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## Patella resurfacing (PRO)

F. Benazzo, SMP Rossi, M. Ghiara

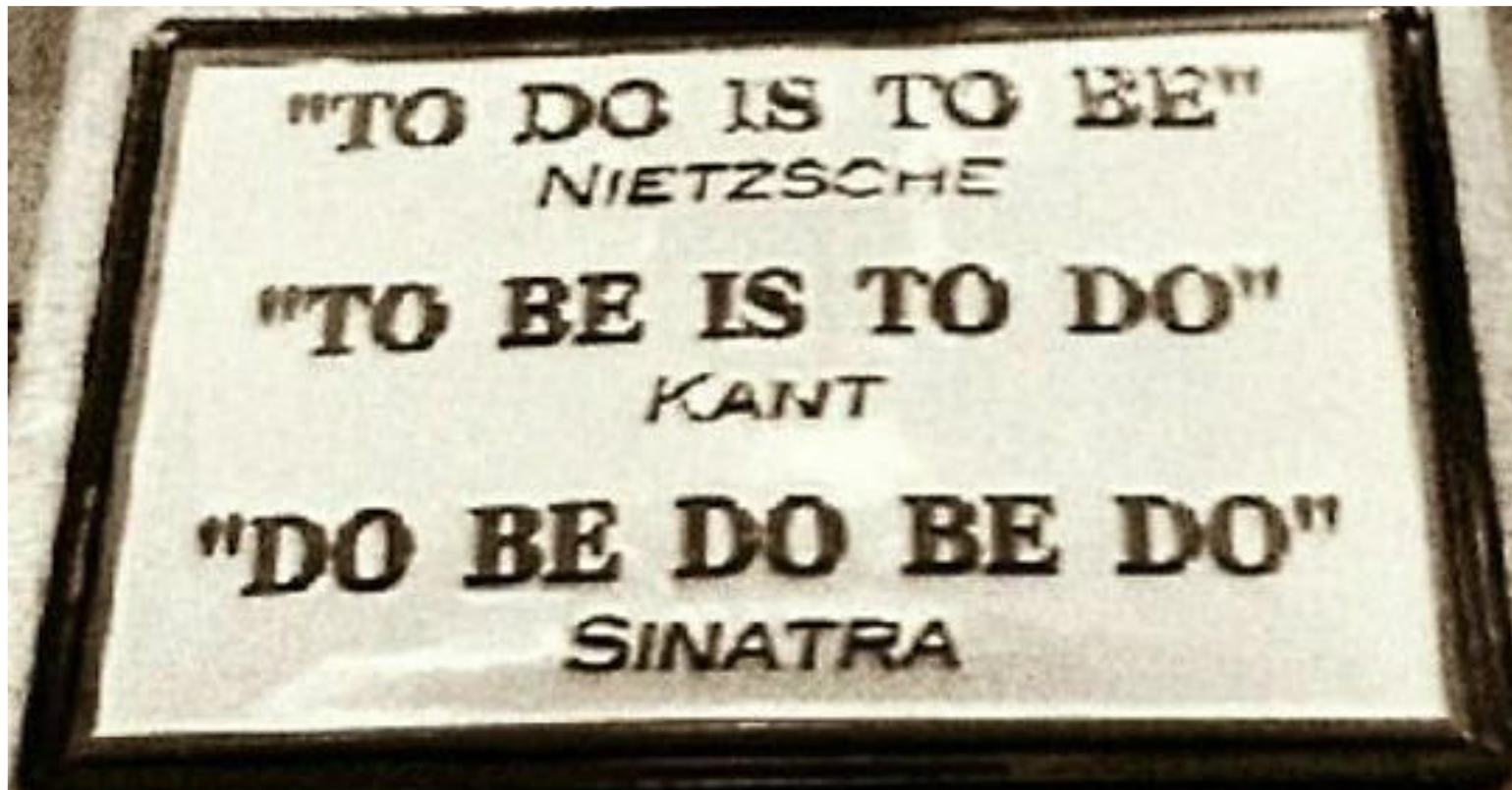
# Patella resurfacing

“To do it or not to do it”



## Patella resurfacing

“I do it, 100% of cases”



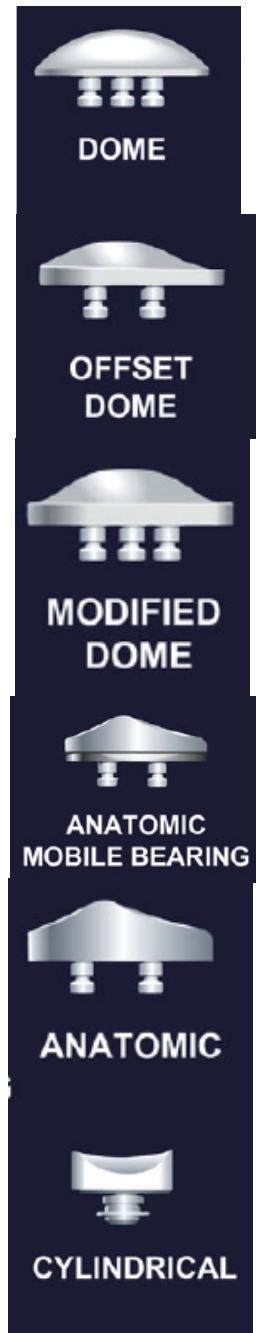
# Why we should not do it

- Surgeon's fear
- Potential easy answer for a complicated question (AKP)?
- Easy/low cost revision?
- A resurfaced patella can become another problem during revision



# Surgeon's fear

- Different possible and safe techniques (inlay,onlay,freehand...)
- No difference in results with different implants
- Very low percentage of complications (but catastrophic)
  - patellar fractures, necrosis
  - loosening



# Surgeon's fear

Our data are in agreement with those available in the literature:

- lower risk of re-operation after patellar resurfacing.
- when complications of the resurfaced patella occur, they can be potentially catastrophic events.

International Orthopaedics (SICOT) (2014) 38:313–317  
DOI 10.1007/s00264-013-2244-3

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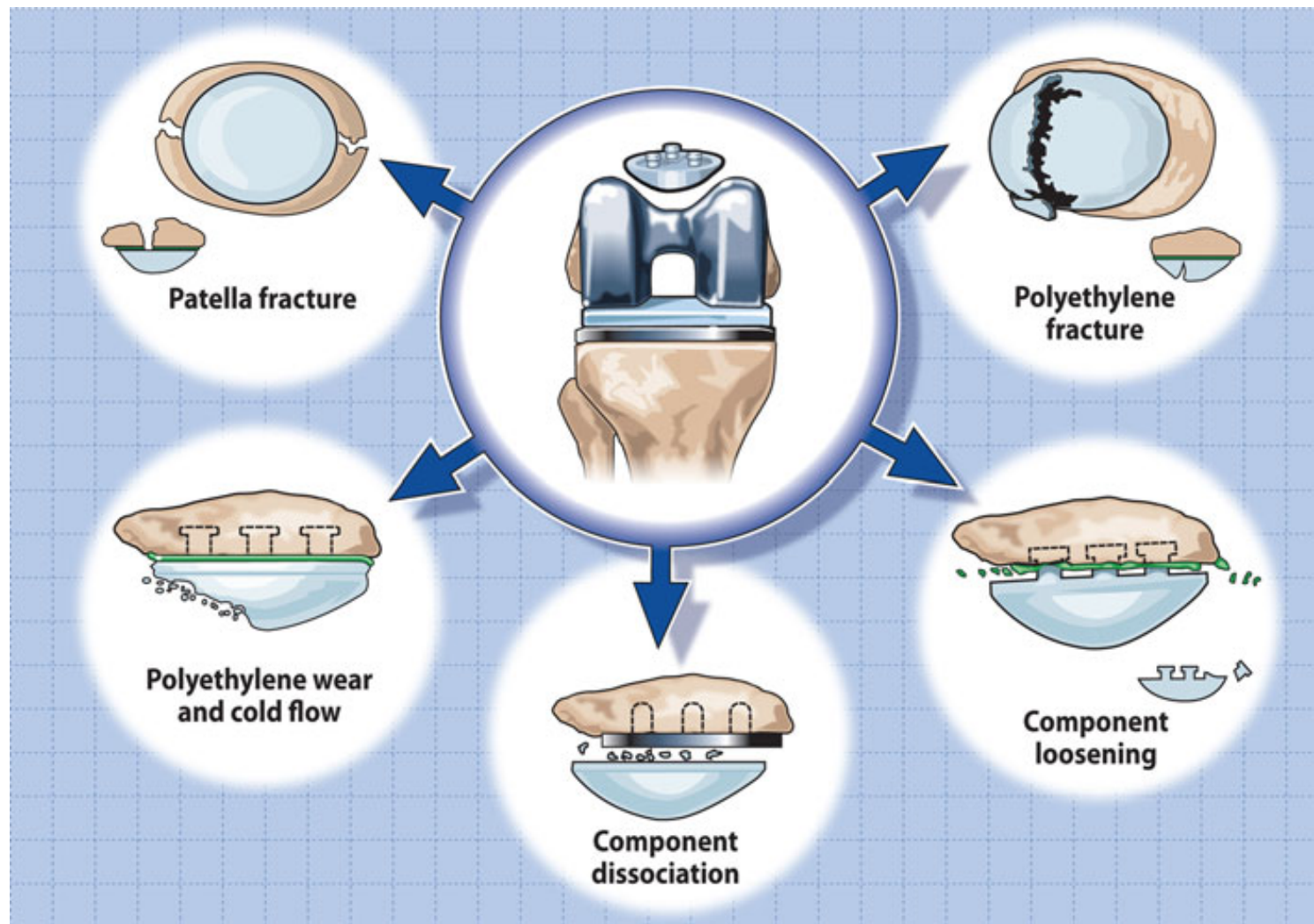
REVIEW PAPER

## **Patellar resurfacing complications in total knee arthroplasty**

Alfredo Schiavone Panni • Simone Cerciello •  
Chiara Del Regno • Alessandro Felici • Michele Vasso



# Surgeon's fear



# Potential easy answer for a complicated question (AKP)?

Knee Surg Sports Traumatol Arthrosc (2011) 19:1467–1472  
DOI 10.1007/s00167-011-1402-7

KNEE

## Secondary patellar resurfacing in the treatment of patellofemoral pain after total knee arthroplasty

E. Muñoz-Mahamud · D. Popescu · E. Nuñez ·  
L. M. Lozano · M. Nuñez · S. Sastre ·  
P. Torner · J. M. Segur · F. Maculé

- It works 50% but you don't know why...
- Do you really want to end up with something like this?



# How many roads must a man walk down...

Table 1 Randomized Controlled Trials

Author	Number of knees	Duration	Results	Conclusion
Enis 1990 <sup>71</sup>	50 (bilateral)	Average 40 months	Patients preferred the knee with resurfaced patella ( $P < 0.005$ ) at 12 months but no significant preference at 4 years follow-up. No difference in range of motion between resurfaced and non-resurfaced knees. Isokinetic strength testing of six patients found that the resurfaced knee was significantly stronger.	There was better pain relief, patient satisfaction, and strength with patella resurfacing in a small study.
Keblish 1994 <sup>72</sup>	104 (bilateral)	Mean 5.24 years	No preference for patella resurfacing. No difference in anterior knee pain.	Patella non-resurfacing is an acceptable option.
Boume 1996 <sup>73</sup>	100	Minimum 2 years	At 2 years follow-up, the non-resurfaced patella group had significantly better quadriceps strength ( $P < 0.01$ ).	There was better pain relief and quadriceps strength in those with a non-resurfaced patella.
Feller 1996 <sup>74</sup>	38	Average 3 years	No difference in knee score or anterior pain between groups. Stair climbing was better in non-resurfaced group ( $P < 0.05$ ). No patella revisions in either group.	No evidence to routinely resurface the patella. Functional outcome is better in non-resurfaced group.
Barrack 2001 <sup>75</sup>	93	Minimum 5 years	No significant difference between groups for knee score, symptoms or satisfaction. No predictor found for post-operative anterior knee pain.	Anterior knee pain is not related to patellar resurfacing or non-resurfacing.
Wood 2002 <sup>76</sup>	220	Mean 4 years	12% patella revision in non-resurfaced group. 10% patella revision in resurfaced group ( $P = 0.65$ ). Increased incidence of anterior knee pain in non-resurfaced group ( $P = 0.016$ ).	Patella resurfacing gave better pain results.
Waters 2003 <sup>77</sup>	474	Mean 5.3 years	25.1% anterior knee pain in non-resurfaced group. 5.3% anterior knee pain in resurfaced group ( $P < 0.0001$ ). Overall post-operative knee score lower in non-resurfaced group ( $P < 0.01$ ). No difference in post-operative functional score.	Recommend patellar resurfacing.
Mayman 2003 <sup>78</sup>	100	8 to 10 years	At 8 to 10 years follow-up there was no difference in knee scores between groups. The resurfaced group had less anterior knee pain on stair climbing ( $P = 0.042$ ) and walking ( $P = 0.039$ ). Two non-resurfaced patients required secondary patellar resurfacing.	Better subjective satisfaction with patellar resurfacing. Low complication rate with resurfacing.
Peng 2003 <sup>79</sup>	70	Mean 5.18 years	No difference in knee score, knee pain and knee function. Patient weight and presence of pre-operative anterior knee pain were not predictors of post-operative pain.	No clinical difference between resurfacing and non-resurfacing of the patella.
Campbell 2006 <sup>80</sup>	100	10 years	No significant difference between groups at 10 years. Two non-resurfaced patellae underwent secondary resurfacing. One resurfaced patella required further lateral release.	Patella resurfacing not recommended.
Myles 2006 <sup>81</sup>	50	18-24 months	Biomechanical performance measured via electrogoniometry showed no significant difference between groups across 11 functional activities.	Patella resurfacing does not increase knee range of motion.
Burnett 2007 <sup>82</sup>	64 (bilateral)	Minimum of 10 years	37% preferred resurfaced knee, 22% preferred the non-resurfaced knee. Revision required in 7.4% of non-resurfaced patellae versus 3.5% in resurfaced patellae ( $P = 0.6$ ).	No clinical difference between groups.
Smith 2008 <sup>83</sup>	159	Mean 4 years	No significant difference in all measured outcomes. Anterior knee pain present in 30.1% of the resurfaced group and 20.9% of non-resurfaced group ( $P = 0.18$ ). In knees with patellar resurfacing and ongoing anterior knee pain there was significant flexion contracture ( $P = 0.006$ ).	There is no superiority of patella resurfacing over non-resurfacing.
Shoji 2008 <sup>84</sup>	75 (bilateral) RA patients	Average 2.7 years	Pain improved significantly in both knees, however with no significant difference between resurfaced and non-resurfaced patellae. No functional or quadriceps strength difference between groups. RA patients had poor overall function pre and post-op.	Function and relief of pain in RA patients was the same with and without patellar resurfacing.

RA, rheumatoid arthritis.

- Do you really think you can add something on this topic?
- Probably already enough literature....

# Easy/low cost revision?

Don't forget the risks!!

- Infection
- Wound problems
- Fractures
- Not solving the problem in 50% of cases
- ...



# A resurfaced patella can become another problem during revision

Really true?

- Most of the times you leave it at its place
- Removal not always complicated
- Pre-op planning and intraoperative findings will tell you what to do

And..

*Should you really think of a potential revision during your primary implant?*

# Why we should do it!!

- Inexpensive procedure
- Reduce the risk of AKP
- Avoid revision for patellar resurfacing
- No evidence on validity on selection criteria to resurface or not resurface the patella



## **Resurfacing versus nonresurfacing the patella in total knee arthroplasty: a critical appraisal of the available evidence**

Vittorio Calvisi · Gianluca Camillieri ·  
Stefano Lupporelli

The evidence suggests that :

- resurfacing reduces risk of AKP and patella-related reoperation.
- patients not undergoing resurfacing experience more knee pain during stair climbing and be less satisfied with surgery.
- No significant difference in range of motion can be expected with or without resurfacing.

**Important:** methodological limitations were observed in all retrieved studies and evidences about potential adverse events related to patellar resurfacing are presently undetermined

# Reduce the risk of AKP

*A significant number of clinical studies have shown that patients undergoing patella resurfacing are less likely to be affected by AKP and overall more satisfied*

Knee Surg Sports Traumatol Arthrosc (2012) 20:1227–1244  
DOI 10.1007/s00167-012-1985-7

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**The controversy of patellar resurfacing in total knee arthroplasty:  
Ibisne in medio tutissimus?**

Oliver S. Schindler



# Selective resurfacing

- A tempting proposition but evidence on selection criteria remains elusive and the decision often based on intuitive reasoning alone
- Necessary to define suitable indicators, in order to improve the reliability of the selection process.
- Paucity of validated outcome measures as available assessment tools and scoring systems
- Lack sensitivity to detect subtle differences in PF pain and function

Knee Surg Sports Traumatol Arthrosc (2012) 20:1227–1244  
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KNEE

**The controversy of patellar resurfacing in total knee arthroplasty:  
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# Selective resurfacing

*The compromise of selective resurfacing as middle ground between the two extreme views of always or never to resurface can be acceptable?*

➔ At the moment not for me!!!

# Do you really want to do a selection?

Try to identify your risky patients!!

*Factors that are associated with a more painful knee include*

- *female sex*
- *a younger age at the time of surgery*
- *higher than normal depressive or anxiety state.*

*In particular, **the Pain Catastrophizing Scale (PCS)**, a scale that quantifies a patient's negative or exaggerated orientation to pain, appears to significantly influence a patient's outcome after TKA*

Knee Surg Sports Traumatol Arthrosc (2011) 19:1411–1417  
DOI 10.1007/s00167-011-1549-2

KNEE

What are the factors of residual pain after uncomplicated TKA?

Michel P. Bonnin · Luca Basiglini ·  
H. A. Pooler Archbold

# What would you do on your “worst” type of patient??

- Your mother
- Your mother in law
- The depressive secretary of your department
- Your scrub-nurse and any of her/his relatives
- The old auntie of your General Manager
- The mother of your Head-Nurse
- ....

# Conclusions (1)

- At the moment science doesn't help too much
- To follow your “stomach” is even worse
- Choose one road and follow it with all your cases
- If you choose the non resurfacing side: consider patient's at major risk

# Conclusions (2)

My approach:

- Very low risk of complications
- Reduce the risk of decreased level of results



# Avoid revision for patellar resurfacing

What else would you do in a painful patient (AKP)  
not resurfaced???

