

Functional results after UKA – does they differ from TKA?

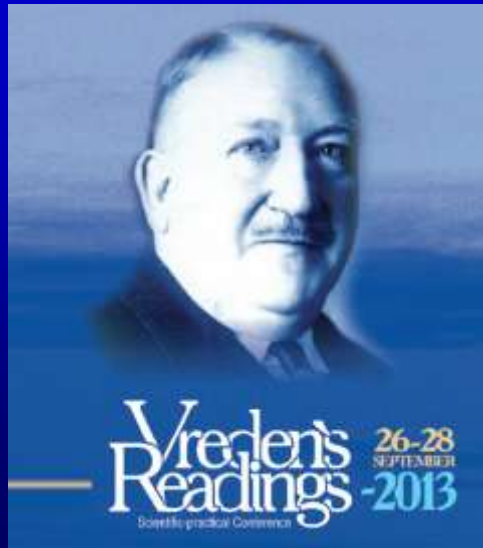
Sébastien Parratte, MD, PHD

Jean-Manuel Aubaniac,

Jean-Noël Argenson

LocoMotion Institute

Hôpital Sainte Marguerite, Marseille, France



I'm strongly
biais !!!



My disclosures

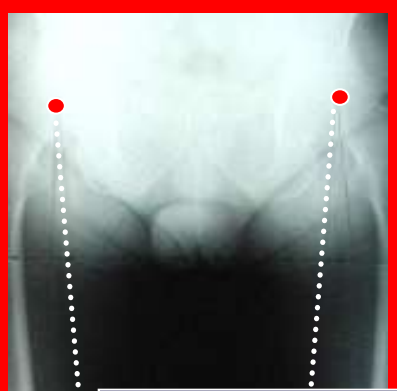




Bad Rehab



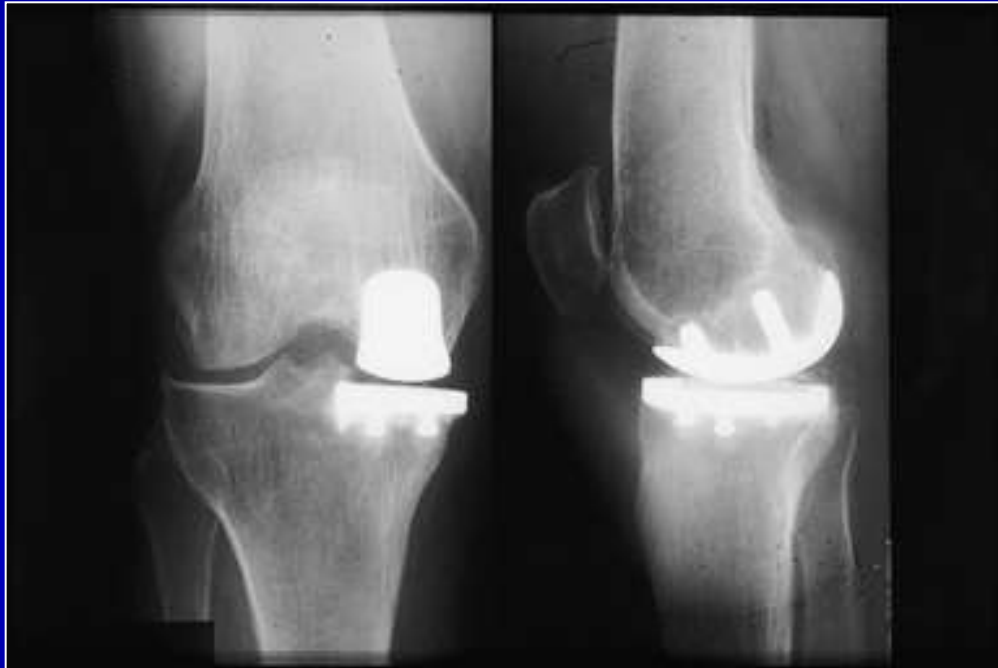
Bilateral Varus : Men 59 years-old



What would you do ?



UKA ?



*Schai, J Arthroplasty, 1998
Pennington, Jbjs Am, 2003
Price, Jbjs Br, 2005
Springer B, CORR, 2006*

TKA?

Or



*Lonner, CORR, 2000
Mont, J Arthroplasty, 2002
Hofmann, CORR, 2002
Morgan, J Arthroplasty, 2007*

What is a good functional result for the patient?

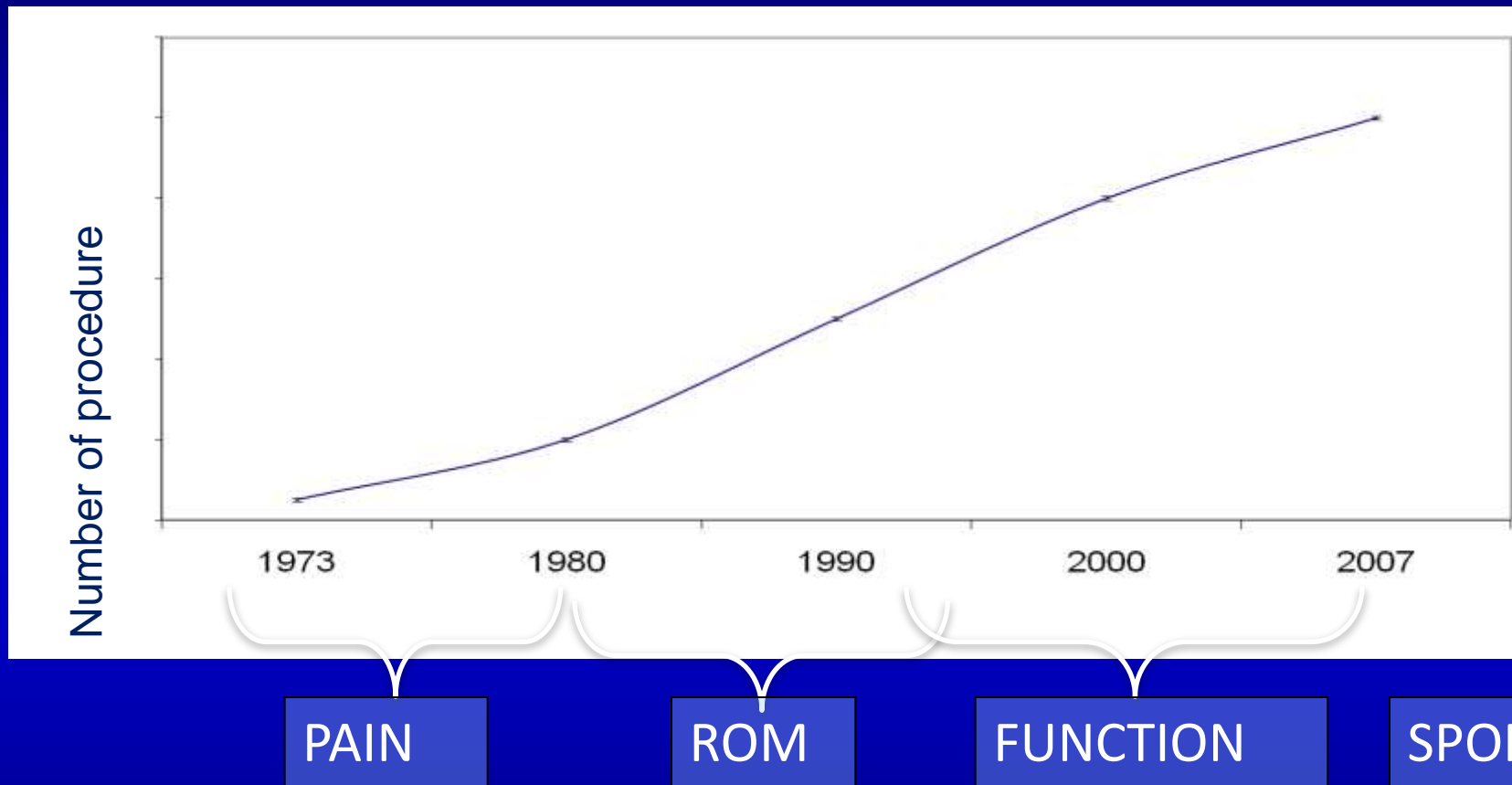


J Bone Joint Surg Am. 2009;91 Suppl 5:43-8 • doi:10.2106/JBJS.L00406

The New Arthritic Patient and Arthroplasty Treatment Options

By Jean-Noël A. Argenson, MD (moderator), Sebastien Parratte, MD, Antoine Bertani, MD, Jean-Manuel Aubaniac, MD, Adolph V. Lombardi Jr., MD, Keith R. Berend, MD, Joanne B. Adams, BFA, Jess H. Lonner, MD, Ormonde M. Mahoney, MD, Tracy L. Kinsey, MSPH, Thomas K. John, MD, and Michael A. Conditt, PhD

What does the patient want?



Mancuzo C et al., JBJS AM 2001: Patients' Expectations of Knee Surgery

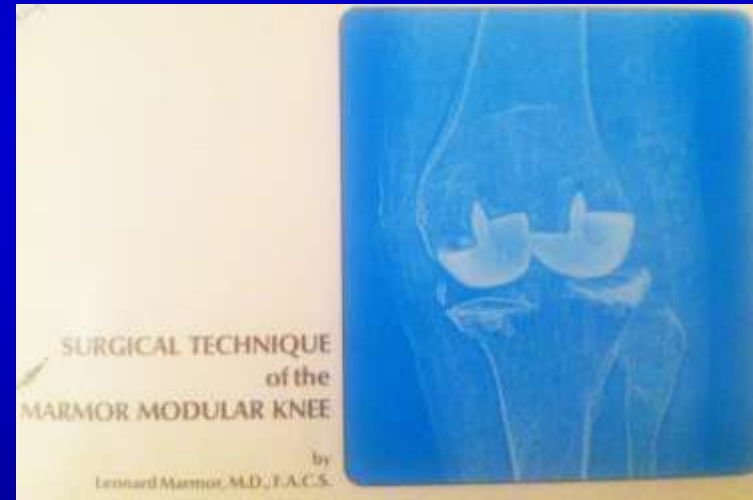


Functional results after UKA – does they differ from TKA?

1. Marmor dentist Answer
2. Biomechanical answer
3. Literature answer
4. Patient answer
5. Our experience and philosophy

1.The «Marmor dentist answer »

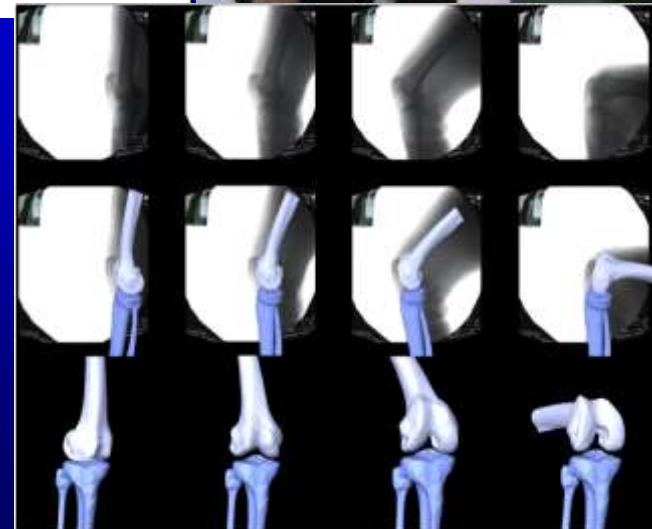
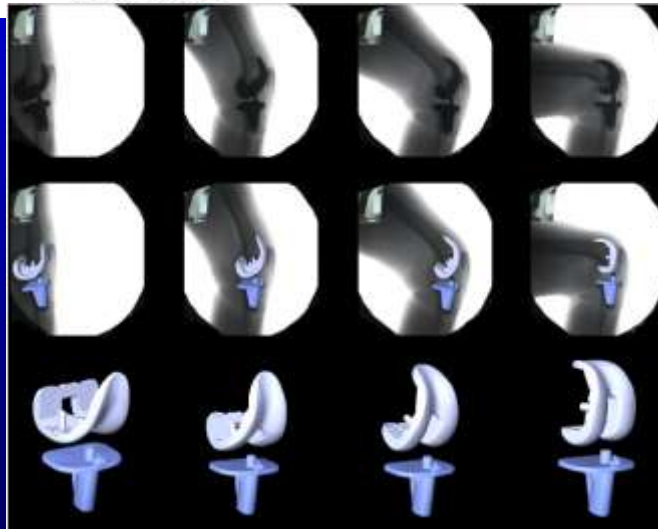
« If your dentist is telling he should change all your teeth when only one is destroyed, you will run away from him”



Same think for the function and the compartments of the knee

Biomechanical answer

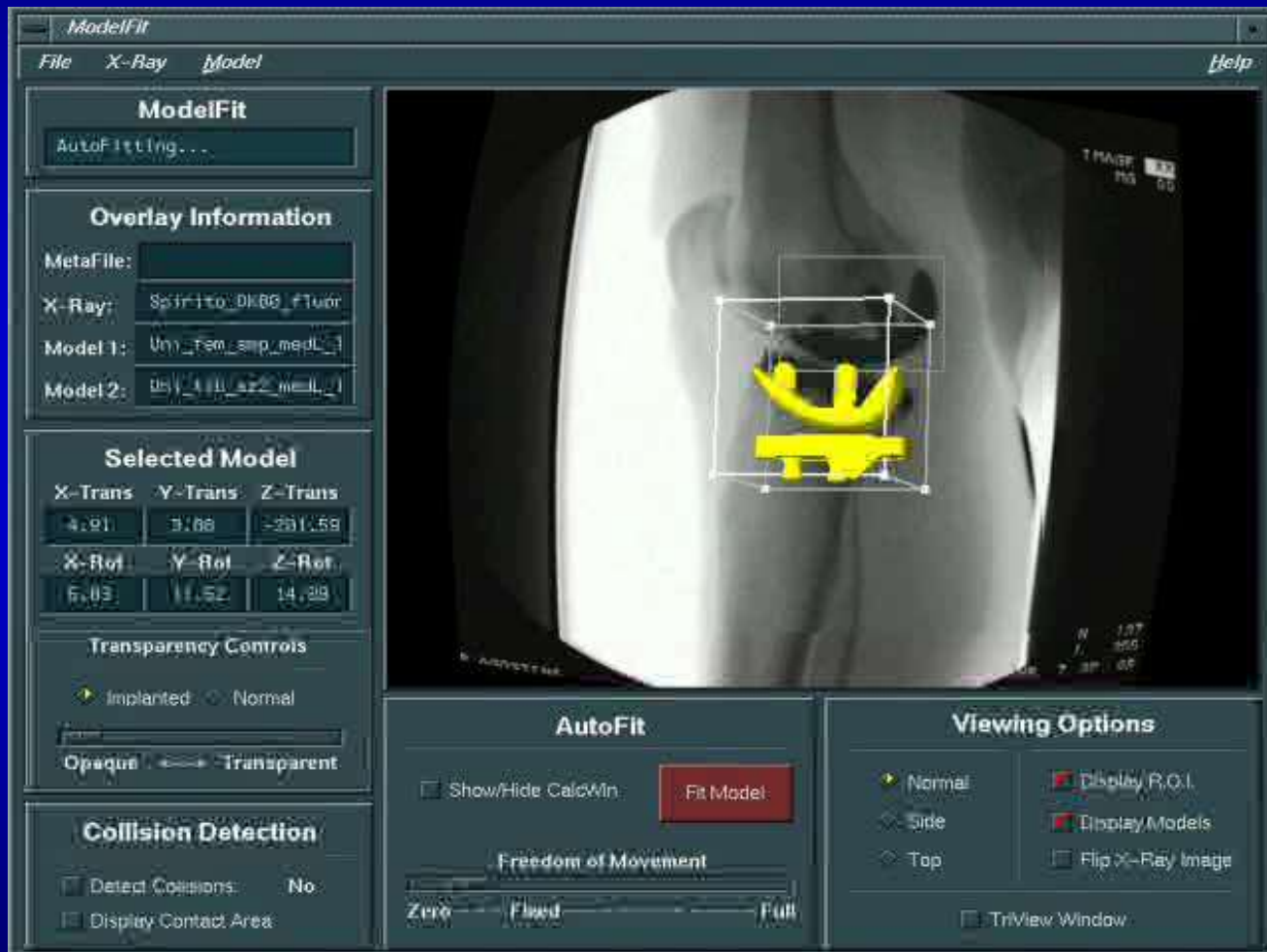
=> Evaluation set-up



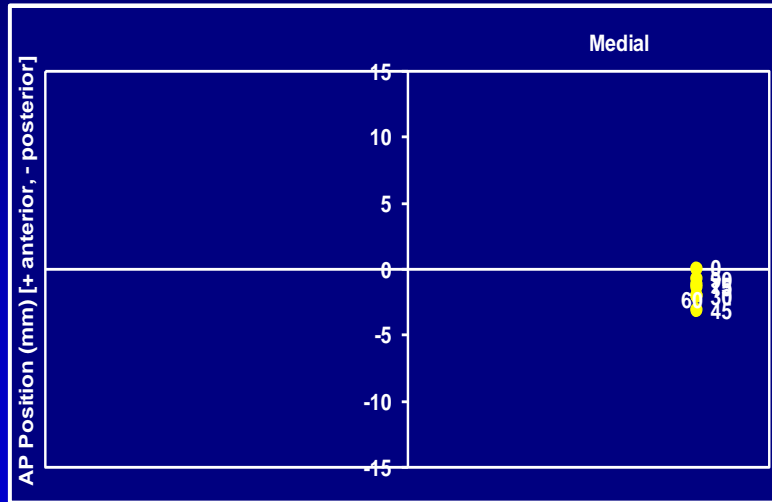
FLUOROSCOPY 2D : Uni



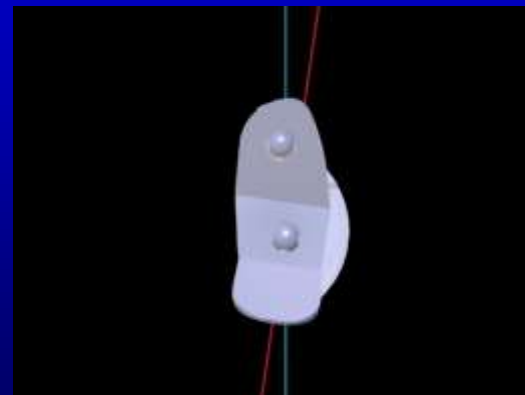
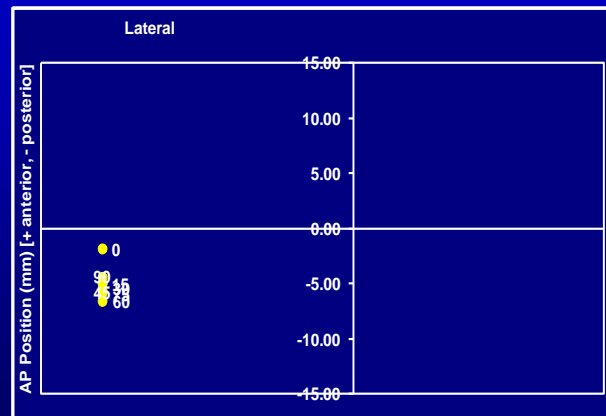
3D MODEL FITTING



Results: Medial A/P (Avg.)

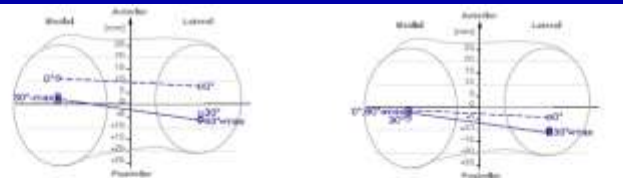


Results: : Lateral A/P (Avg.)



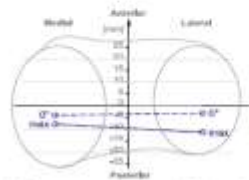
UKA kinematics closed to the normal knee

When the ACL is preserved

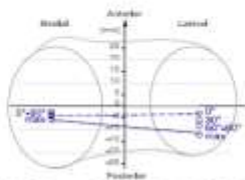


(a) Current study, contralateral knee (15 subjects, avg. 71.8 year old, range 62-84 year old, max=avg. 96.3°).

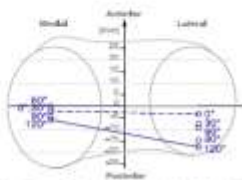
(b) Current study, TKA knee (15 subjects, avg. 71.8 year old, range 62-84 year old, max=avg. 103.4°).



(c) Argenson et al. (2005), TKA knee (Zimmer LPS Flex Mobile TKA, 20 subjects, age not reported, max=avg. 125°).



(d) Li et al. (2006), TKA knee (Zimmer NexGen CR TKA, 9 subjects, avg. 68.9 year old, range 46-80 year old, max=avg. 113°).



(e) Tamaki et al. (2008), TKA knee (Scorpio NRG PS TKA, 20 knees, avg. 64.7 year old, range 30-77 year old).

In Vivo Comparison of TKA Kinematics to the Non-Implanted Contralateral Knees for the Same Subject

S Parratte¹, JN Argenson¹, F Lezko², S Zingde², M Anderle², R Komistek²

ISTA 2011, Bruges

1. Center for Arthritis Surgery
Sainte Marguerite Hospital, Marseille, France

2. University of Tennessee, Knoxville, USA



The Journal of Arthroplasty, Vol. 17, No. 6, 2002

In Vivo Determination of Knee Kinematics for Subjects Implanted With a Unicompartmental Arthroplasty

Jean-Noël A. Argenson, MD,* Richard D. Komistek, PhD,†
Jean-Manuel Aubaniac, MD,* Douglas A. Dennis, MD,† Eric J. Northcut, MS,†
Dylan T. Anderson,† and Serge Agostini, MD‡

Functional goal “The forgotten Knee”

→ Key : ACL



In vitro
In vivo



The Litterature Anwser



Adjusting for age and gender, there was no significant difference between UKA and TKA in HRQL over the first 6 months following surgery.

SYMPOSIUM: PAPERS PRESENTED AT THE ANNUAL MEETINGS OF THE KNEE SOCIETY

Unicompartmental Versus Total Knee Arthroplasty Database Analysis

Is There a Winner?

Matthew C. Lyons MBBS, FRACS, Steven J. MacDonald MD, FRCSC,
Lyndsay E. Somerville MSc, Douglas D. Naudie MD, FRCSC,
Richard W. McCalden MD, FRCSC

While patients with UKA had higher pre and Post operative scores than patients with TKA, the changes in scores were similar in both groups and survival appeared higher in patients with TKA.

Our Philosophy and answer based on more than 30 years of UKA experience

In the departement



Medial unicompartmental knee replacement in the under-50s

S. Parratte,
J.-N. A. Argenson,
O. Pearce,
V. Pauly,
P. Auquier,
J.-M. Aubaniac

From Aix-Marseille
University, Marseille,
France

We retrospectively reviewed 35 cemented unicompartmental knee replacements performed for medial unicompartmental osteoarthritis of the knee in 31 patients ≤ 50 years old (mean 46, 31 to 49). Patients were assessed clinically and radiologically using the Knee Society scores at a mean follow-up of 9.7 years (5 to 16) and survival at 12 years was calculated. The mean Knee Society Function Score improved from 54 points (25 to 64) pre-operatively to 89 (80 to 100) post-operatively ($p < 0.0001$). Six knees required revision, four for polyethylene wear treated with an isolated exchange of the tibial insert, one for aseptic loosening and one for progression of osteoarthritis.

The 12-year survival according to Kaplan-Meier was 80.6% with revision for any reason as the endpoint. Despite encouraging clinical results, polyethylene wear remains a major

CLINICAL ORTHOPAEDICS AND RELATED RESEARCH
Number 00, pp. 000-000
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Unicompartmental Knee Arthroplasty for Avascular Osteonecrosis

Sebastien Parratte, MD; Jean-Noel A. Argenson, MD; Julien Dumas, MD; and
Jean-Manuel Aubaniac, MD

Clin Orthop Relat Res (2008) 466:2686-2693
DOI 10.1007/s11999-008-0351-z

SYMPOSIUM: PAPERS PRESENTED AT THE ANNUAL MEETINGS OF THE KNEE SOCIETY

Long-term Results With a Lateral Unicondylar Replacement

Jean-Noël A. Argenson MD, Sebastien Parratte MD,
Antoine Bertani MD, Xavier Flecher MD,
Jean-Manuel Aubaniac MD

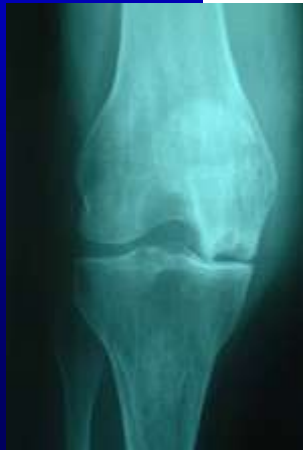


CLINICAL ORTHOPAEDICS AND RELATED RESEARCH
Number 452, pp. 137-142
© 2006 Lippincott Williams & Wilkins

The Unicompartmental Knee

Design and Technical Considerations in Minimizing Wear

Jean-Noël A. Argenson, MD; and Sebastien Parratte, MD



The “Less for More” Phylosophy

MIS outside

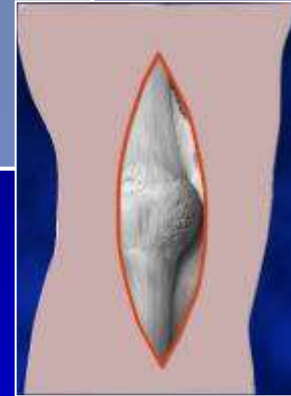
Gait analysis

John Insall Award Paper

A Randomized Controlled Trial of Minimally Invasive TKR: Comprehensive Gait and Strength Testing Outcomes.

Presenter: **Mark W. Pagnano, MD**

Co-Authors: Julien Wegrzyn, MD, PhD, Sebastien Parratte, MD, PhD, Krista Coleman-Wood, PhD, PT, and Kenton R. Kaufman, PhD, PE

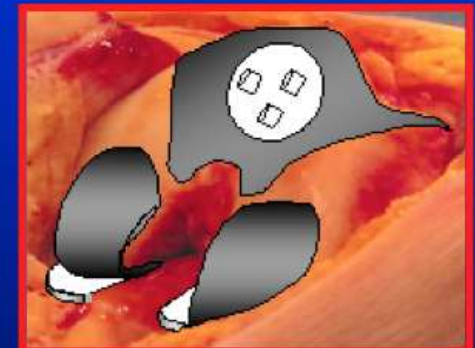
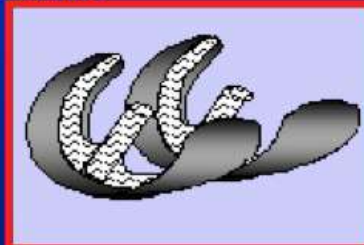
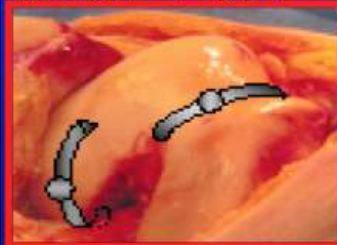


MIS inside : Bone and ligament sparing techniques functional and kinematic evaluation

Fluoroscopy



Peter S. Walker « *Award Lifetime* » ISTA 2004 Rome



COMPONENTS SHAPED FOR LESS BONE LOSS AND USED IN ANY
COMBINATION.

Every patient is at a different place on
the road of arthritis

Conserve as much as you can to
optimize the knee function

proper indication

our best surgical technique

Ollivier M, Parratte S, Argenson JN.

Results and outcomes of UKA

Orthop Clin North Am. 2013 Jul;44(3):287-300,.

Patient selection/Indication/Surgical technique «SAW» concept



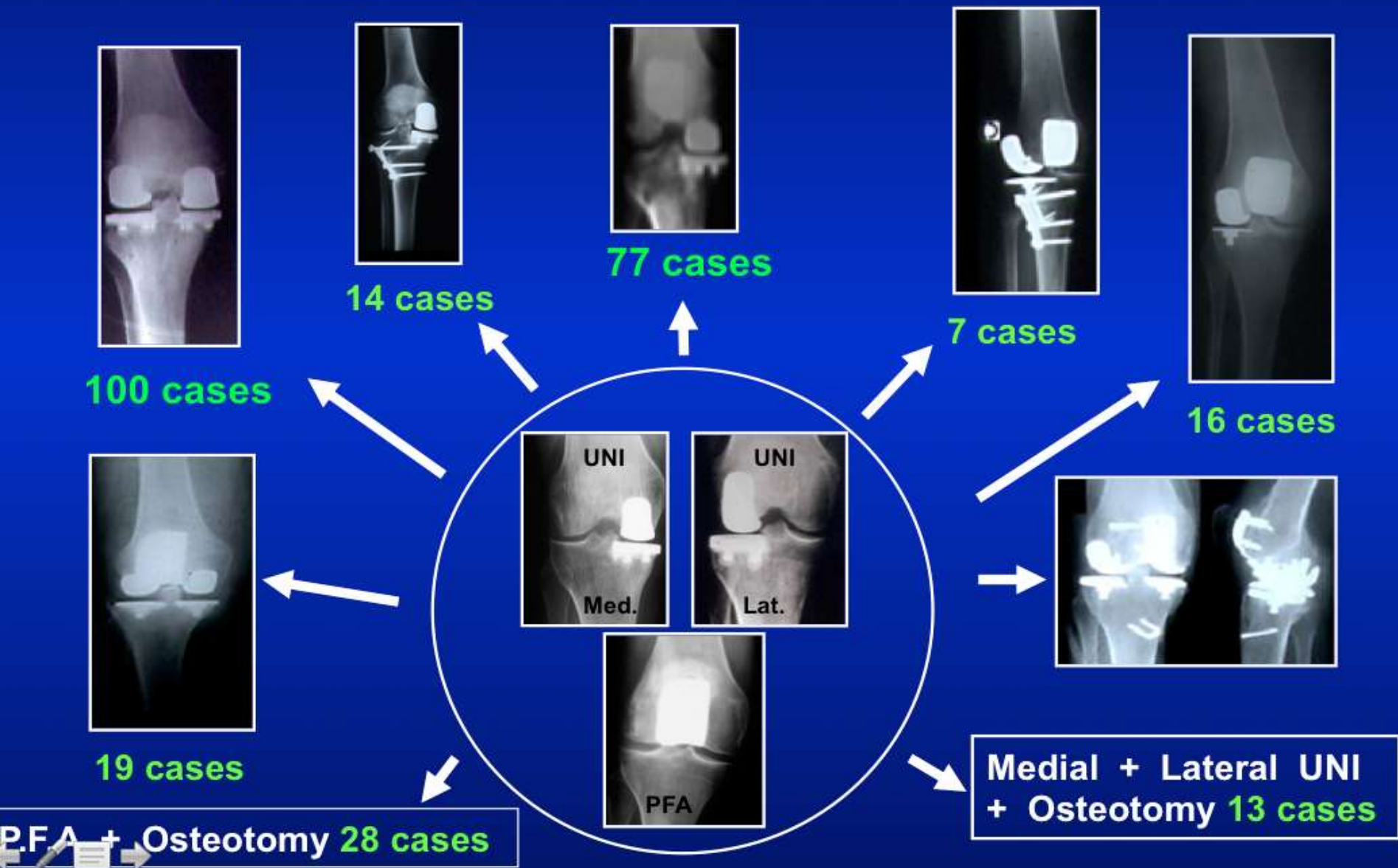
- **Stability**

- **Alignment**

- **Wear**

UNI & PFP - Association

289 Knees : 509 Implants (1972 - 2000)

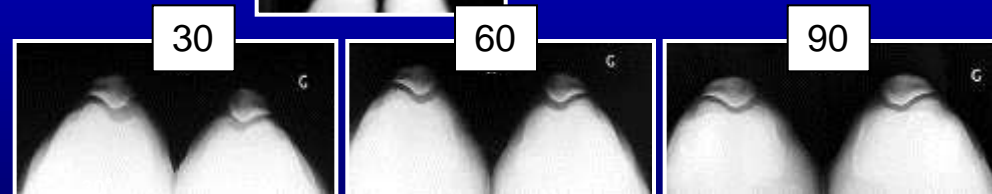
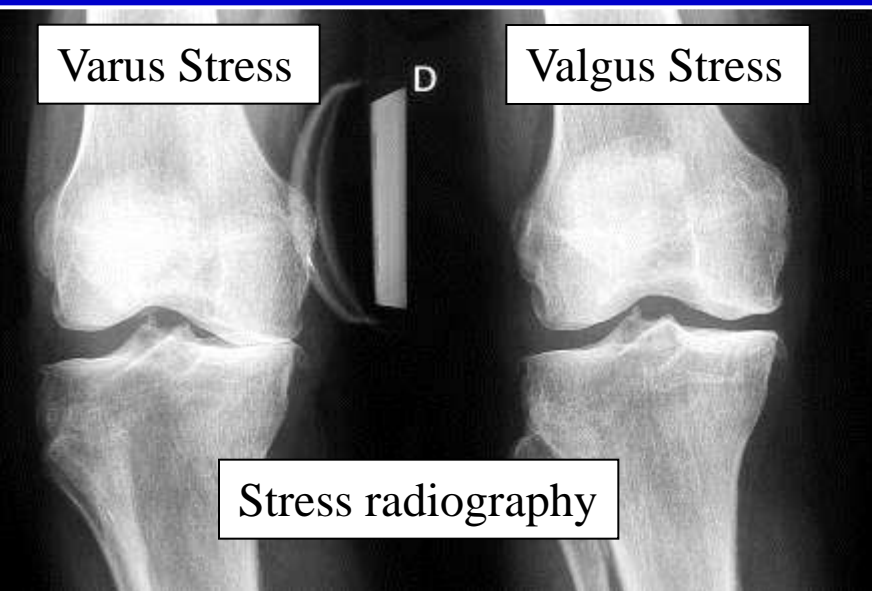


Systematic Preoperative Evaluation

1. Clinical evaluation:

- Range of knee motion
- Frontal and sagittal knee stability
- Status of the patellofemoral joint

2. Radiographic evaluation:



Patello femoral evaluation: Sky-view

PREOPERATIVE RADIOLOGICAL & CLINICAL EVALUATION

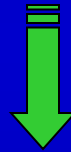
ANALYSIS



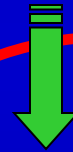
ORIENTATION



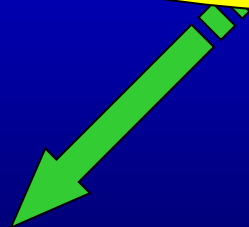
**Conservative
Solution**
*(osteotomies around
the knee)*



Borderline cases



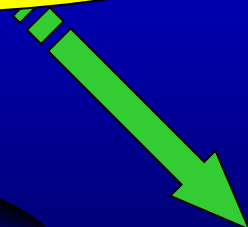
**Replacement
Solution**
*(total knee
arthroplasty)*



UKA
Ostéotomy



UKA



UKA
combination

On the long road of arthritis

osteotomy

UKA...

TKA



Schai, J Arthroplasty, 1998
Pennington, Jbjs Am, 2003
Price, Jbjs Br, 2005
Springer B, CORR, 2006

Lonner, CORR, 2000
Mont, J Arthroplasty, 2002
Hofmann, CORR, 2002
Morgan, J Arthroplasty, 2007

Everything about SATIS-FUNCTION

« Instead of us deciding what is good for them, ask them » (P Dieppe)

Knee specific Quality of life score: KOOS

Cross-cultural adaptation and validation of the French version of the Knee injury and Osteoarthritis Outcome Score (KOOS) in knee osteoarthritis patients¹

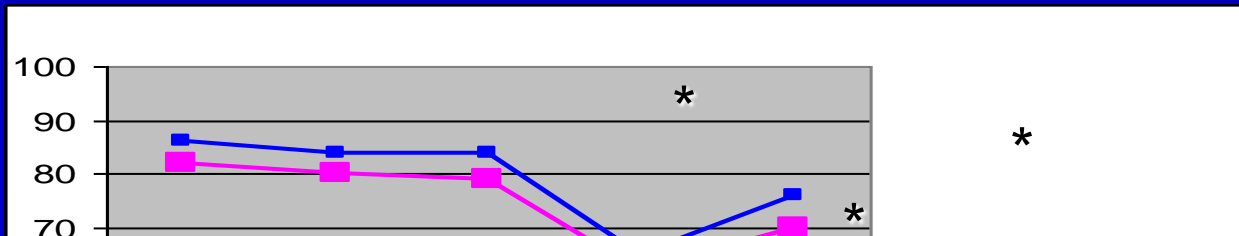
P. Ornetti M.D.†‡§, S. Parratte M.D.¶, L. Gossec M.D.¶#, C. Tavernier M.D.†‡, J.-N. Argenson M.D., Ph.D.¶, E. M. Roos P.T., Ph.D.†‡§§, F. Guillemin M.D., Ph.D.†‡ and J. F. Maillefert M.D., Ph.D.†‡§*

**Osteoarthritis
and Cartilage**

Results of TKA

Correlations between objective and subjective scores

Postoperative flexion and KOOS



Clin Orthop Relat Res (2008) 466:2669–2676

DOI 10.1007/s11999-008-0418-x

SYMPOSIUM: PAPERS PRESENTED AT THE ANNUAL MEETINGS OF THE KNEE SOCIETY

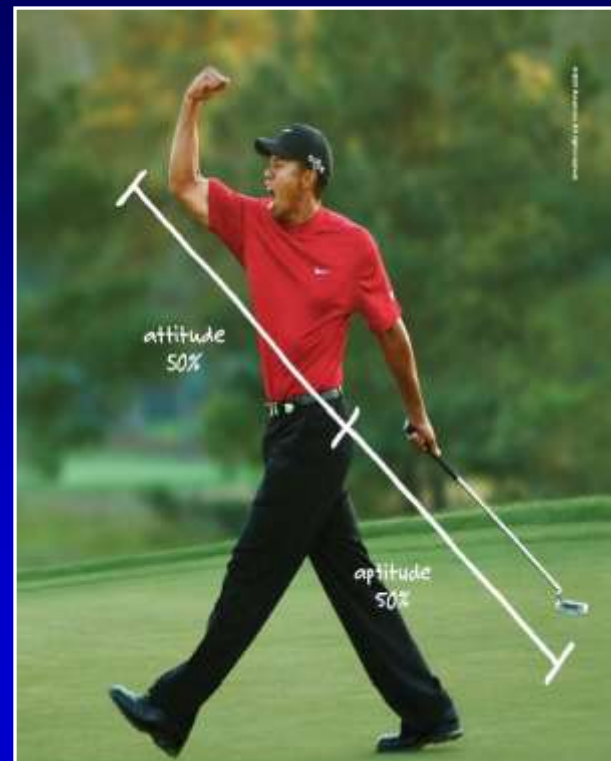
Patient-reported Outcome Correlates With Knee Function After a Single-design Mobile-bearing TKA

Jean-Noel Argenson MD, Sebastien Parratte MD,
Abdullah Ashour MD, Richard D. Komistek PhD,
Giles R. Scuderi MD

1. Kinematics ✓

2. Improve ROM ✓

3. Fonction restauration ✓



The Outcome of Rotating-Platform Total Knee Arthroplasty with Cement at a Minimum of Ten Years of Follow-up

The Journal of Bone and Joint Surgery

Author(s): Paragraph text formatting will be adjusted prior to publication.

Galley Page 2

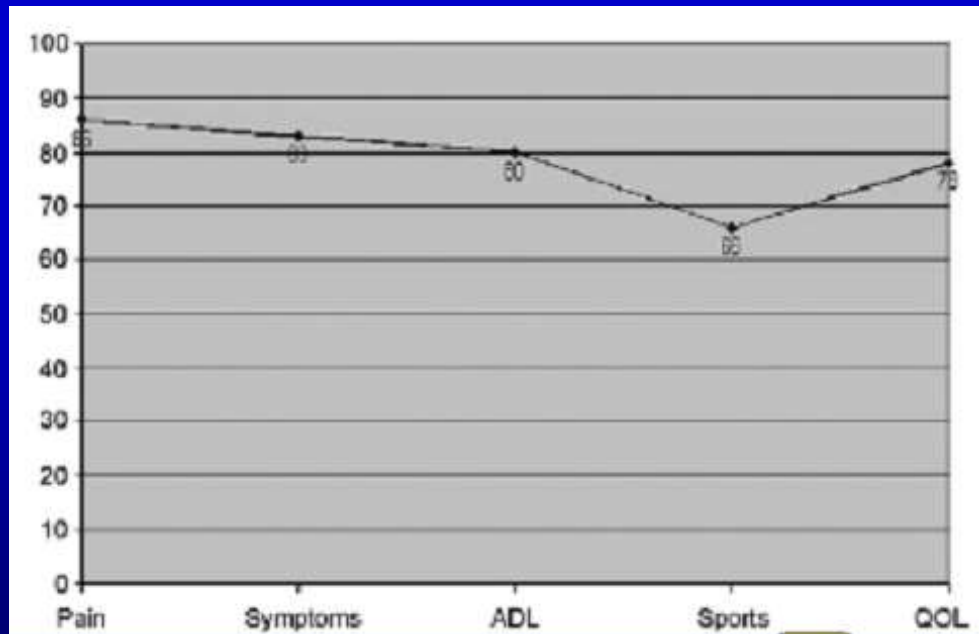
Jean-Noël A. Argenson, MD, Sébastien Parratte, MD, Abdullah Ashour, MD, Bertrand Saintmard, MD, and Jean-Manuel Aubaniac, MD

Investigation performed at the Aix-Marseille University, Center for Arthritis Surgery, Marseille, France

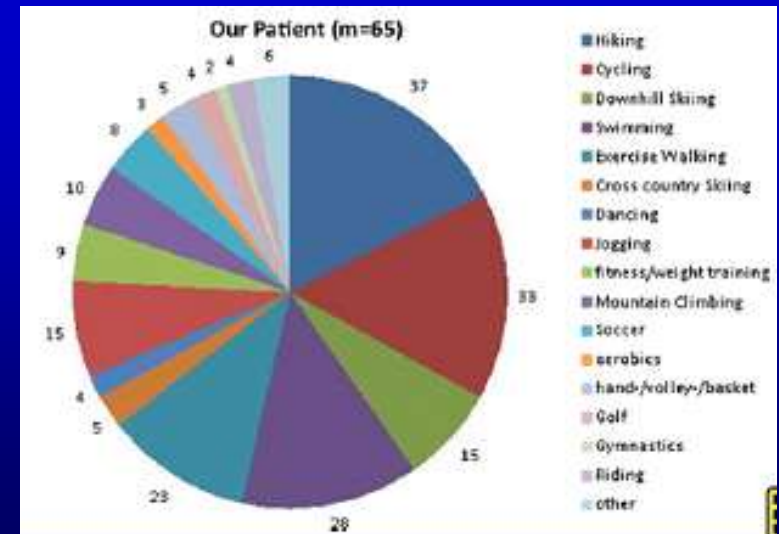
Results of UKA

Function and quality of life following medial unicompartmental knee arthroplasty in patients 60 years of age or younger.

Orthop Traumatol Surg Res. 2010 Dec;
Felts E, Parratte S, Pauly V, Aubaniac JM, Argenson JN.



Forgotten Knee
20%



And it can last

905

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Modern Unicompartmental Knee Arthroplasty with Cement

A Concise Follow-up, at a Mean of Twenty Years, of a Previous Report*

Jean-Noel A. Argenson, MD, Guillaume Blanc, MD, Jean-Manuel Aubaniac, MD, and Sebastien Parratte, MD

Investigation performed at the Institute for Locomotion, Aix-Marseille University, Marseille, France

But do not forget !

UKA = 10 to 20% of the indications in

hi

At

cr



Avoid hypercorrection

Revision correlated to the hypercorrection

Clin Orthop Relat Res (2012) 470:61–68
DOI 10.1007/s11999-011-1961-4

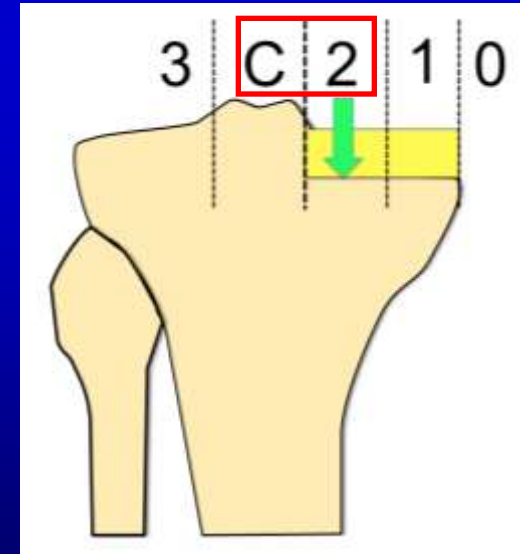
SYMPOSIUM: PAPERS PRESENTED AT THE ANNUAL MEETINGS OF THE KNEE SOCIETY

No Long-term Difference Between Fixed and Mobile Medial Unicompartmental Arthroplasty

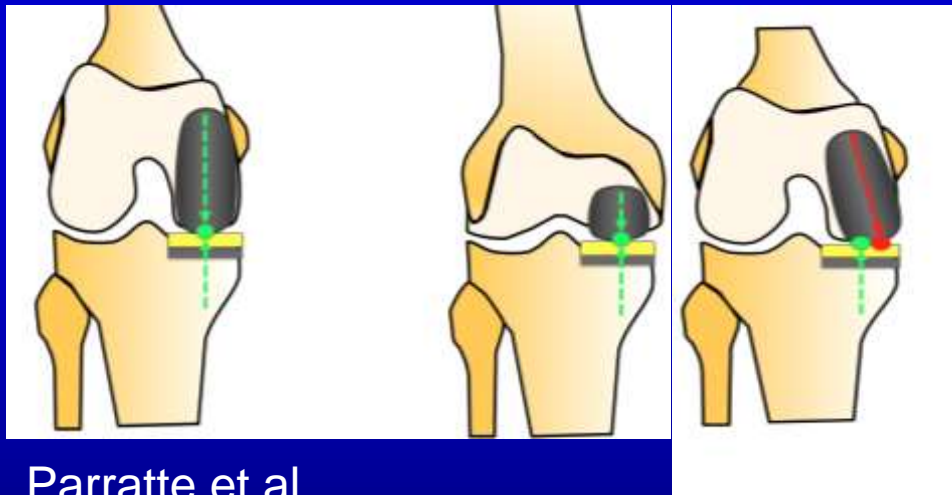
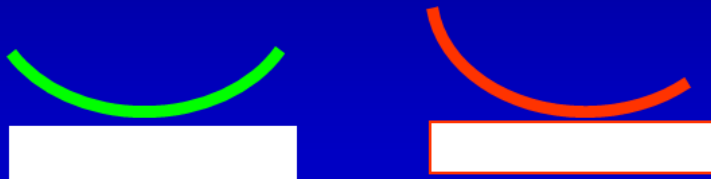
Sebastien Parratte MD, Vanessa Pauly MS,
Jean-Manuel Aubaniac MD, Jean-Noel A. Argenson MD

**Patient mechanical
axis restoration
Hypo-correction
Technique**

Kennedy
Classification

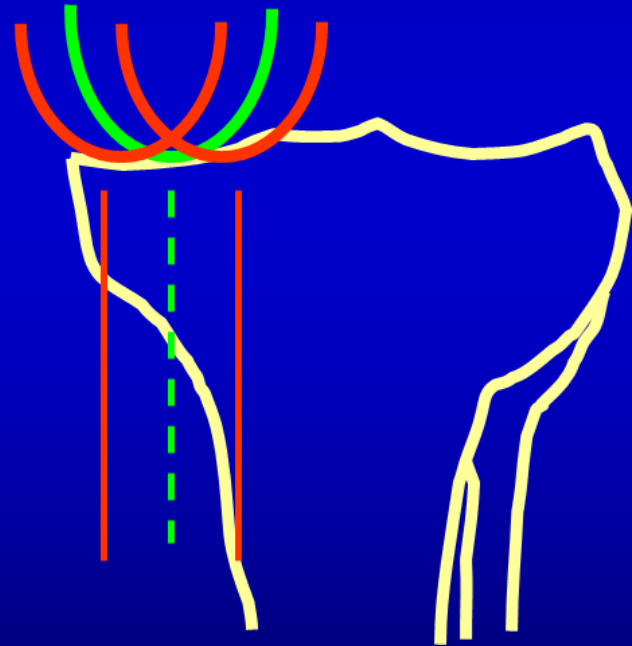


« Middle of the middle in flexion and in extension » P Cartier

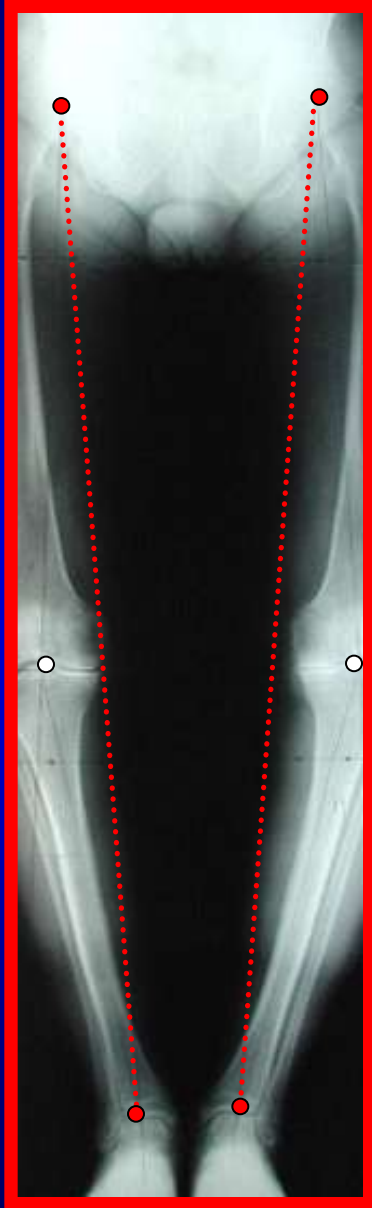


Parratte et al.
Biomécanique des PUC
Monographie de la SOFCOT
In Press.

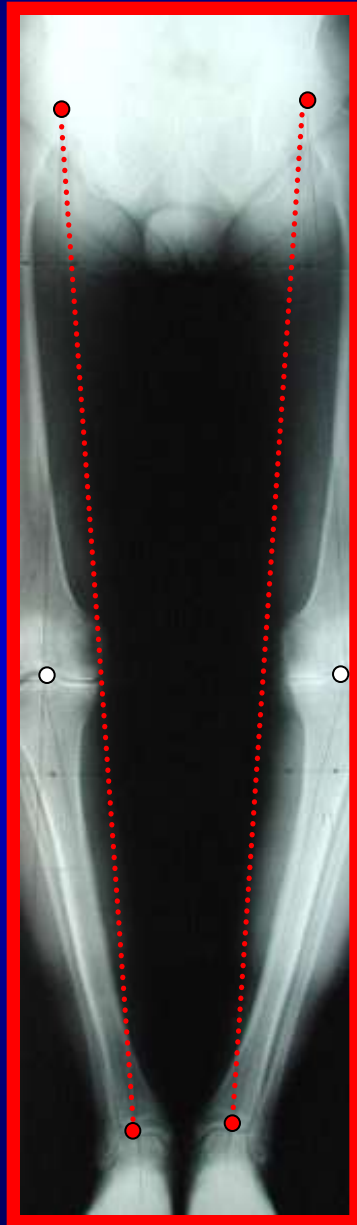
Rotation
Varus/valgus



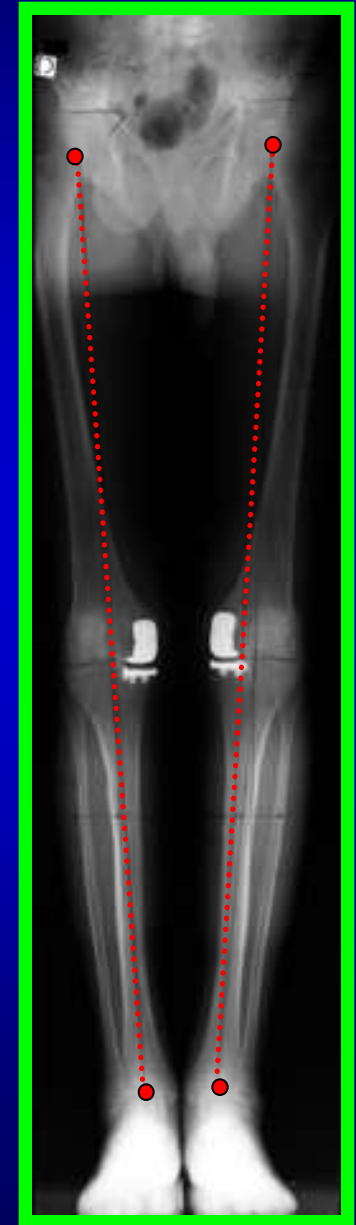
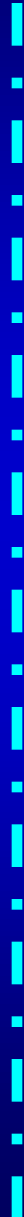
What would you do ?



Bilateral UKA



LEVIG





Functional results
after UKA – does
they differ from
TKA?

1. Marmor dentist Answer: YES for UKA
2. Biomechanical answer: Yes for UKA
3. Literature answer: ?
4. Patient answer: yes for UKA
5. Our experience and philosophy: a place for each solution

In surgery, there is always two
solutions
the bad from the others and mine!



Key point message to take home

**UKA :a place on the long road of
arthritis**

high level of function

GOOD indication

Surgical technique