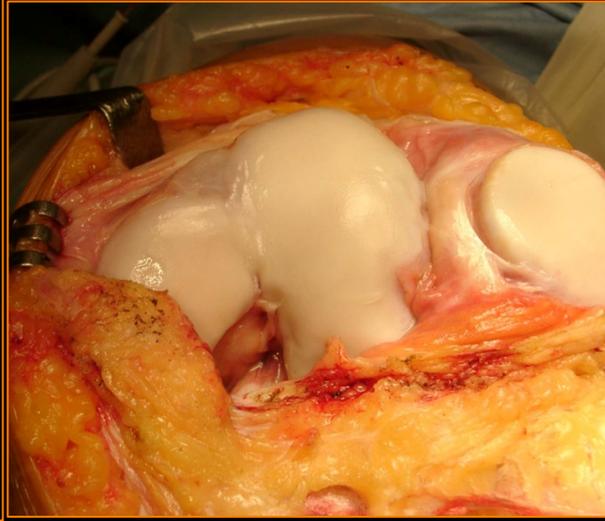
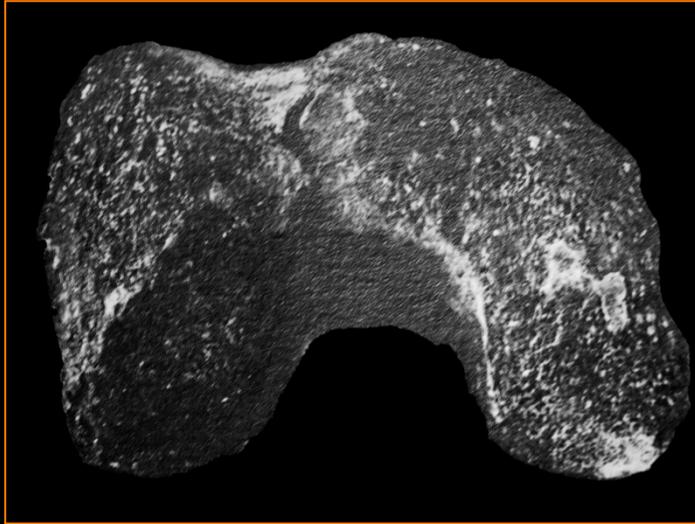


# Pathologie Rotulienne



Frédéric DUBRANA  
Brest

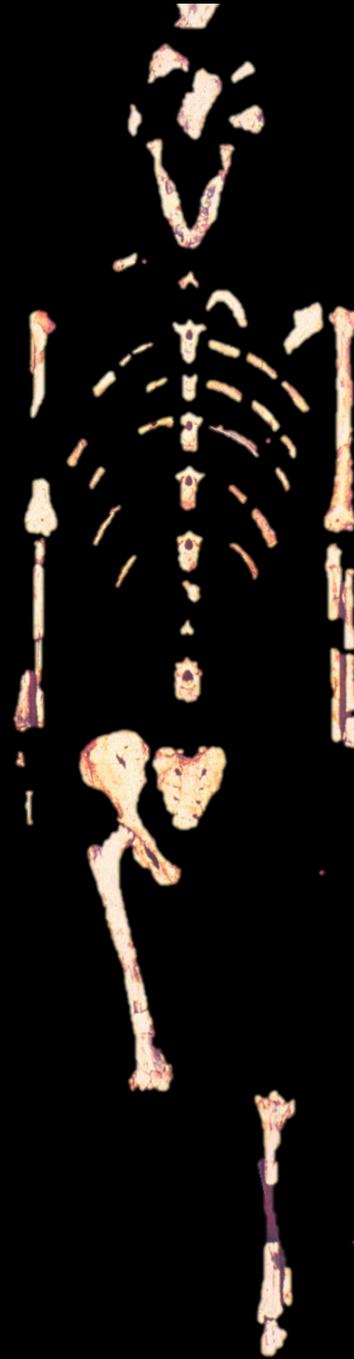
*Remerciement David DEJOUR*

JECOT Rabat 2011



# Lucy

AL 288-1



3 caractères:

1. Valgus fémoral
2. Profondeur trochlée
3. Condyle latéral elliptique

# Premiers hominidés



AA. AL 129  
(3M)

Java *homo erectus*  
Trini 3  
(300 000)

Kenya  
*homo erectus*  
ER 1481  
(2 M)



PONGIDES

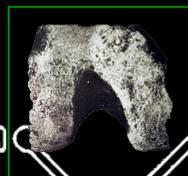


ER 993



ER 1461

TM 1513



HOMO SAPIENS



AI 129

AI 333

III

IV

V

VI

III

III



I

II

III

IV

V

VI

VII

CLADOGRAMME 2  
HYPOTHESE III

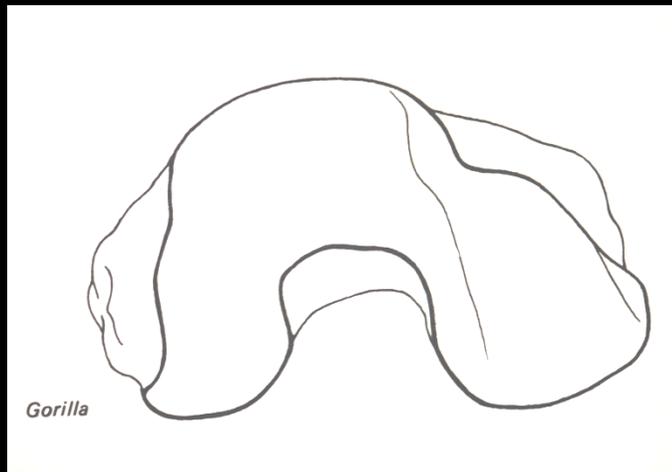
(pas de chronologie fossile)



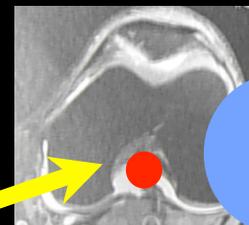
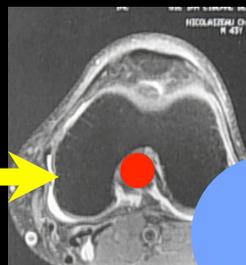
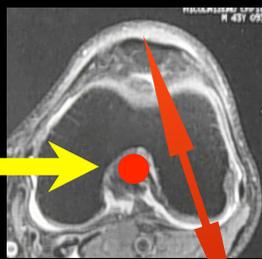
Christine Tardieu



KMER 3951

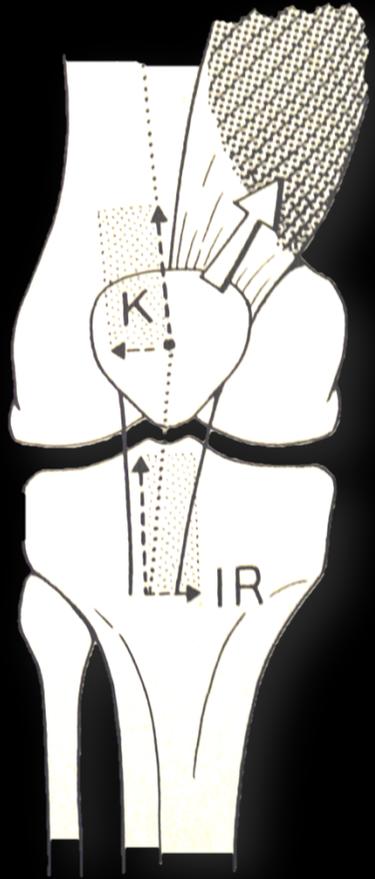


# Force latérale

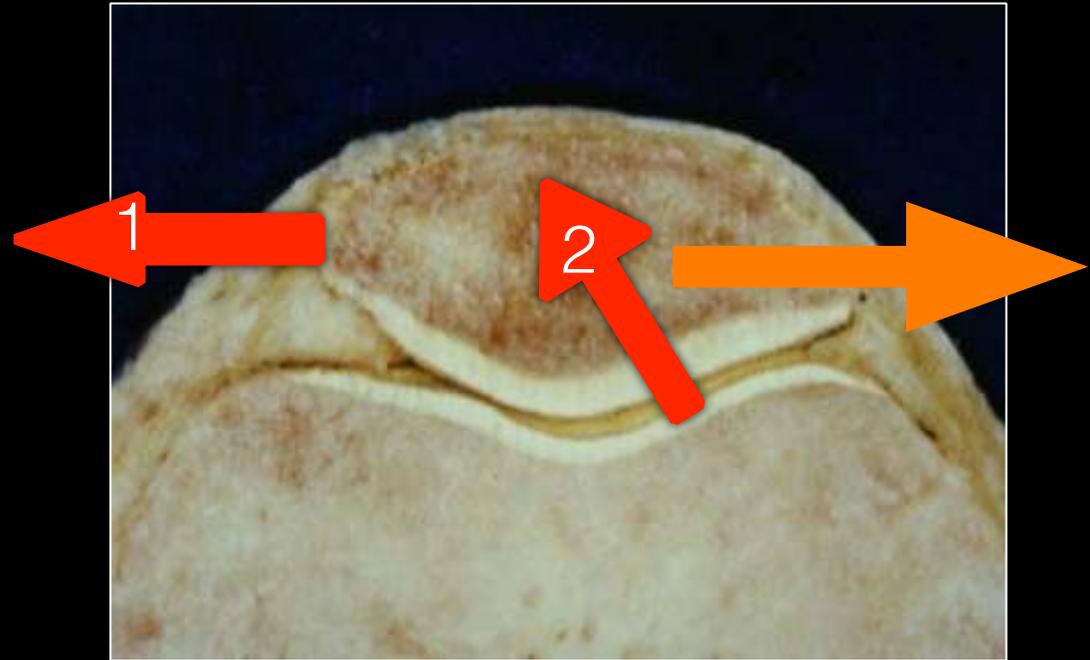


Début du pas : H derrière

Fin du pas : H devant



Quadriceps insuffisant

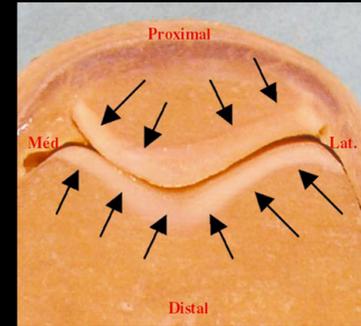


Rôle de la trochlée

# Stabilité

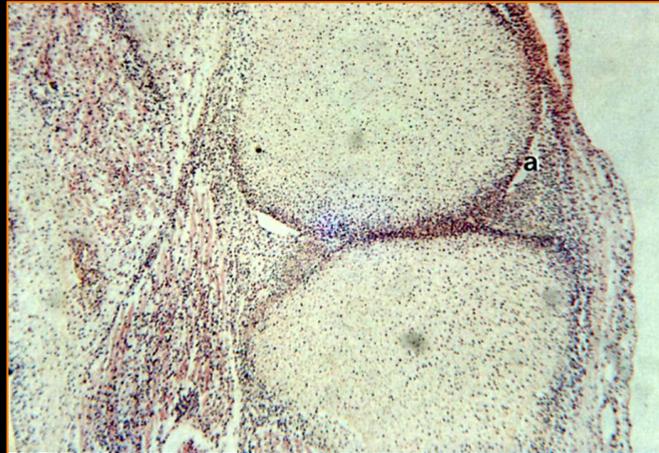


Congruence :  
Os et cartilage



Intégrité des  
tissus mous





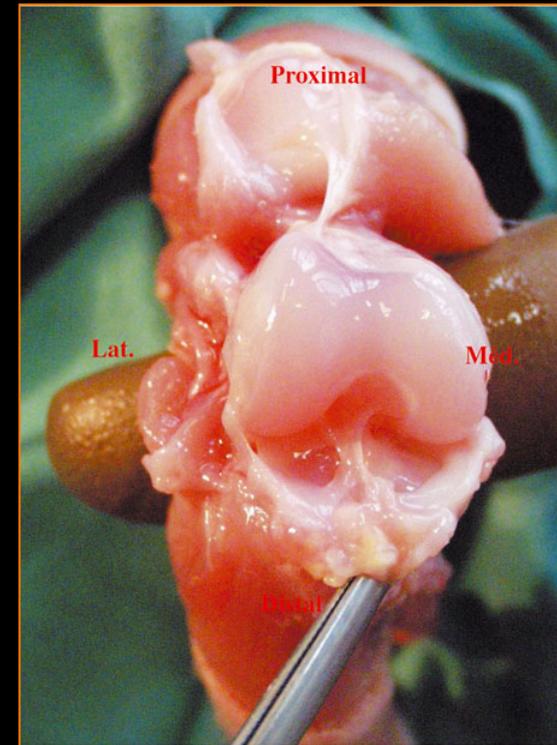
Fœtus 50 mm , week 9



Fœtus 180 mm , 19 ½ S .

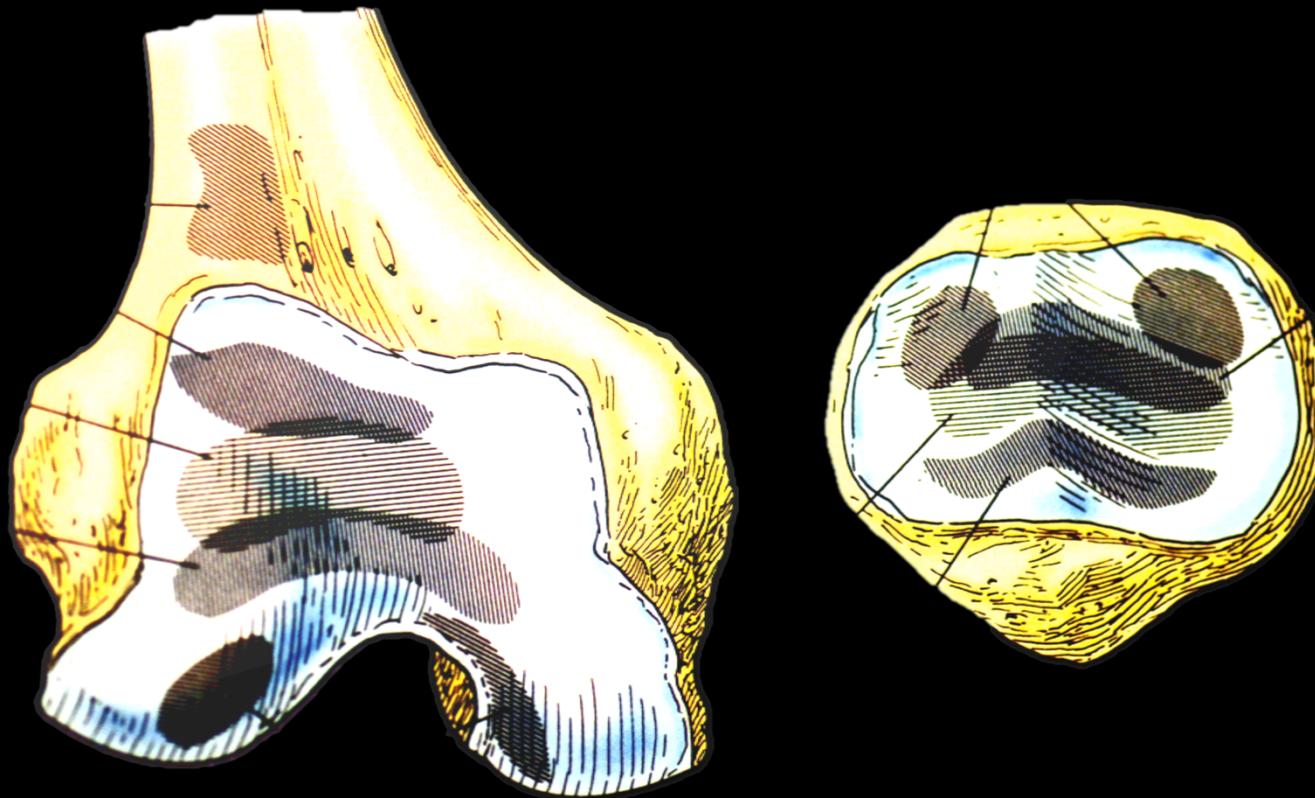


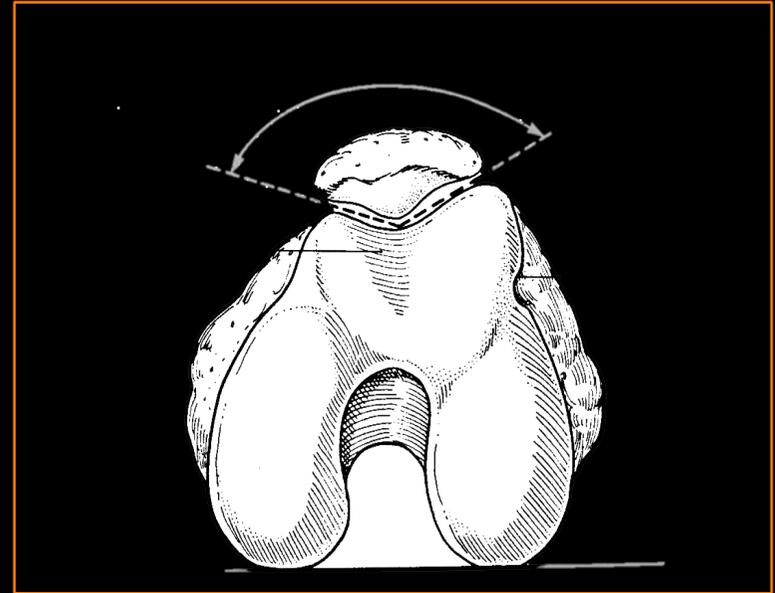
Fœtus week 16



*JM Rogez: Nantes*

# Biomécanique



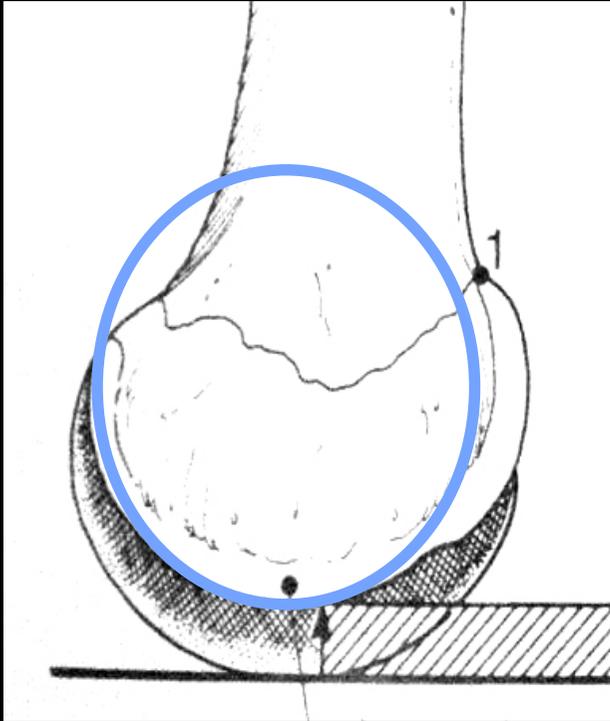


Sulcus angle  $137^{\circ} \pm 8$

Condyle latéral plus haut que le médial

Sulcus se creuse distalement

# On ne connaît pas bien ..



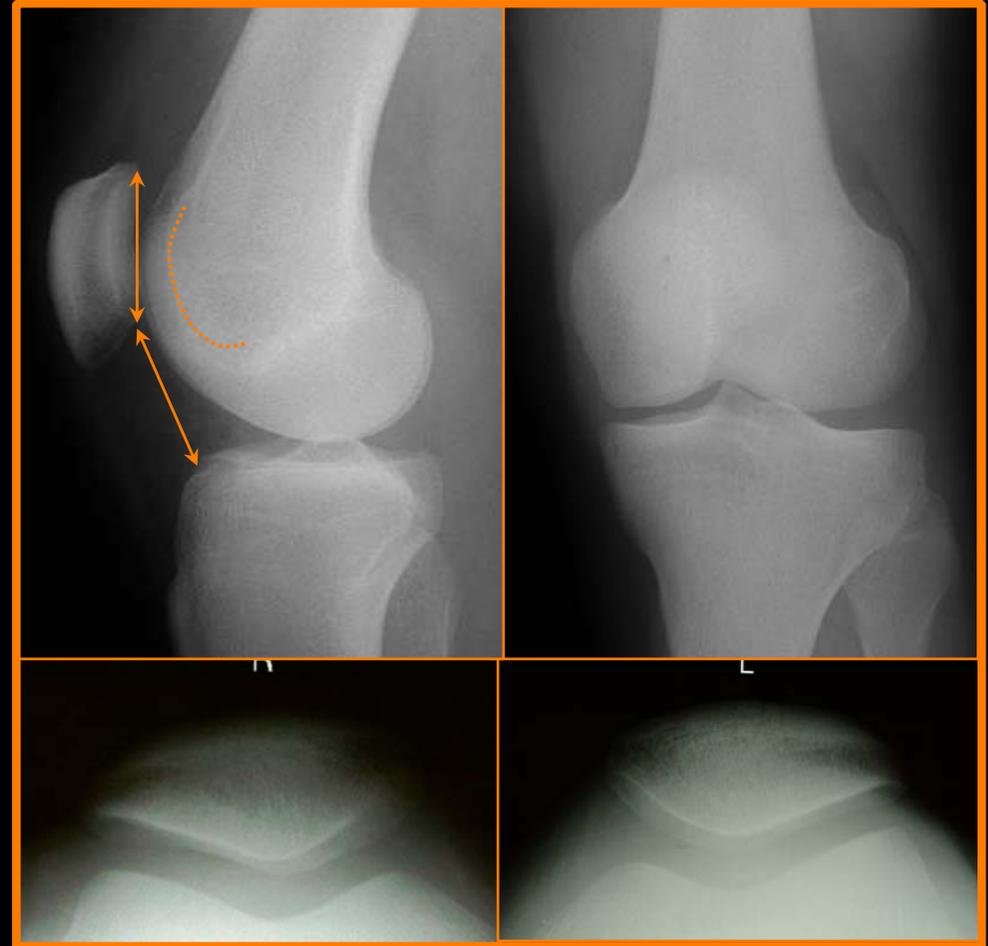
- orientation du creusement
- longueur de la trochlée
- position médio-latérale
- rayon condylien et l'anatomie de la trochlée

# Investigations

Rx standards +++

Bilan

- Dysplasie trochlée
- Hauteur rotulienne

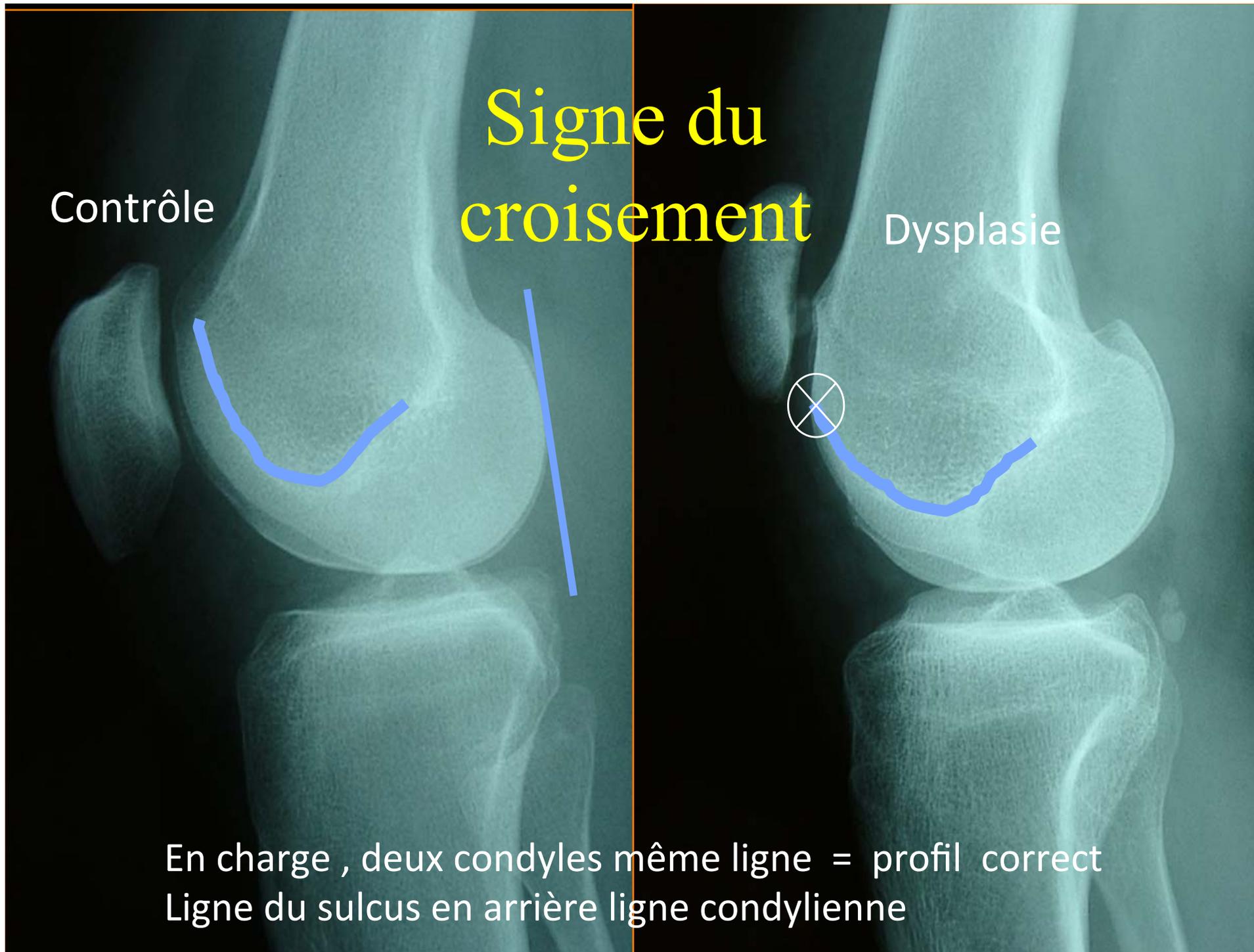


# Signe du croisement

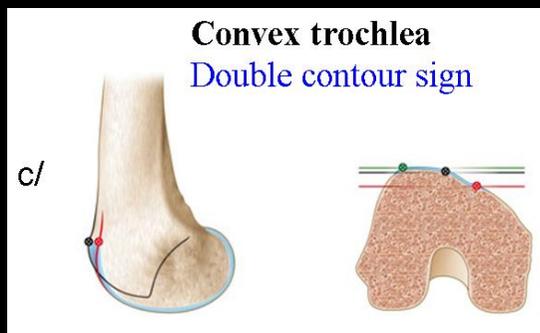
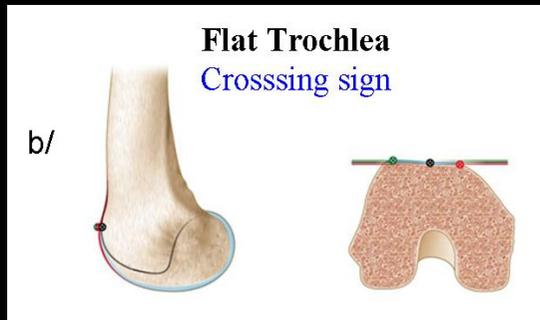
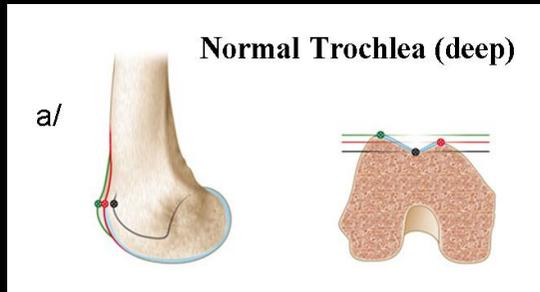
Contrôle

Dysplasie

En charge , deux condyles même ligne = profil correct  
Ligne du sulcus en arrière ligne condylienne

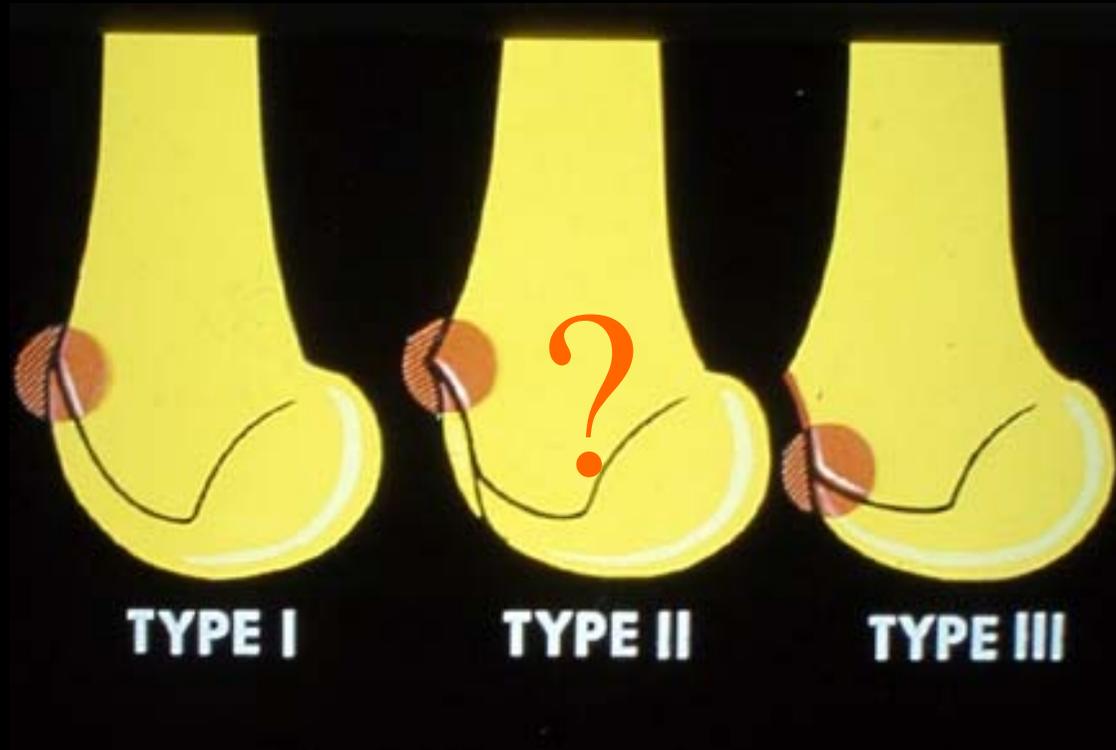


# H. Dejour : classification



1987

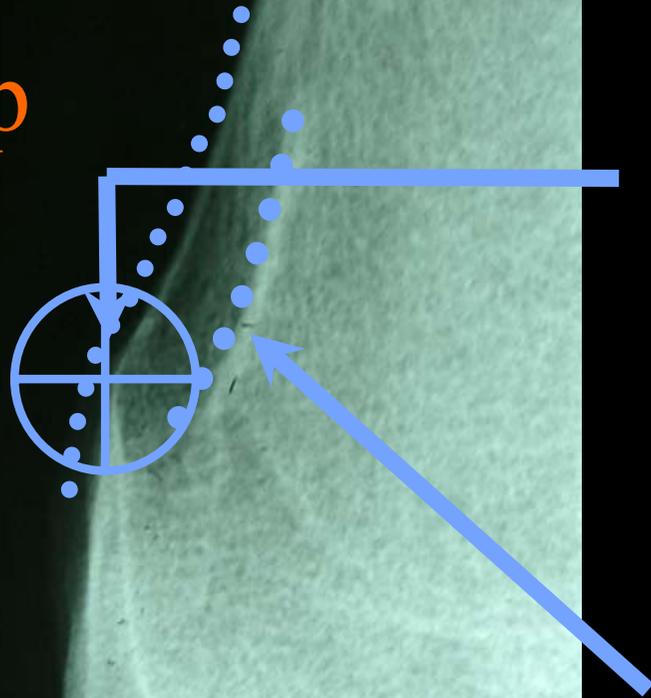
F. Remy , H. Migaud



Faible reproductibilité intra/inter  
observateur

Rev. Chir. Orthop. Reparatrice Appar. Mot, 1998

Ski Jump



## Signe du croisement

Tremplin supra trochléen  
(Spur/ Eperon)

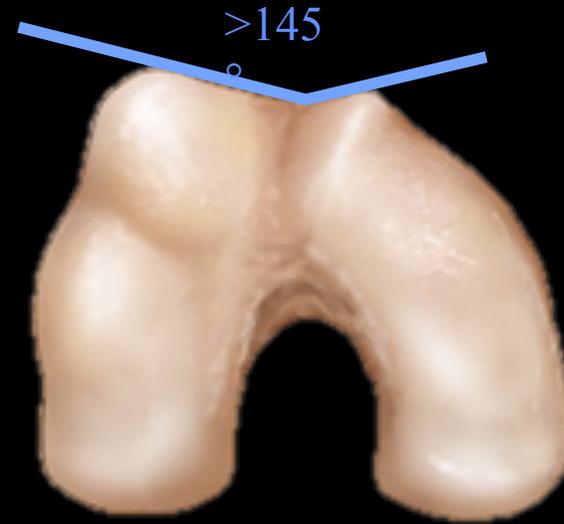
Double Contour  
(facette médiale)

Classification 4  
Grades  
X Rays + CT scan

*D. Dejour and coll French J.Orthop. 2000  
J Radiol 2001, KSSTA 2006, Sports Med  
Arthrosc 2007*

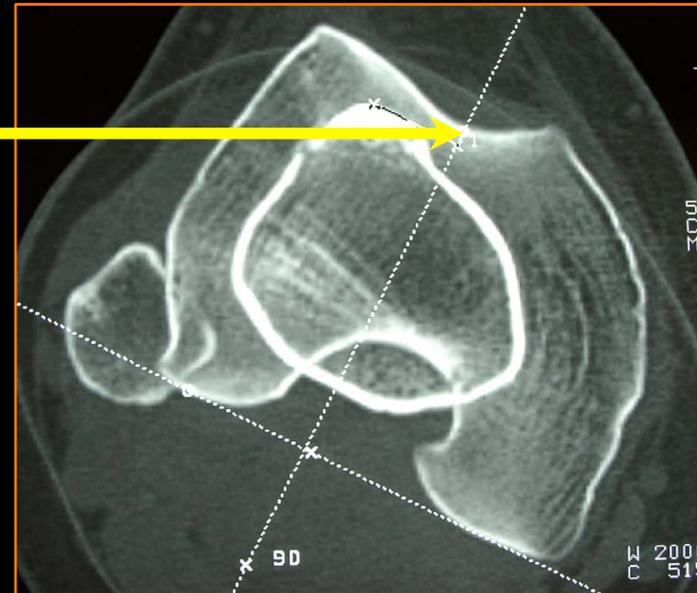
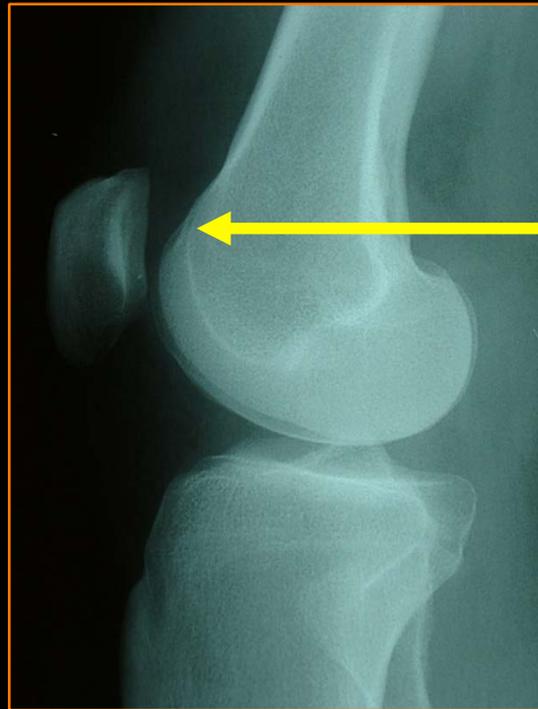
Grade A

54 %



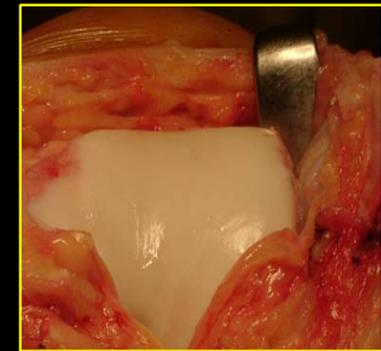
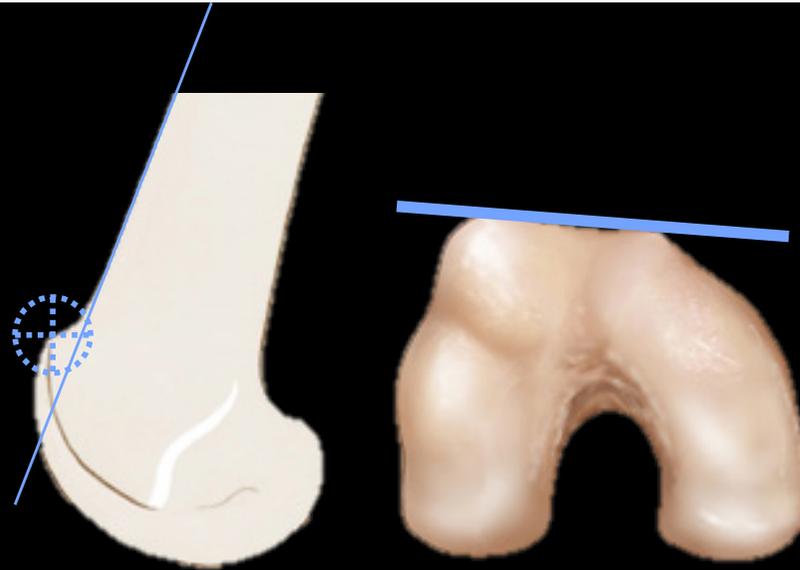
Signe  
croisement

Trochlée  
étroite



# Grade B

17 %

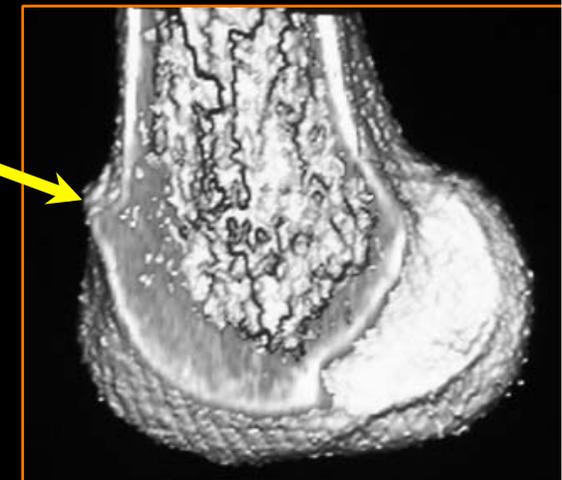


Signe croisement

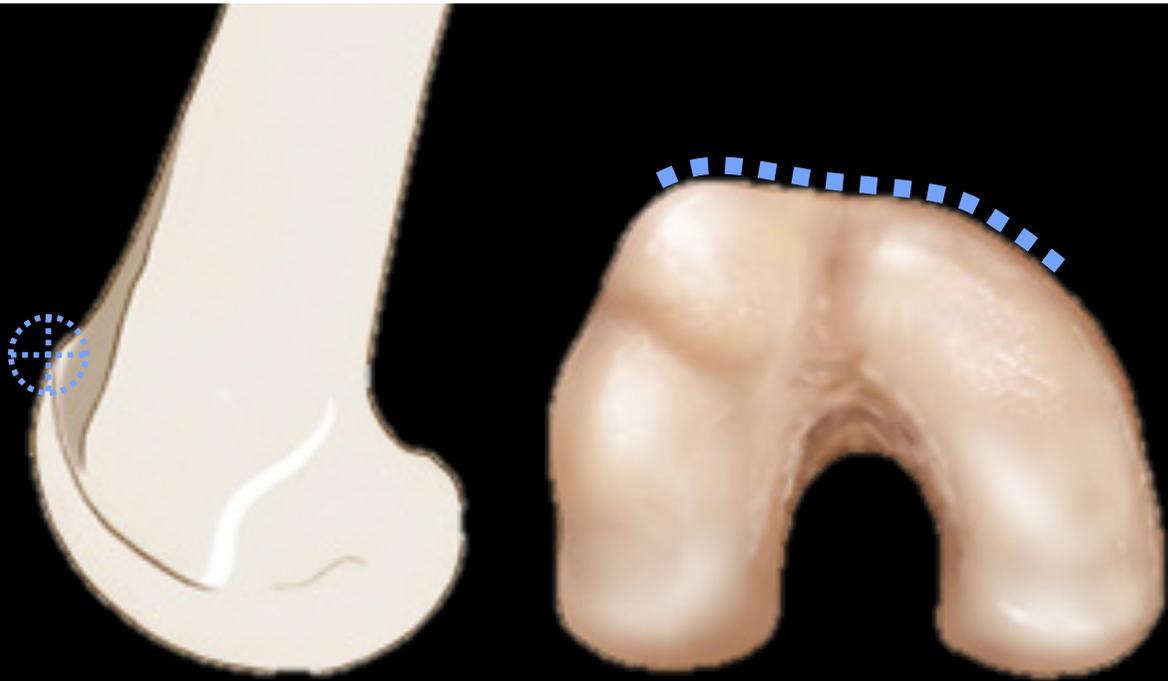
Trochlée plate  
et proéminence +

++

Eperon

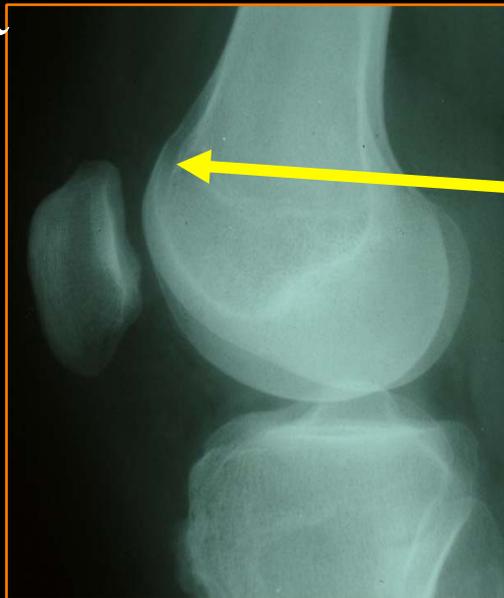


**Grade C**  
**9 %**

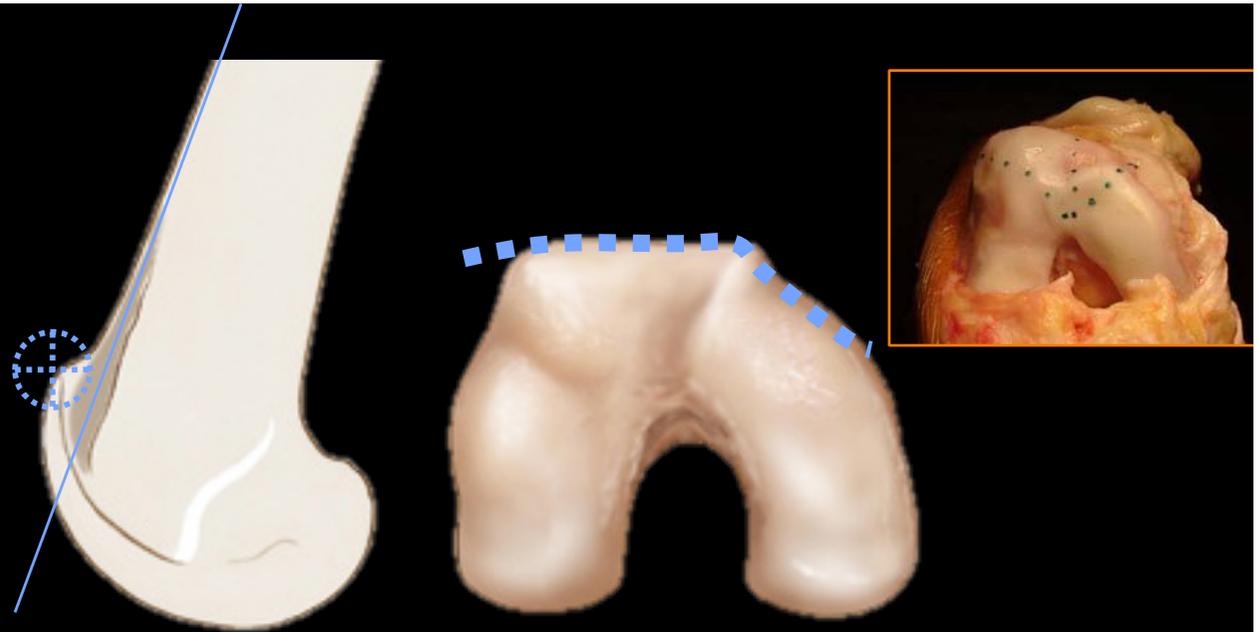


Signe croisement

Double contour



# Grade D 11 %

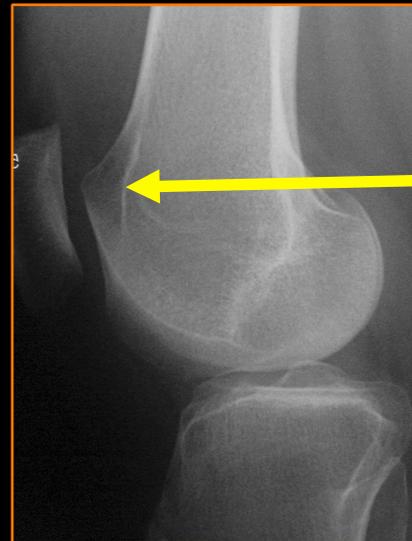


- Signe croisement

- - Eperon

- - Double contour

- - Cliff pattern



# Corrélations statistiques

## D. Dejour

Profondeur  $p < 0,0001$

Angle trochléen  $p < 0,0001$

*Bascule rotulienne  $p < 0,0001$*

*Signe Clinique  $p < 0,0015$*

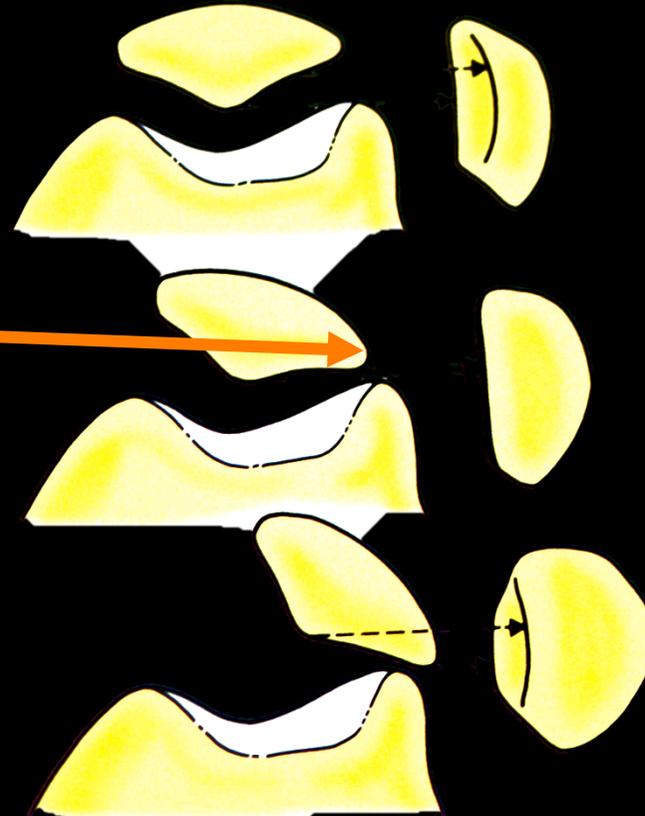
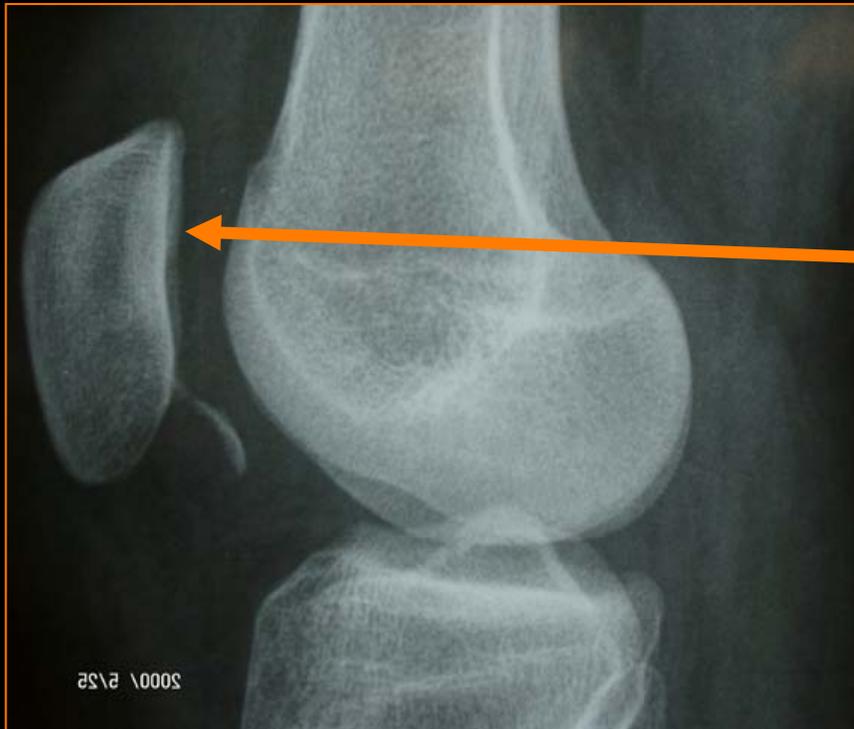
*Nombre de dislocations  $p < 0,006$*

*Douleur résiduelle après la chirurgie  $p < 0,005$*

- *D. Dejour and coll French J.Orthop. 2000*
- *J Radiol 2001, KSSTA 2006, Sports Med Arthrosc 2007*

# Bascule rotulienne

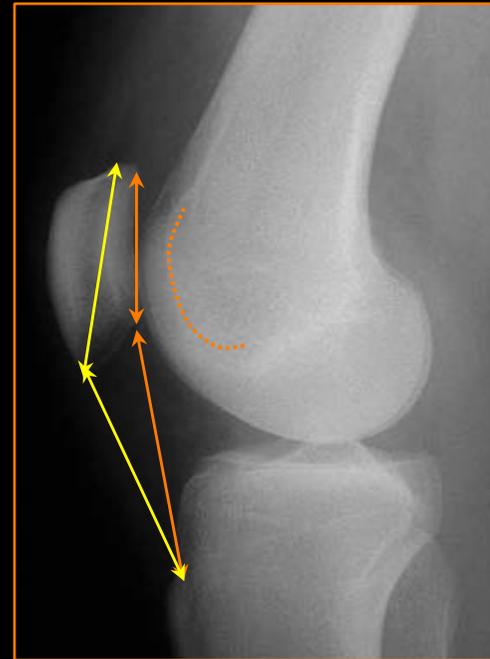
Maldague, Malghem (1989)



# Hauteur rotulienne



Caton-Deschamps



Insall-Salvati **1** or **2**

Dysplasie : rotule haute

# Scanner TAGT

COMBINE

SCAN OUEST LYONNAIS

Philips, Brilliance 64

16 Jun, 2008 13:13:05.00

Z 1.00

R

29.5deg

Anormal si  $> 20^\circ$   
(90% goupe luxation)

Avec et sans contraction du quadriceps

PHILIPS

P

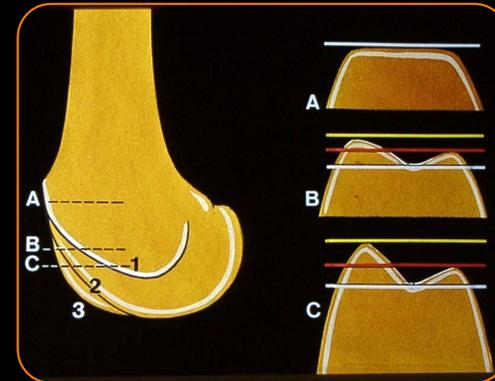
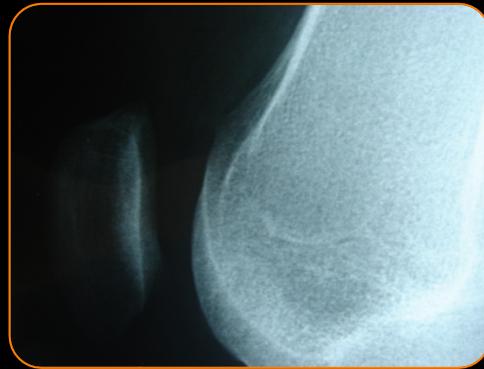


*Le traitement ?*

# Instabilité

Dyplasie facteur principal de l'instabilité

96% groupe luxation !!!!

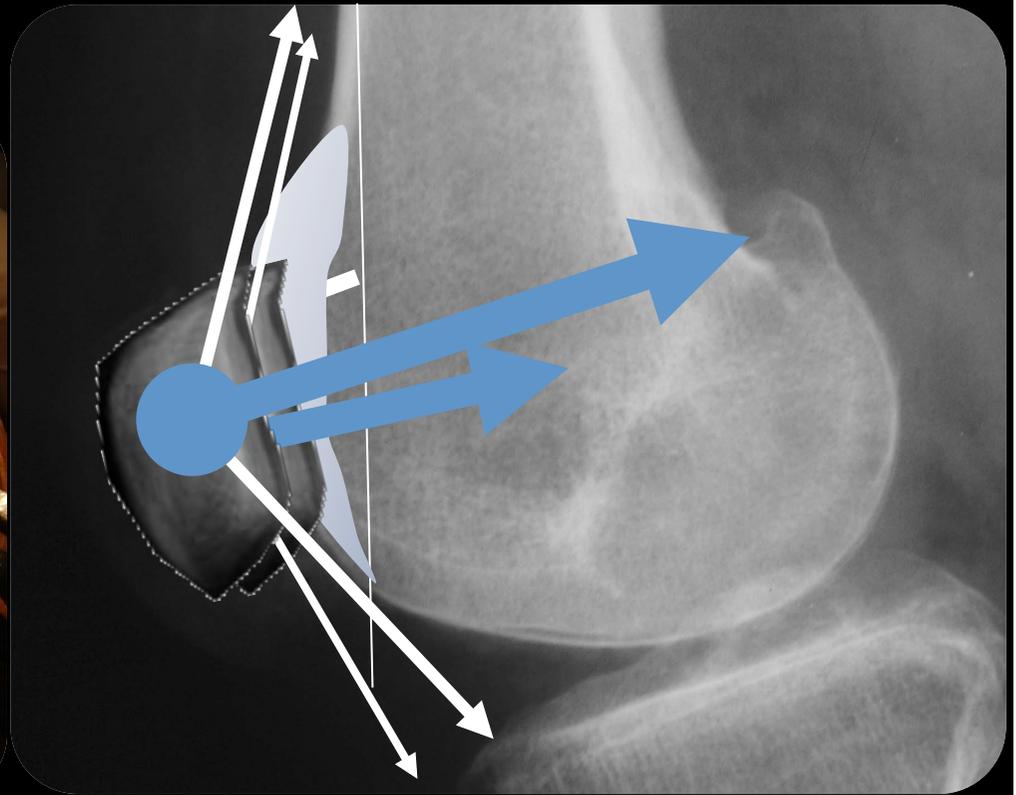
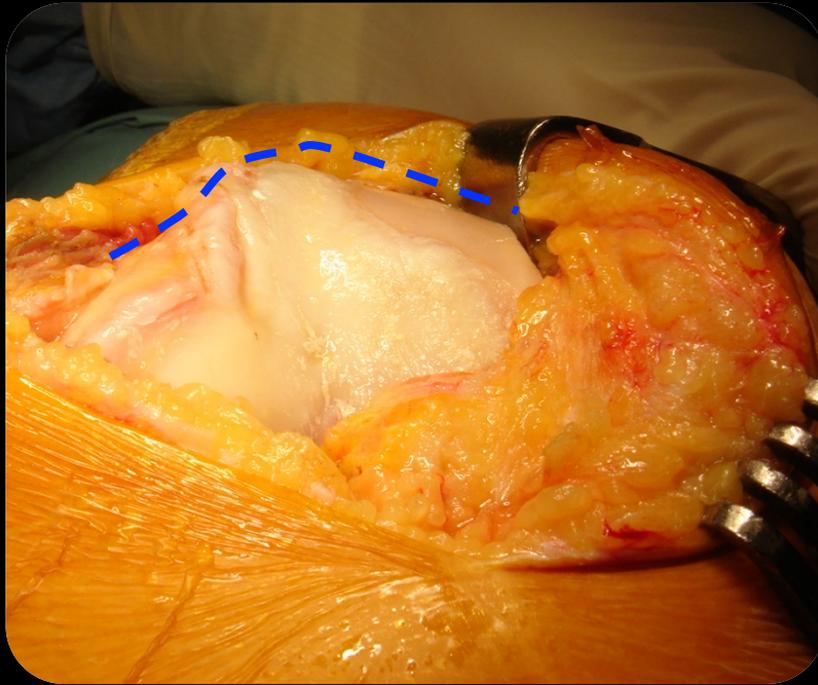


Vue latérale signe du croisement

# Douleur

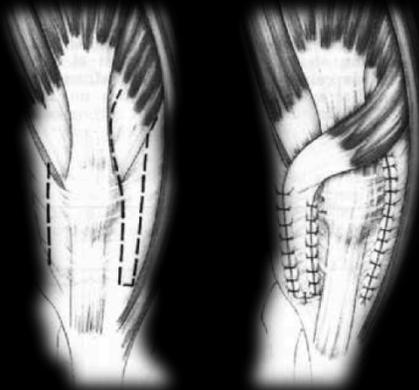
Dysplasia Type B & D

58 %

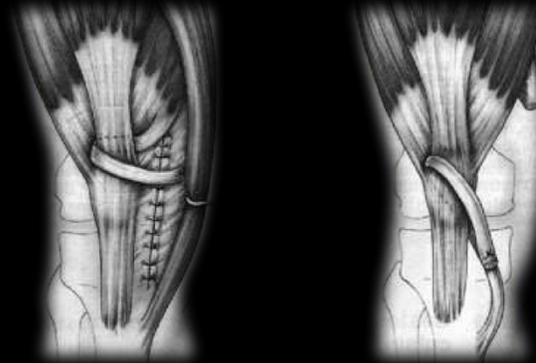


Prominence trochléenne  
augmente force de compression

# Parties molles



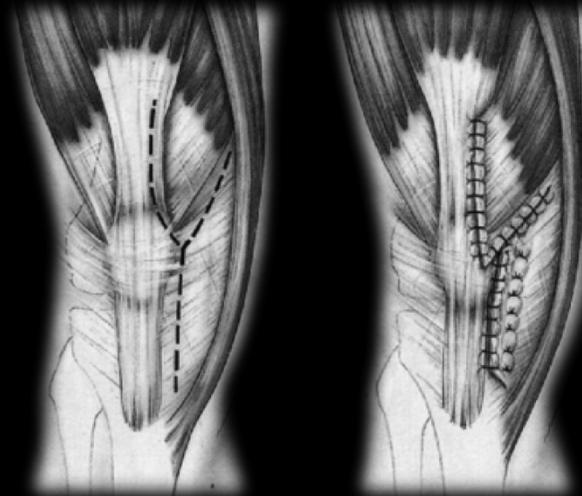
*Intervention de Krogus*



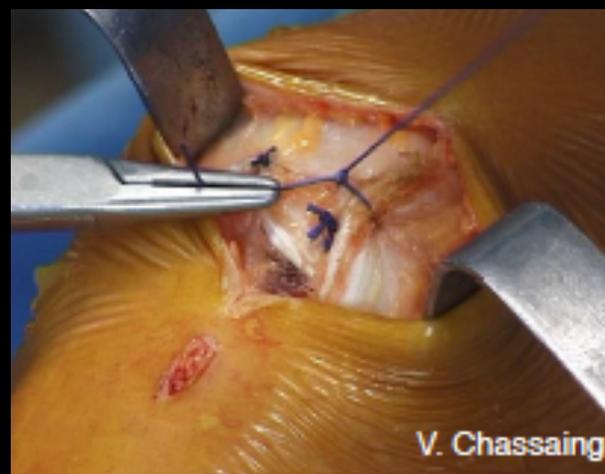
*Campbell Galéazzi*



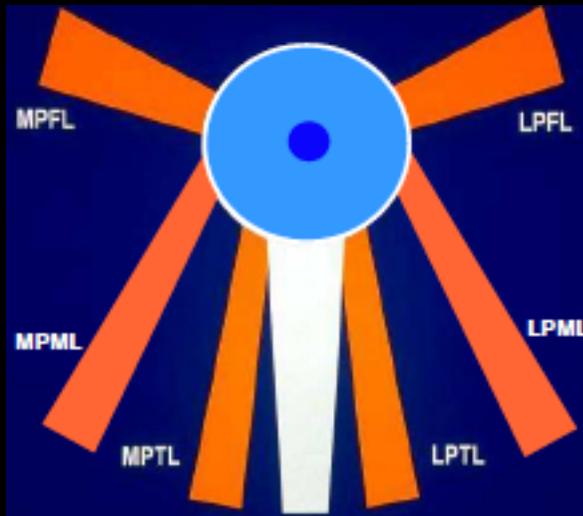
*Intervention d'Insall*



*Insall + plastie du vaste med*

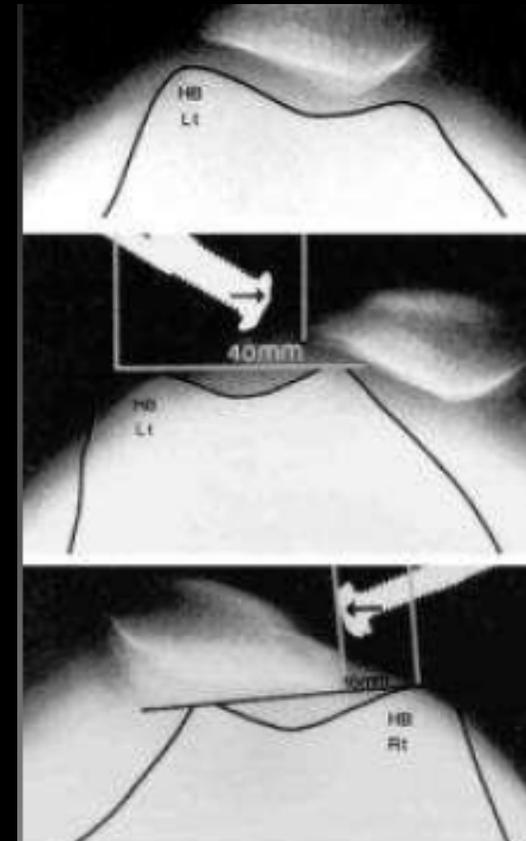
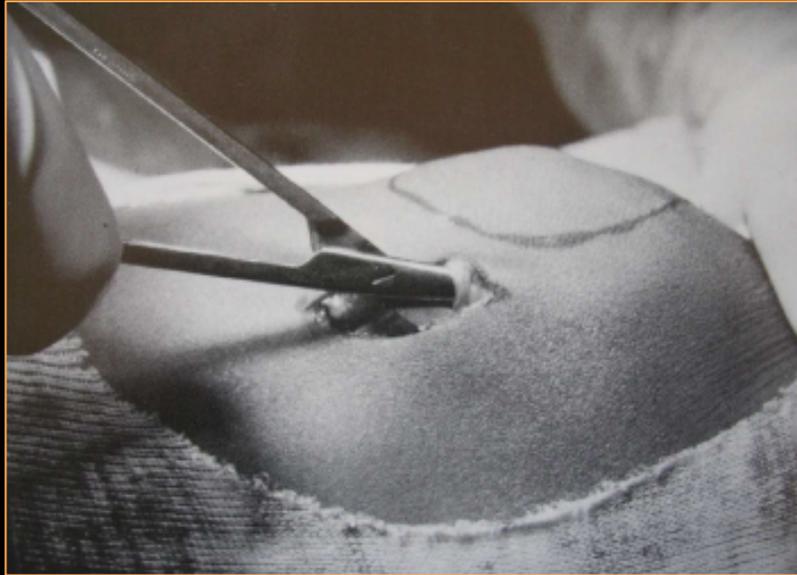


# Section rétinaculum latéral



Le système latéral ne s'insère pas sur le fémur directement

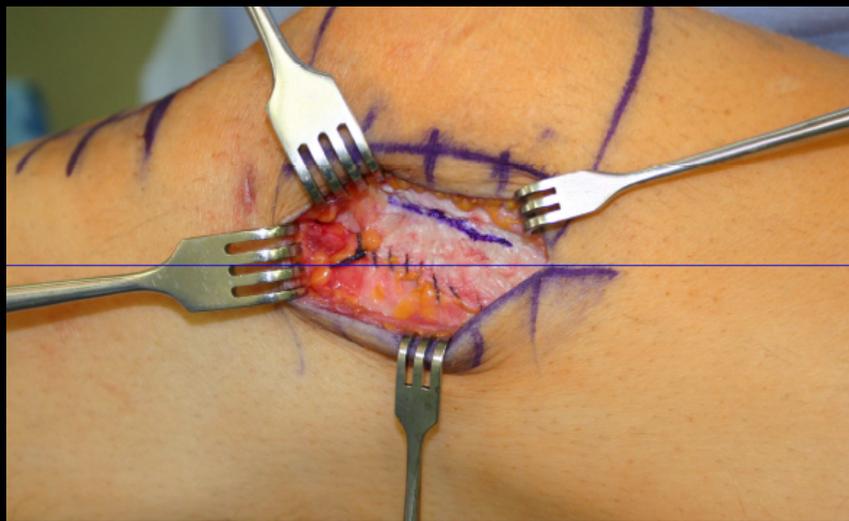
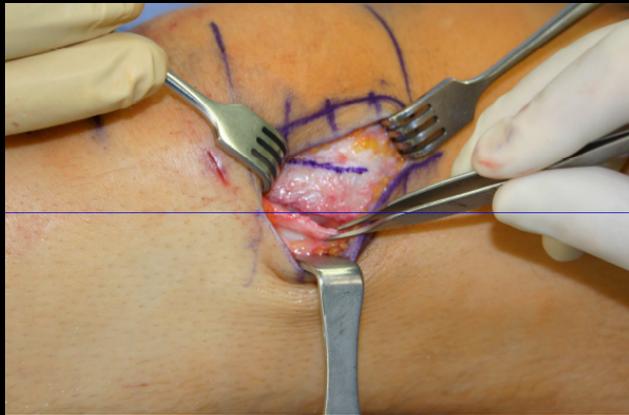
# Section rétinaculum



Risque de subluxation médiale :

- Teitge JBJS 1996
- Fulkerson conseille section pole proximal uniquement (VLO/ protégé) JBJS 1990

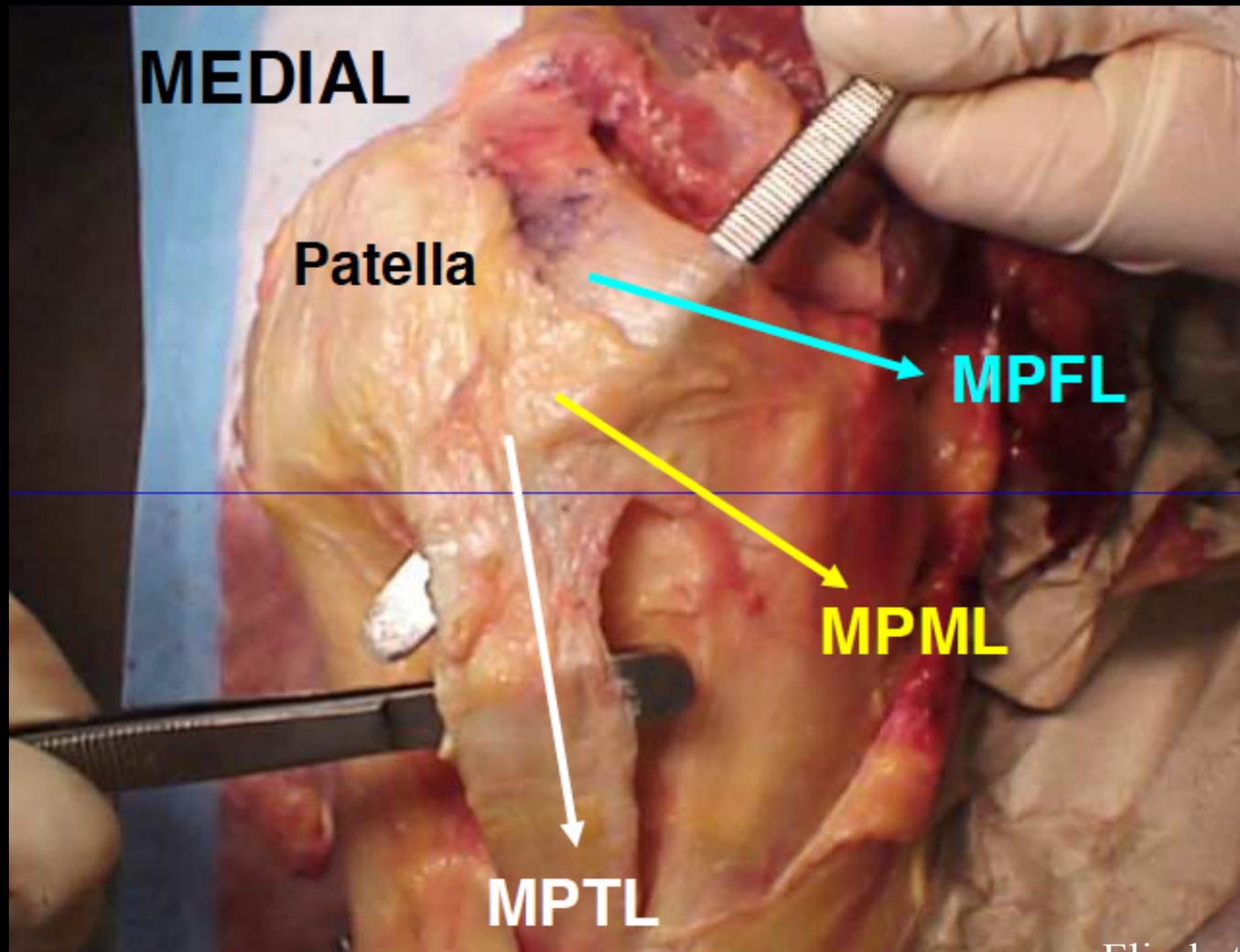
# Section du rétinaculum articulation fermée



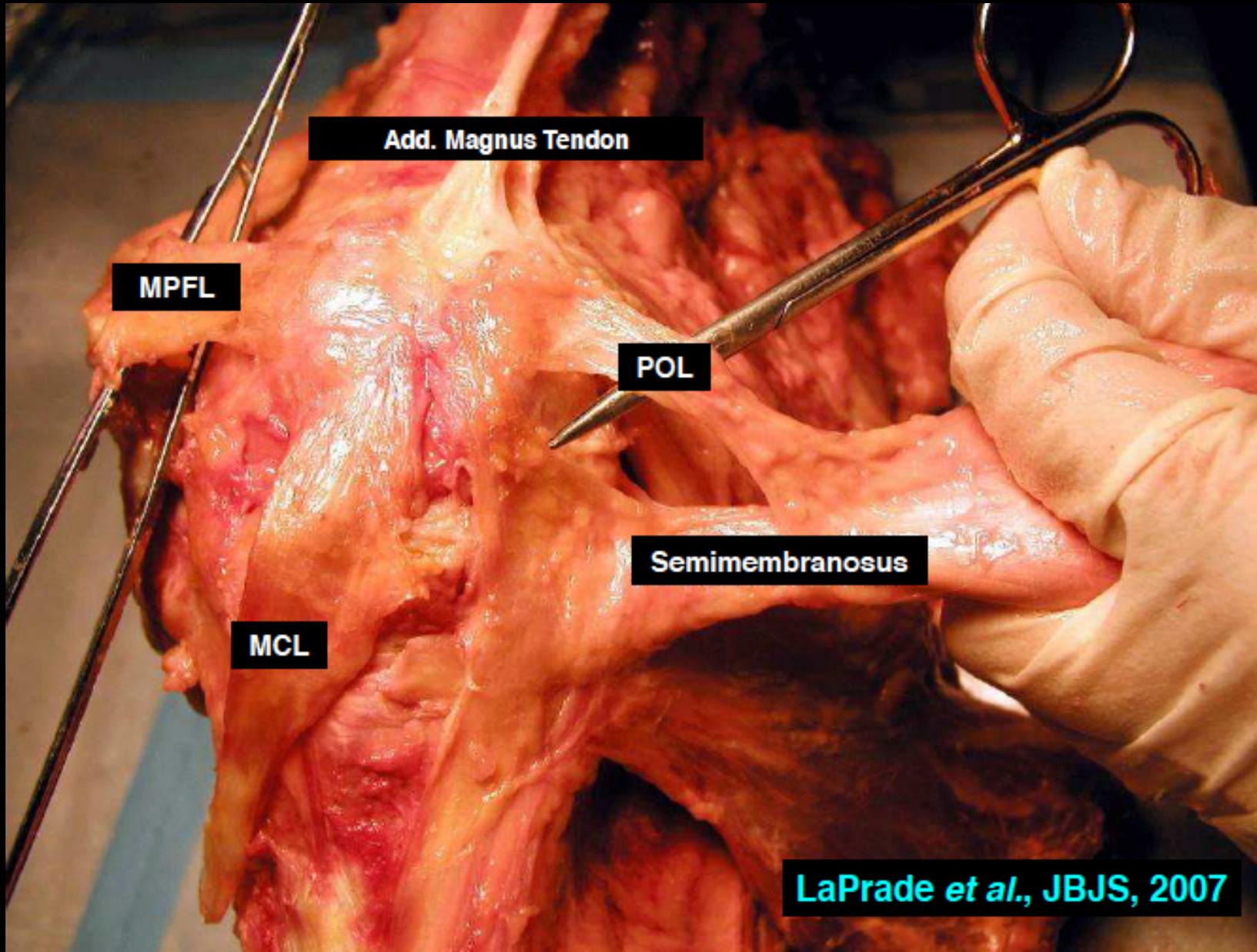
Elisabeth Arendt

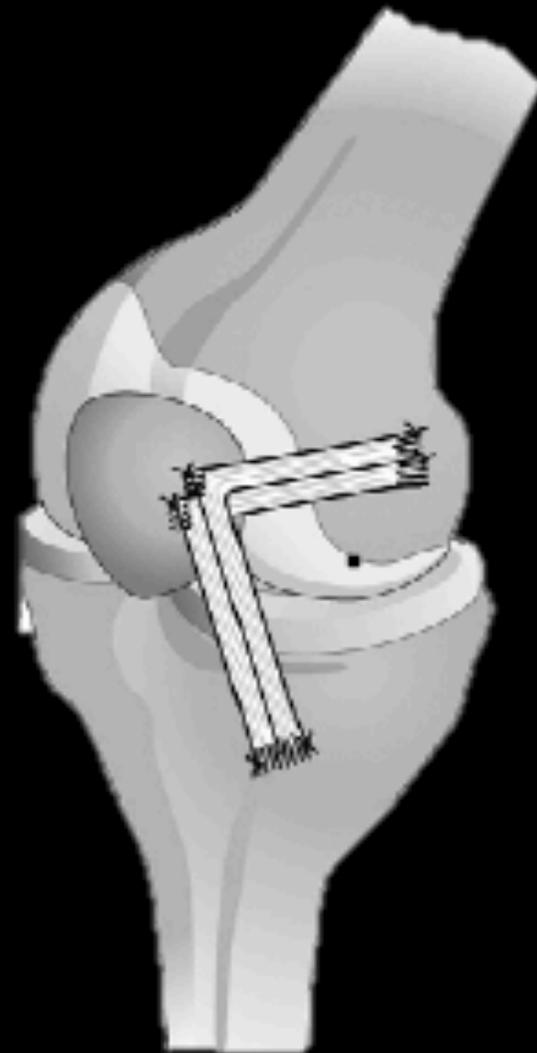


# Parties molles: MPFL

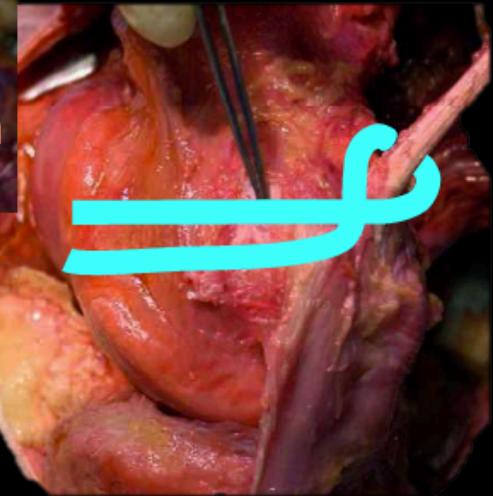
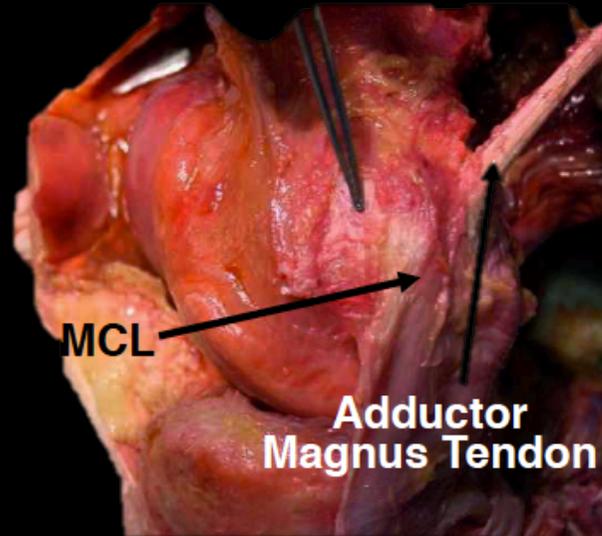
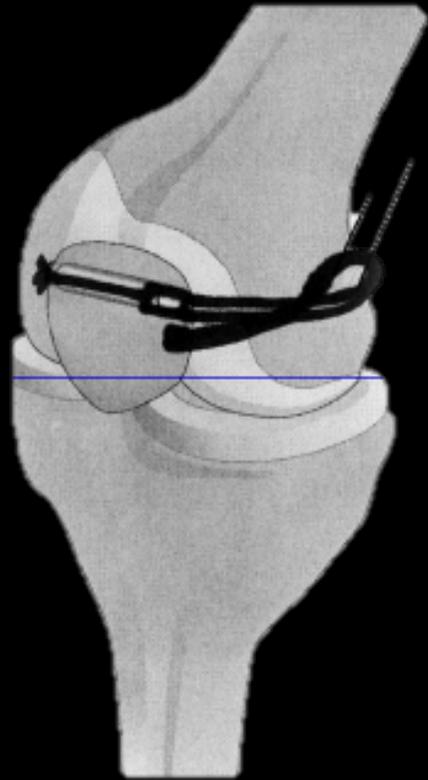


Elisabeth Arendt





# MPFL : Enfant

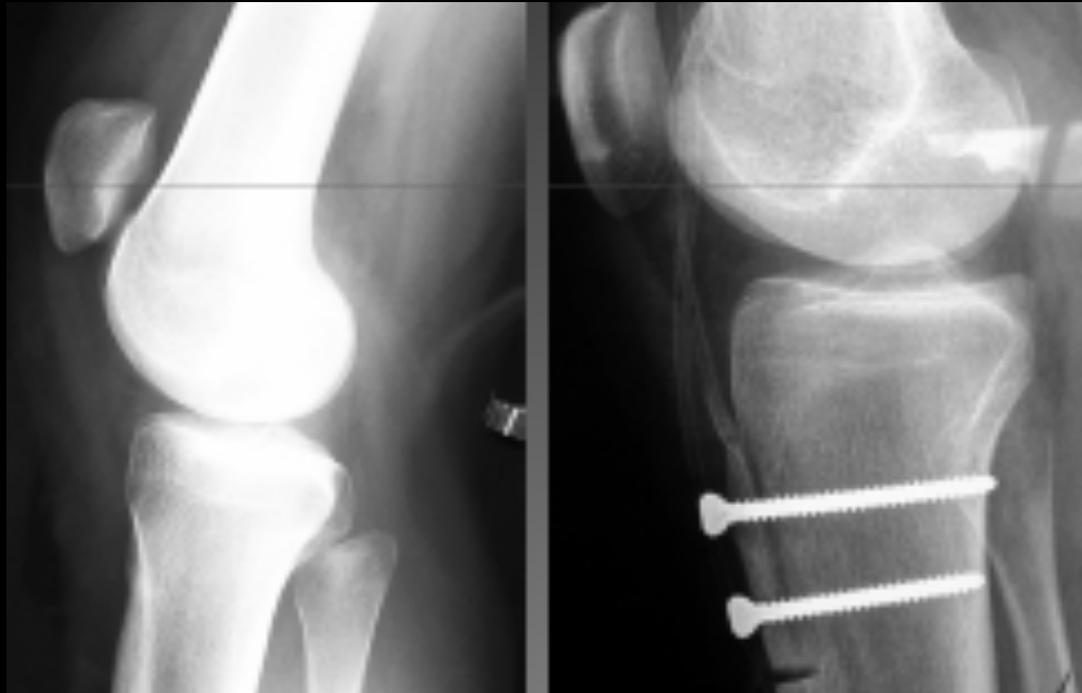


Physe ouverte

Elisabeth Arendt

# Les gestes osseux

## Transposition TTA



Index C/D > 1,2 dans le même temps  
médialisation TAGT à 10 mm

# Relèvement de la berge externe de la trochlée

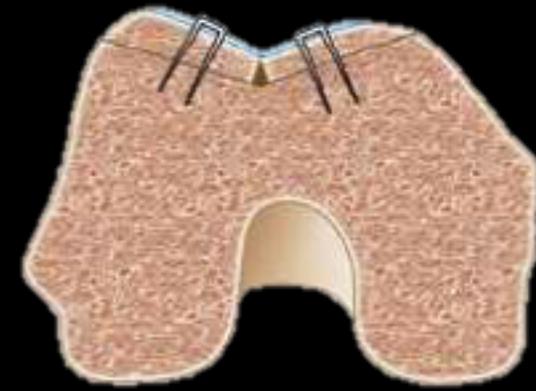
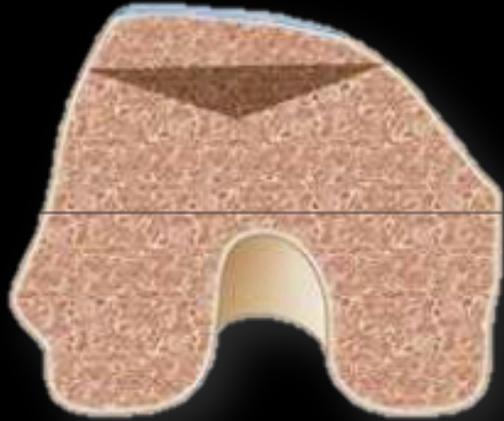
Albee FH, 1915

## Trochléoplastie d'enfoncement

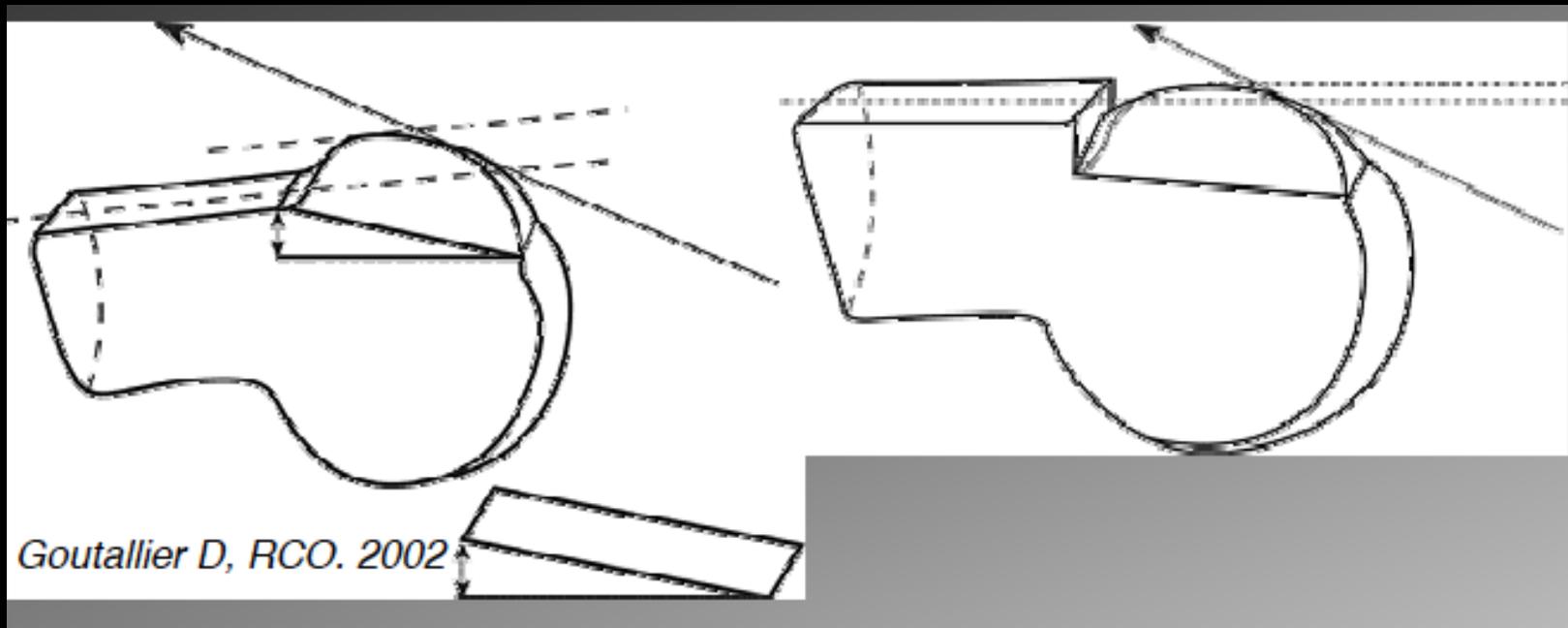
Goutallier D, 2002; Beaufils Ph, 2009

## Trochléoplastie de creusement

Masse Y, 1978. Dejour H, 1994



David Dejour

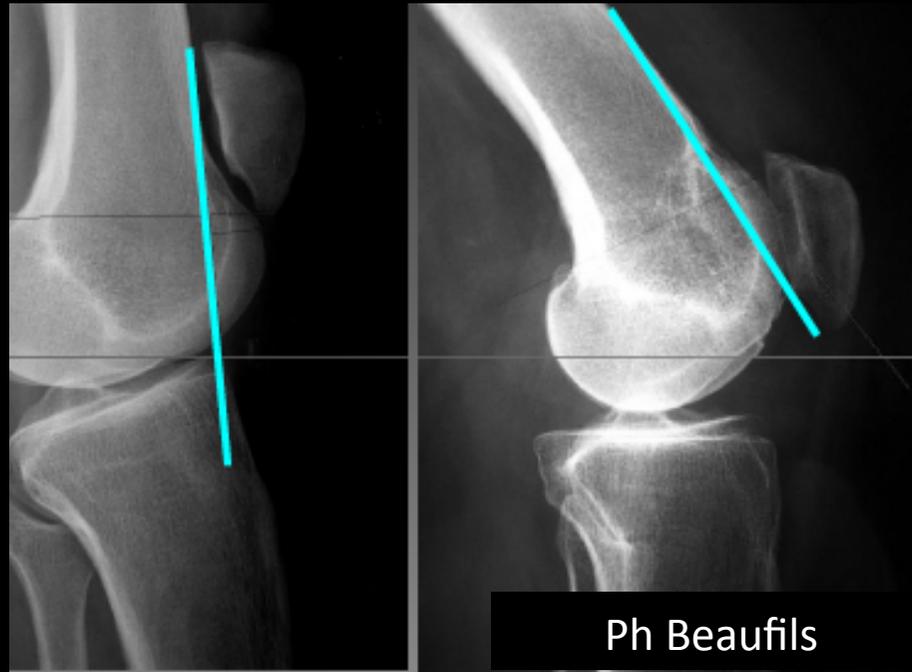


## Trochléoplastie d'enfoncement

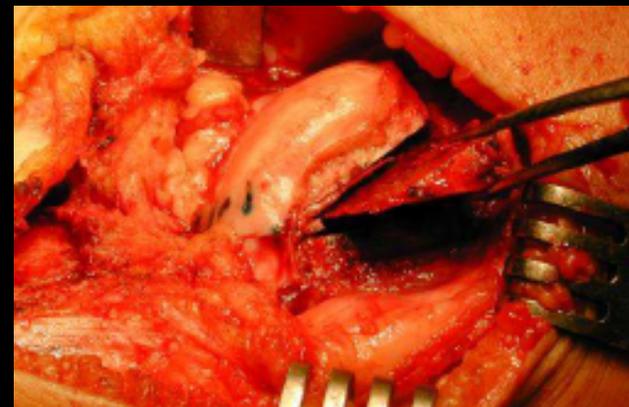
Corrige la proéminence

Facilite l'engagement de la rotule

Ne modifie pas la forme de la trochlée



Indiqué dans les grandes dysplasies  
avec saillie et proéminence  
supérieure à 5 mm



# Indications

Quatre facteurs majeurs

- Dysplasie trochléenne
- Hauteur rotulienne
- Contention du rétinaculum médial
- Bascule latérale

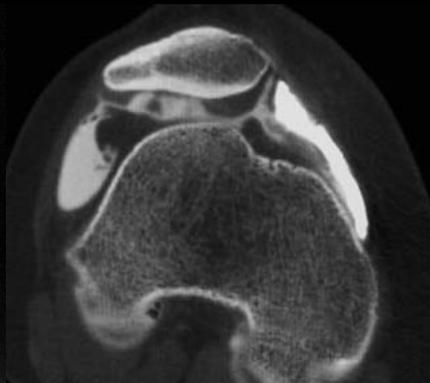
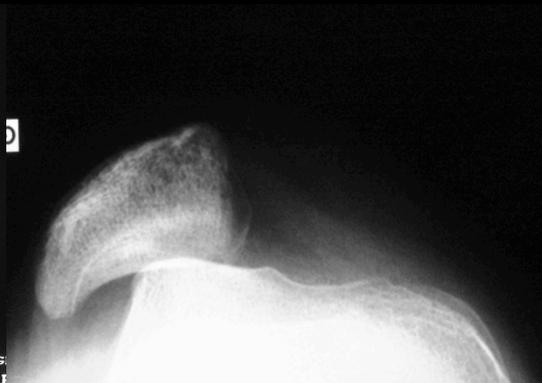
# Tableaux cliniques

## Luxation itérative

1. Geste osseux simple (TTA) plus ou moins geste parties molles (type Insall)
2. MPFL isolé dysplasie type A ou B
3. Section retinaculum latéral jamais isolé à la demande (+-)

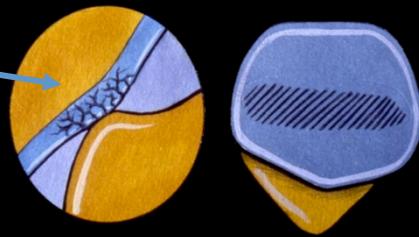
# Luxations particulières

Permanente habituelle, activités quotidiennes  
Geste de trochléoplastie associé à un MPFL

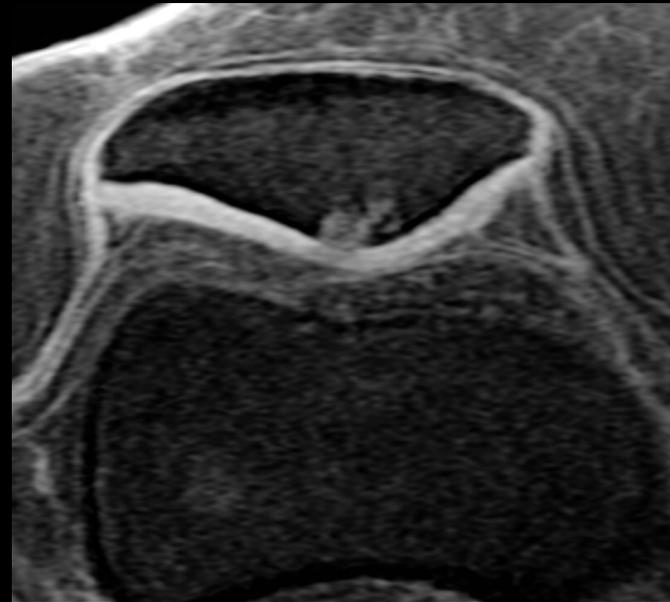
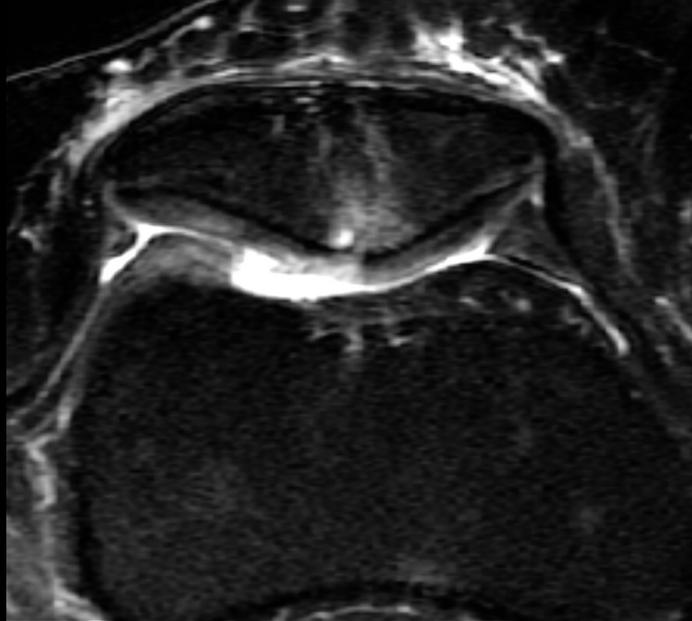


# Dysplasies douloureuses

- Hyperpression latérale excessive (rare)  
section rétinaculum !
- Lésion du cartilage +++



# Greffe cartilage



# ACI technique

CLINICAL ORTHOPAEDICS AND RELATED RESEARCH  
Number 436, pp. 30-39  
© 2005 Lippincott Williams & Wilkins

## The Role of Autologous Chondrocyte Implantation in the Patellofemoral Joint

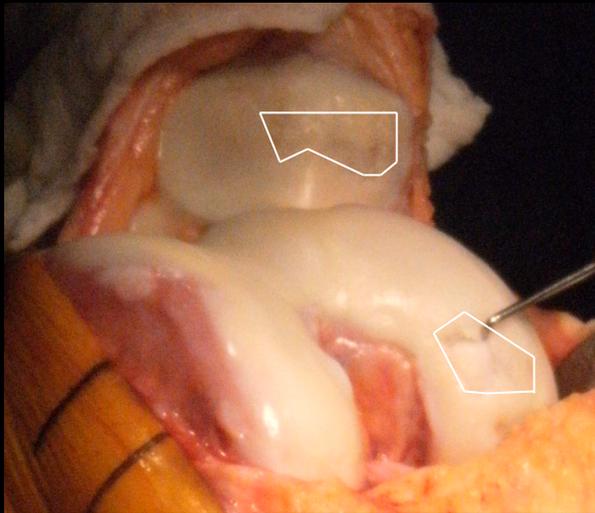
Tom Minas, MD, MS\*†; and Tim Bryant, RN, BSN\*

ture.

Osteotomy frequently was done in this series (29 of 45 patients, 64%) in patients who had tibiofemoral malalignment, patellofemoral malalignment, or both (Table 1). If there was 2° or more misalignment from the neutral mechanical axis of the tibiofemoral joint in combination with a large chondral defect, a varus-producing or valgus-producing osteotomy accompanied the cartilage repair on the weightbearing condyles. If there was evidence of patellar subluxation and tilt as noted by physical examination, radiographs, and/or CT scan assessment, then an anteromedialization tibial tubercle osteotomy was done in combination with the resurfacing of the patella or trochlea or both.

- Fréquence ++ des gestes osseux associés
- 64% d'ostéotomie de la TTA sur une greffe fémoro-patellaire
- 26% d'ostéotomie concomitante de varisation/valgisation dans la plus grande série (327 patients)
- Correction dès 2° de défaut d'axe

# ACI technique





# Conclusions