 15 years:
 - 2 UKAs revised for patellofemoral arthritis
 - 10% with moderate/severe patellofemoral pain
- Radiographic changes:
 - Grade 3-4: 14%

Berger et al, CORR # 428, 2004

Why the Deuce?

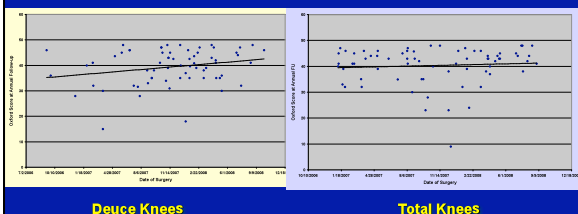
- 99 UKAs
- Mean follow-up: 14 years
- 29 with patellofemoral arthritis
- 35% of medial UKAs developed PF arthritis



Hernigou and Deschamps, JBJS 84A, 2002

Early Deuce Results

Oxford Scores at Annual Follow-up



Deuce Knees

Total Knees

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Thank you