

Early Knee Arthritis – Partial Resurfacing > TibFem/PatFem



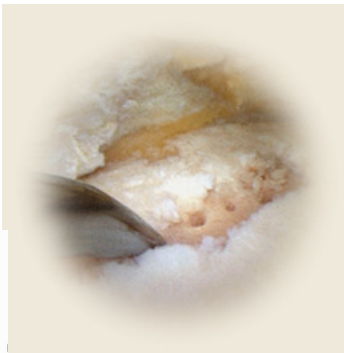
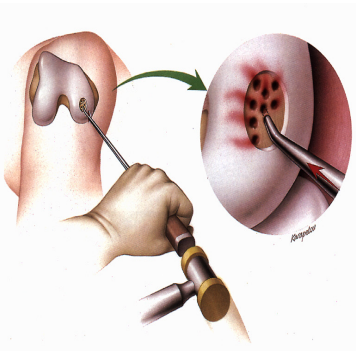
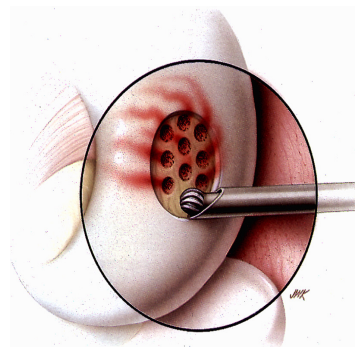


Disclosure



Royalties:	Arthrex, ArthroSurface
Consultant:	Arthrex, ArthroSurface, medi Bayreuth,
Editor in Chief:	Arthroscopie, OpenAccess J Sports Medicine
Editorial Board:	AJSM, AOTS, DZS, EJTrauma, JSES, KSSTA, OBEX, OOTR, Operative Techniques, Sportorthopädie, ZOU

- **Stemcells (mFx)**
- **Biology (ACI, MACI)**
- **Autologous Cartilage Transplantation (OATS, MegaOATS)**

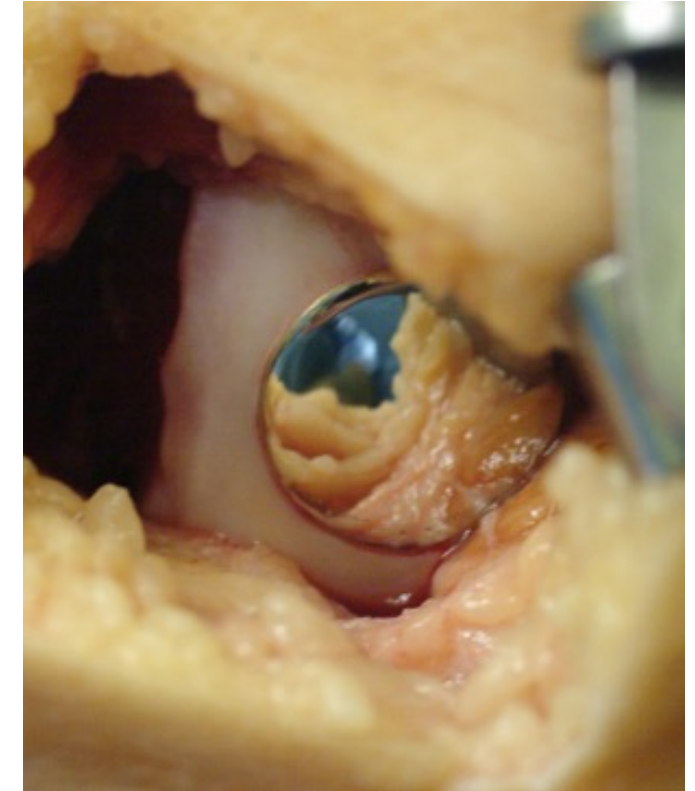
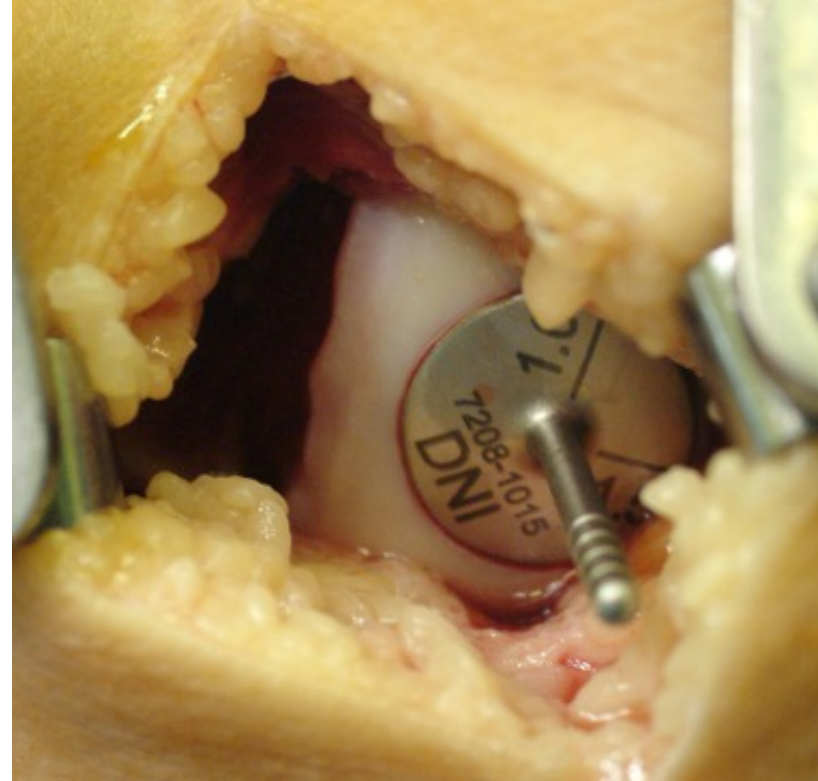
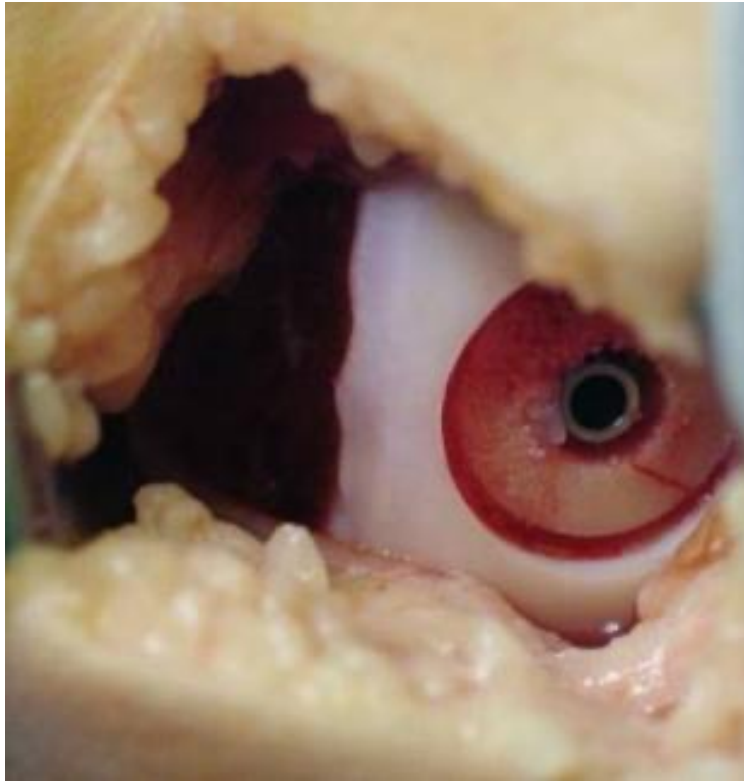


- **Focal Resurfacing**



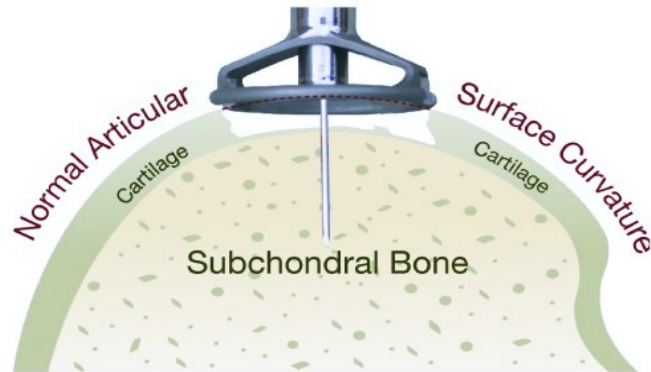
Age: <40

>40

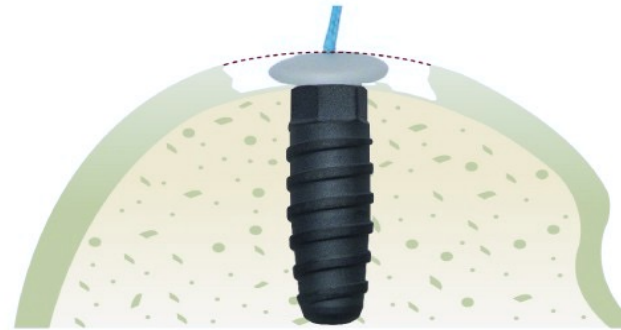


Adapted to the surface, no bone loss, respect the anatomy

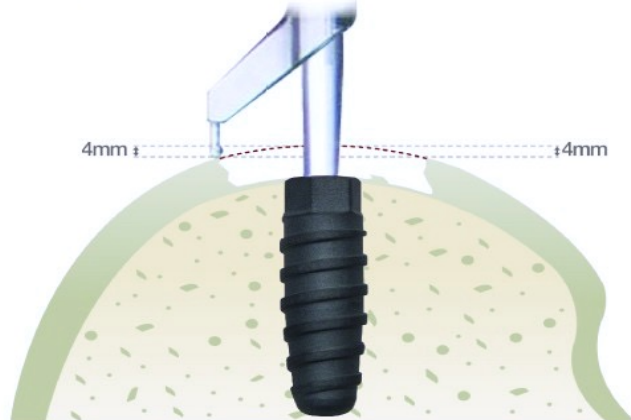
1. Define cartilage lesion size.



2. Set original joint height.



3. Map surface curvatures in both planes.



4. Restore a congruent surface.



PRO

- focal osteochondral defects
- early degenerative defects
- local avascular necrotic areas
- secondary after biological tx (ACI, Autocart, Mfx, etc.)

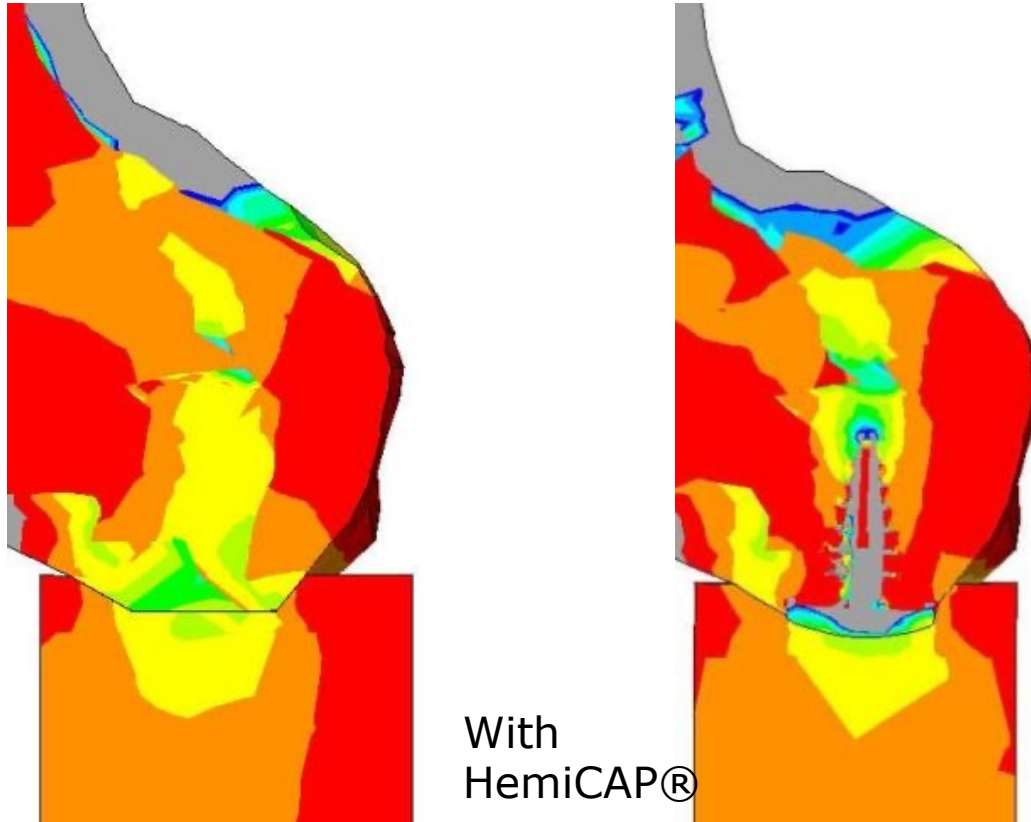
+ / -

- Malalignment
- Instability

Contra

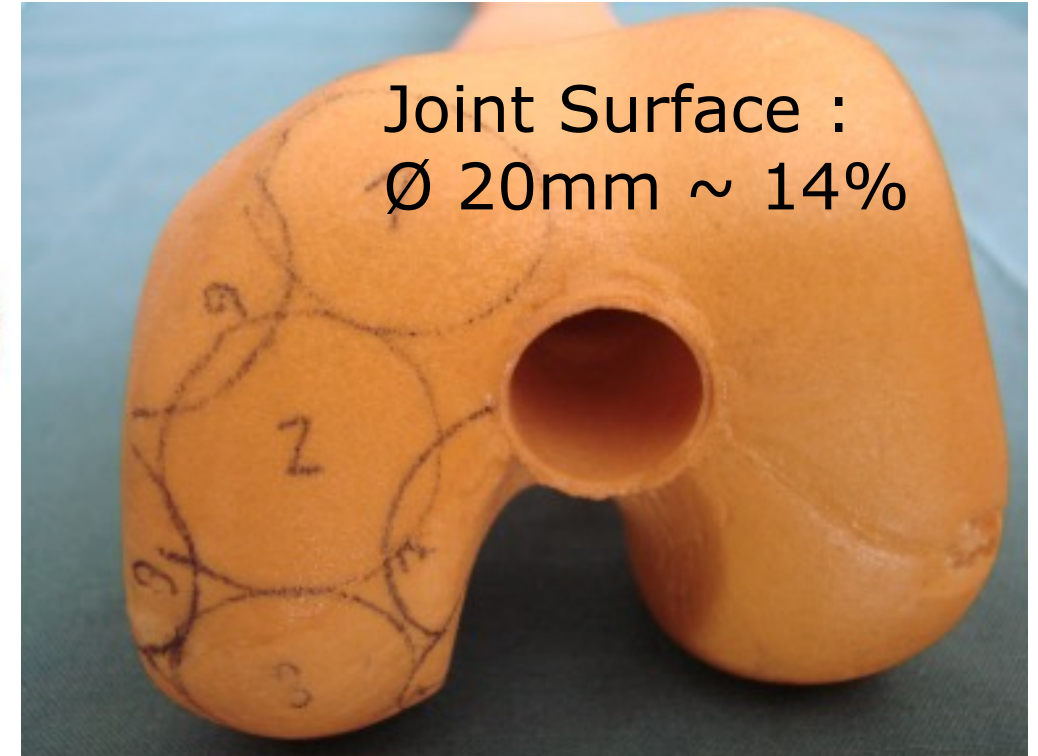
- Overweight
- Generalized osteoarthritis
- Bad bone quality





Physiological

With
HemiCAP®

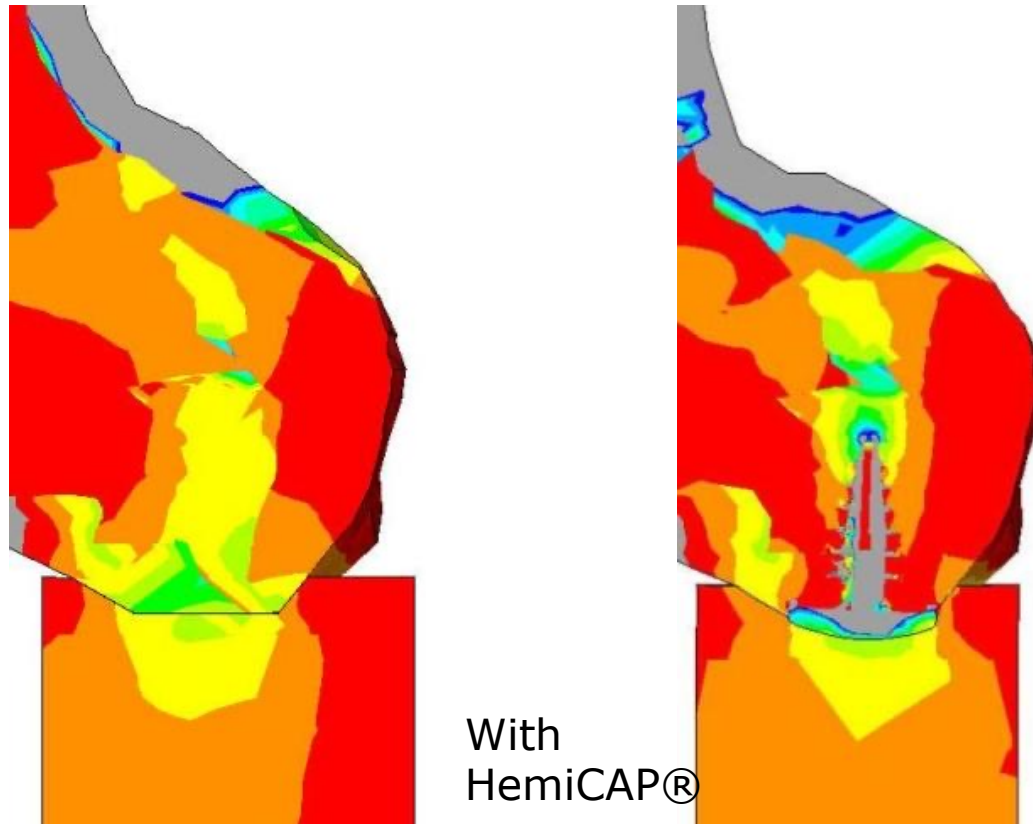


Joint Surface :
Ø 20mm ~ 14%

Finite Elemente – Analysis

No stress-shielding, better load distribution, implant 14% of the surface

Becher C et al. KSSTA 2008 Jan;16(1):56-63



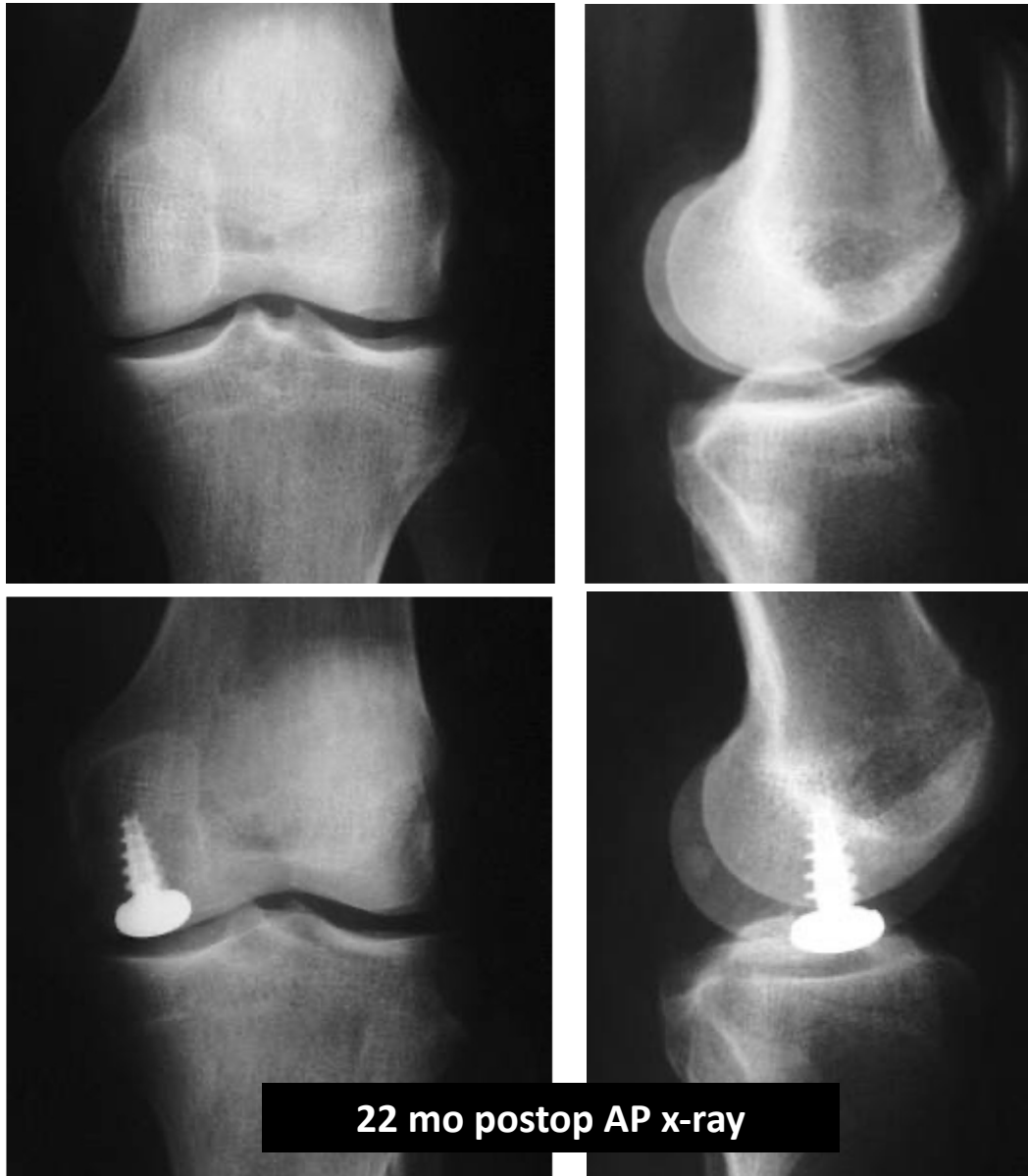
Physiological

With
HemiCAP®

Statistically no difference
between normal and
resurfed knee joint

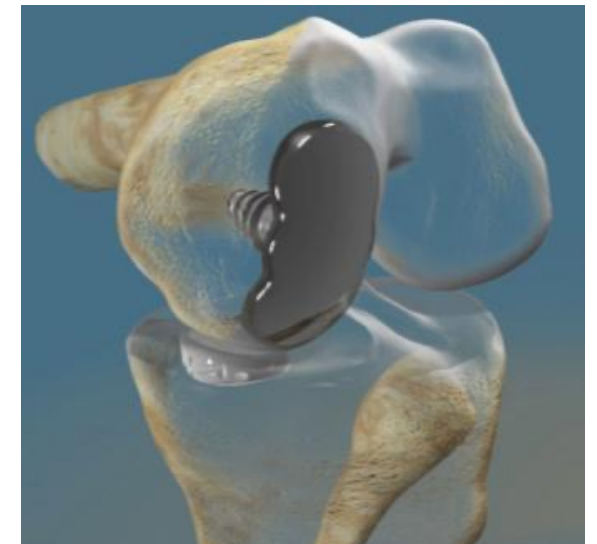
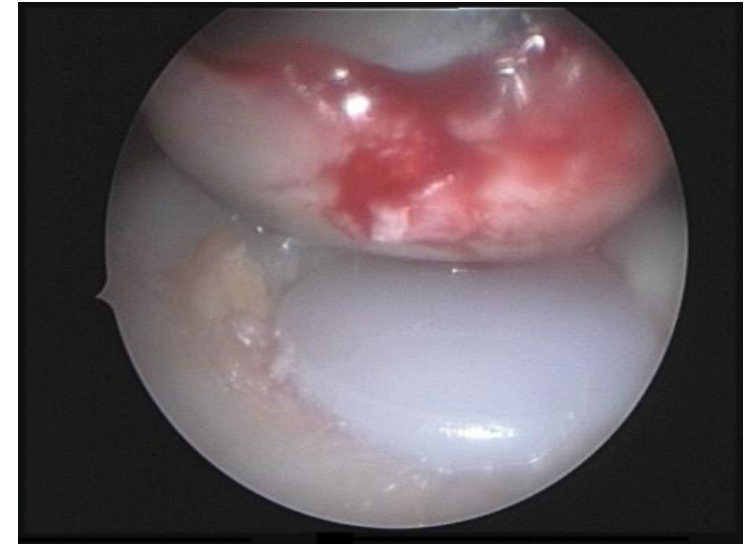
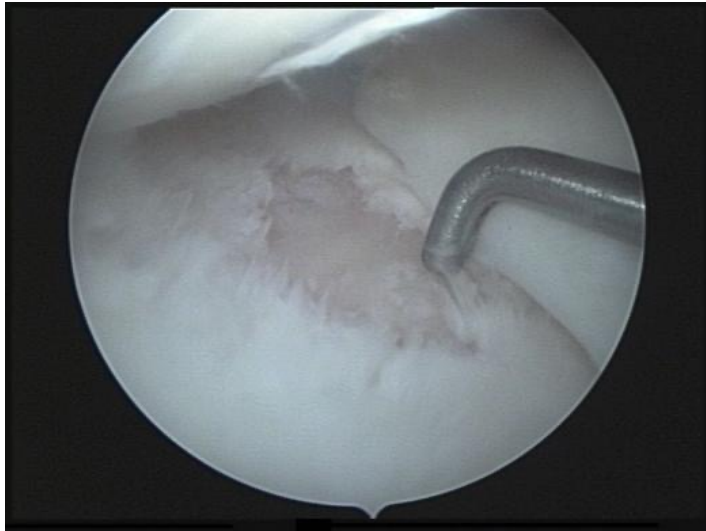
But: 1mm overstuffing =
217% increase of
peak load

Focal resurfacing I

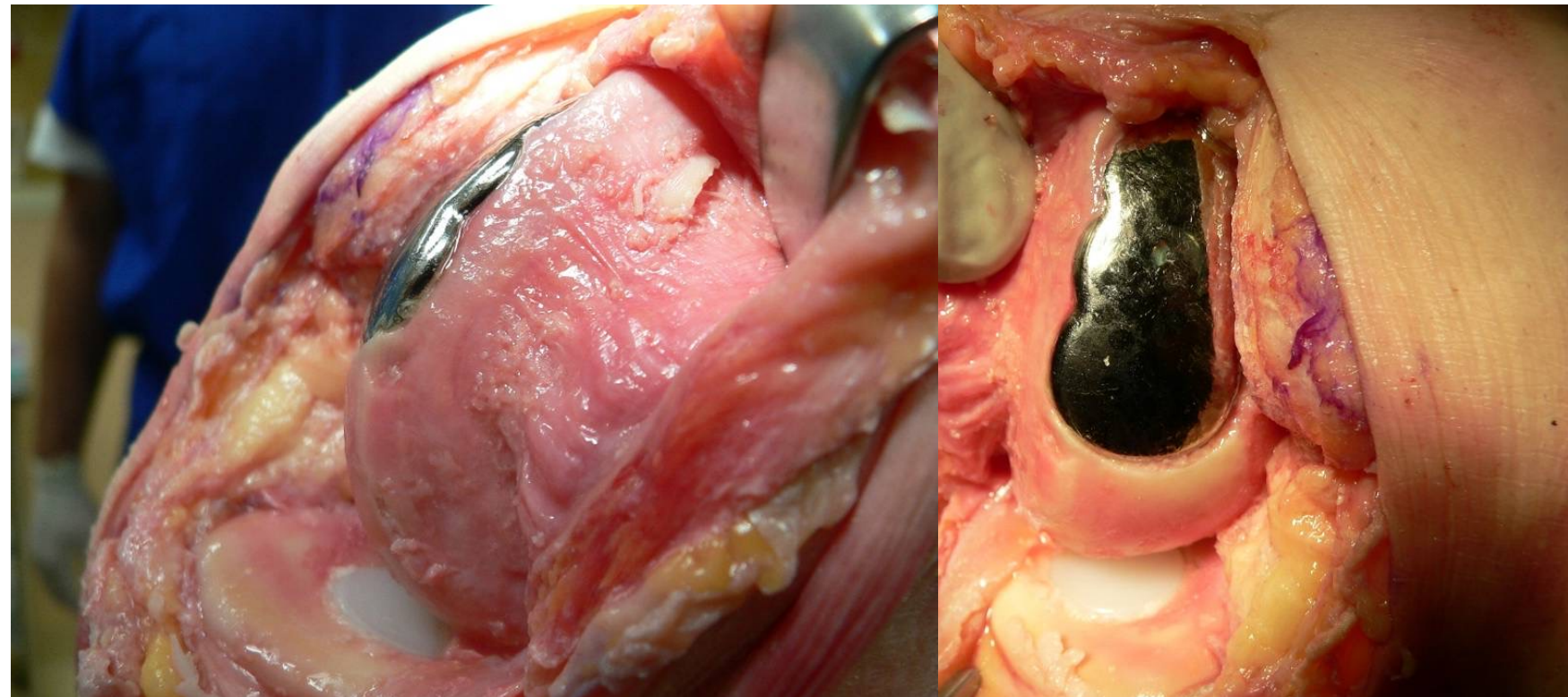


Focal resurfacing II





Perfect alignment / No overstuffing / different sizes+radius
Bipolar is a option
Meniscus is intact / Joint space is visible

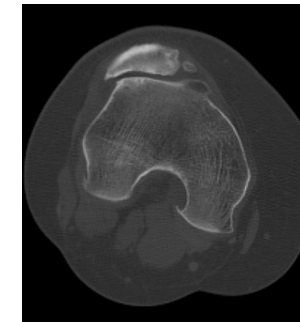




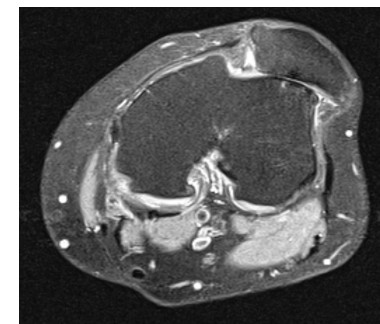
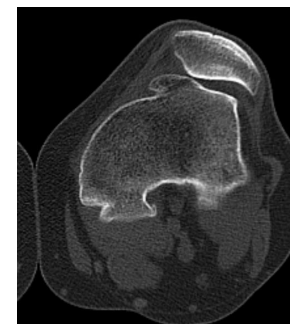
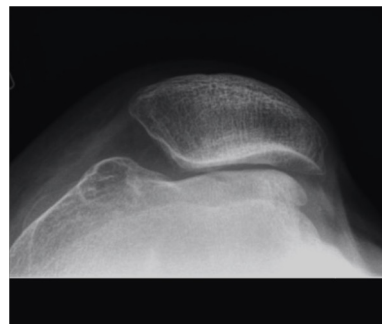
Patellofemoral Joint

...patellofemoral osteoarthritis is even present in the younger population:

29 years (f): femoral antetorsion, trochlear dysplasia → pain



30 years (f):
trochlear dysplasia
→ patellofemoral Instability
and pain



Richards II

Design

- V-shape, symmetrical

Results

- Survival 84 % (10y), 69 % (20y)
- 86 % good/excellent
- 2 % loosening

Problems

- Maltracking
- OA progression



Van Johnbergen et al., J. Arthroplasty, 2010

Blazina et al., Clin Orthop 1975

Cartier et al., Clin Orthop Relat Res, 2006

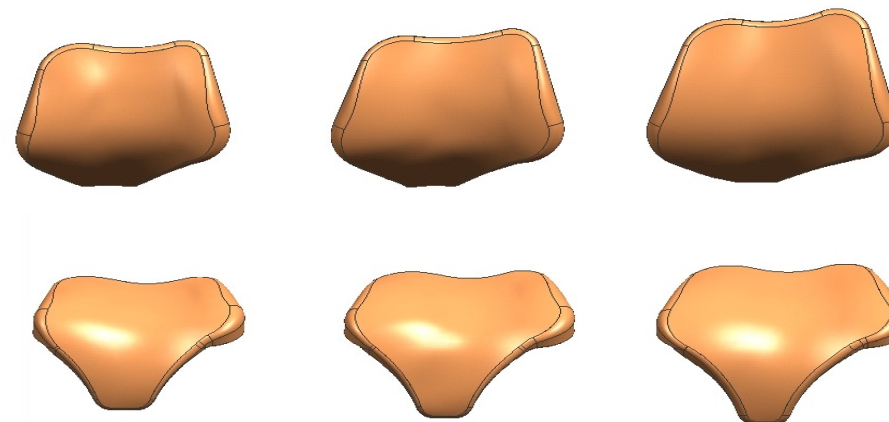
Joijman et al., JBJS, 2006

History Journey PFJ™

- Broad trochlea
- anatomic-asymmetrical
- 4 sizes
- Larger lateral facet
- 4 convergent stems
- Oxinium surface

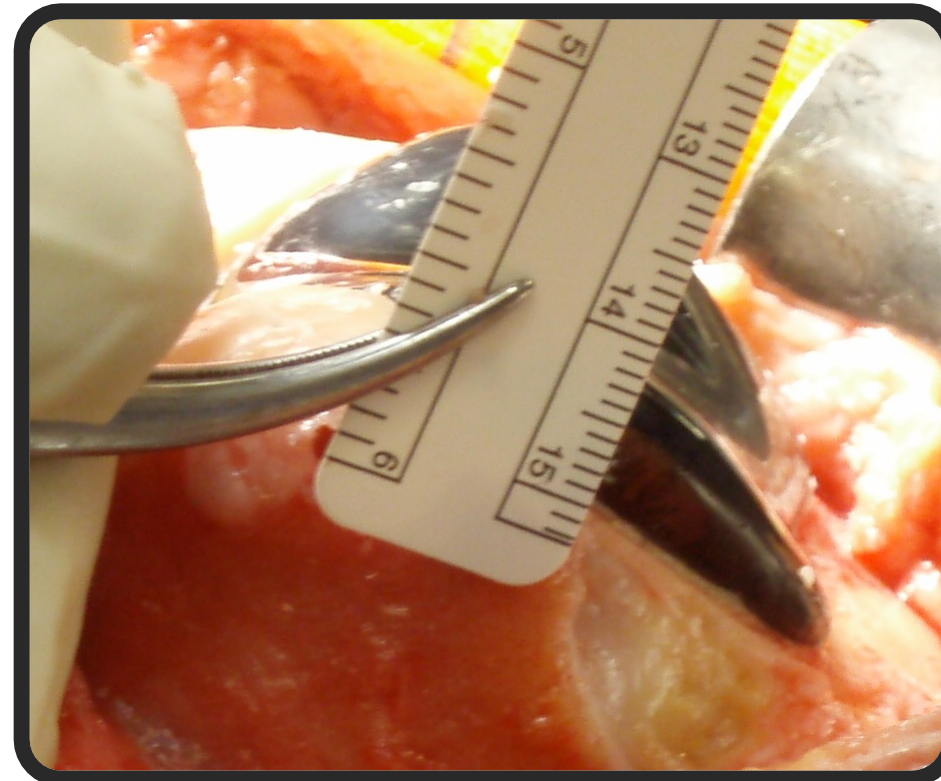


London 12.2.2004
John Newman UK,
Andreas Imhoff GER,
Bill Smith USA



Specific Problems:

- Anterior „Overstuffing“
- Anatomy



PFJ Onlay vs. Inlay



arthrex.com



[arthrosurface](http://arthrosurface.com)

Knee Surg Sports Traumatol Arthrosc (2015) 23:1299–1307
DOI 10.1007/s00167-013-2786-3



KNEE

Prospective evaluation of anatomic patellofemoral inlay resurfacing: clinical, radiographic, and sports-related results after 24 months

Andreas B. Imhoff · Matthias J. Feucht ·
Gebhart Meidinger · Philip B. Schöttle ·
Matthias Cotic

- 20 isolated PF-OArthrosis
- 9 combined (Alignment, MPFL)

- Fup 24 m
- Significant improvement WOMAC, VAS, IKDC
- Increase in sport activity in both groups
- No increase in OA after 2 years





A matched-pair comparison of inlay and onlay trochlear designs for patellofemoral arthroplasty: no differences in clinical outcome but less progression of osteoarthritis with inlay designs

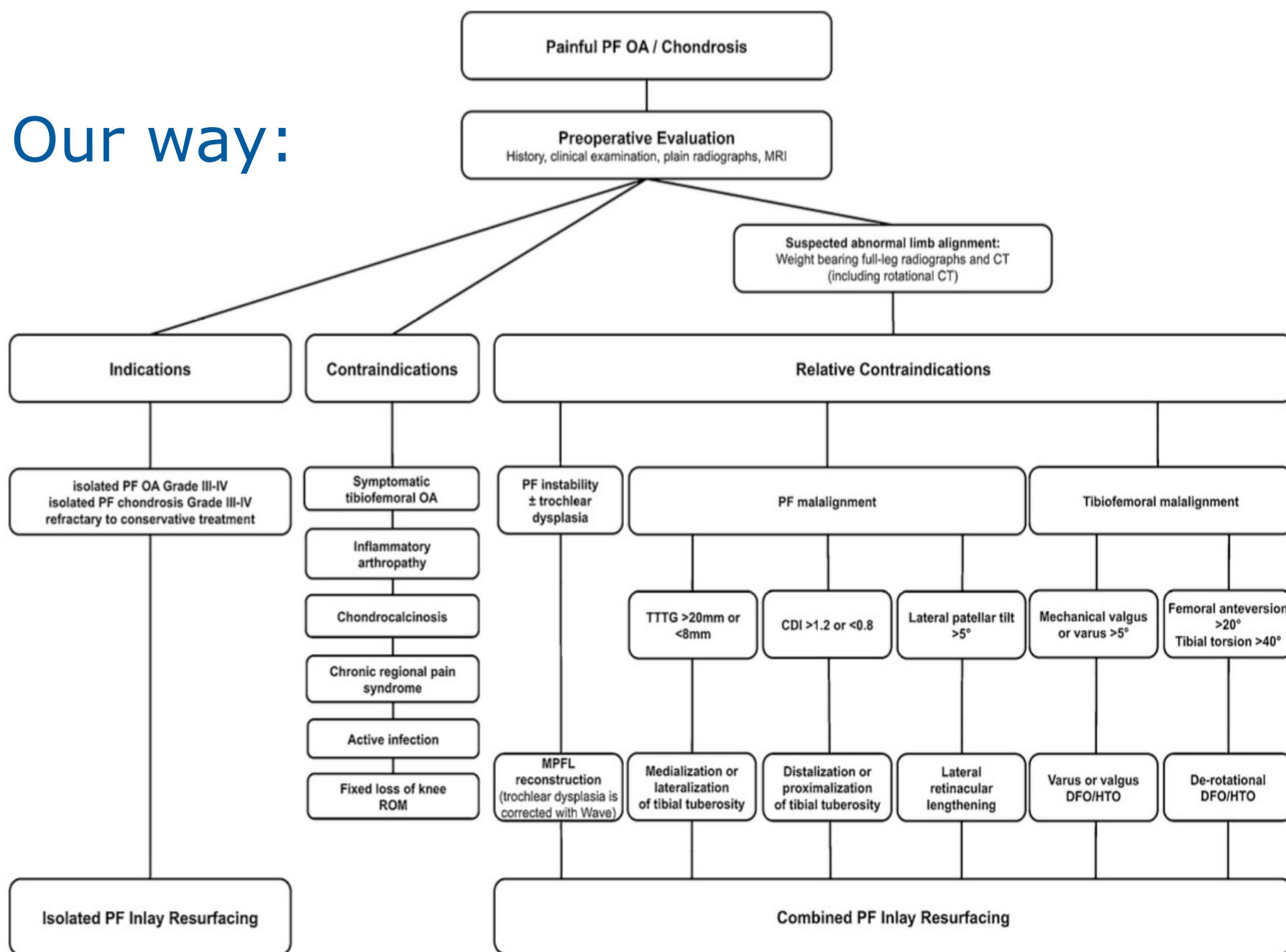
Matthias J. Feucht^{1,2} · Matthias Cotic¹ · Knut Beitzel¹ · Julia F. Baldini¹ · Gebhart Meidinger^{1,3} · Philip B. Schöttle^{1,4} · Andreas B. Imhoff¹

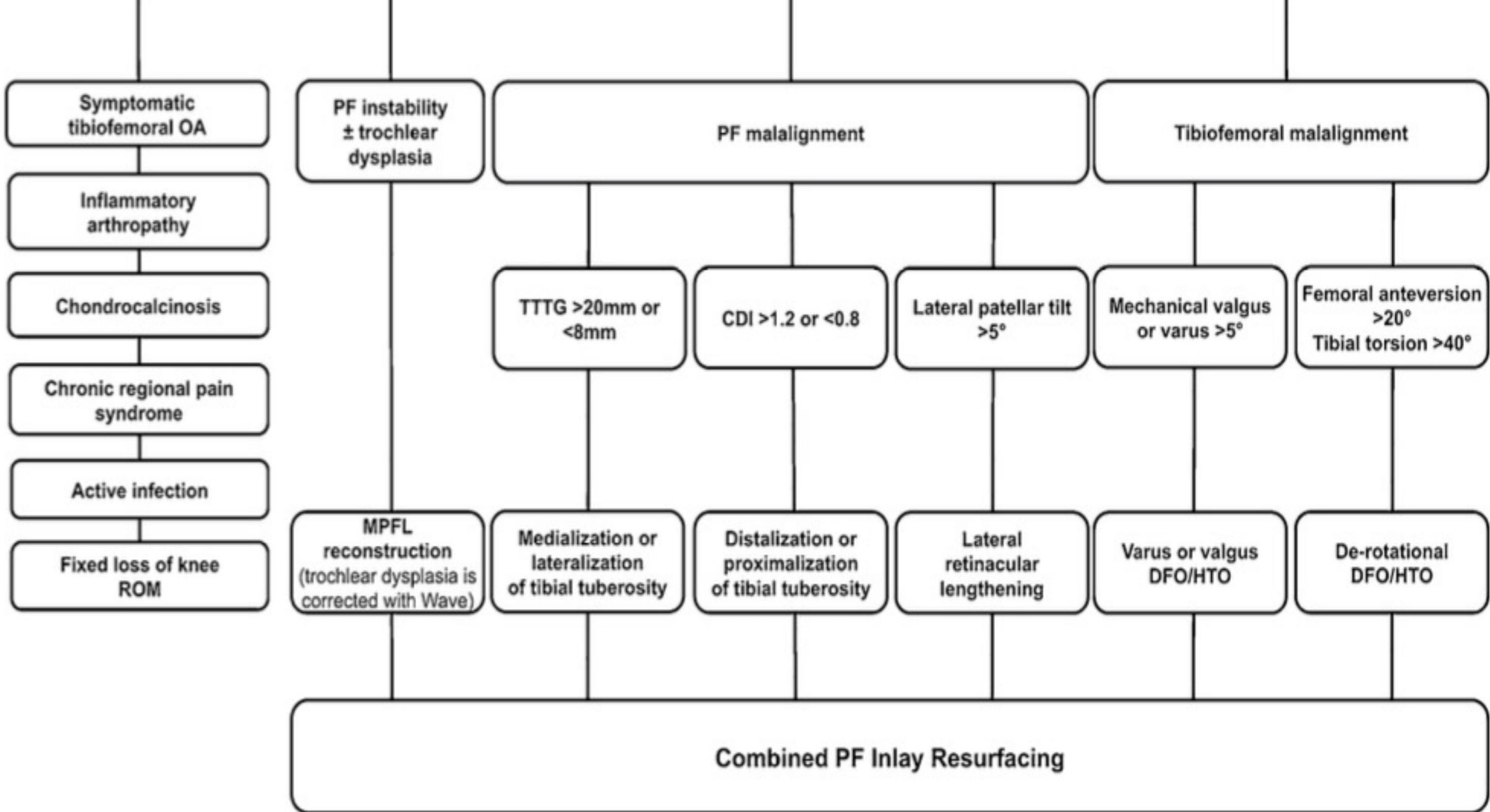
- 15 Patients Inlay (Hemicap Wave, Arthrosurface)
- 15 Patients Onlay (Journey PFJ, Smith and Nephew)
- F-up 24 Monate

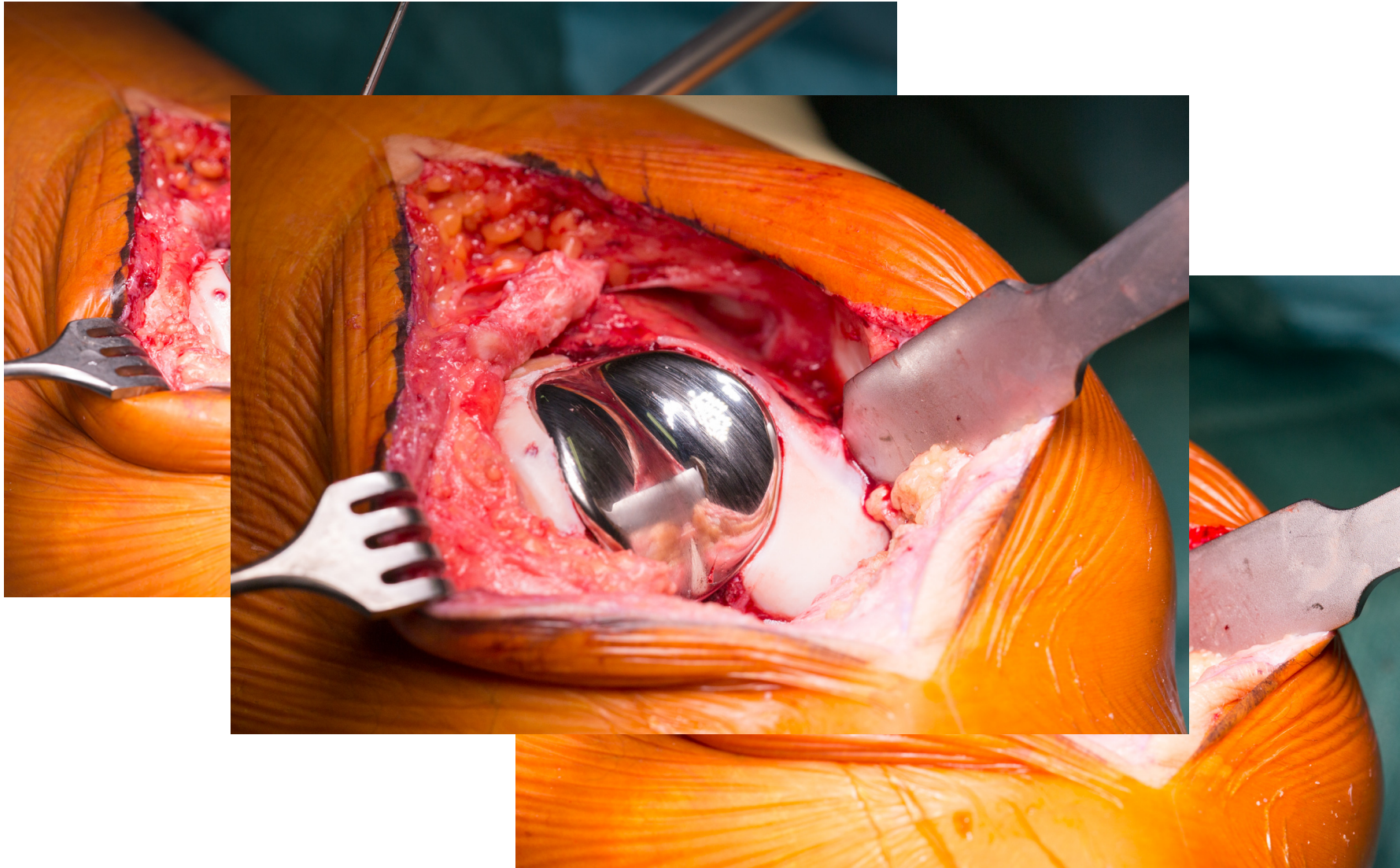
- WOMAC, Lysholm, VAS in both groups increased
- Onlay group: 53% of patients increase of OA in the tibio femoral joint



Our way:



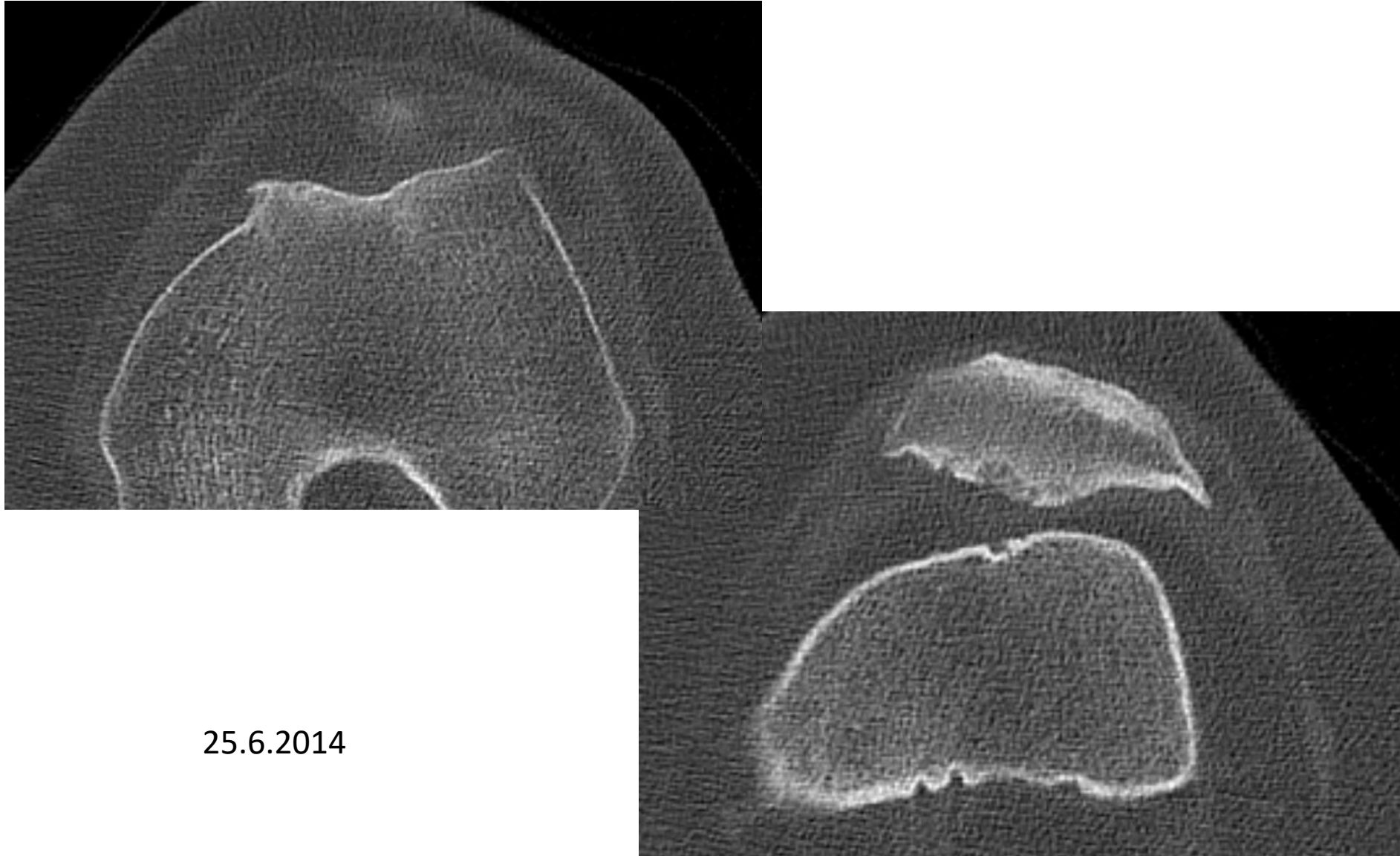




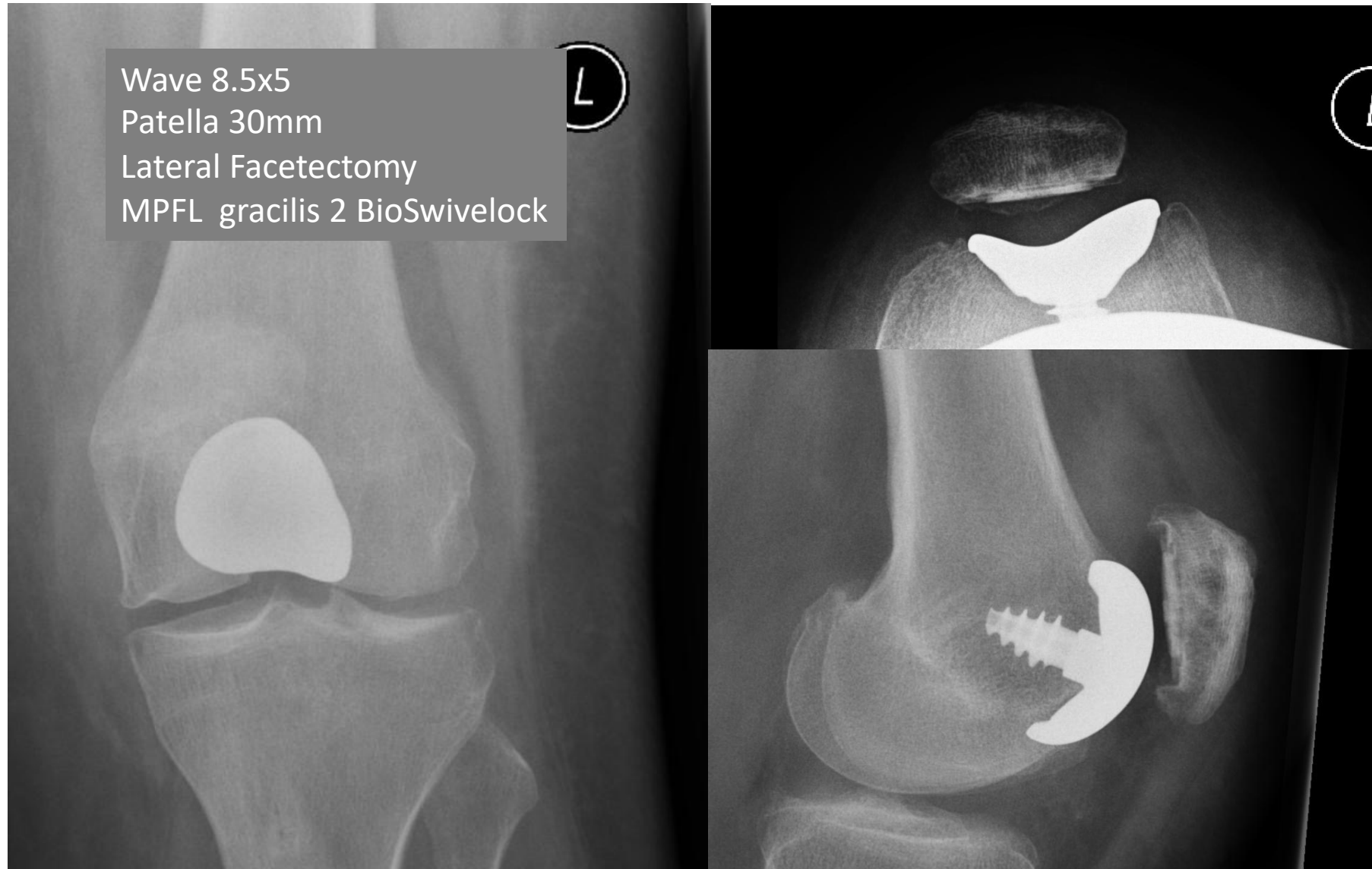


Medical history (06/2014)

- Persistent patellofemoral instability both knees
- Medialisation of the tibial tuberosity and lateral release in 1996
- rest pain since several years
- apprehension at 60° while medial subluxation
- TTGT 9mm
- Secondary osteoarthritic trochlear dysplasia (medial placement)



25.6.2014

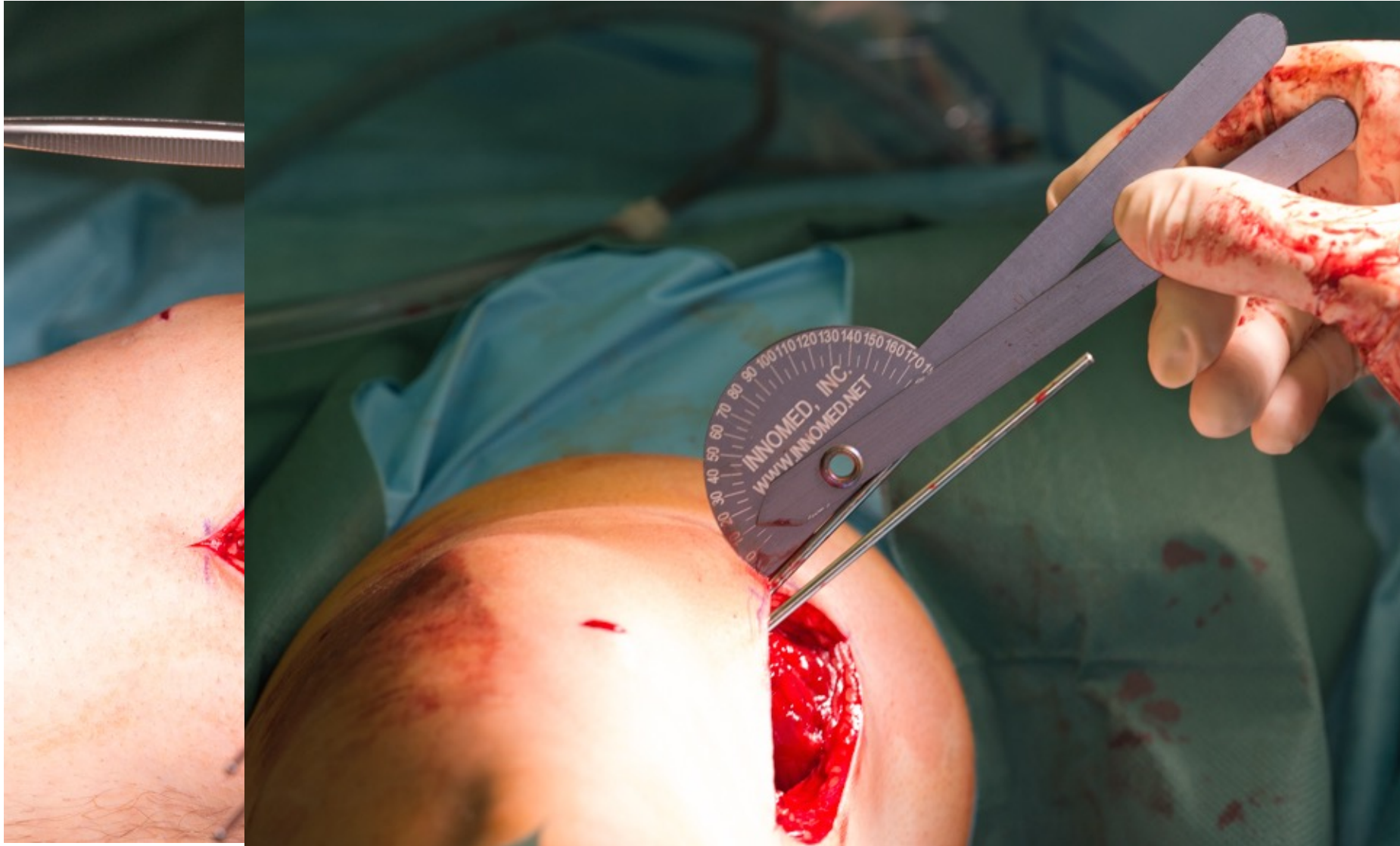


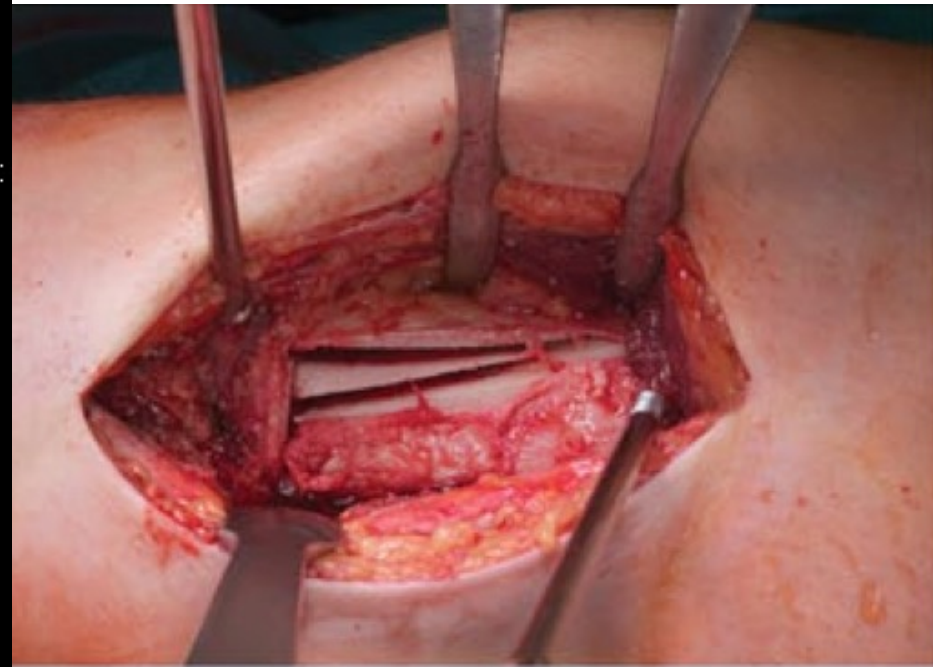
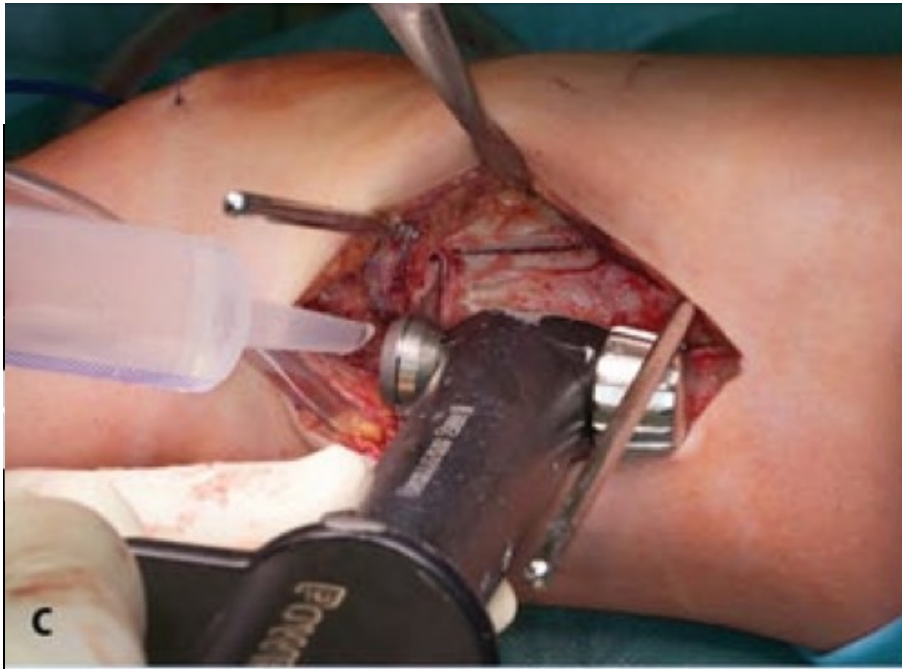
Case:

PFJ OA + Valgus malalignment

- 44 y female
- Secondary instability related
PFJ osteoarthritis
2013 / 2014



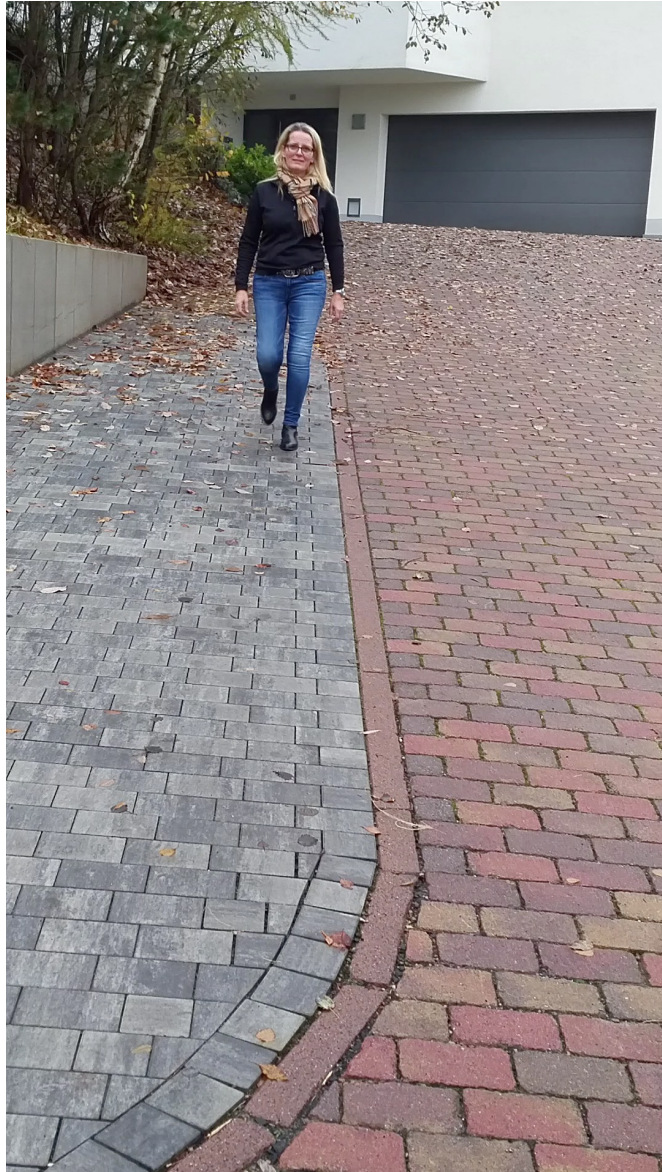






11.2016

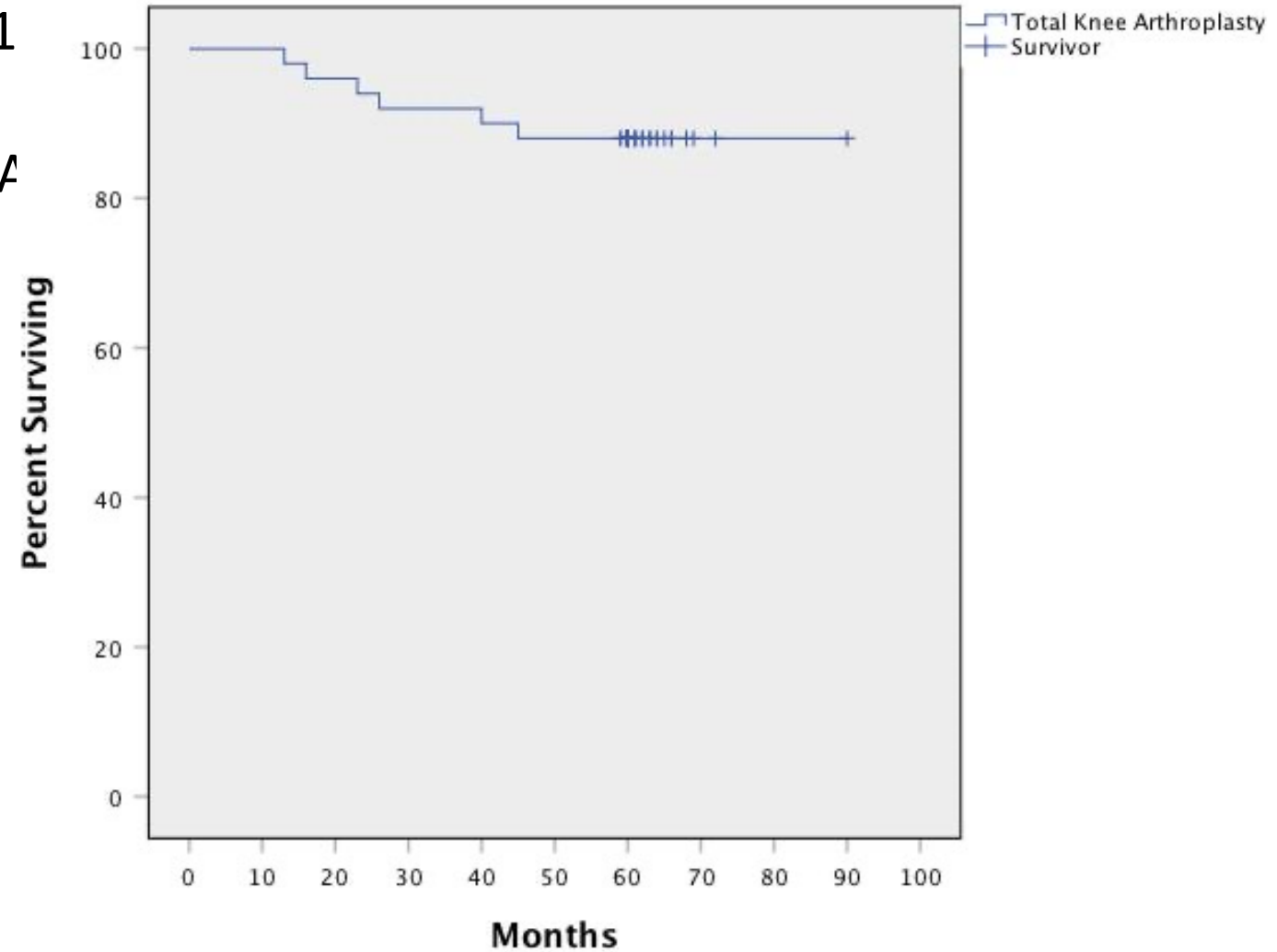
Case: WAVE + DFO 2013 / 2014



11.2016

A total of 6 patients (1 %) failed and were converted to TKA leaving a survival rate of:

95% at 2 years
90% at 5 years

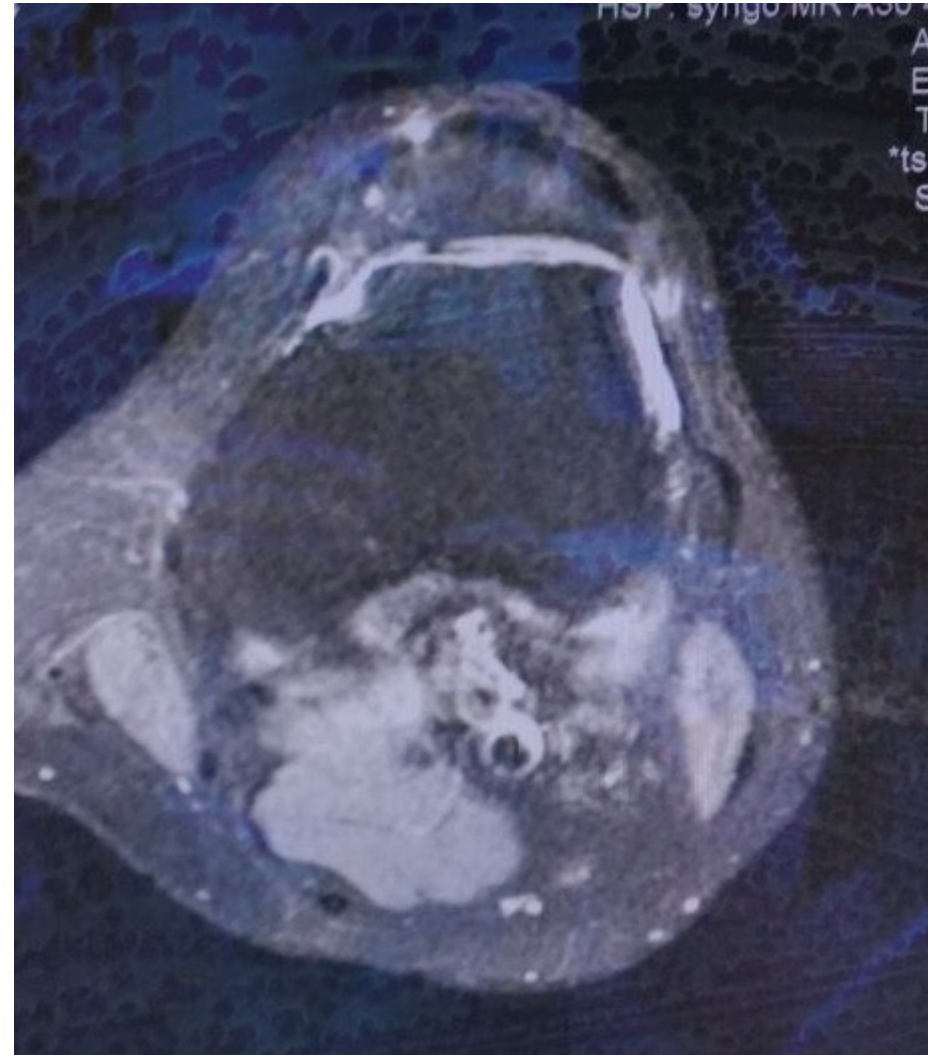


	Preoperative	2 Years	5 Years	Significance
WOMAC total (%)	66 ± 17	76 ± 19	73 ± 19	Pre vs. 2 ys: p = 0.001* Pre vs. 5 ys: p = 0.032* 2 ys vs. 5 ys: n.s.
VAS pain	6 ± 2	3 ± 2	3 ± 2	Pre vs. 2 ys: p < 0.001* Pre vs. 5 ys: p < 0.001* 2 ys vs. 5 ys: n.s.

	Preoperative	5 Years	Significance
Kellgren and Lawrence (tibiofemoral)	1,61 ± 0,82	1,66 ± 0,68	n.s.
Caton-Deschamps Index	0,95 ± 0,16	0,91 ± 0,19	n.s.

- Significant clinical improvements
- No radiographic progression of osteoarthritis

- PF Arthritis and instability
- Trochlea Dysplasia C
- Arthroscopical
debridement and
- MPFL-reconstruction



Future: PFJ > Wave > Kahuna

PFJ

2/2004

Wave

9/2009

Kahuna

1/2017



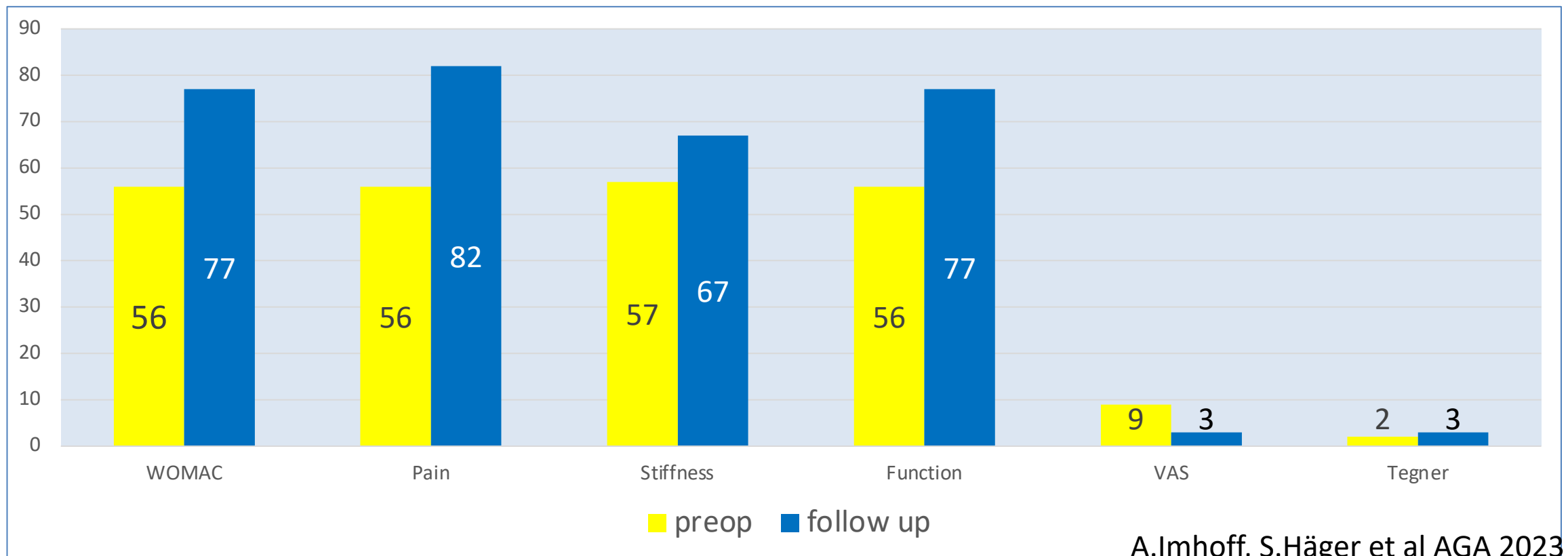


**KAHUNA
Case #1**

40y fem.
13.5.76
17.1.17

2-Year Outcomes After Isolated Patellofemoral Inlay Resurfacing Arthroplasty – A Prospective Study

18 knees in 19 patients Follow up: 86% @ 2 years





- Patellofemoral inlay arthroplasty is a valid and reliable option for patients suffering from isolated patellofemoral osteoarthritis.
- Significant improvements in knee function and pain relief at mid-term follow-up are achieved without progression of tibiofemoral arthritis.
- Failures underly the importance of appropriate patient selection.

Imhoff AB. et al. KSSTA 2022 April

The Lack of Retropatellar Resurfacing at Index Surgery is Significantly Associated With Failure in Patients Following Patellofemoral Inlay Arthroplasty – A multi-center study of more than 260 patients f-up 2y



Reliable improvements in participation in low-impact sports following implantation of a patellofemoral inlay arthroplasty at mid-term follow-up.

Pogorzelski J, Imhoff AB et al. KSSTA 2020 Aug.

Preoperative patellofemoral anatomy affects failure rate after isolated patellofemoral inlay arthroplasty

Feucht M, Imhoff AB et al. AOTS 2020 Dec.

High patient satisfaction with significant improvement in knee function and pain relief after mid-term follow-up in patients with isolated patellofemoral inlay arthroplasty.

Imhoff AB et al. KSSTA 2019

The Lack of Retropatellar Resurfacing at Index Surgery is Significantly Associated With Failure in Patients Following Patellofemoral Inlay Arthroplasty – A multi-center study of more than 260 patients f-up 2y

Imhoff AB. et al. KSSTA 2021/2022

Imhoff · Feucht Eds.

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Surgical Atlas of Sports Orthopaedics
and Sports Traumatology

Andreas B. Imhoff
Matthias Feucht
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