

**TOTAL KNEE  
ARTHROPLASTY WITHOUT  
PATELLAR RESURFACING.  
DOES IT INCREASE THE RISK  
OF REVISION?  
LOCAL EXPERIENCE ANALYSIS.**

**HOSPITAL PADRE HURTADO, SANTIAGO, CHILE**

***Authors:  
Zoy Anastasiadis LR.  
Diego Edwards S.  
Andrés Schmidt-Hebbel N.  
Sergio Arellano G.  
Eduardo Gardella G.  
Nicolás González K.***



# DISCLOSURE

**The authors have no conflicts of interest to declare.**

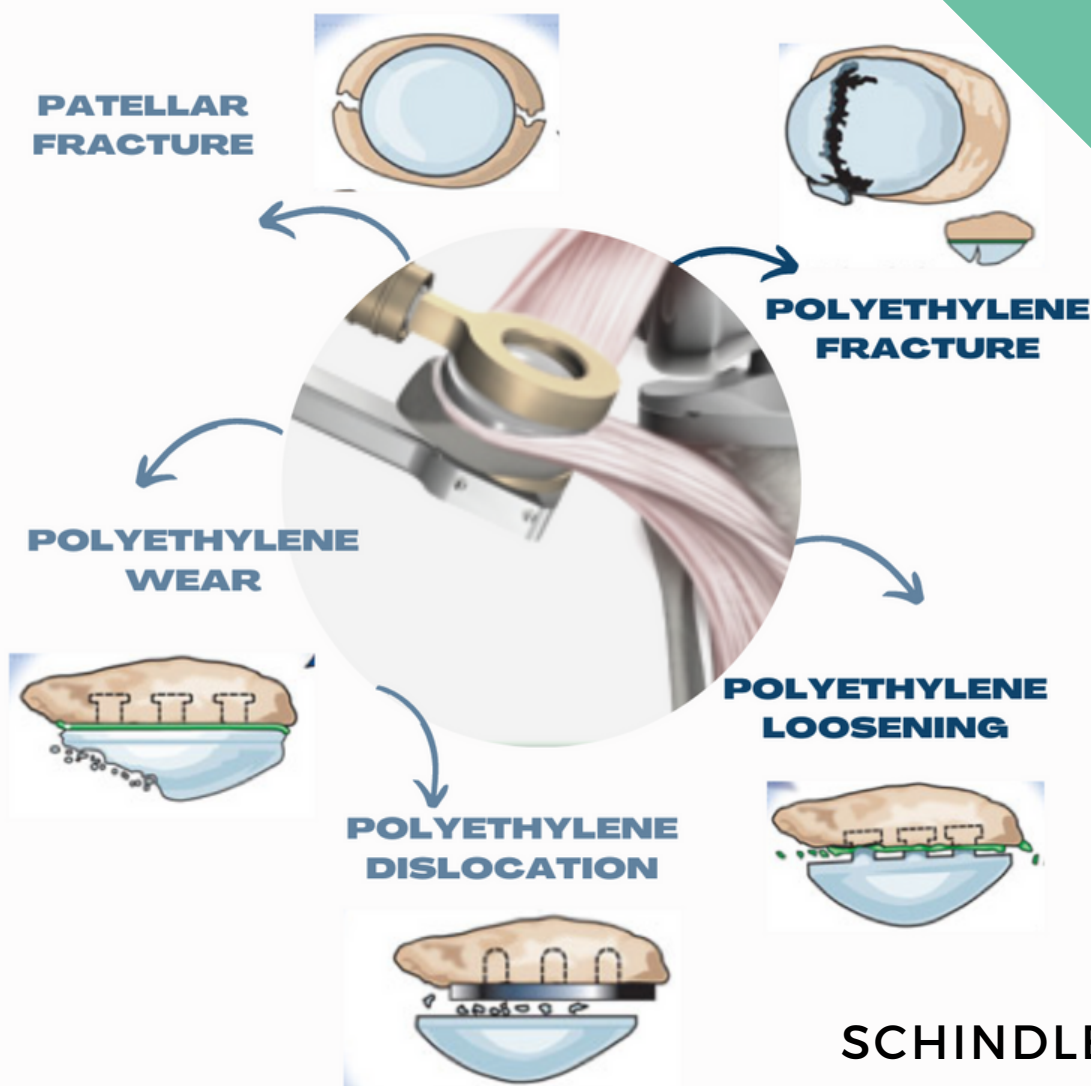
# Background

Patellar resurfacing is still controversial in Total Knee Arthroplasty (TKA). [1]

Potential patellar component's complications

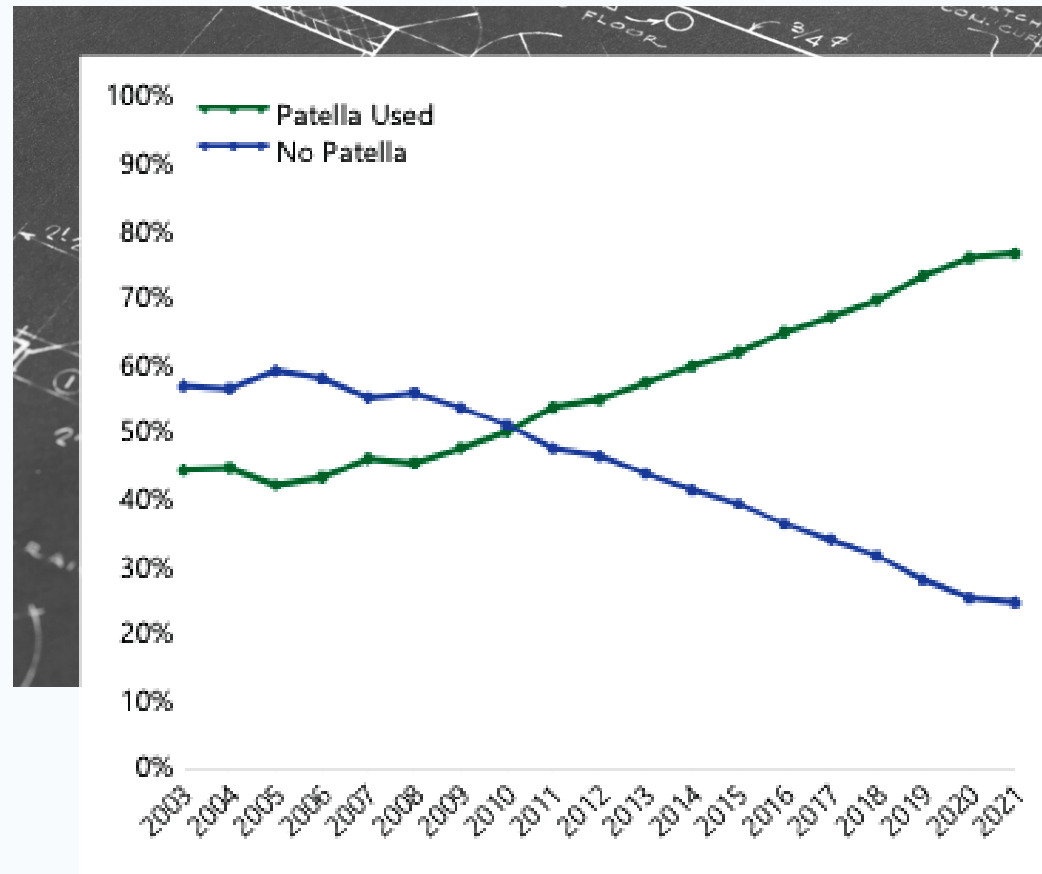
Anterior knee pain is an important cause of patient disappointment after TKA; however, patellar and non-patellar resurfacing have shown similar clinical and functional outcomes.[2]

Arguments against resurfacing include avoidance of patellar fractures, reduced surgical time, and bone-stock preservation. [3,4,5]

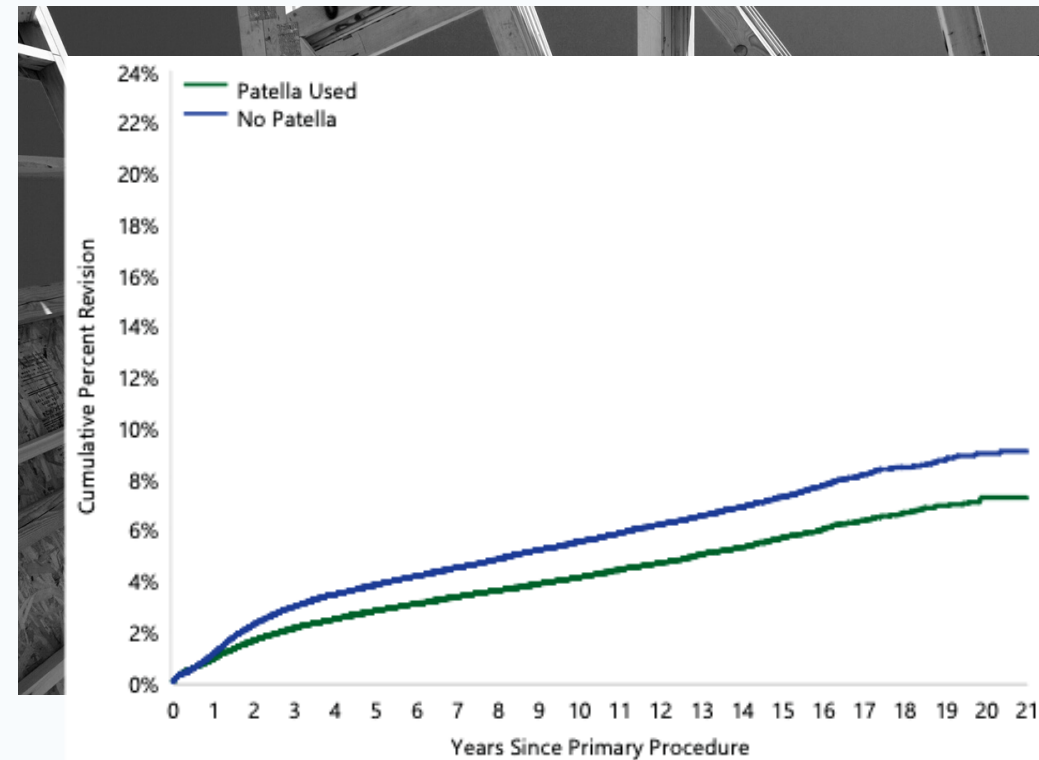


SCHINDLER, KSSTA 2012

# Background



AUSTRALIAN REGISTER 2022:  
INCREASED RATE OF PATELLA  
RESURFACING OVER THE YEARS.



AUSTRALIAN REGISTER 2022:  
INCREASED RATE OF REVISION  
SURGERY IN NON PATELLA  
RESURFACING TKA

**National Joint Registry**  
www.njrcentre.org.uk  
Working for patients. Driving forward quality.

**National Joint Registry 19th Annual Report**

**Australian Orthopaedic Association National Joint Replacement Registry**

**Journal of Orthopaedic Surgery and Research**

**SYSTEMATIC REVIEW** **Open Access**

**Patella resurfacing during total knee arthroplasty is cost-effective and has lower re-operation rates compared to non-resurfacing**

Thomas Parsons<sup>1,2</sup>, Talal Al-Jabri<sup>3</sup>, Nick D. Clement<sup>1,4</sup>, Nicola Maffulli<sup>5,6,7</sup> and Delary F. Kader<sup>1,8</sup>

**Abstract**  
**Background:** The decision to resurface the patella as part of total knee arthroplasty may be influenced by the surgeon's preference, education, training, tradition and geographic location. Advocates for non-resurfacing or selectively resurfacing may claim no difference in patient reported outcomes, and that resurfacing is associated with increased risks such as extensor mechanism injury or malalignment, problems with the design of the patella component and technical issues intraoperatively.  
**Aims:** To critically examine factors that should be considered in addition to patient reported outcomes in the decision process of resurfacing or non-resurfacing of the patella in total knee arthroplasty.  
**Method:** A comprehensive literature search was conducted to identify factors that may influence decision making in addition to knee specific patient reported outcome measures such as surgical risks, patient quality of life, procedure cost, re-operation rate, implant design, surgeons learning curve and the fate of remaining cartilage in native patellae.  
**Results:** Patient-reported outcomes are equivocal for resurfacing and non-resurfacing. Critical analysis of the available literature suggests that the complications of resurfacing the patella are historic, which is now lower with improved implant design and surgical technique. Routine resurfacing was cost-effective in the long term (potential saving £104 per case) and has lower rates of revision (absolute risk reduction 4%). Finally, surgical judgment in selective resurfacing was prone to errors.  
**Conclusion:** Patella resurfacing and non-resurfacing had similar patient-reported outcomes. However, patella resurfacing was cost-effective and was associated with a lower rate of re-operation compared to non-resurfacing.  
**Keywords:** Arthroplasty, Patella, Knee replacement, Resurfacing

LAST INTERNATIONAL REGISTER PUBLICATIONS AND META-ANALYSES  
SHOW THAT PATELLAR RESURFACING WOULD DECREASE THE RISK OF  
REVISION. [6,7,8]



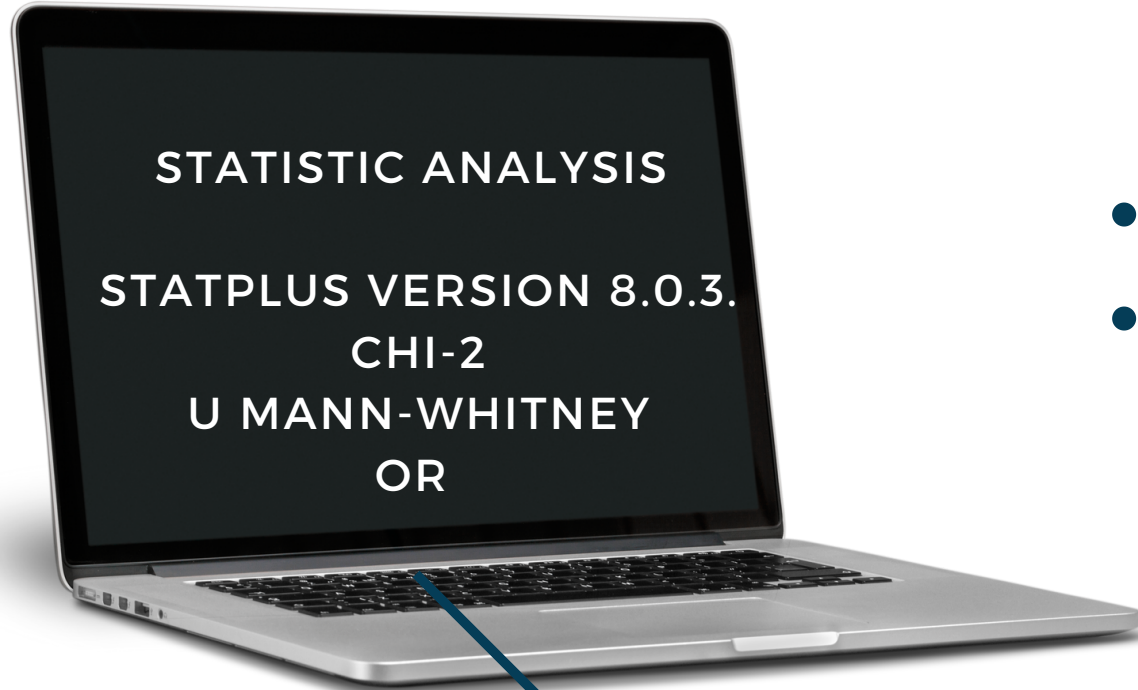
# Purpose

TO EVALUATE THE RISK OF RE-INTERVENTION AT MIDTERM FOLLOW-UP FOR ANY REASON IN PATIENTS WHO UNDERWENT TKA WITH OR WITHOUT PATELLAR RESURFACING.

# Hypothesis

WE HYPOTHESIZE THAT THE ABSENCE OF A PATELLAR COMPONENT WILL LIKELY HAVE HIGHER REINTERVENTIONS.

# Methods



- Retrospective study in 281 TKA
- Surgeries underwent in the same center between August 2015 and July 2019.

## INCLUSION CRITERIA:

- >18 yo and primary posterior stabilized knee replacement.

## EXCLUSION CRITERIA:

- Patients who underwent revision or had a follow-up of < 24 months.

## Re-intervention after index surgery

### Diagnosis of reintervention

### Operative time

**281 TKA**

MEAN AGE 68,5 YO



37% 63%

## 2 GROUPS

### PR

136 TKA (48,4%)

PATELLAR RESURFACING



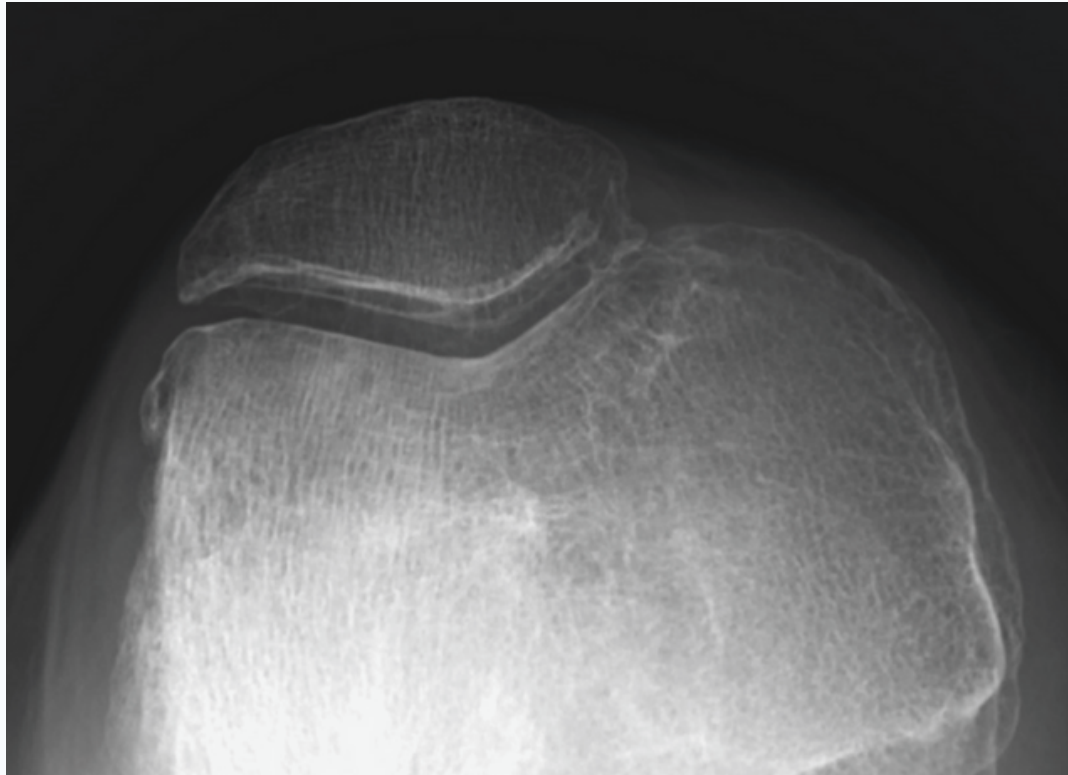
### WPR

145 TKA (51,6%%)

WITHOUT PATELLAR RESURFACING

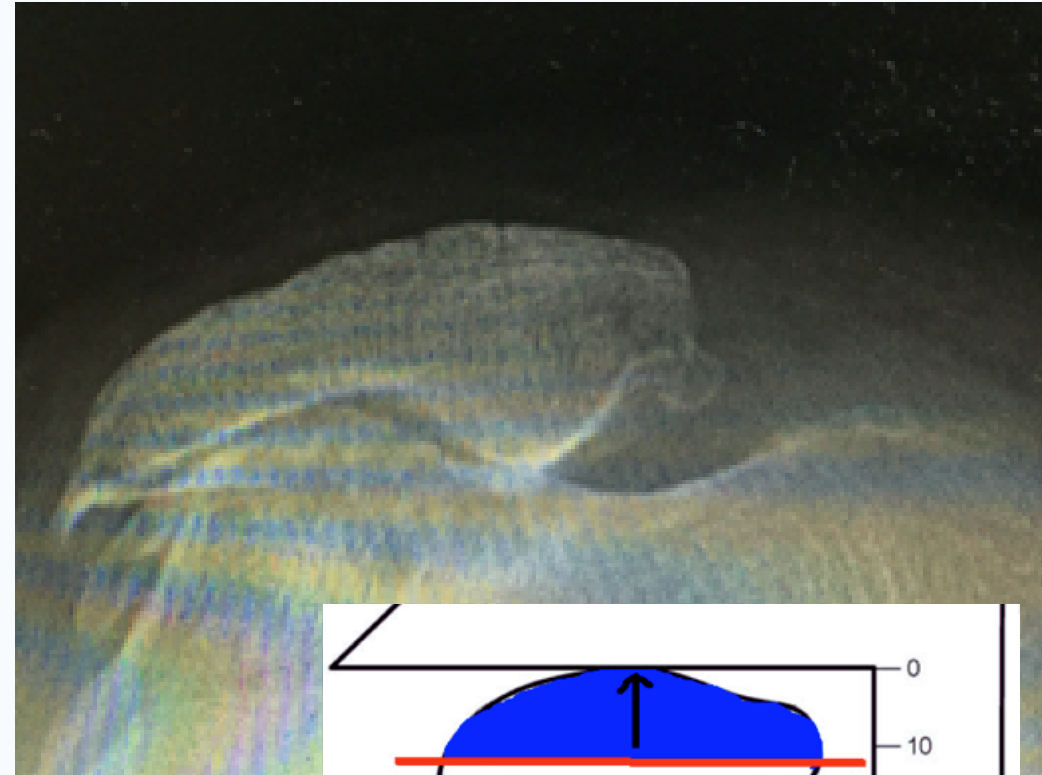
From hospital database

THE HOSPITAL ETHIC BOARD APPROVED THE STUDY.



## SELECTIVE PATELLAR REPLACEMENT:

Patellar resurfacing was determined by the presence of **patellar osteoarthritis or patellar pain.**

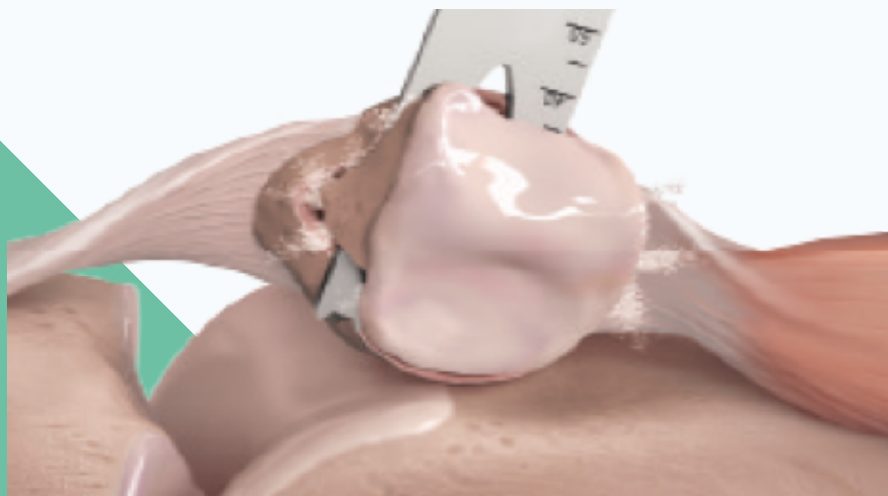


## CONTRAINDIICATION TO REPLACEMENT

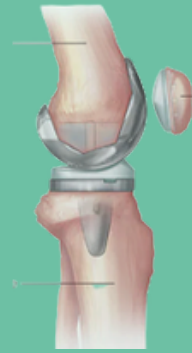
**Patellar diameter < 12 mm.**




## TKR WITHOUT PATELLAR RESURFACING



# Surgical Technique



# RESULTS

DATA	PR N=136	WPR N=145
MEAN AGE	67,5 yo	68.4yo
 F M	91 (67%) 45 (33)	86 (59.3%) 59 (40.7%)
INTRAOPERATIVE TIME	109 min.	101 min
FOLLOW-UP (YEARS)	5.1	4.3
RE- INTERVENTIONS	N= 8 (5,9%)	N= 12 (8.3%)

✓ NO DEMOGRAPHIC DIFFERENCES WERE FOUND BETWEEN THE GROUPS.

✓ THE MEAN SURGERY TIME WAS 8 MINUTES FASTER FOR THE WPR GROUP (P=0,003).

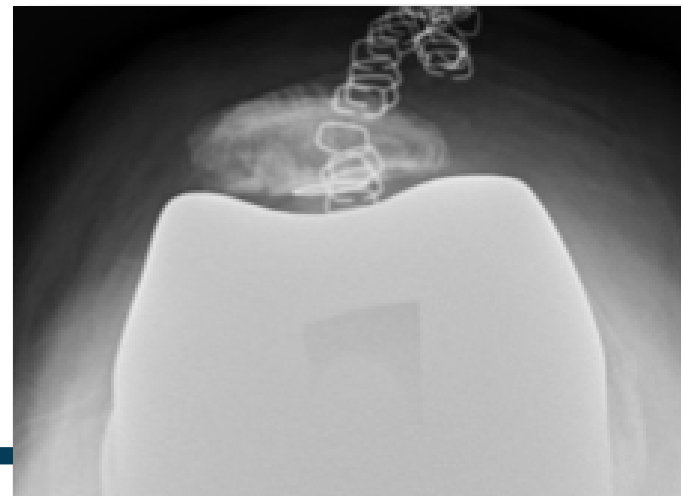
✓ WE DID NOT FIND STATISTICAL DIFFERENCES FOR THE TOTAL NUMBER OF REINTERVENTION (P=0,41).



# Results: Re-intervention Analysis

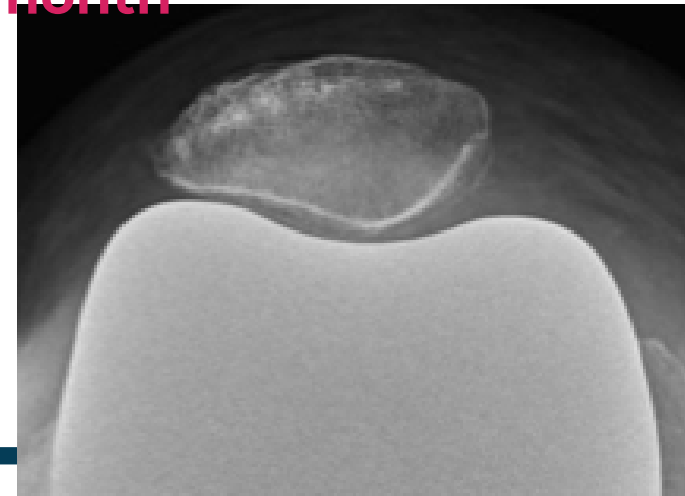
**PR = 8 (5,9%)**

- 3 MUA,  
1 dehiscence  
4 infections
- 1 two-stage revision,
  - 3 ODPE



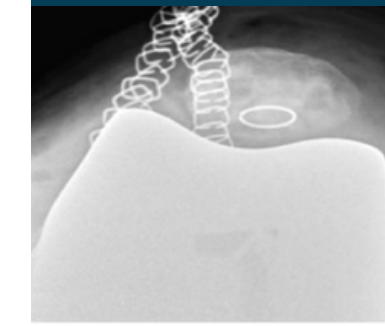
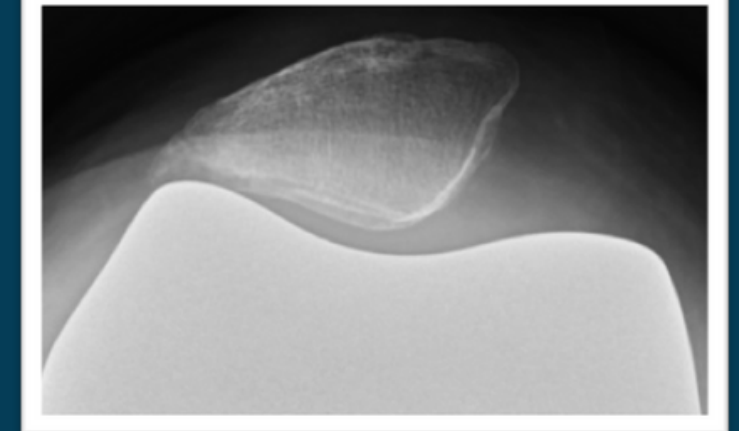
**WPR = 12(8,3%)**

- 4 MUA,  
1 dehiscence  
5 infections
- 3 two-stage revisions,
  - 2 ODPE
- 2 ASEPTIC PATELLAR REVISION (1.4%) 18 month**



- Cause of patellar component revision:
- **ANTERIOR PAIN**
  - **ANTERIOR PAIN + INSTABILITY**

Odds Ratio for aseptic patellar re-intervention is **1,92**  
CI 95%( 7,86-0.47)  
NSS



MUA = mobilizations under anesthesia  
ODPE = open debridements and polyethylene exchange  
NSS = non-statistical significance

# Discussion

## Our study: Patellar revision rate 1,4%

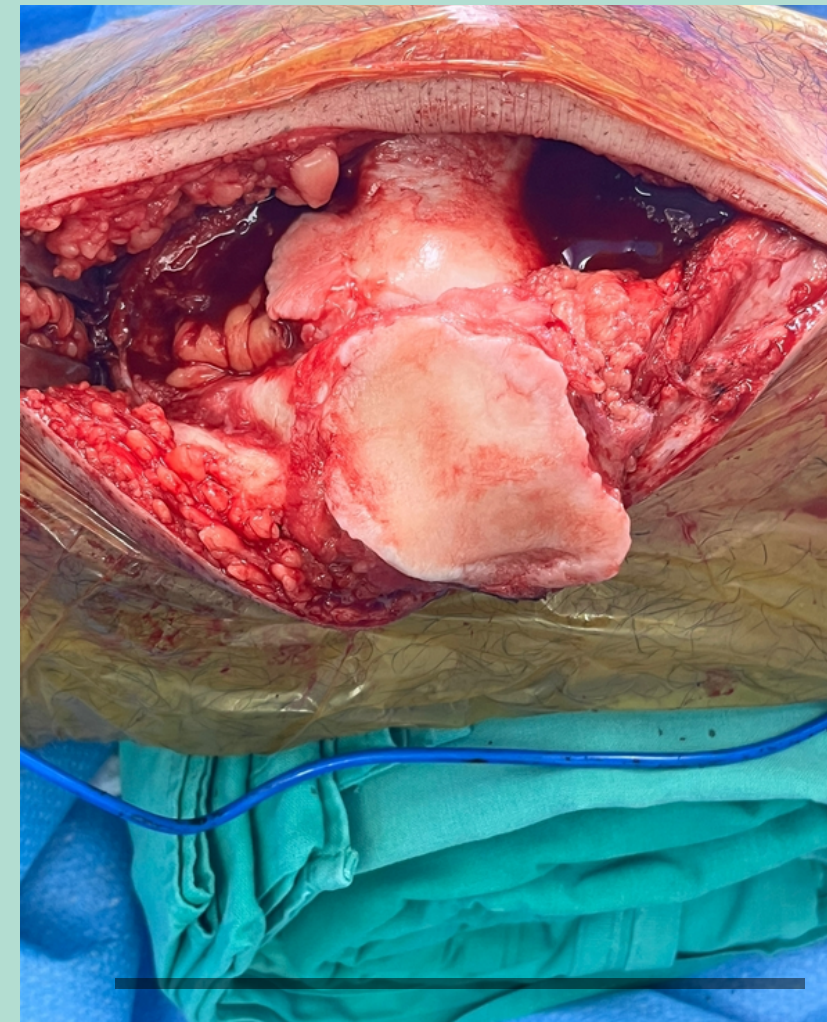
A lower rate if we compare it with other registries

### Advantage:

- Selective patellar replacement [9]

### Limitations:

- Low N
- Lack of long-term follow-up



KT13 Primary Total Knee Replacement by Reason for Revision (Primary Diagnosis OA)

Reason for Revision	Number	Percent
ion	6724	26.6
ining	5667	22.4
ility	2427	9.6
	2020	8.0
ofemoral Pain	1994	7.9
a Erosion	1655	6.6
ofibrosis	989	3.9
ire	893	3.5
ignment	584	2.3
Tibial Insert	351	1.4
	340	1.3
ect Sizing	253	1.0
Related Pathology	113	0.4
	1241	4.9
L	25251	100.0

Table KT14 Primary Total Knee Replacement by Type of Revision (Primary Diagnosis OA)

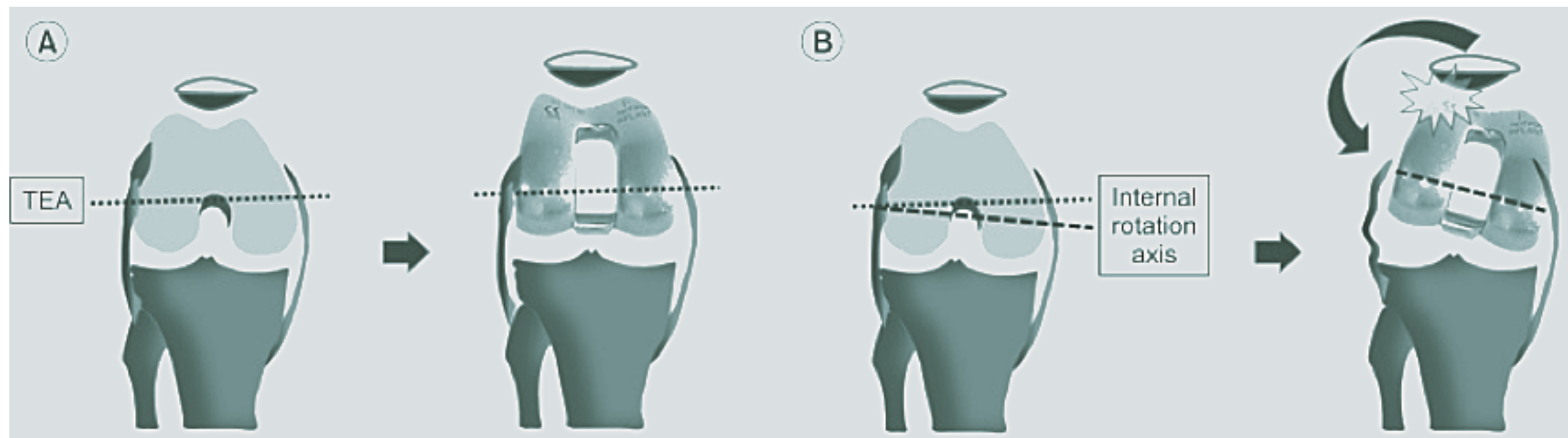
Type of Revision	Number	Perce
Insert Only	6901	27
TKR (Tibial/Femoral)	6226	24
Patella Only	4670	18
Insert/Patella	2651	10
Tibial Component	2040	8
Cement Spacer	1309	5
Femoral Component	1230	4
Removal of Prostheses	139	0
Minor Components	49	0
Total Femoral	13	0
Cement Only	12	0
Reinsertion of Components	11	0
TOTAL	25251	100

Note: Restricted to modern prostheses

AUSTRALIAN REGISTER 2022

# Discussion

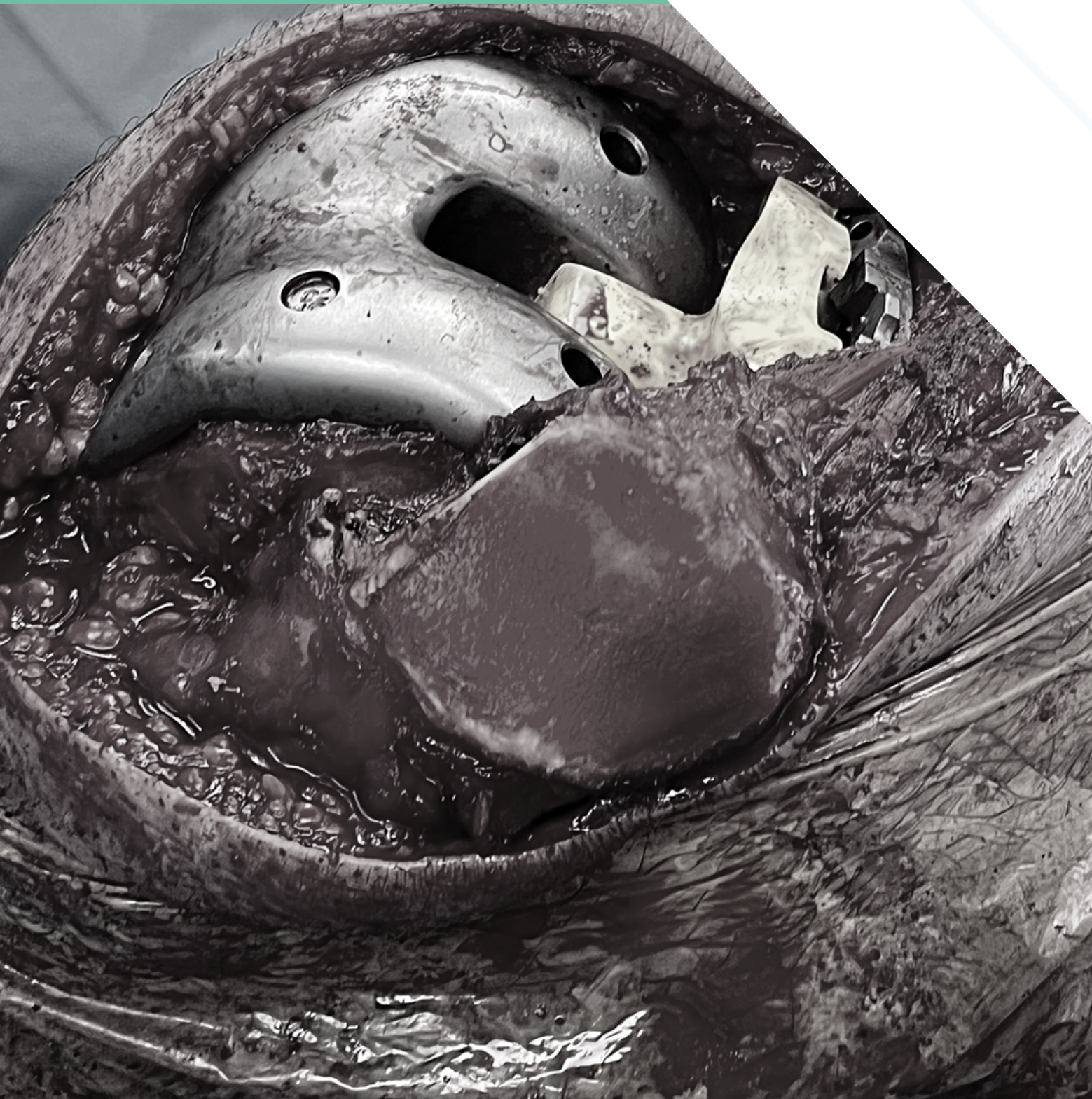
- SOME STUDIES HAVE SHOWN:
- HIGHER CUMULATIVE REVISION RISK FOR WPR
- HIGHER 5-YEAR RE-REVISION RATE AFTER A SECONDARY PATELLAR RESURFACING (8.8% VS. 1.9%). [10]
- **DON'T LOOK ONLY AT THE PATELLA!!**
- PATELLAR TRACKING DEPENDS ON THE TIBIOFEMORAL COMPONENT POSITION AND INTERNAL FEMORAL ROTATION. [11]



# Conclusion

**TKA WITHOUT PATELLAR RESURFACING REPRESENTS A NON-SIGNIFICANT NUMBER OF INCREASED RE-INTERVENTIONS.**

**WE ESTIMATED THAT RESULTS IN THE MIDTERM FOLLOW-UP DO NOT LIMIT THE SELECTIVE PATELLAR COMPONENT REPLACEMENT.**



- 1. Deroche E, Batailler C, Swan J et al. No difference between resurfaced and non-resurfaced patellae with a modern prosthesis design: a prospective randomized study of 250 total knee arthroplasties. *Knee Surgery, Sports Traumatology, Arthroscopy* (2022) 30:1025–1038.**
- 2. Chen K, Dai X, Li L, et al. Patellar resurfacing versus nonresurfacing in total knee arthroplasty: an updated meta-analysis of randomized controlled trials. *J Orthop Surg Res.* 2021 Jan 25;16(1):83.**
- 3. Oliver S, Schindler. The controversy of patellar resurfacing in total knee arthroplasty: Ibisne in medio tutissimus?. *Knee Surg Sports Traumatol Arthrosc* (2012) 20:1227–1244.**
- 4. Allen W, Eichinger J, Friedman R (2019) Resurfaced versus non-resurfaced patella in total knee arthroplasty. *J Knee Surg* 32:611–615.**
- 5. Grassi A, Compagnoni R, Ferrua P, et al (2018) Patellar resurfacing versus patellar retention in primary total knee arthroplasty: a systematic review of overlapping meta-analyses. *Knee Surg Sports Traumatol Arthrosc* 26:3206–3218.**
- 6. Parsons T, Al-Jabri T, Clement N et al. Patella resurfacing during total knee arthroplasty is cost-effective and has lower re-operation rates compared to non- resurfacing. *Journal of Orthopaedic Surgery and Research* (2021) 16:185.**
- 7. Ha C, Wang B, Li W, Sun K, Wang D, Li Q (2019) Resurfacing versus not-resurfacing the patella in one-stage bilateral total knee arthroplasty: a prospective randomized clinical trial. *Int Orthop* 43:2519–2527**
- 8. Longo UG, Ciuffreda M, Mannering N, D’Andrea V, Cimmino M, Denaro V (2018) Patellar resurfacing in total knee arthroplasty: systematic review and meta-analysis. *J Arthroplasty* 33:620–632.**
- 9. Maney AJ, Koh CK, Frampton CM, Young SW (2019) Usually, selectively, or rarely resurfacing the patella during primary total knee arthroplasty: determining the best strategy. *J Bone Jt Surg Am* 101:412–420.**
- 10. Hunt LP, Matharu GS, Blom AW et al. Patellar resurfacing during primary total knee replacement is associated with a lower risk of revision surgery. *Bone Joint J* 2021 May;103-B(5):864-871.**
- 11. Ko DO, Lee S, Kim JH et al. The Influence of Femoral Internal Rotation on Patellar Tracking in Total Knee Arthroplasty Using Gap Technique. *Clin Orthop Surg.* 2021 Sep;13(3):352-357**

# References