

# Investigations Patello-femoral disorders

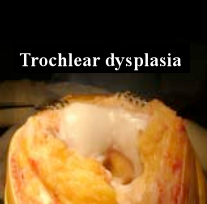
David DEJOUR  
COROLYON - FRANCE



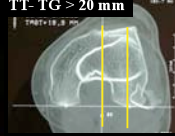
## Anatomical study 1987

Control (n= 190) / Dislocation (n= 147)  
Statistical differences 4 factors (H. Dejour – G. Walch)


Trochlear dysplasia



TT- TG > 20 mm



Patella Alta > 1.2



Tilt > 20°  
French J. Orthop. 1990  
Knee Surg. Trauma 1994

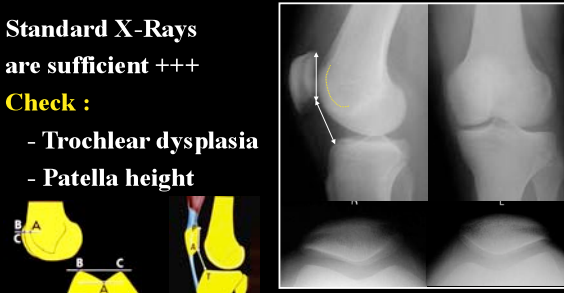
## Investigations

First Visit

Standard X-Rays  
are sufficient +++

**Check :**

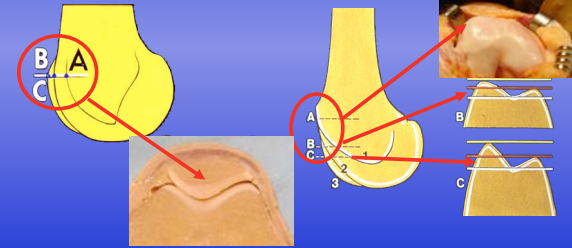
- Trochlear dysplasia
- Patella height



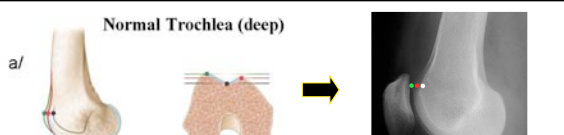
## Trochlear dysplasia

96 % Dislocation population  
Control  
3 % P = 0,001

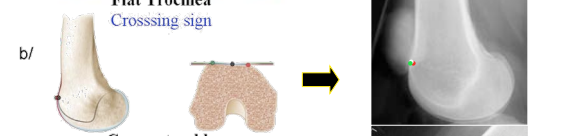
### Crossing Sign (H. Dejour)



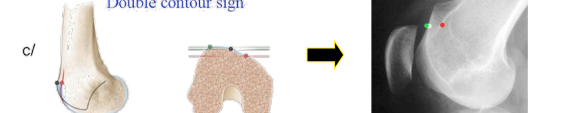
**Normal Trochlea (deep)**



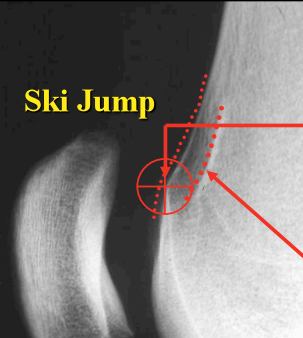
**Flat Trochlea**  
Crossing sign



**Convex trochlea**  
Double contour sign



## Ski Jump

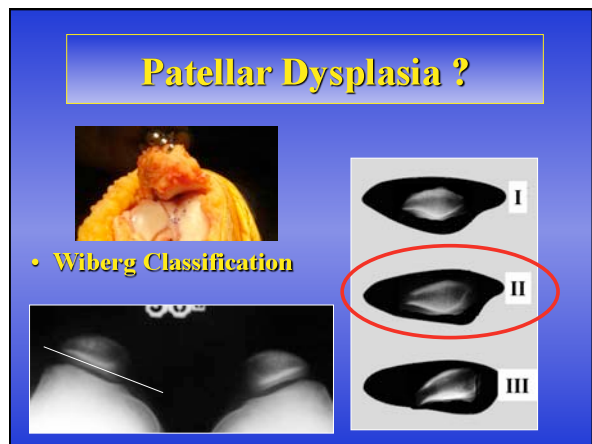
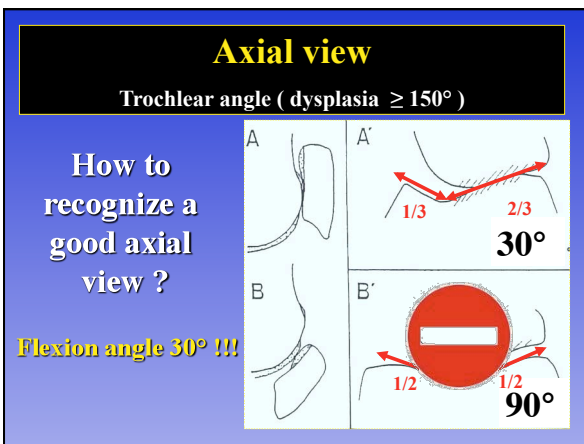
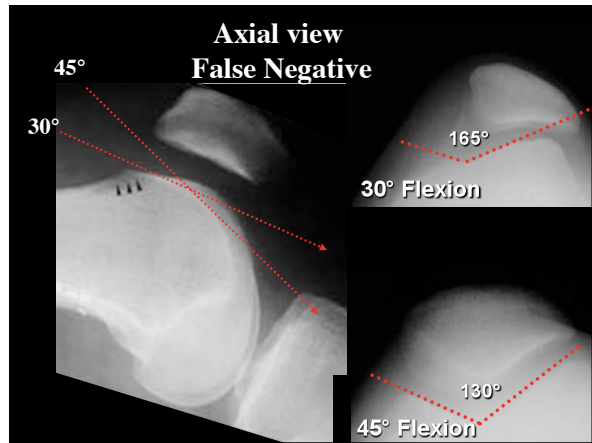
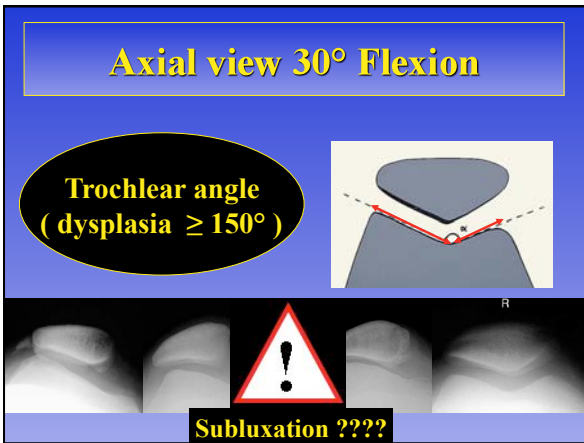
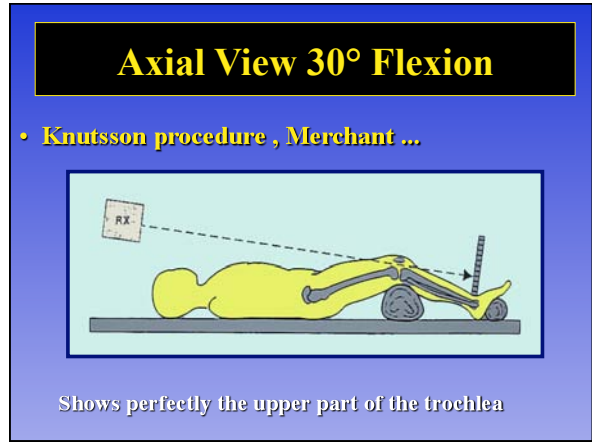
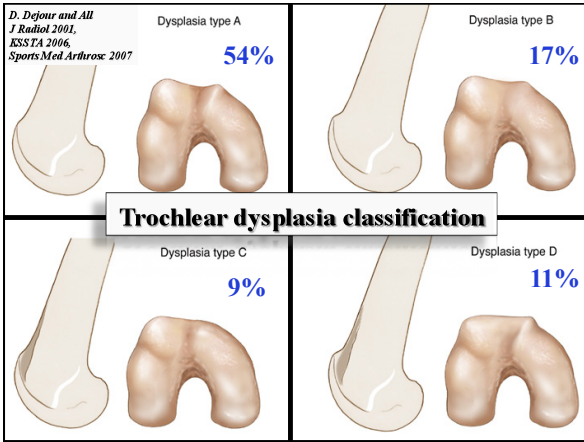


**Supra trochlear Crossing Sign**  
91 %

**Double Contour (Medial facet)**

Classification 4 Grades  
X Rays + CT scan

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




Second instability factor

### The Patella Alta

30 %  
Dislocation  
population

Caton - Deschamps Index  
> 1,2


Control = 0 % P = 0,001



### Patella height

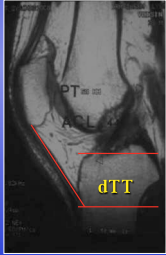
No patella in front  
of the trochlea  
Reference cut

• CT Scan :



### Patella height

Patellar tendon length analysis



# MRI

Neyret and Coll  
Rev.Chir.Orthop. 2003

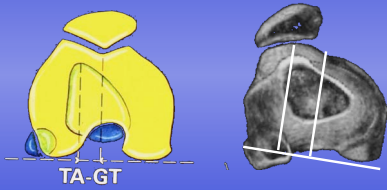
Third instability factor

### Tibial Tubercle - Trochlear Groove

Malignment evaluation

56 % > 20 mm  
Dislocation  
population

Control 12 mm P = 0,003



CT Scan in extension

Goutallier 1978

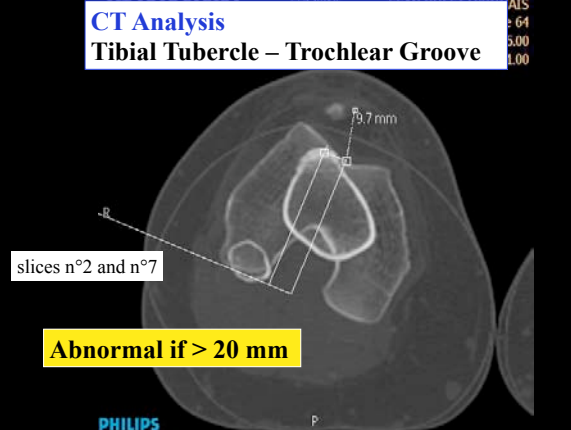
### CT Analysis

#### Tibial Tubercle - Trochlear Groove

slices n°2 and n°7

Abnormal if > 20 mm

PHILIPS



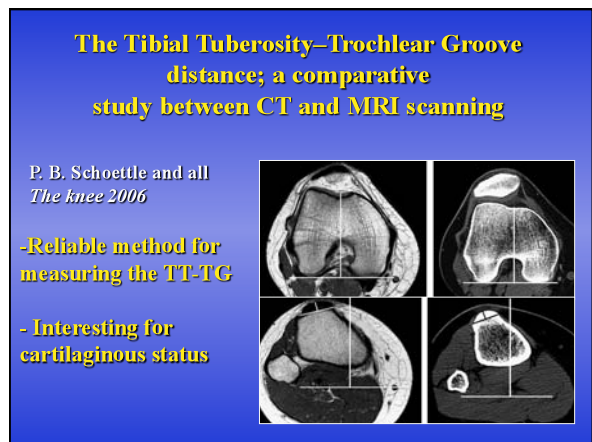
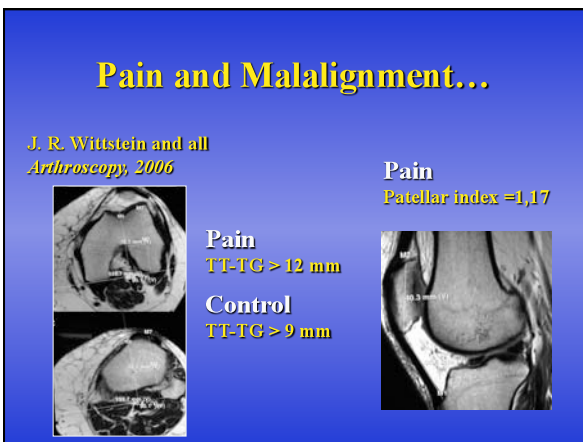
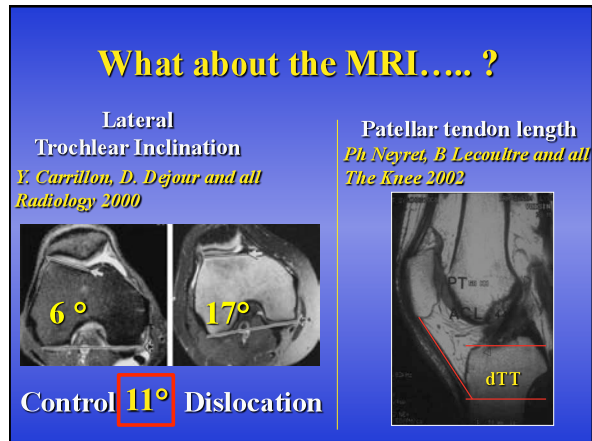
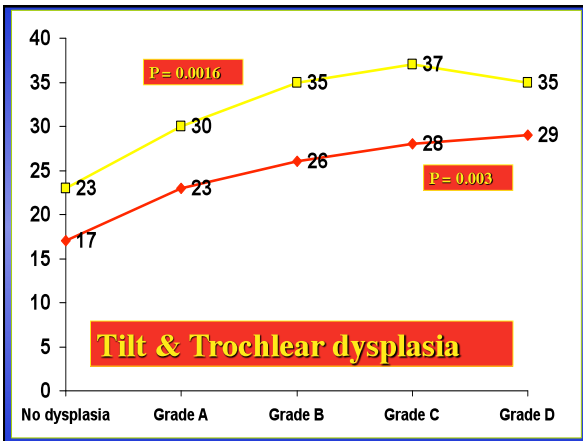
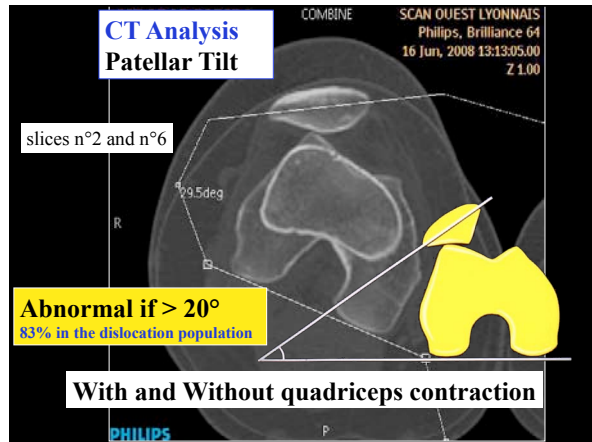
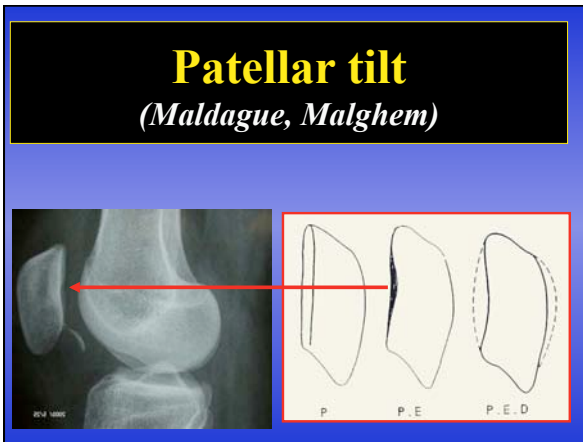
Third instability factor

### Tibial Tubercle - Trochlear Groove

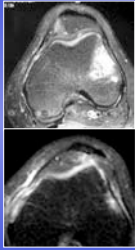


~~Angle Q~~

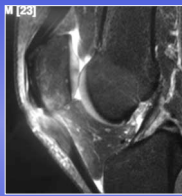
Not precise enough



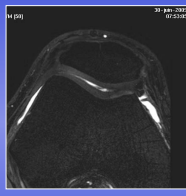
## MRI and Patello- Disorders



MPFL

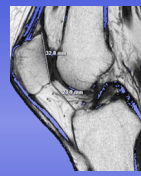


Soft Tissue

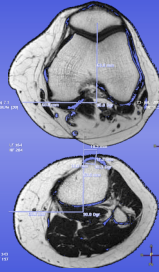


Cartilage

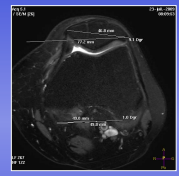
## MRI and Measurement



Patella height



TT-TG



Patellar Tilt

## X- Rays Protocol

### Standard X-Rays

↓  
Normal  
↓  
Stop

↓  
Trochlear dysplasia  
Patella Alta  
↓  
CT Scan  
Patella Protocol  
MRI possible if measurement