

# Indications and Results of Medial UKA

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SURGICAL SUITES

# Disclosure

## Consultant:

- ◆ Zimmer Biomet
- ◆ TJO

## Research Support:

- ◆ Zimmer Biomet; Pacira Pharmaceuticals; Orthosensor; SPR Therapeutics

# Why UKA vs. TKA?

## Preserves undamaged structures

- ◆ Minimally invasive technique

*Repicci & Eberle, JSOA 1999*

- ◆ Cruciate mechanism - "normal" kinematics

*Komistek et al., CORR 2002*

*Li et al., Knee 2006*

- ◆ PFJ - "normal" contact force & pressures

*Price et al., JBJS Br 2006*

## ROM better than TKA

*Lombardi et al., CORR 2009*

*Laurencin et al., CORR 1991*

## Function better than TKA (gait studies)

- ◆ Demanding activities, eg: stairs

- ◆ Better "feel"

*Wiik et al., KSSTA 2015*

*Von Keudell et al., Knee 2014*

*Walton et al., J Knee Surg 2006*

*Hopper & Leach, KSSTA 2008*

*Laurencin et al., CORR 1991*

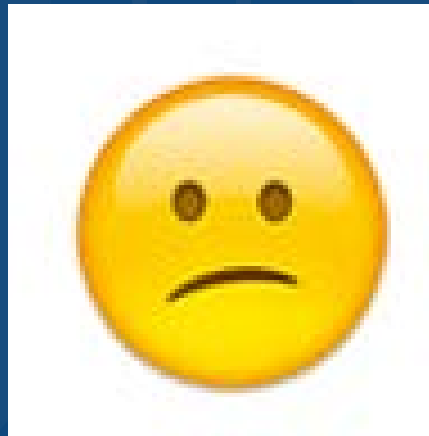
*Hassaballa et al., Med Sci Mon 2007*

## Pain Relief equivalent to TKA

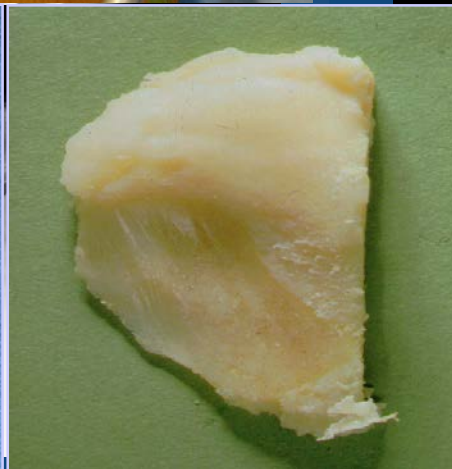
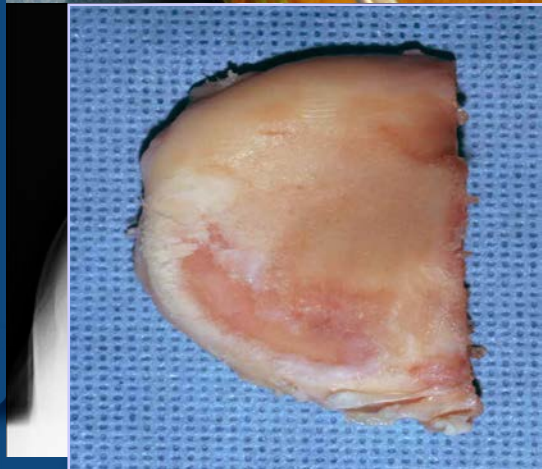
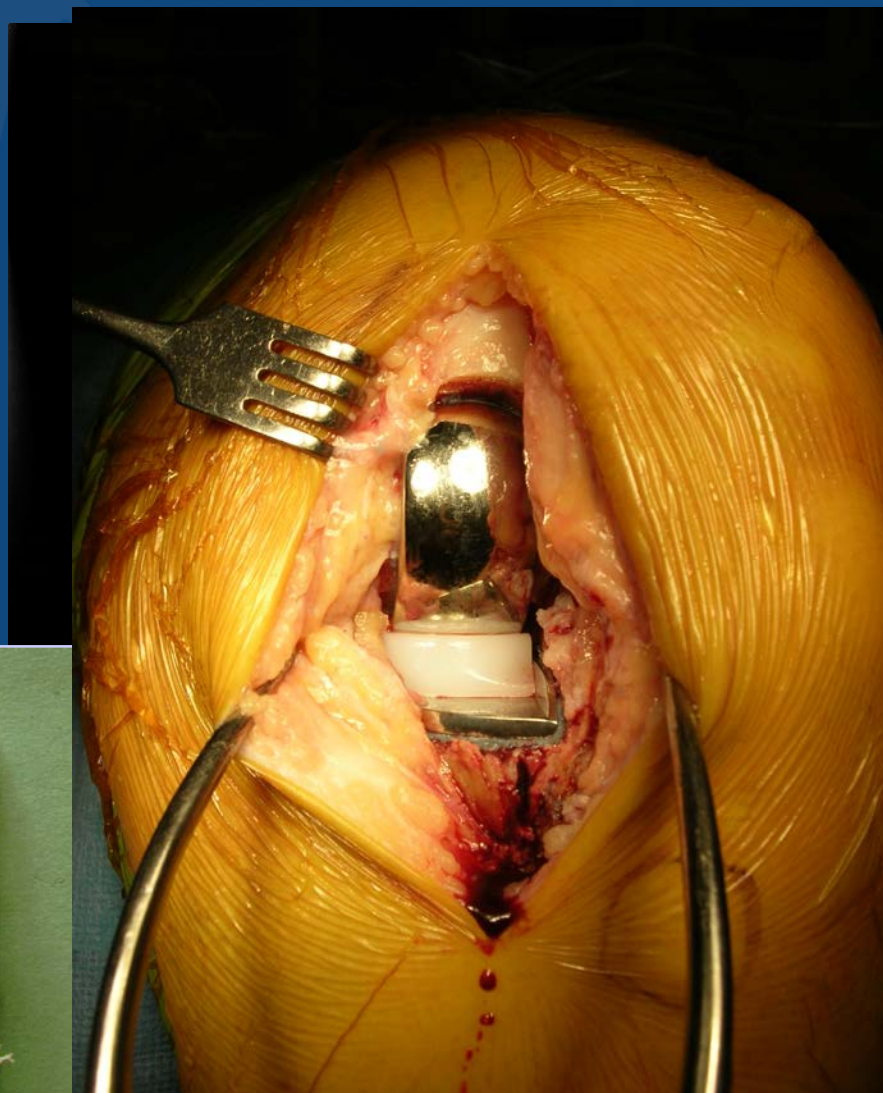
*Lombardi et al., CORR 2009*

# “But All My TKA Patients Do Great!”

19% of patients are dissatisfied with  
the outcome of their TKA

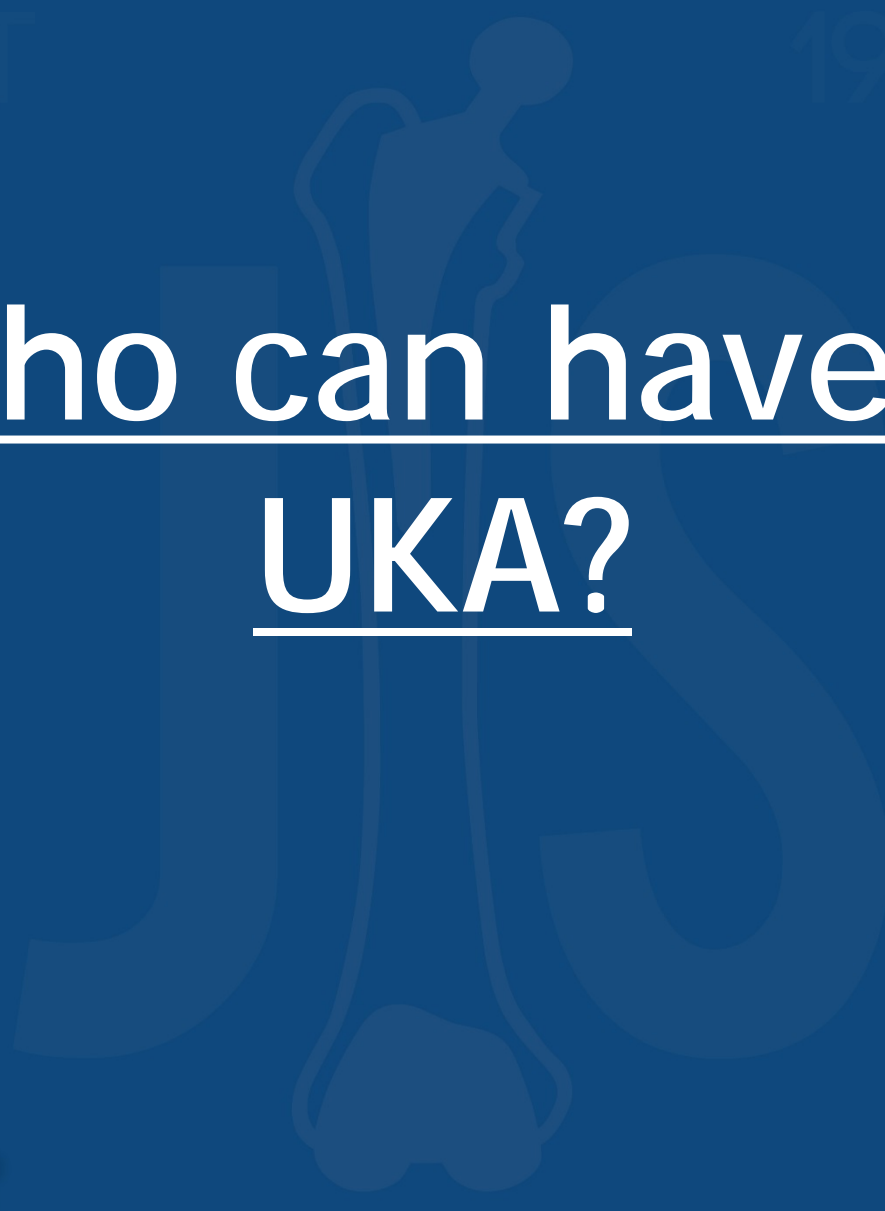


# Don't Throw the Baby Out With the Bath Water



EST 1972

# Who can have a UKA?



# Classical Patient Selection Criteria

*Kozinn & Scott, JBJS 1989*

<15° cumulative angular deformity  
One compartment minimal erosions  
One compartment without changes  
NOT physically active/heavy labor  
ROM >90°; Flexion contracture <5°  
Older than 60 years of age  
Weight less than 82 kg  
Minimal rest pain  
Non-inflammatory  
+ ACL

8%

6%

Sculco TP. CORR 2002

Stern et al. CORR 1993

# Nuffield Centre Criteria

J'S Full thickness Anteromedial OA

- ◆ Intact ACL

- ◆ Correctable (valgus stress x-ray)

J'S Full thickness cartilage laterally

- ◆ No central ulcer

J'S < 15° flexion contracture

J'S < 15° varus

J'S > 90° flexion



# Nuffield Center Criteria

## J'S **Not** contraindications:

- ◆ Patellofemoral joint
- ◆ Chondrocalcinosis
- ◆ Obesity
- ◆ Age
- ◆ Activity

## J'S Contraindications

- ◆ Inflammatory arthritis
- ◆ Post HTO

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# X-rays define candidacy for UKA

# Anteromedial Arthritis

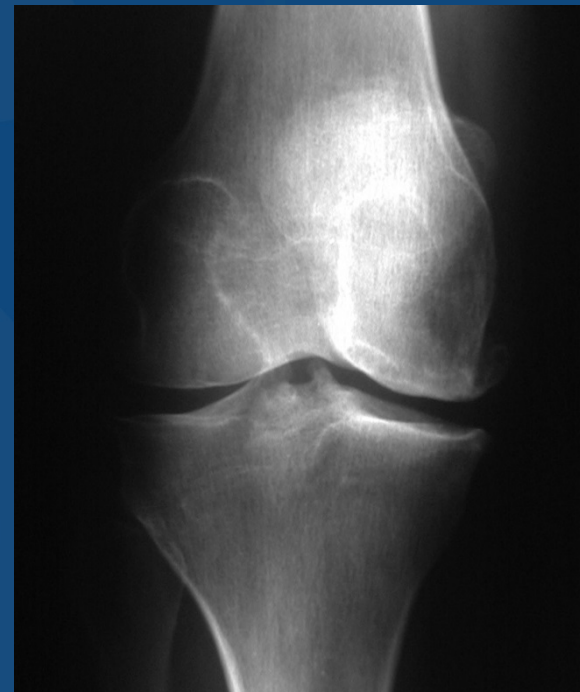
Nuffield Criteria May Expand the Percent of Ideal Candidates to 25-50%



Full Thickness  
Cartilage Loss



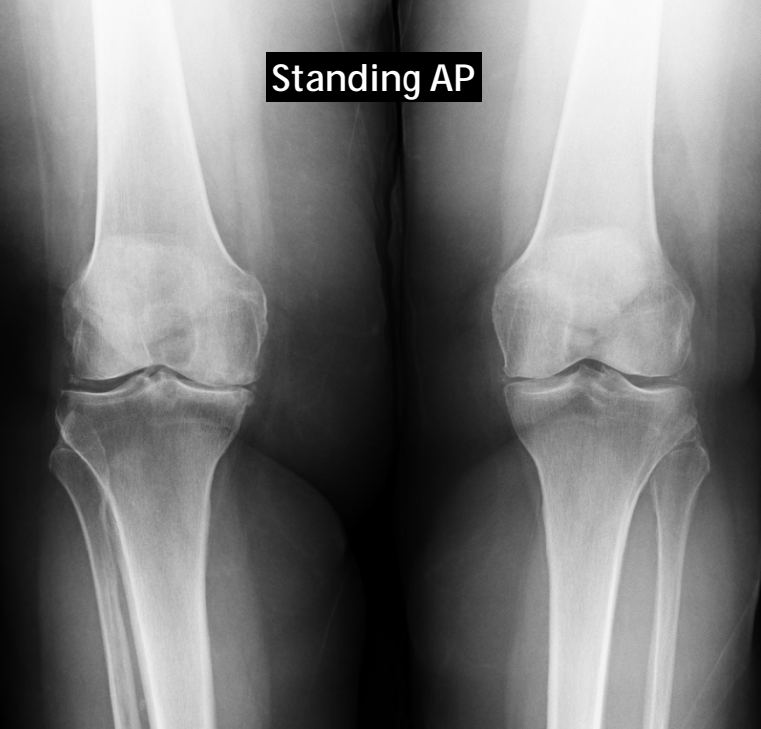
Anterior Disease  
Preserved  
Posterior Bone



Fully Correctible  
Full Thickness  
Lateral Cartilage

# Radiographic Analysis

Standing AP



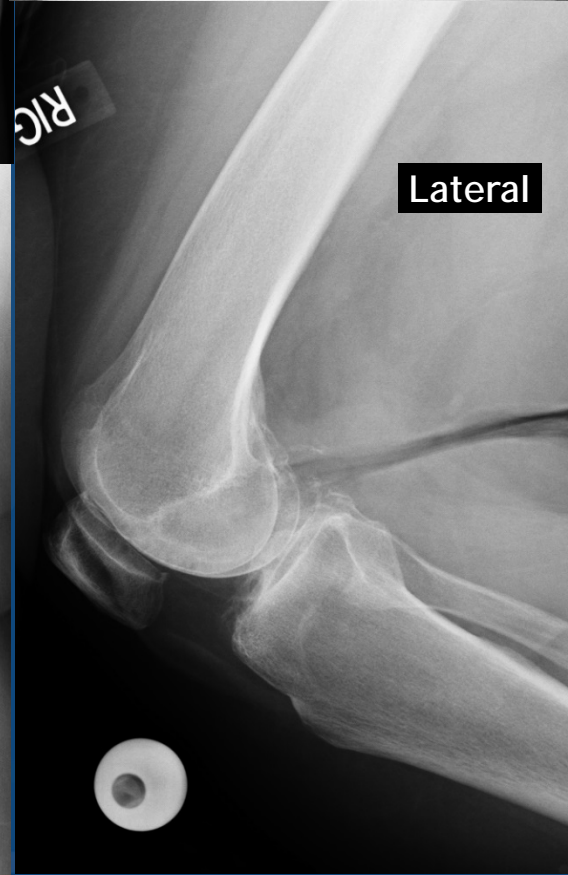
Merchant



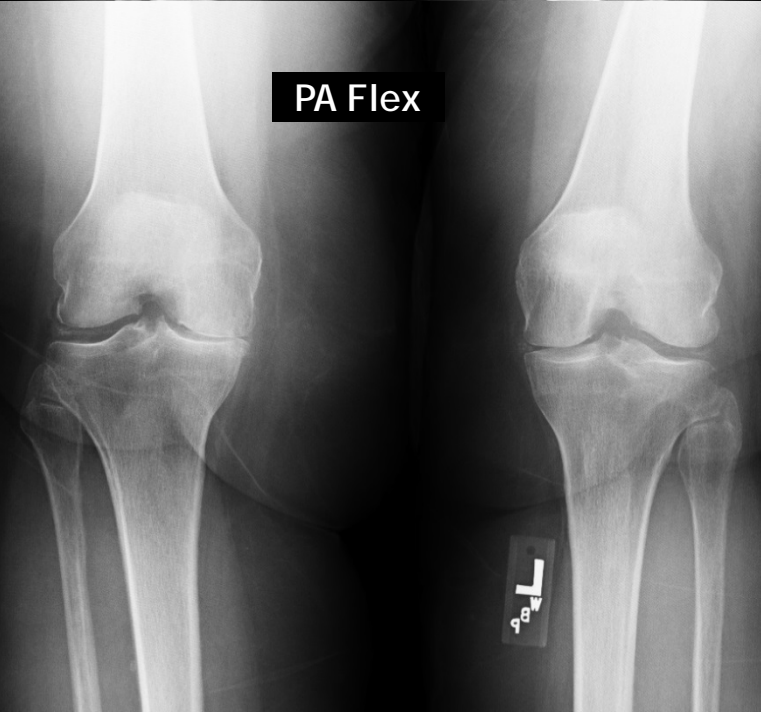
Valgus Stress View



Lateral



PA Flex

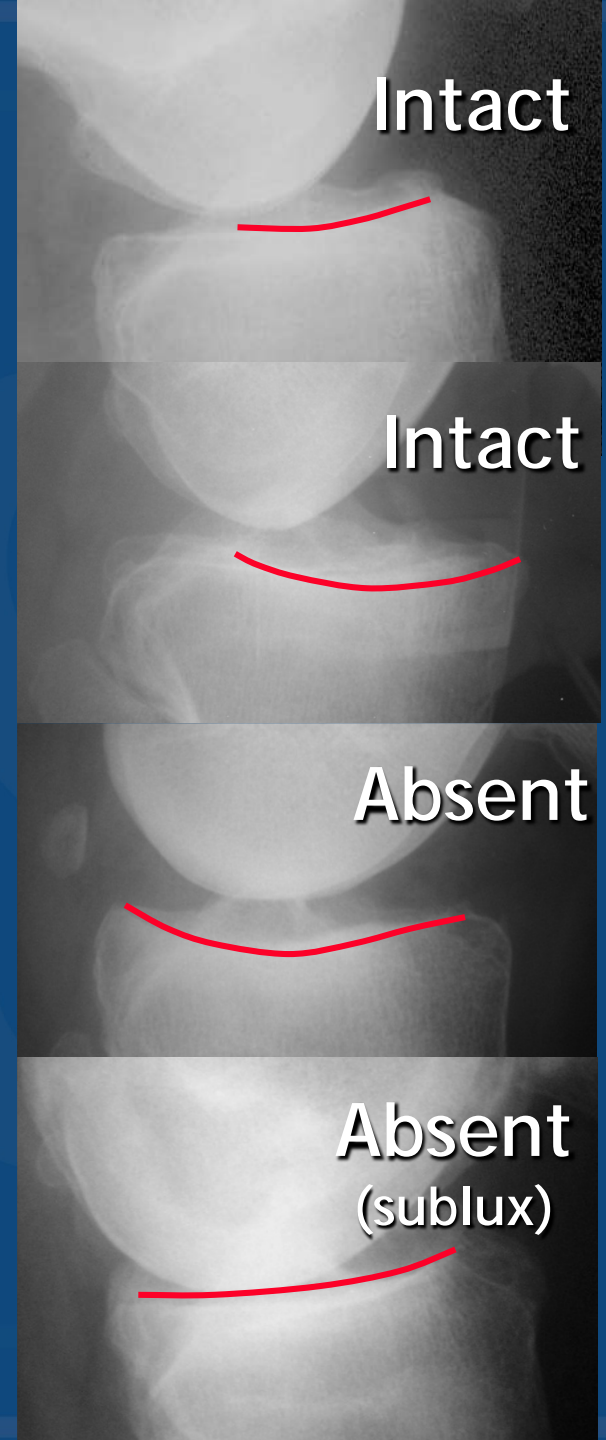


# Functionally Intact ACL

## J'S Lateral x-ray (Keyes 1992)

- ◆ Tibial erosion does not extend to back
- ◆ 95% predictive ACL intact

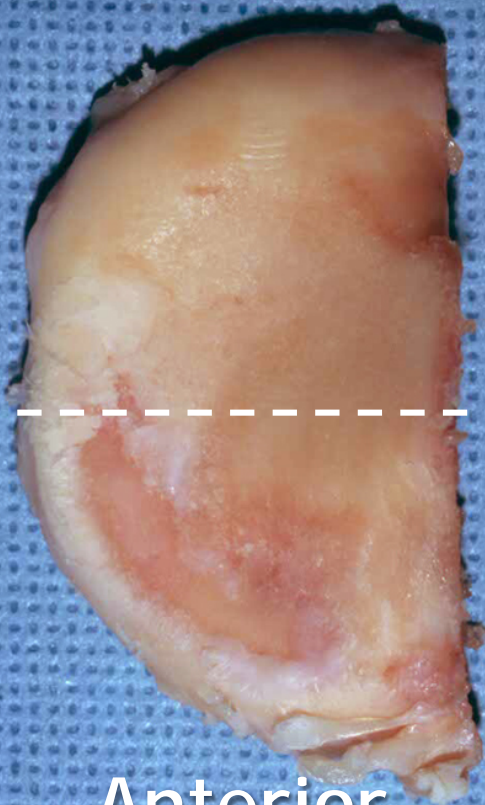
## J'S More reliable than MRI or clinical for assessing ACL in OA (White 2004)



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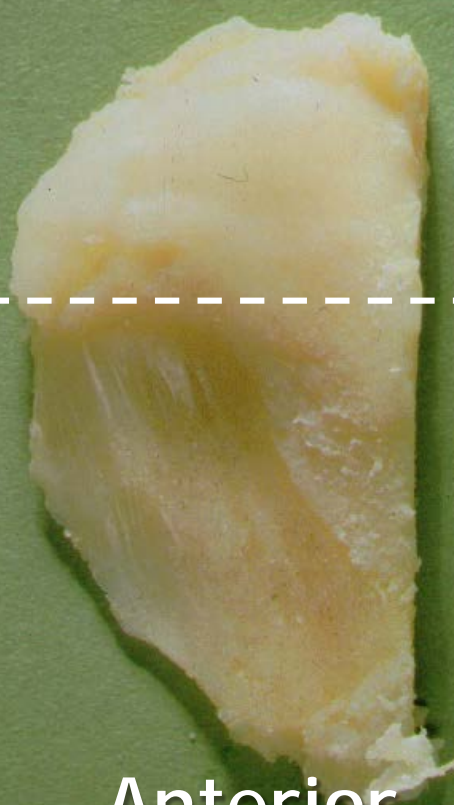
# Typical Cases

Posterior



Anterior

Posterior



Anterior

Posterior



Anterior

J'S Anteromedial OA (*White et al.*)

J'S Functionally intact ligaments

# But how about...

- J'S Young patient
- J'S Obese
- J'S Anterior knee pain
- J'S Patellofemoral OA



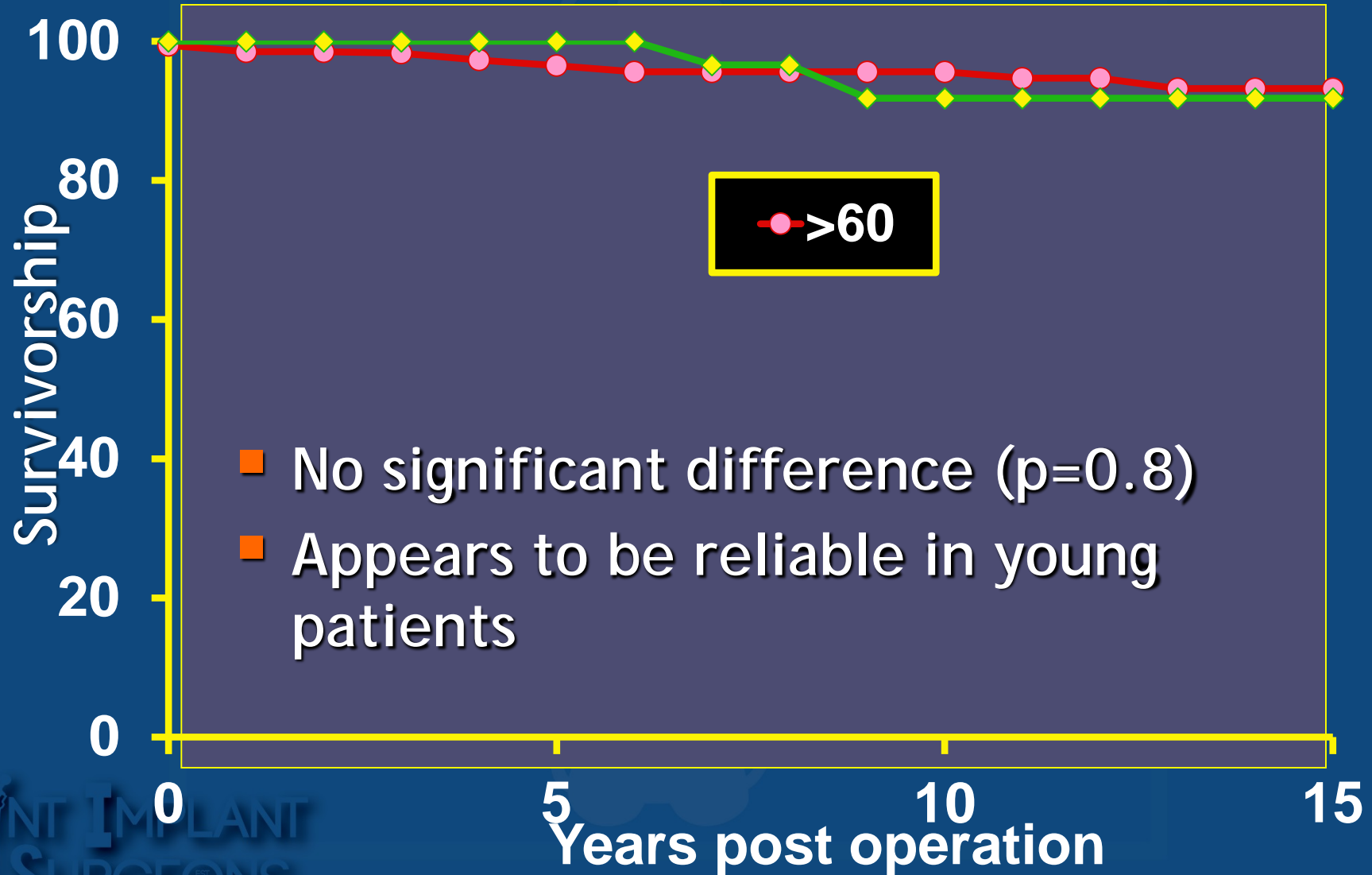
# Age < 60?

- 245 knees < 60 yo vs. 755 ≥ 60 yo
- No difference in OKS or KSS (although functional scores higher in younger group)
- 10-year survivorship in younger group 97.3%
  - ◆ Bearing dislocation most common etiology
- 10-year survivorship in older group 95.1%
  - ◆ Lateral progression most common etiology



# Age <60?

*Price et al. JBJS-Br 2005*



# Obesity: Not Such a Big Issue

- 2438 MB-UKA (up to 12 years)
  - ◆ Two Centers: JIS/Oxford UK
- BMI <25: n=378
- BMI 25-<30: n= 856
- BMI 30-<35: n=712
- BMI 35-<40: n=286
- BMI 40-<45 n=126
- BMI >45: n=80
- No difference in survival rates
- Heavier patients were also younger
- Greater improvement in functional scores with higher the BMI



# What About the Knee Cap?

Anterior Knee Pain?

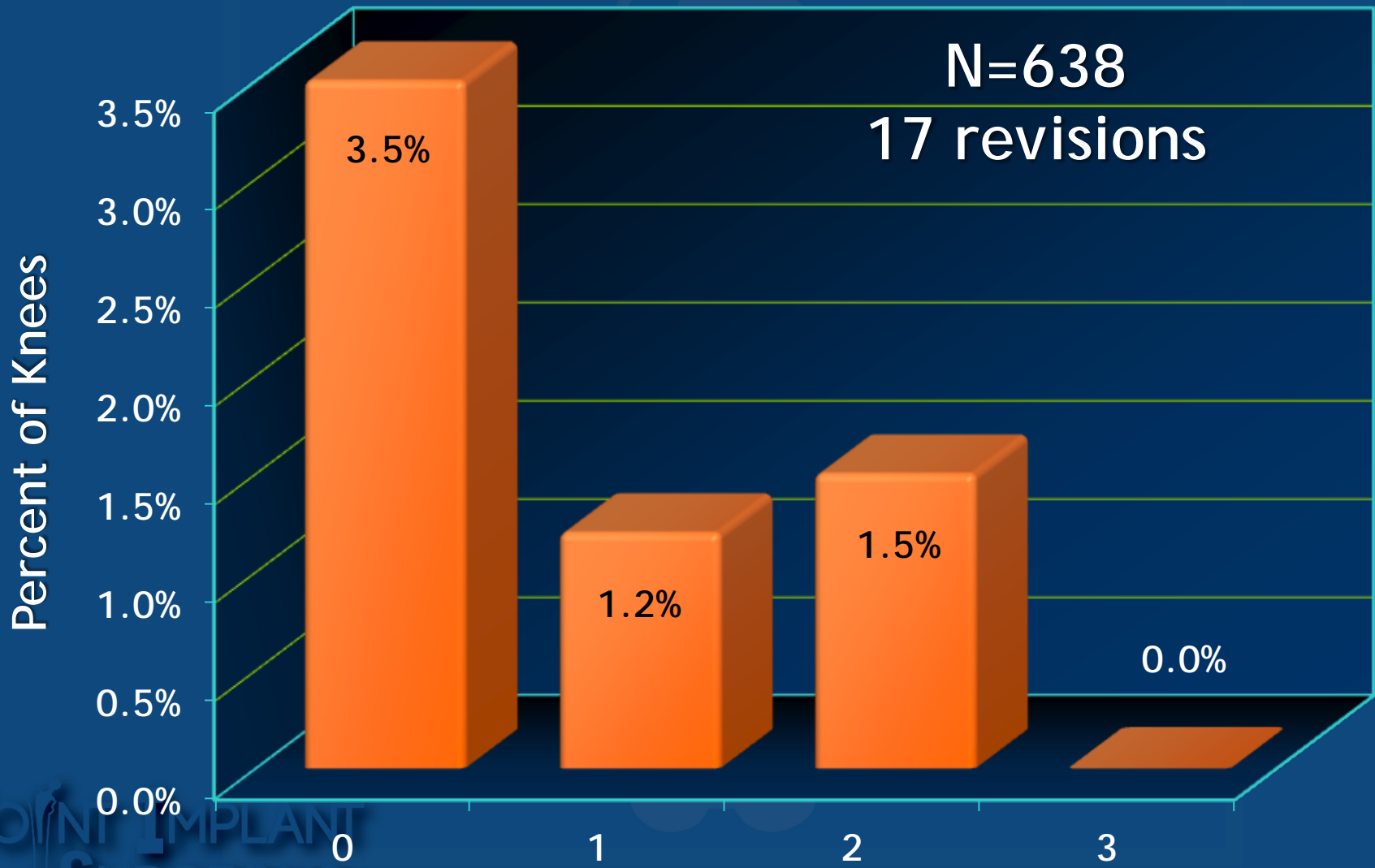
Patellofemoral OA?

R

L



# Failure Incidence by Patellofemoral Grade



Berend KR et al., Orthopedics 2011

# How About Preoperative Anterior Knee Pain?

J'S 406 knees

- ◆ 272 with isolated medial pain
- ◆ 25 isolated anterior pain
- ◆ 109 mixed or generalized pain

J'S No difference in outcome scores at 1 and 5 years between the groups

# “Extremely Physically Active or Performed Heavy Labour?”

- Tegner  $\geq 5$  (n=96) vs. Tegner  $\leq 4$  (n=904)
  - ◆ Tegner  $\geq 5$  were younger (60 vs 67 years of age,  $p < 0.001$ )
- No difference in survivorship at 10 years (97.8% vs. 95.3%, respectively)
  - ◆ OKS (45.6 vs 40.6) and KSS functional (96.8 vs. 81.8) higher in Tegner  $\geq 5$  group

# Summary

## JS CHALLENGE THE DOGMA!

JS Modern patients are more active and intrigued by the “less invasive” mantra


JS Medial UKA is indicated for anteromedial OA

- ◆ Bone-on-bone medial disease
- ◆ intact ACL
- ◆ normal valgus stress radiograph (intact lateral cartilage)

# Summary

- ❑ Kozin & Scott criteria are too strict!
- ❑ Expanded indications do not affect early survivorship.
  - ◆ Age, weight, activity level, location of pain, and the status of the patellofemoral joint are not contraindications
- ❑ Medial UKA does have long-term clinical durability comparable to TKA



A stylized, light blue graphic of a femur (thigh bone) is positioned vertically on the left side of the text. The head of the bone is at the top, and the distal end is at the bottom. The text "JOINT IMPLANT SURGEONS" is written in a bold, sans-serif font, with the word "SURGEONS" on a second line. The letter "O" in "SURGEONS" contains the text "EST 1972".

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