



How should the perfect postoperative UKA radiograph look like?

Professor Sébastien LUSTIG MD, PhD.

Cécile Batailler, Elvire Servien, Philippe NEYRET.

Albert Trillat Center  
LYON - FRANCE.





Perfect post operative  
UKA Radiograph ?

# Literature

## Perfect Xrays and long term results



### Unicompartmental or total knee replacement

THE 15-YEAR RESULTS OF A PROSPECTIVE RANDOMISED  
CONTROLLED TRIAL

## MODERN UNICOMPARTMENTAL KNEE ARTHROPLASTY WITH CEMENT

A THREE TO TEN-YEAR FOLLOW-UP STUDY

CHEVROL-BENKEDDACHE, MD, AND JEAN-MANUEL AUBANIAC, MD  
*Department of Orthopaedic Surgery, The Aix-Marseille University,  
Sainte Marguerite, Marseille, France*

### 5- to 16-Year Follow-Up of 54 Consecutive Lateral Unicondylar Knee Arthroplasties With a Fixed-All Polyethylene Bearing

Sebastien Lustig, MD, PhD,\*† Ahmed Elguindy, MD,\*‡  
Elvire Servien, MD, PhD,\*‡ Camdon Fary, FRACS,§ Edouard Munini, MD,\*  
Guillaume Demey, MD,\*† and Philippe Neyret, MD\*†

CLINICAL ORTHOPAEDICS AND RELATED RESEARCH  
Number 464, pp. 43-52  
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### Lateral Tibiofemoral Compartment Narrowing after Medial Unicondylar Arthroplasty

*Matthew B. Collier, MS; Thomas H. Eickmann, MD; Kevin K. Anbari, MD, MBA; and  
Gerard A. Engh, MD*



# Perfect ?



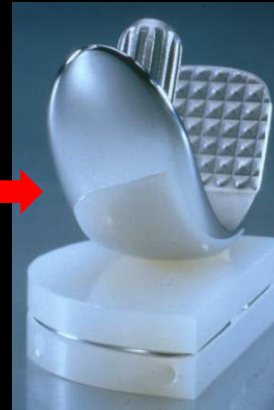
- Alignment
- Rotation
- Contact point
- Sizing
- Sagittal positioning
- Cement
- Joint line



# Alignment

- HKA film: mechanical Femoro-Tibial Angle

Articular deformity



Uni acts like a spacer to compensate wear

+

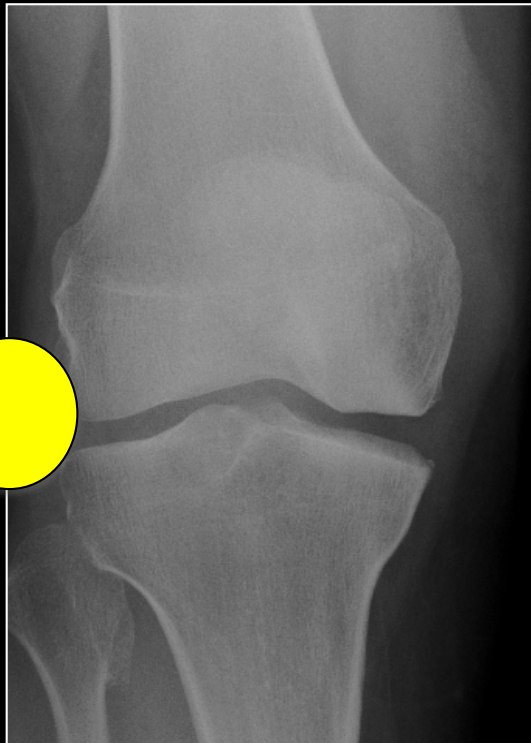
Extra-articular deformity





## The coronal alignment after medial unicompartmental knee arthroplasty can be predicted: usefulness of full-length valgus stress radiography for evaluating correctability

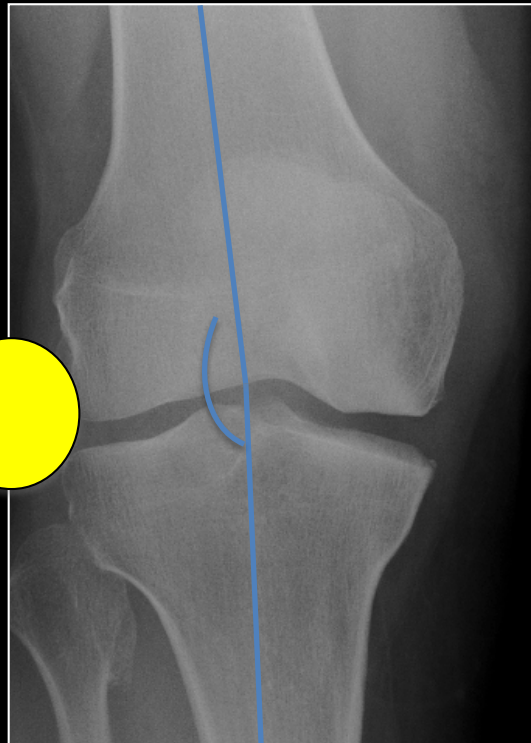
Yasutaka Tashiro · Shuichi Matsuda · Ken Okazaki ·  
Hideki Mizu-uchi · Umito Kuwashima · Yukihide Iwamoto





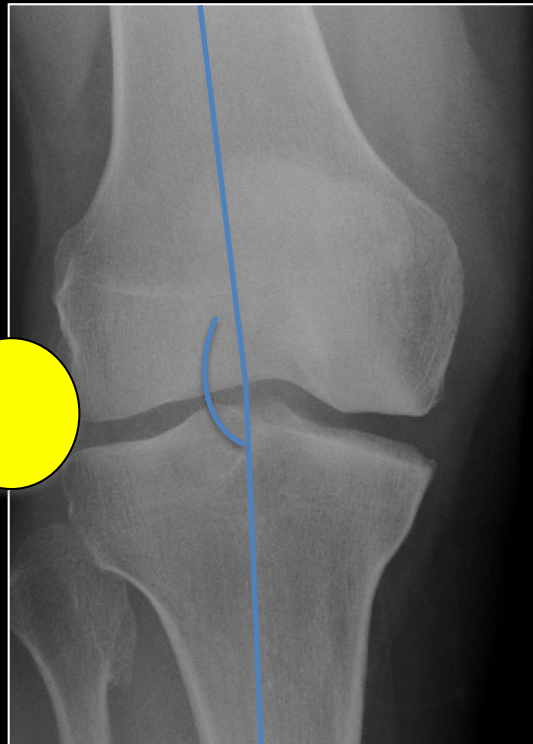
## The coronal alignment after medial unicompartmental knee arthroplasty can be predicted: usefulness of full-length valgus stress radiography for evaluating correctability

Yasutaka Tashiro · Shuichi Matsuda · Ken Okazaki ·  
Hideki Mizu-uchi · Umito Kuwashima · Yukihide Iwamoto



## The coronal alignment after medial unicompartmental knee arthroplasty can be predicted: usefulness of full-length valgus stress radiography for evaluating correctability

Yasutaka Tashiro · Shuichi Matsuda · Ken Okazaki ·  
Hideki Mizu-uchi · Umito Kuwashima · Yukihide Iwamoto



# No overcorrection



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

The Knee

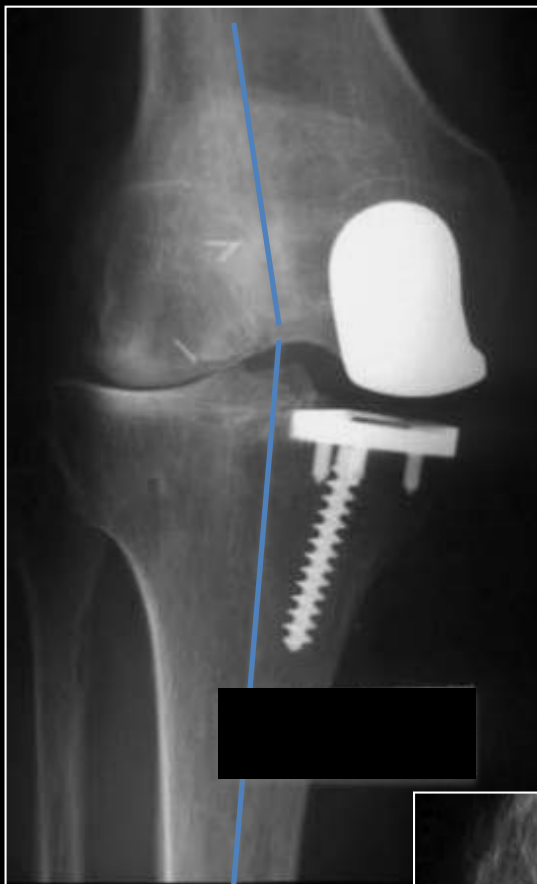


Progression of medial osteoarthritis and long term results of lateral unicompartmental arthroplasty: 10 to 18 year follow-up of 54 consecutive implants

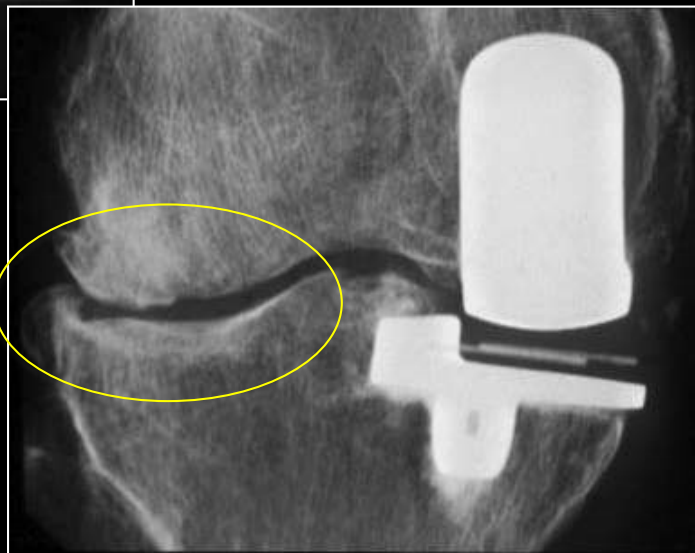
Sébastien Lustig<sup>a,\*</sup>, Timothy Lording<sup>a,b</sup>, Florent Frank<sup>a</sup>, Caroline Debette<sup>a</sup>, Elvire Servien<sup>a</sup>, Philippe Neyret<sup>a</sup>

alignment after lateral UKA [46]. Our philosophy is to correct only the articular wear, respecting any extra-articular constitutional deformity. All three cases of medial progression in our series had a post-operative varus femorotibial alignment, signifying overcorrection.

With regards to the patellofemoral joint some authors



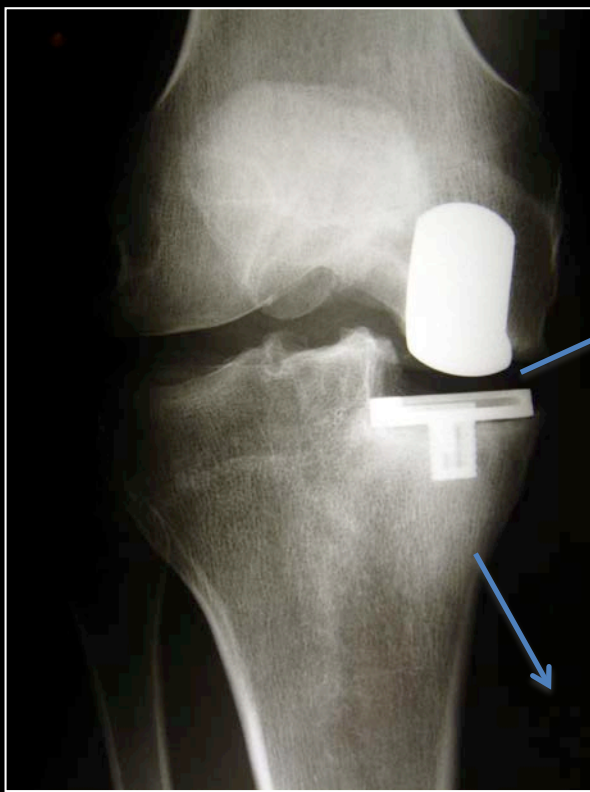
Medial UKA



Lateral UKA



# *Hypocorrection*



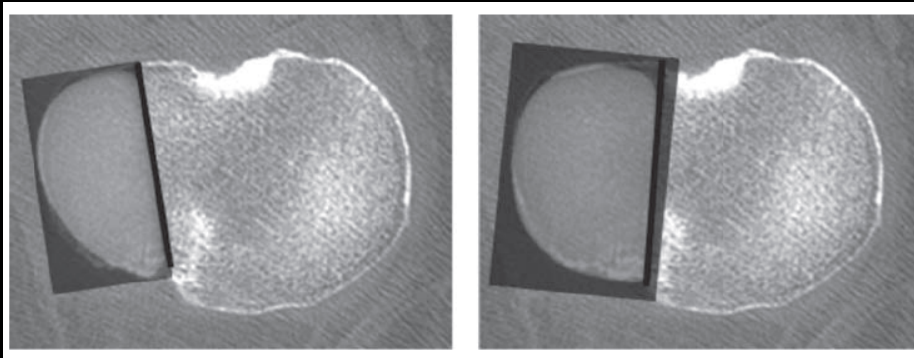
# Rotation

Knee Surg Sports Traumatol Arthrosc (2008) 16:1141–1145  
DOI 10.1007/s00167-008-0620-0

KNEE

## Lateral versus medial tibial plateau: morphometric analysis and adaptability with current tibial component design

E. Servien · M. Saffarini · S. Lustig ·  
S. Chomel · Ph. Neyret



ORIGINAL ARTICLE

## Tibial component rotation assessment using CT scan in medial and lateral unicompartmental knee arthroplasty

E. Servien<sup>a,\*</sup>, C. Fary<sup>d</sup>, S. Lustig<sup>a</sup>, G. Demey<sup>a</sup>, M. Saffarini<sup>b</sup>,  
S. Chomel<sup>c</sup>, P. Neyret<sup>a</sup>



# Rotation

Medial UKA



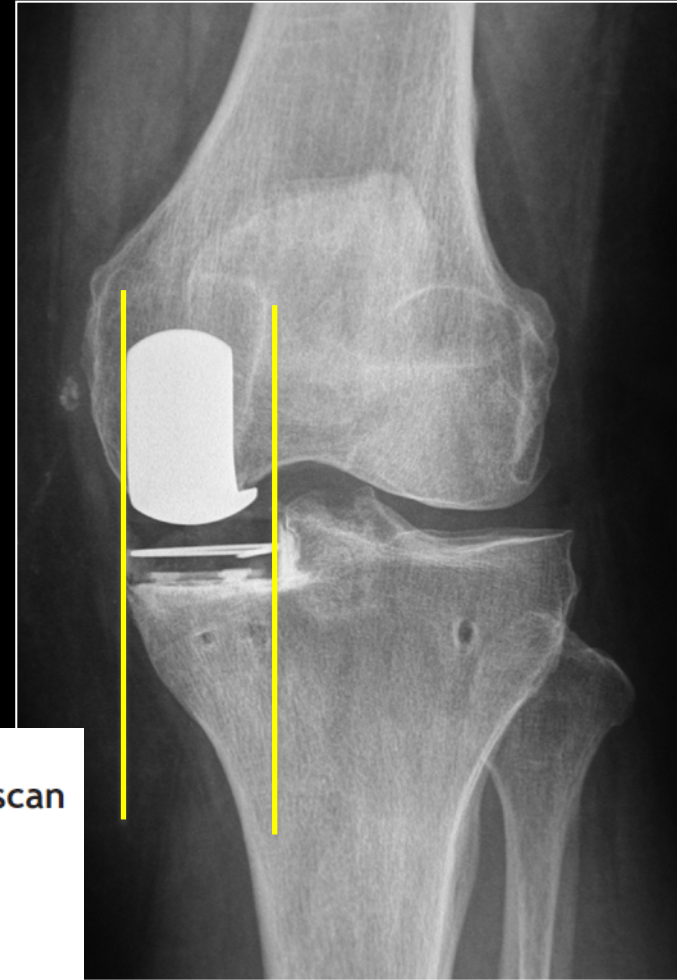
ORIGINAL ARTICLE

**Tibial component rotation assessment using CT scan  
in medial and lateral unicompartmental knee  
arthroplasty**

E. Servien<sup>a,\*</sup>, C. Fary<sup>d</sup>, S. Lustig<sup>a</sup>, G. Demey<sup>a</sup>, M. Saffarini<sup>b</sup>,  
S. Chomel<sup>c</sup>, P. Neyret<sup>a</sup>

# Rotation

Medial UKA



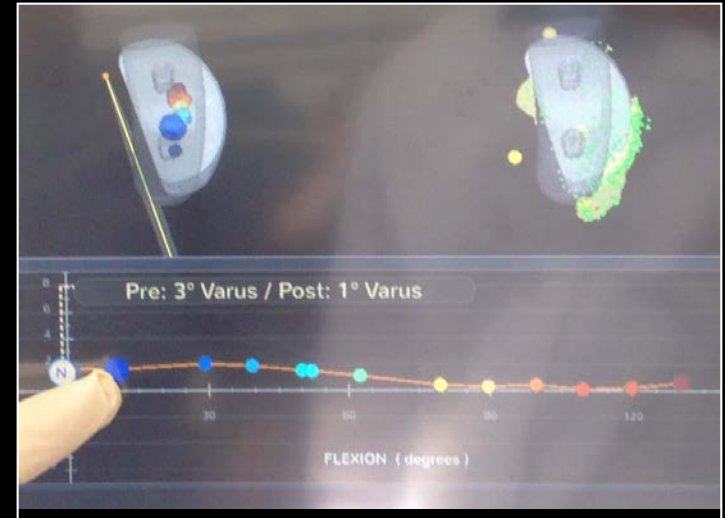
ORIGINAL ARTICLE

**Tibial component rotation assessment using CT scan in medial and lateral unicompartmental knee arthroplasty**

E. Servien<sup>a,\*</sup>, C. Fary<sup>d</sup>, S. Lustig<sup>a</sup>, G. Demey<sup>a</sup>, M. Saffarini<sup>b</sup>,  
S. Chomel<sup>c</sup>, P. Neyret<sup>a</sup>

# Rotation

Lateral UKA ++

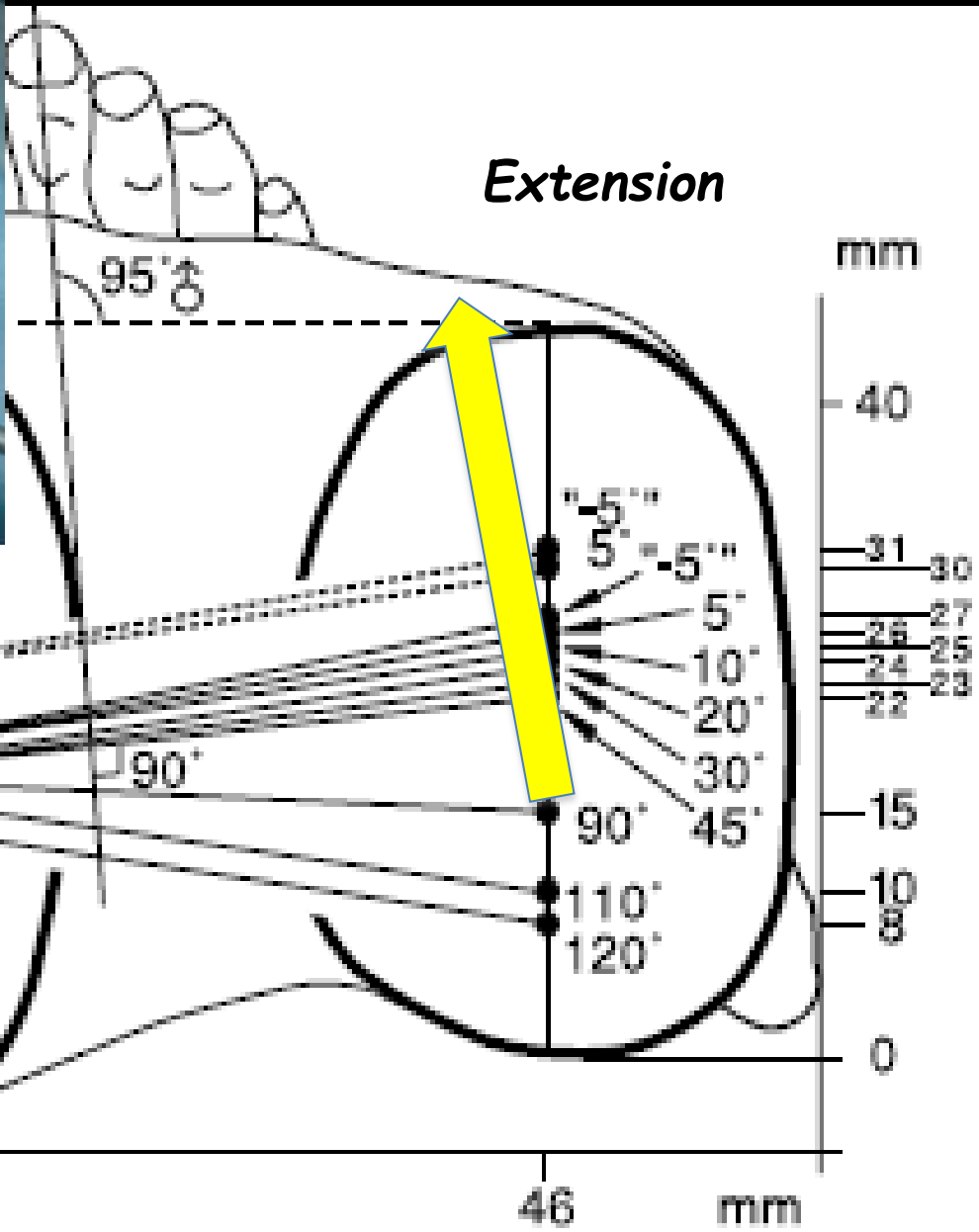


Knee Surg Sports Traumatol Arthrosc  
DOI 10.1007/s00167-013-2585-x

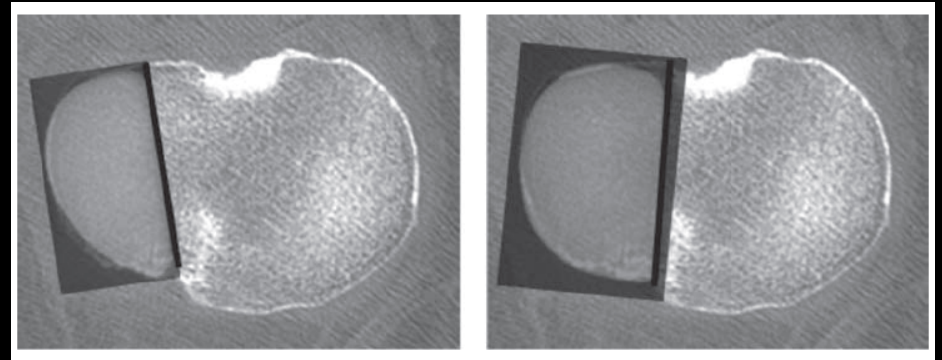
KNEE

**Lateral uni-compartmental knee replacement: current concepts and future directions**

E. Servien · A. Merini · S. Lustig · P. Neyret



# Rotation



# Medial vs lateral



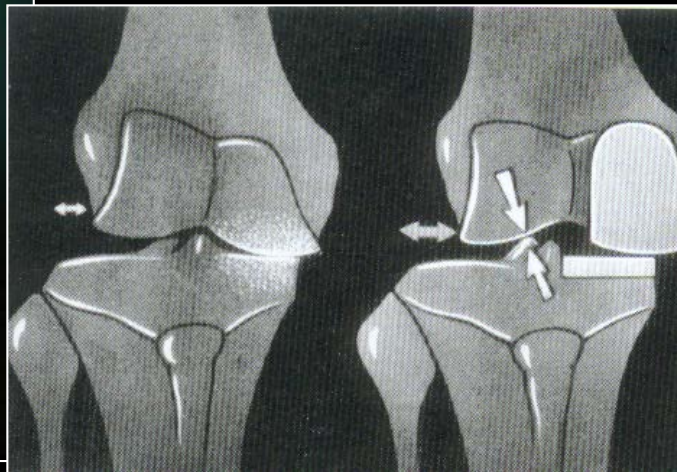
Rotation of the tibial component





# Contact point

- Medial UKA → not to medial



*Deschamps et al.*

# Video medial UKA avec point de contact



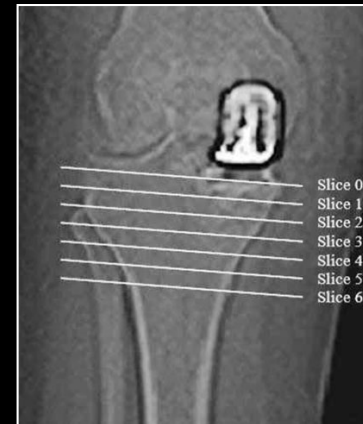
Clin Orthop Relat Res (2013) 471:1661–1669  
DOI 10.1007/s11999-013-2784-2

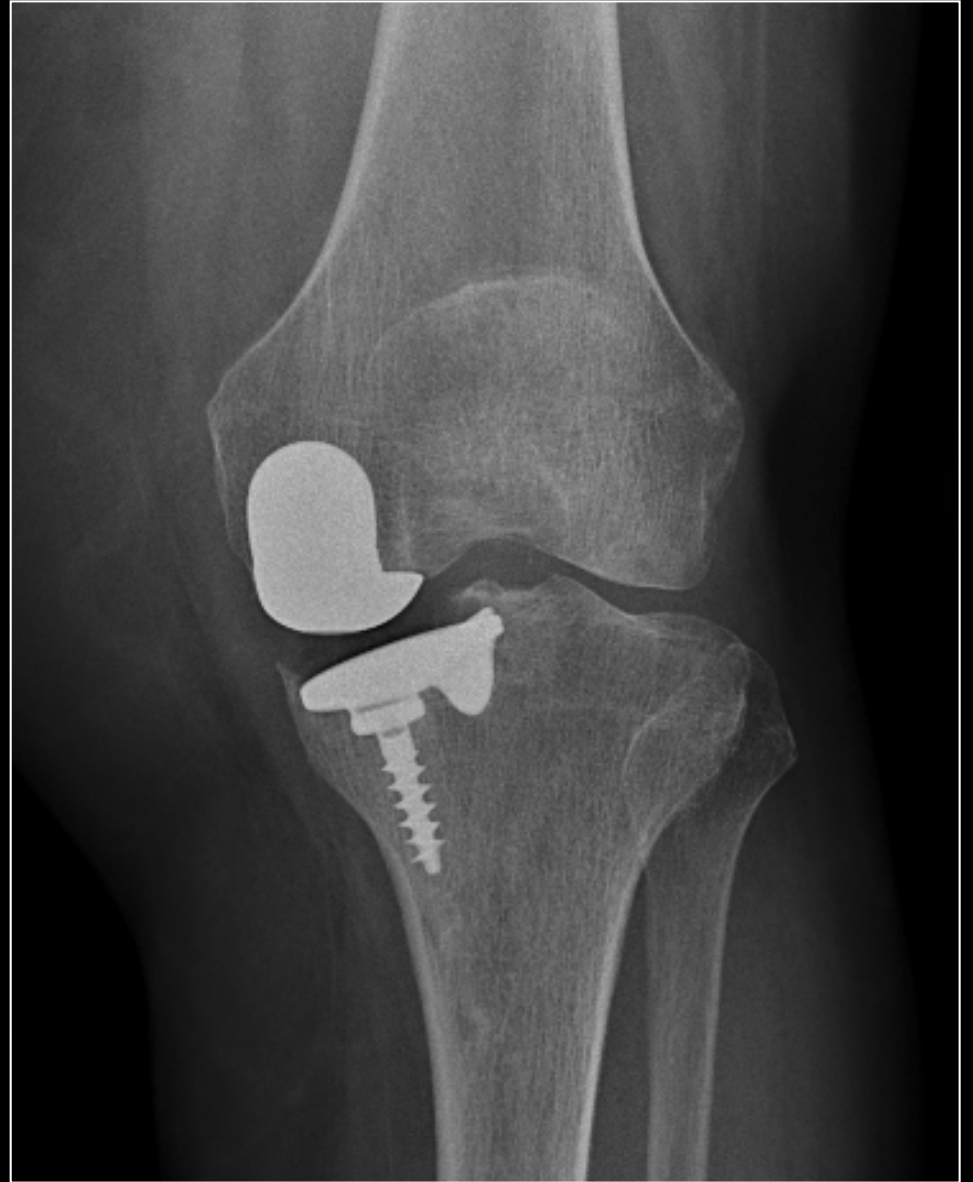
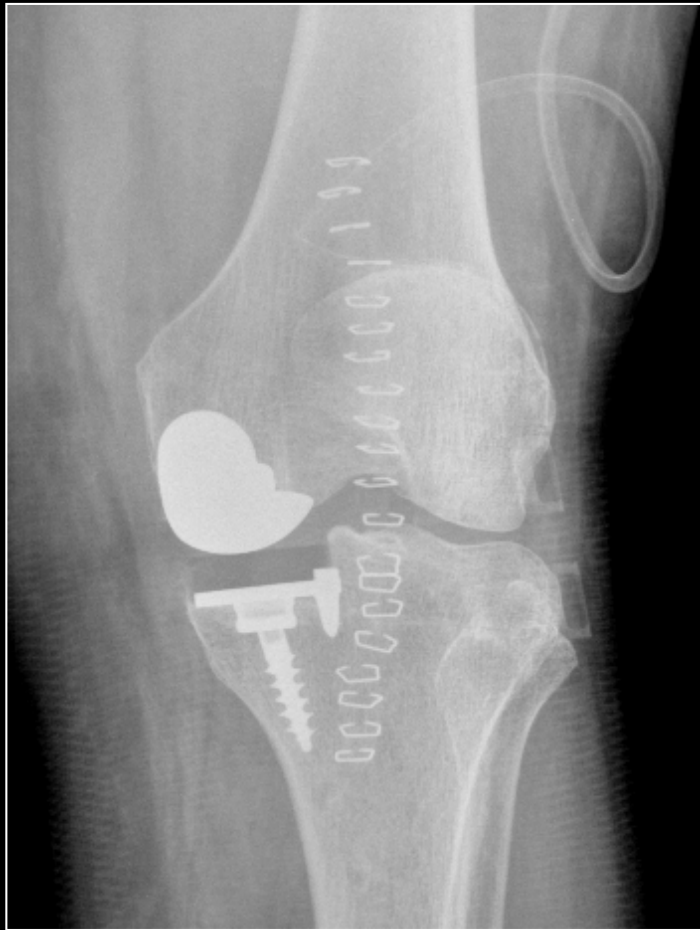
Clinical Orthopaedics  
and Related Research®  
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CLINICAL RESEARCH

## Proximal Tibial Bone Density Is Preserved After Unicompartmental Knee Arthroplasty

Bradley I. Richmond MBChB, Simon V. Hadlow MBChB,  
Tim G. Lynskey MBChB, Cameron G. Walker PhD,  
Jacob T. Munro MBChB

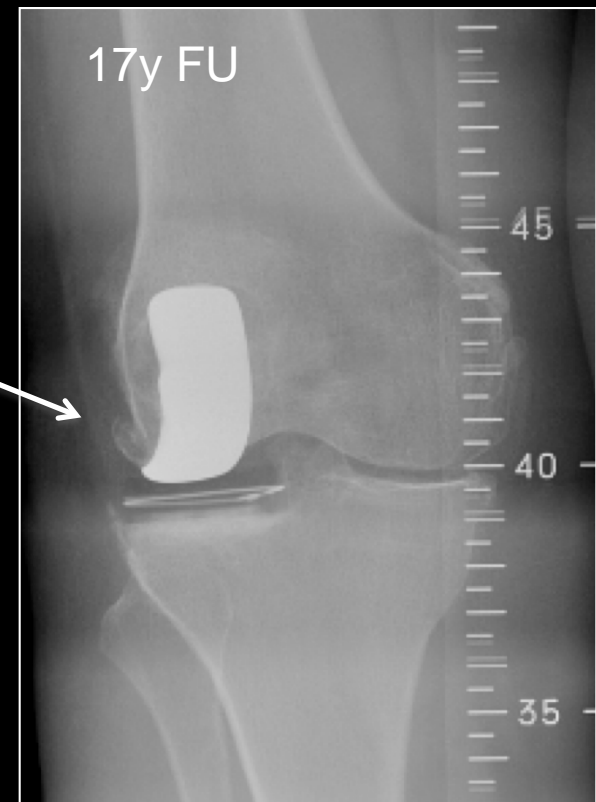




# Contact Point

## Lateral UKA

- As lateral as possible
- Keep the osteophytes



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

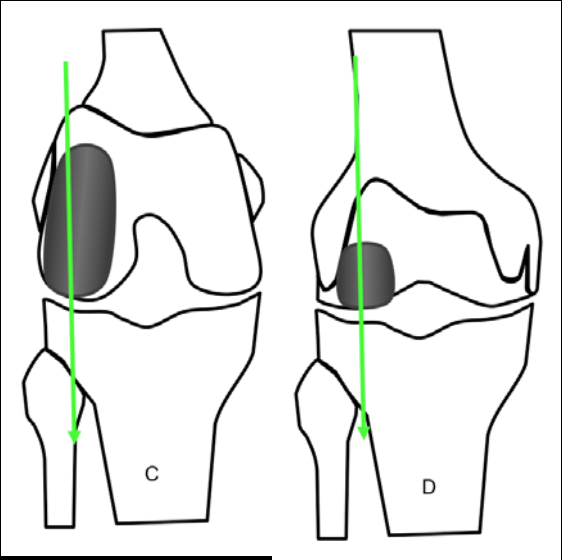
The Knee



Progression of medial osteoarthritis and long term results of lateral unicompartmental arthroplasty: 10 to 18 year follow-up of 54 consecutive implants

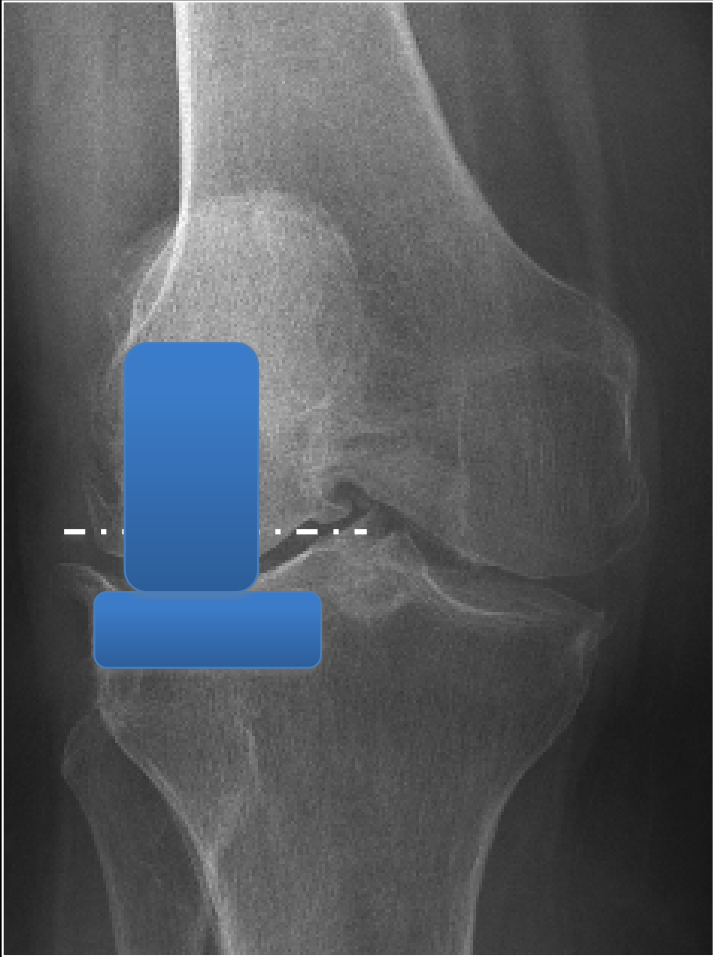
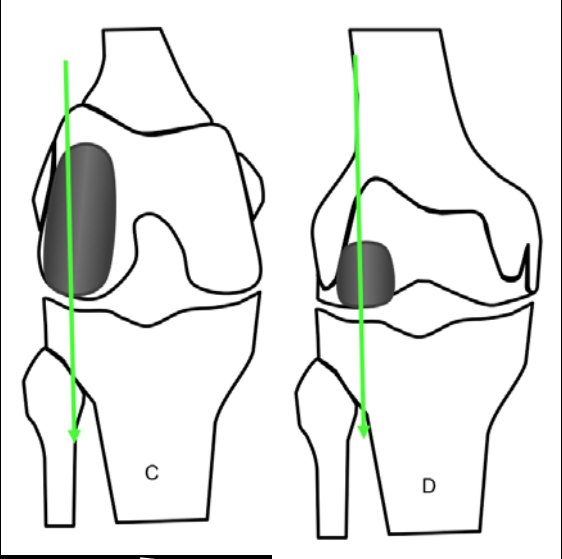
Sébastien Lustig<sup>a,\*</sup>, Timothy Lording<sup>a,b</sup>, Florent Frank<sup>a</sup>, Caroline Debette<sup>a</sup>, Elvire Servien<sup>a</sup>, Philippe Neyret<sup>a</sup>

*Ph cartier*

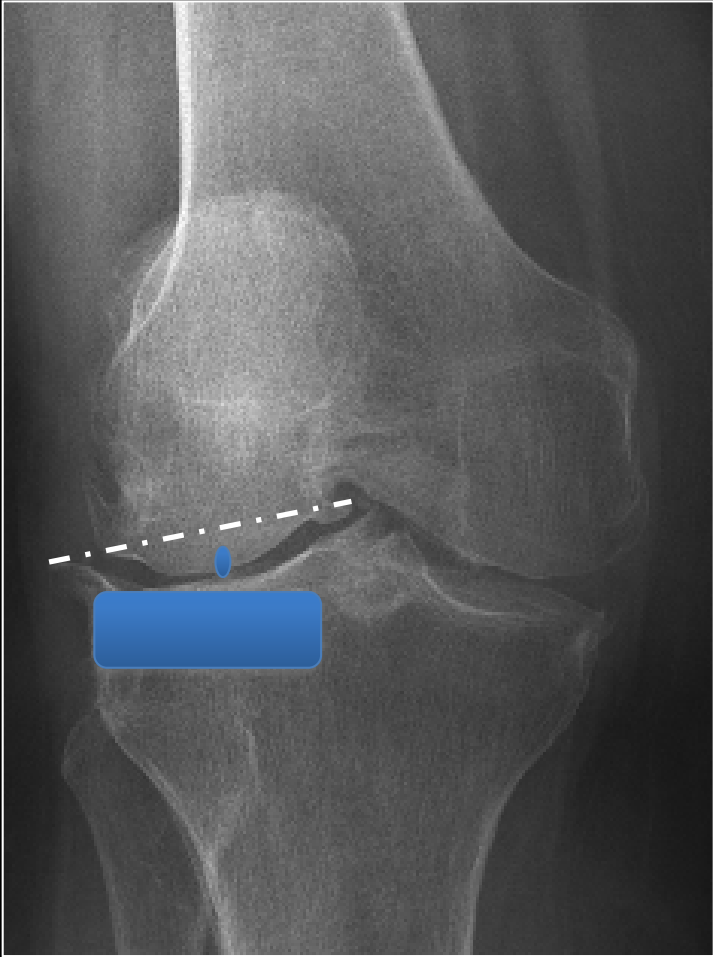
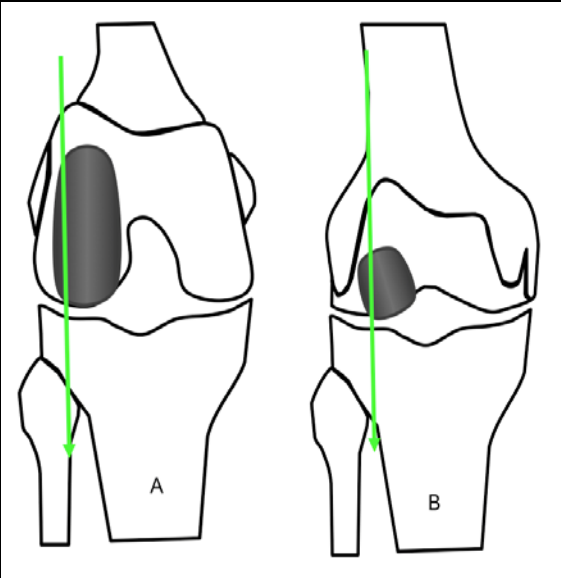




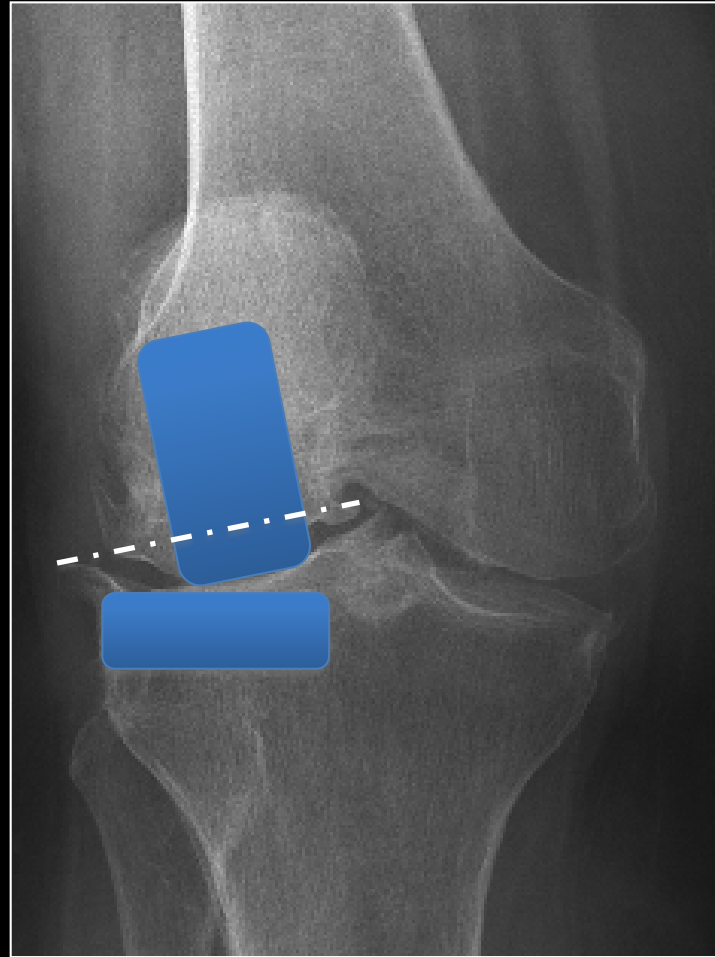
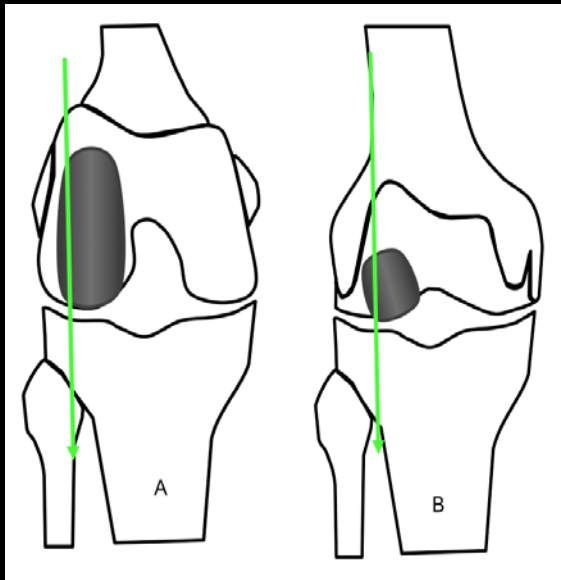
*Ph cartier*



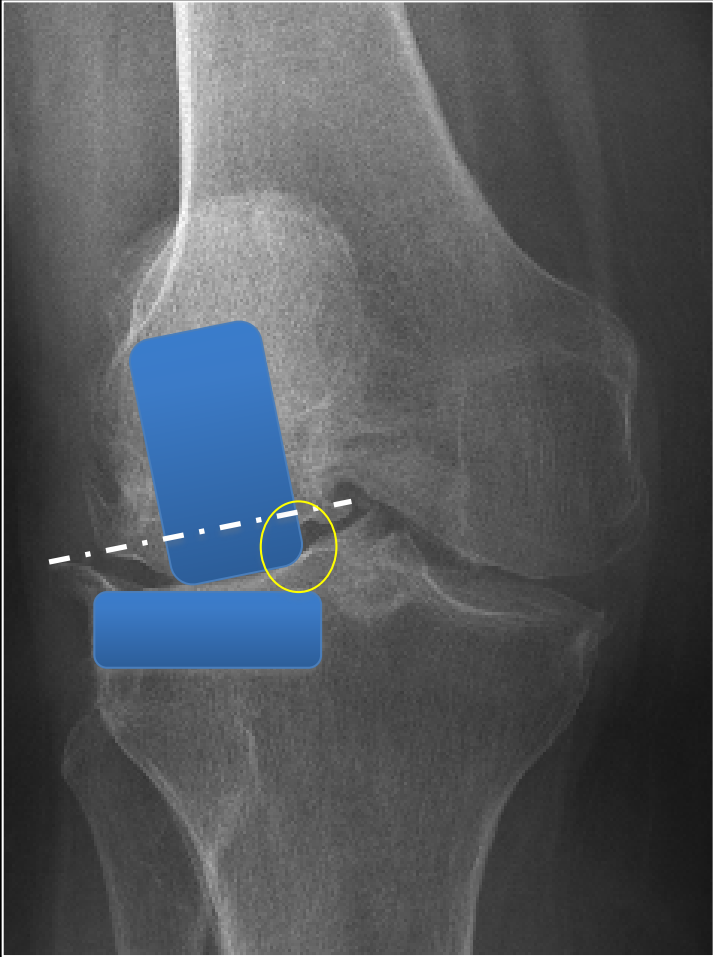
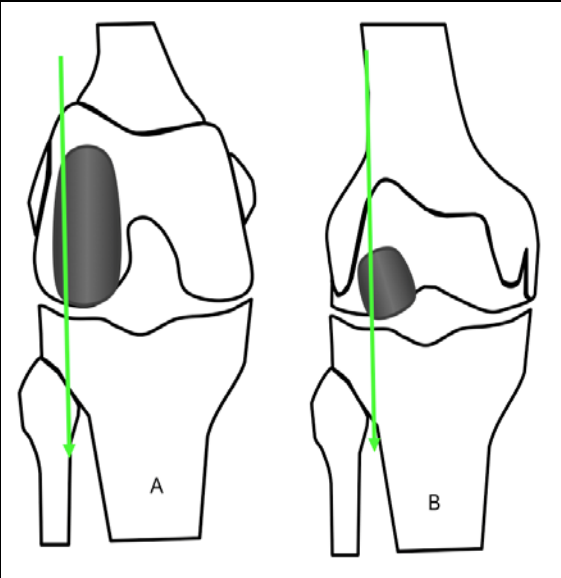
*Ph cartier*



# Ph cartier



*Ph cartier*



# Size



Too Big



Too Small



D

G



# Tibial Sizing : overhang

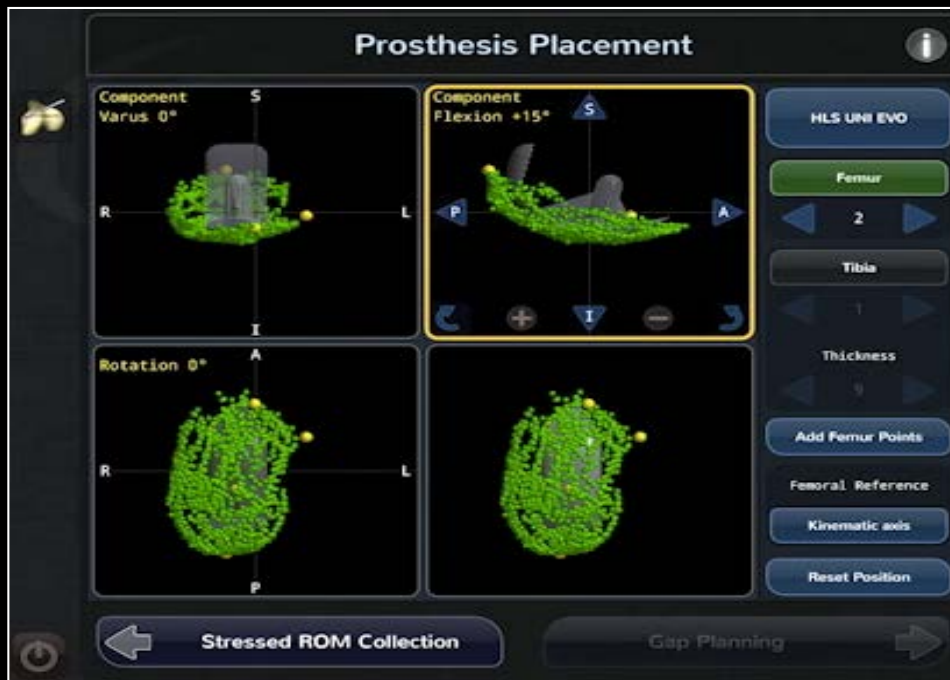


# Sagittal positioning

KNEE

**Sagittal flexion angle of the femoral component in unicompartmental knee arthroplasty: is it same for both medial and lateral UKAs?**

Elcil Kaya Bicer · Elvire Servien ·  
Sebastien Lustig · Guillaume Demey ·  
Tarik Ait Si Selmi · Philippe Neyret



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# PATELLAR IMPINGEMENT FOLLOWING UNICOMPARTMENTAL ARTHROPLASTY

By P. HERNIGOU, MD, AND G. DESCHAMPS, MD

Hernigou P, Deschamps G. J Bone Joint Surg Am. 2002; 84 : 1132-7.



# Tibial slope

[Ryan M. Nunley, MD](#), [Denis Nam, MD](#), [Staci R. Johnson, M. Ed.](#), [C. Lowry Barnes, MD](#)

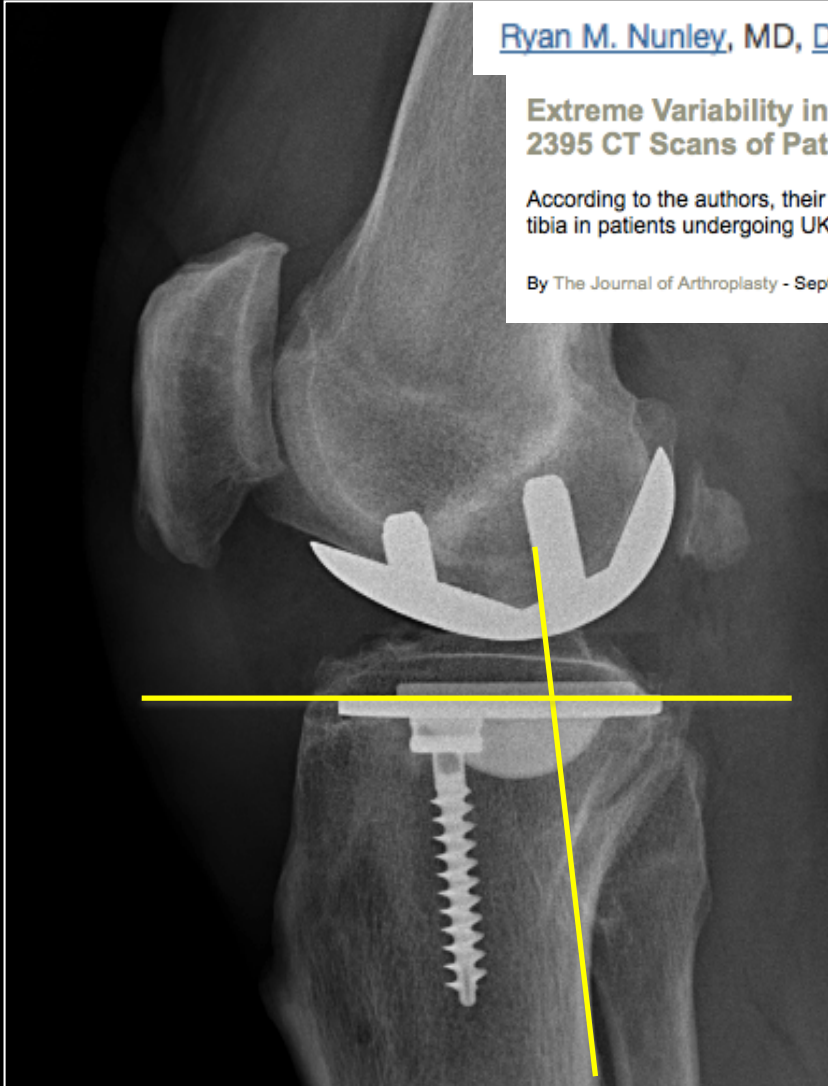
## Extreme Variability in Posterior Slope of the Proximal Tibia: Measurements on 2395 CT Scans of Patients Undergoing UKA

According to the authors, their study is the first, large CT-based review of posterior slope variation of the proximal tibia in patients undergoing UKA.

By The Journal of Arthroplasty - September 4, 2014

unicondylar knee arthroplasty | J. Arthroplasty

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# Tibial Slope

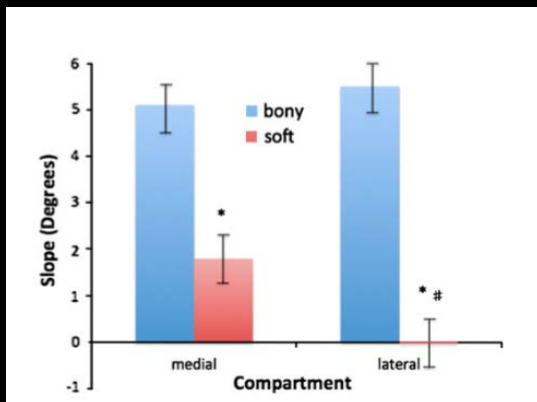
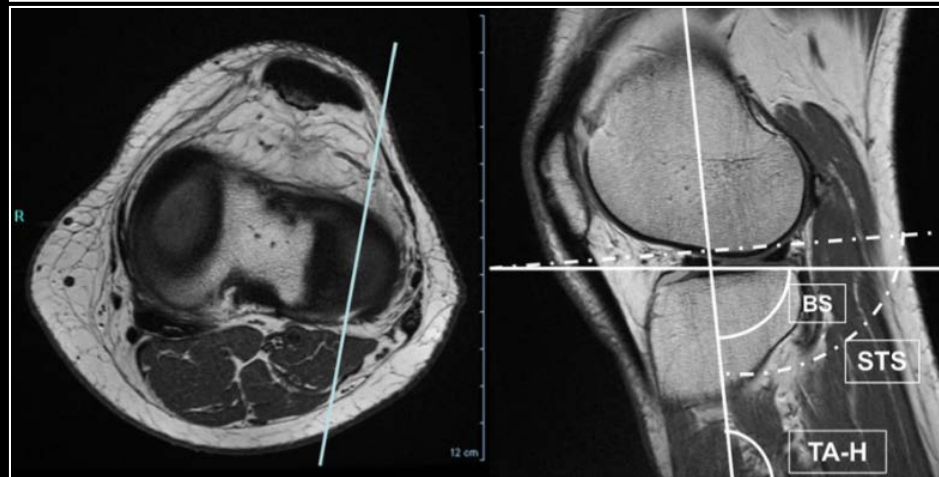
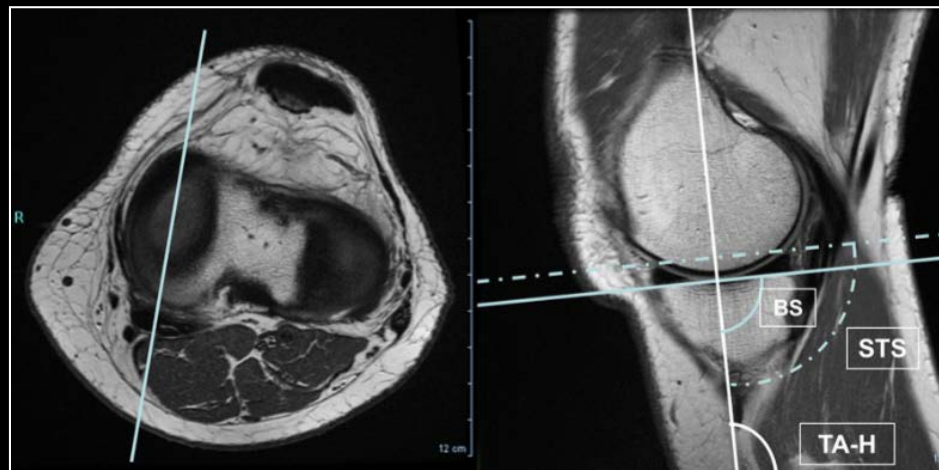
Knee Surg Sports Traumatol Arthrosc  
DOI 10.1007/s00167-012-1990-x

KNEE

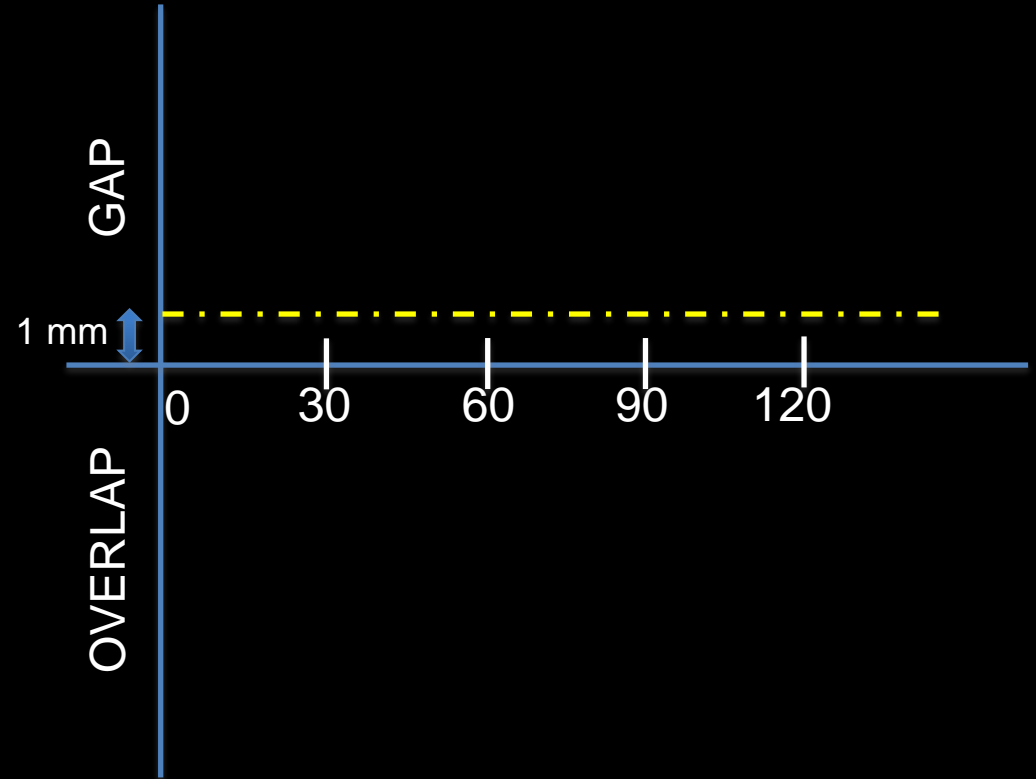
## Influence of soft tissues on the proximal bony tibial slope measured with two-dimensional MRI

Sébastien Lustig · Corey J. Scholes ·  
Sean P. M. Leo · Myles Coolican · David A. Parker

Lateral vs  
medial  
Slope is not  
the same

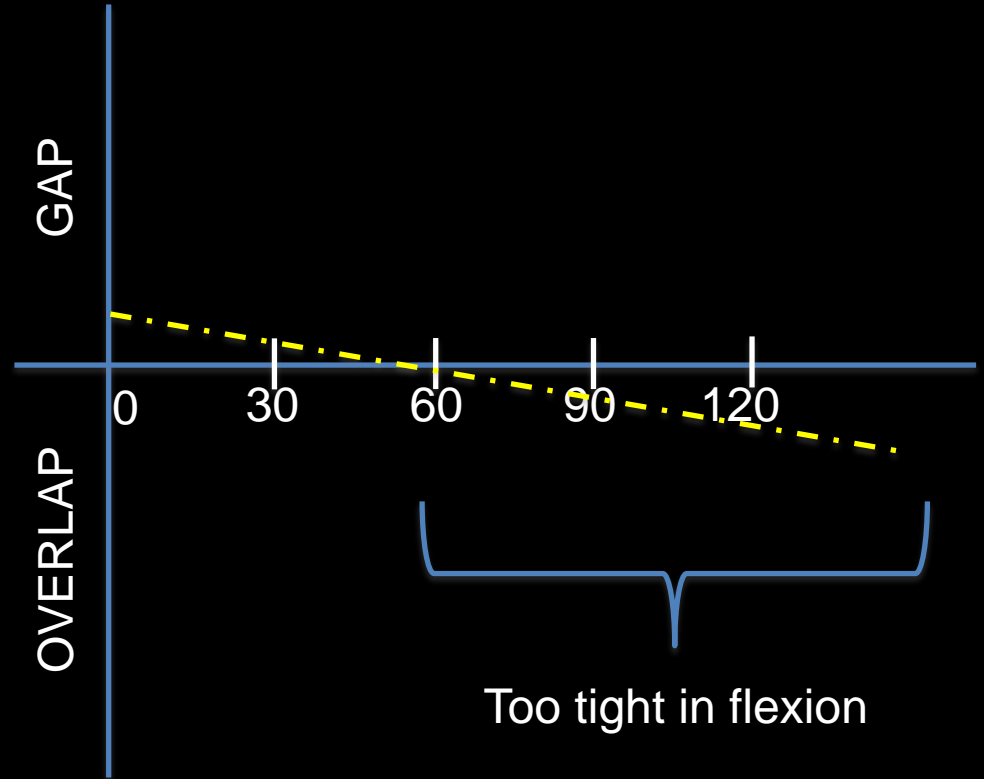


## 4. Tibial slope





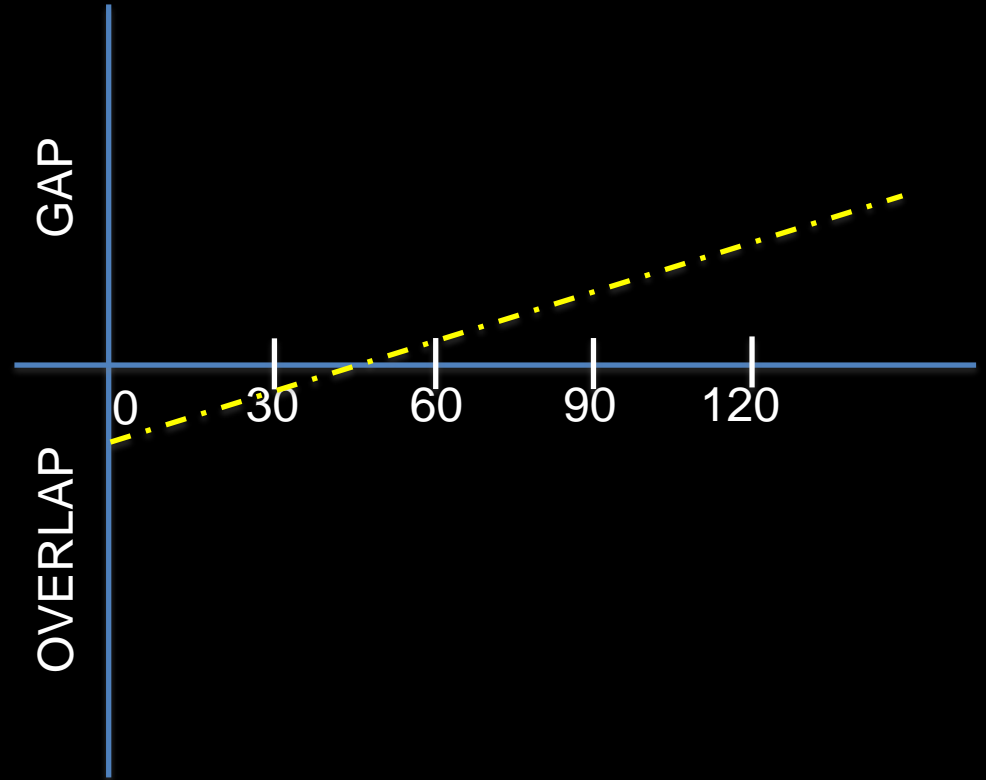
## 4. Tibial slope



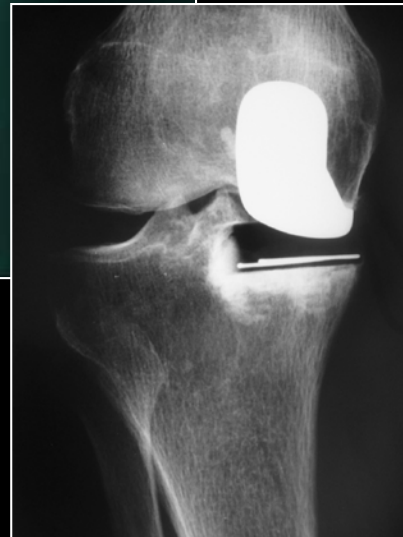




## 4. Tibial slope



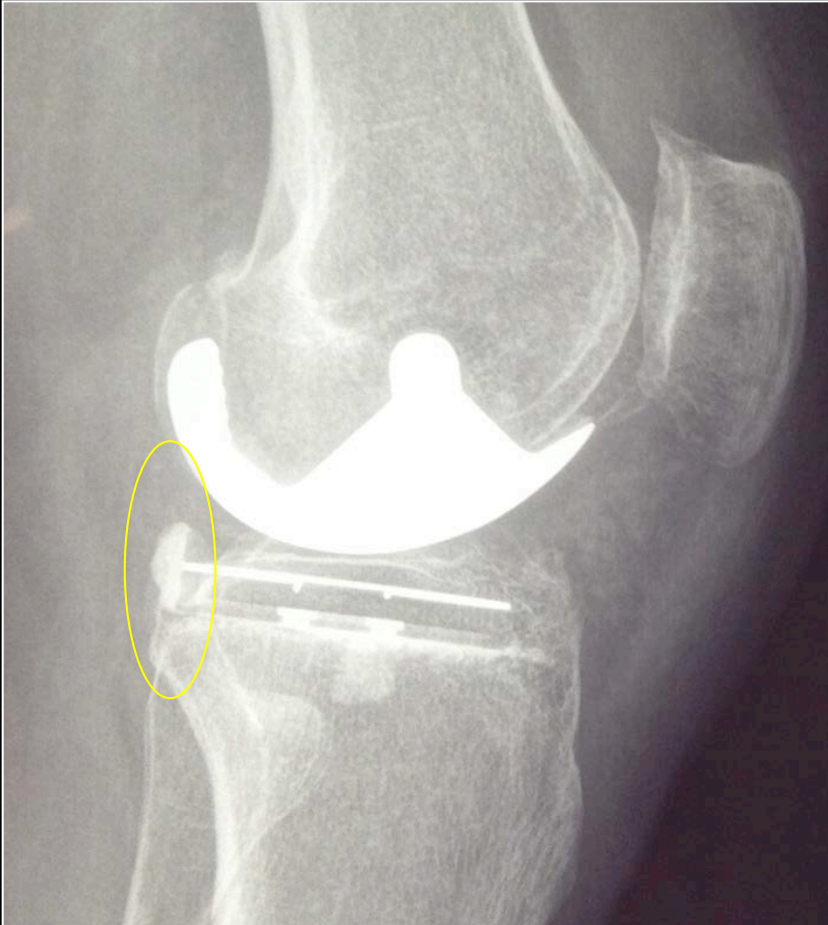
# Tibial slope



# Anterior laxity



# Cement



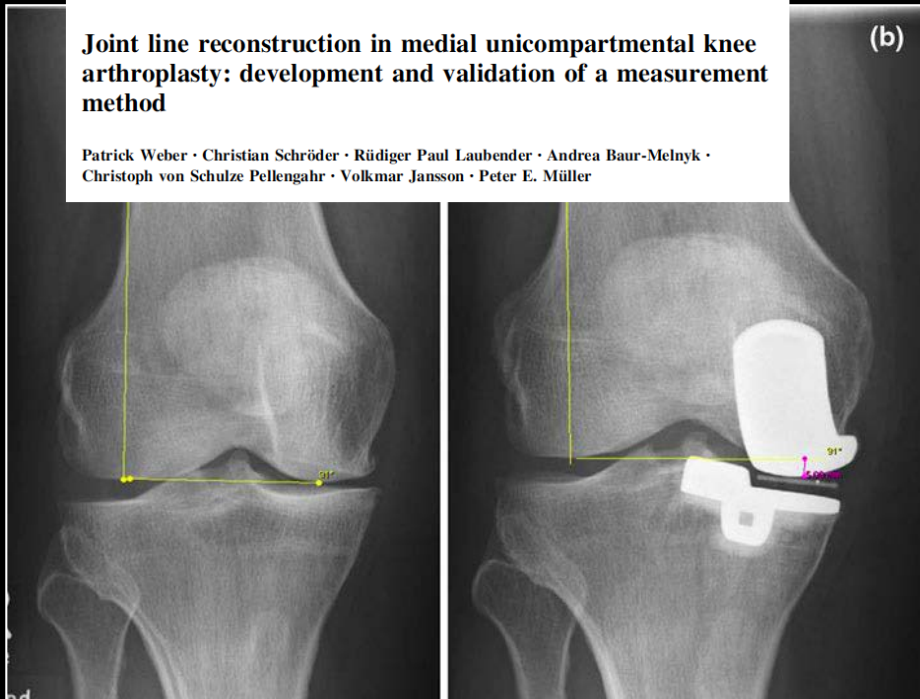
# Joint line level

Knee Surg Sports Traumatol Arthrosc (2013) 21:2468–2473  
DOI 10.1007/s00167-013-2617-6

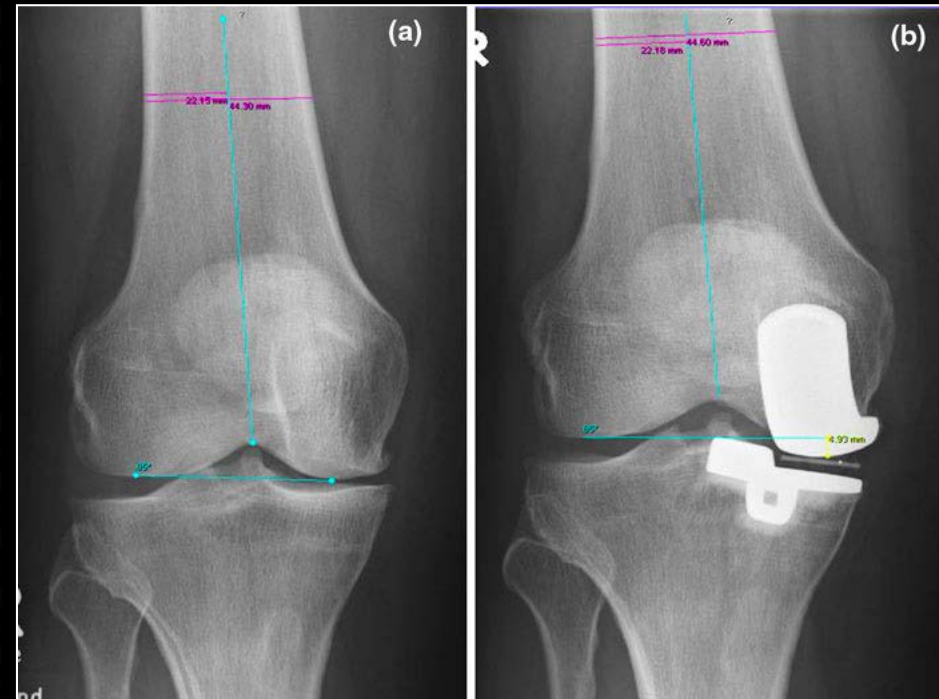
KNEE

## Joint line reconstruction in medial unicompartmental knee arthroplasty: development and validation of a measurement method

Patrick Weber · Christian Schröder · Rüdiger Paul Laubender · Andrea Baur-Melnyk · Christoph von Schulze Pellengahr · Volkmar Jansson · Peter E. Müller

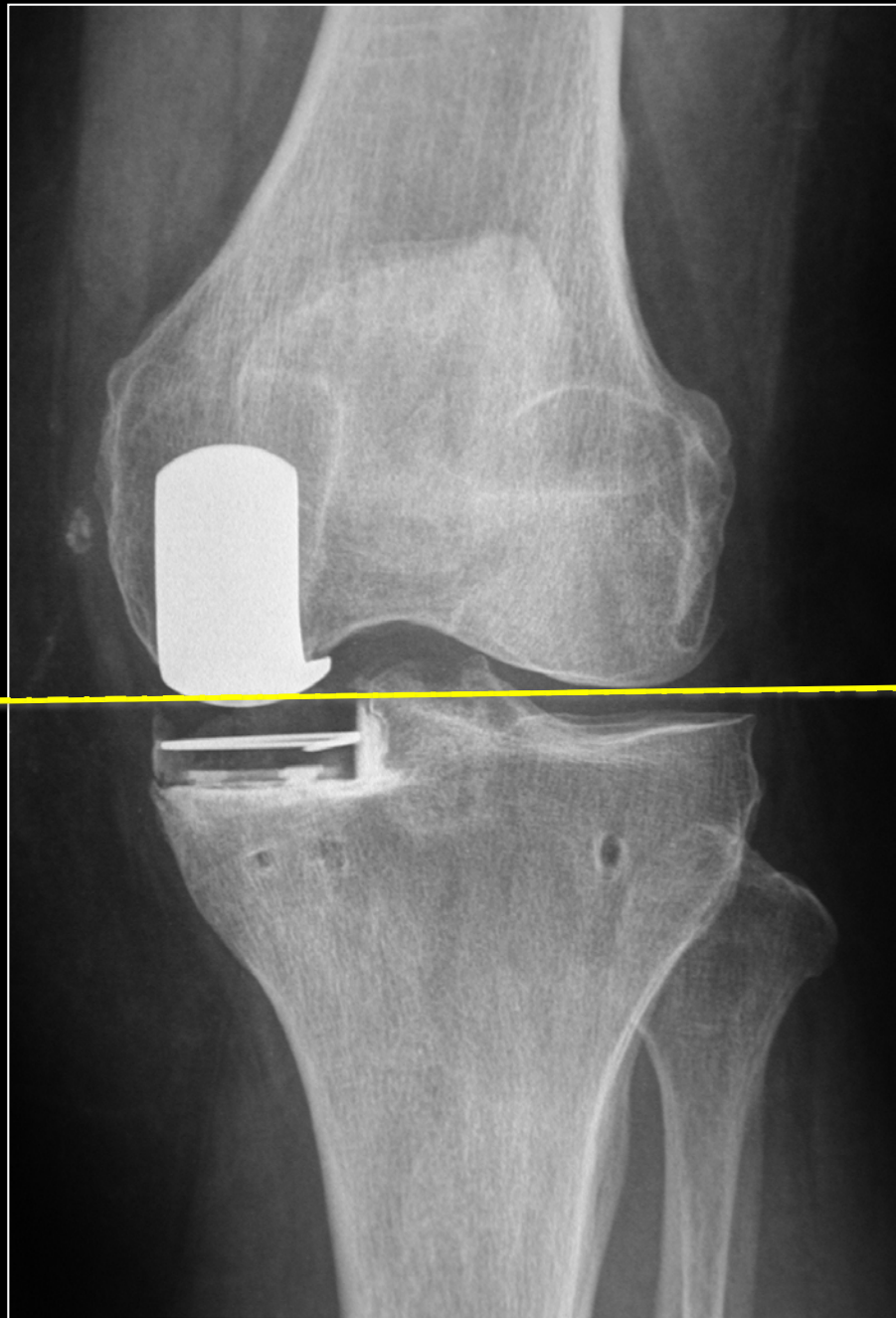


lateral corticalis of  
the femur

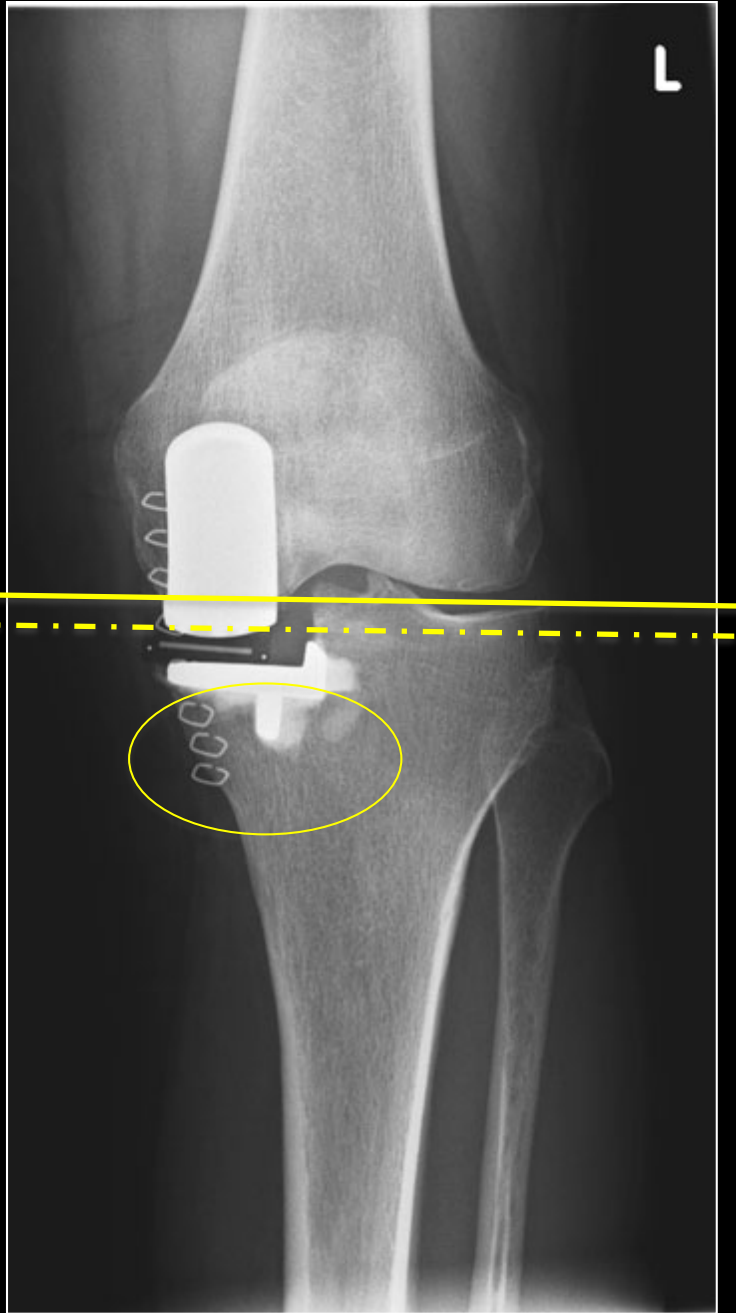
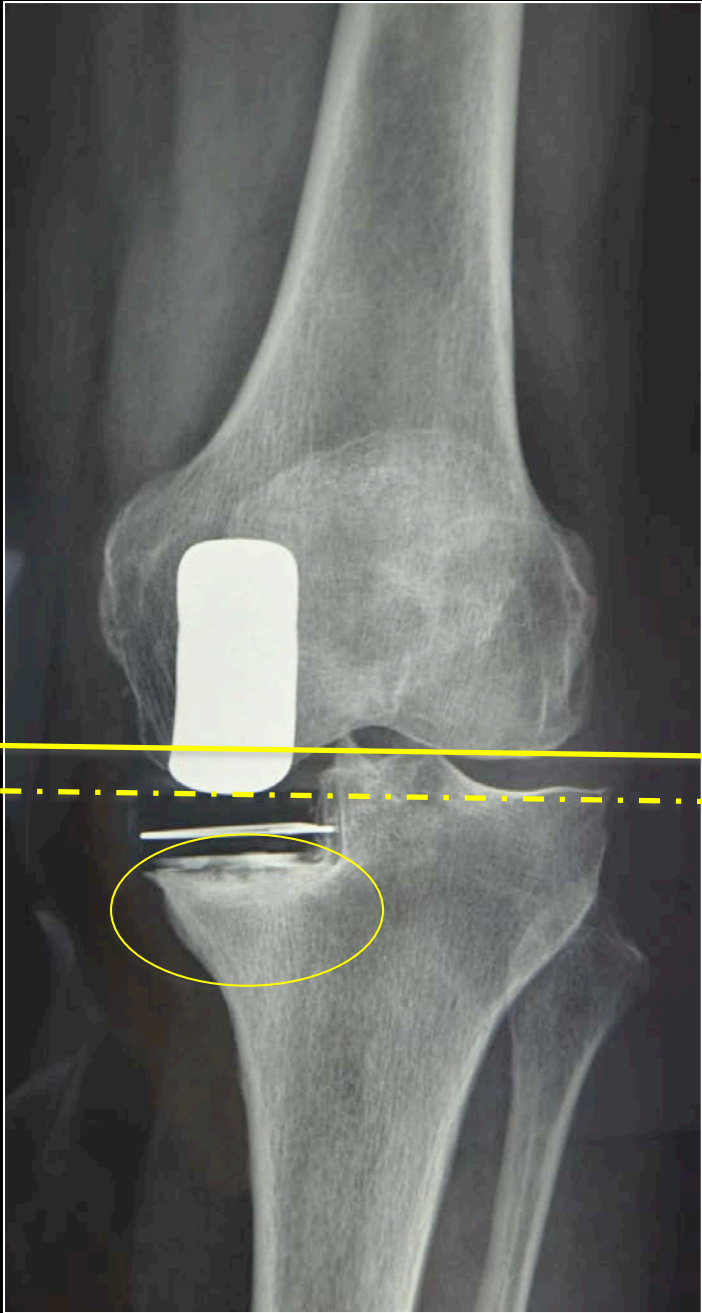


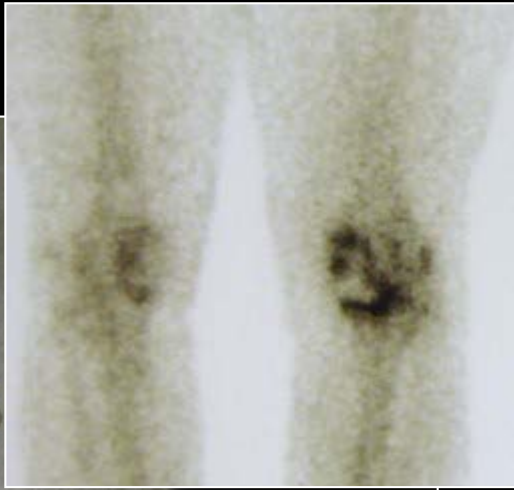
line joining the highest point of the  
notch and the middle of the  
femur 10 cm above











# Conclusion

« Perfect »  
Post operative XRay

- Alignment
- Rotation
- Contact point
- Size
- Sagittal positioning
- Cement
- Joint line



# Thank You

