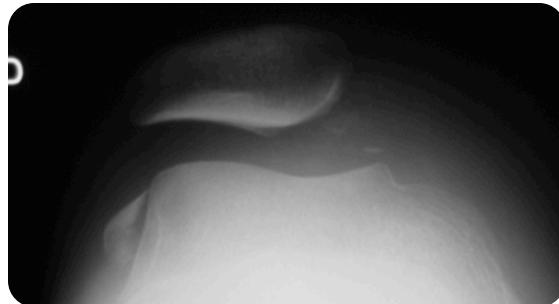


Surgical Management of Patellofemoral Instability



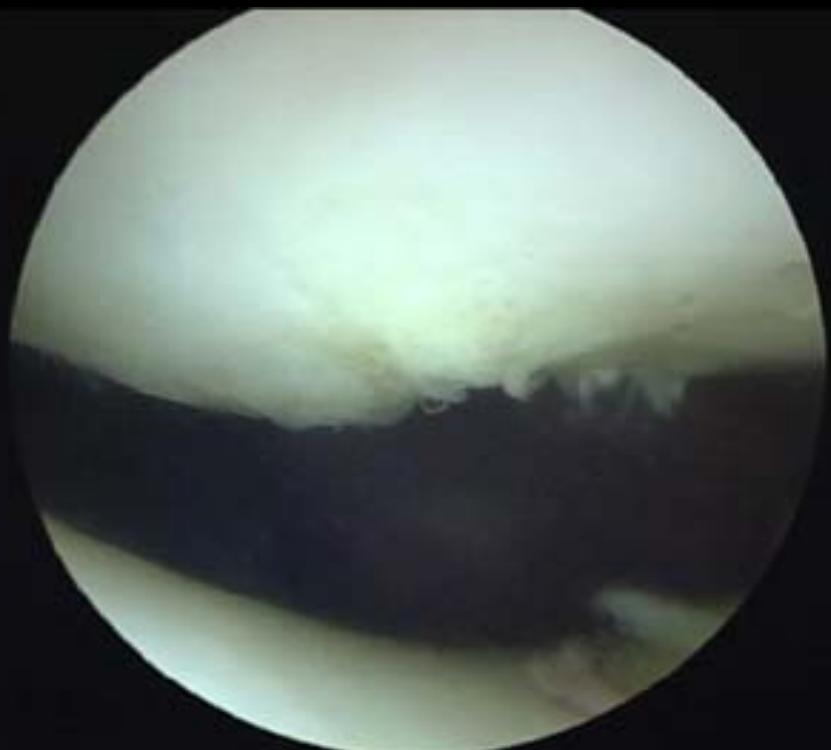
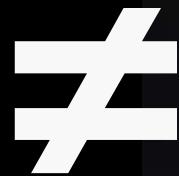
www.lyon-ortho-clinic.com



David DEJOUR
LYON **ORTHO** CLINIC
FRANCE



To treat need a Precise
Diagnosis



Instability ???

Mechanical

*True dislocation
“documented”*

Family history

*High energy activities,
Hemarthrosis ...*



OBJECTIVE
Instability

Symptome

*Feeling of instability
Giving away
Low energy activities +++*

Quadriceps Inhibition



SUBJECTIVE
Instability

Clinical exam



Apprehension sign



Abnormal tracking

Clinical patellar tilt - Patellar mobility, joint line tenderness...

None specific

Patient classification

At least one dislocation

+

Objective X-rays
abnormalities

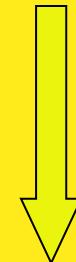
- Trochlear dysplasia
- Patella Alta
- TT-TG
- MPFL rupture = tilt

Objective Patellar Instability

Pain and NO dislocation



Normal standard
X-Rays



Potential
Patellar
Instability

Patellar Painful
Syndrome

Anatomical disorders & Clinical significance



David DEJOUR
COROLYON - FRANCE



Stability = Balancing

Bony structures

Soft tissues balancing

Trochlear shape

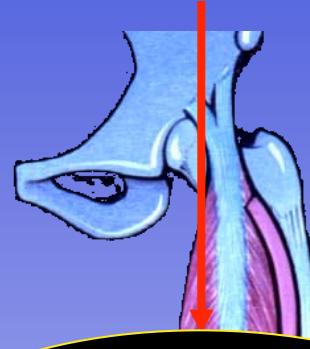
Patellar shape

Extensor mechanism alignment

Vastus medialis

MPFL

Lateral retinaculum



Femoral & Tibial Torsion

Genu Valgum

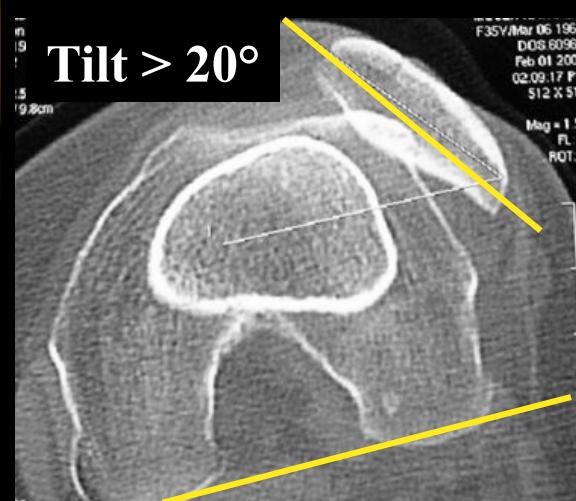
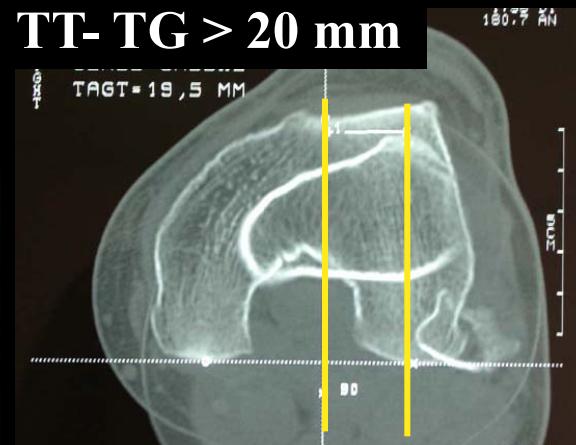
Genu recurvatum

Anatomical study 1987

Control (n= 190) / Dislocation (n= 147)

Statistical differences 4 factors (H. Dejour – G. Walch)

Trochlear dysplasia



Patella Alta > 1.2

French J. Orthop. 1990
Knee Surg. Trauma 1994

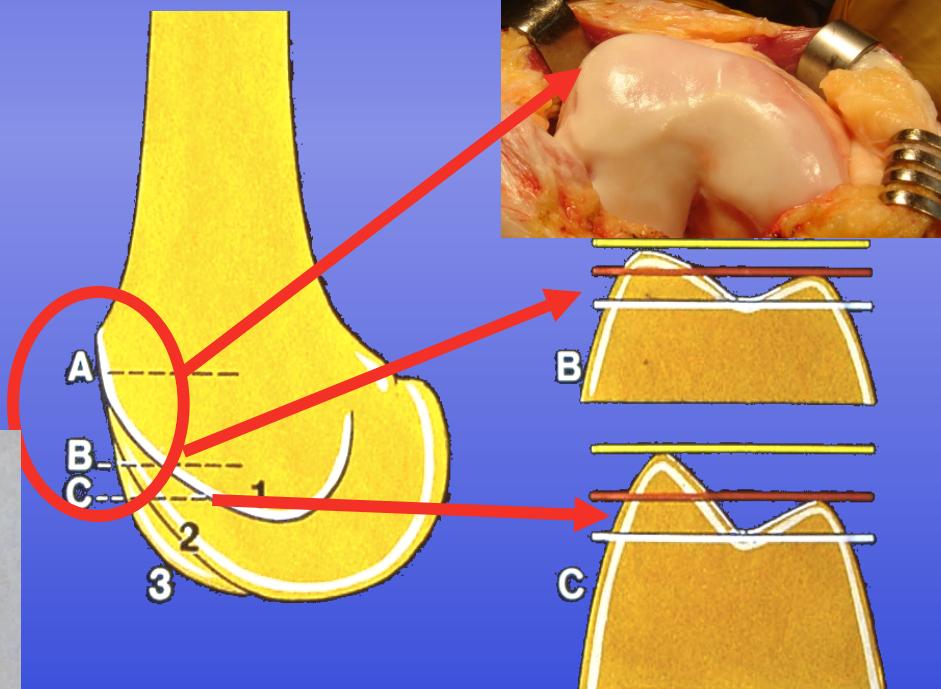
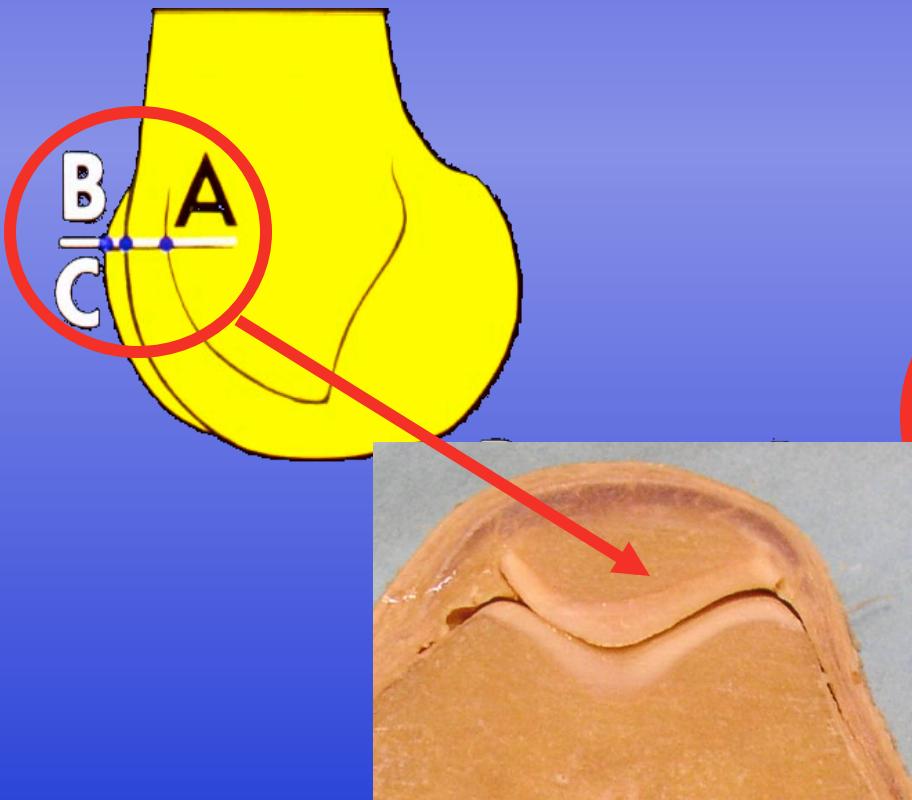
Trochlear dysplasia

96 % Dislocation
population

Control

3 % $P = 0,001$

Crossing Sign (H. Dejour)

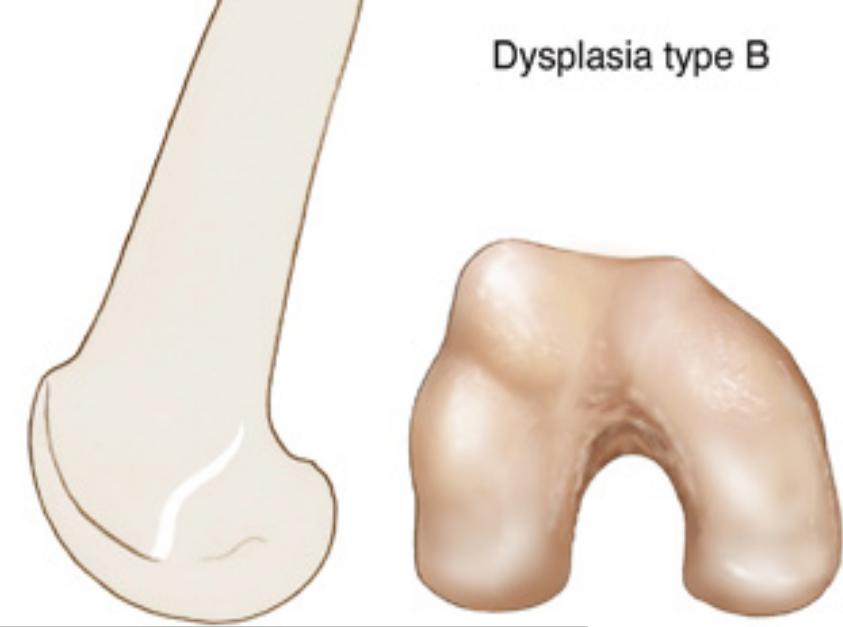


*D. Dejour and All
J Radiol 2001,
KSSTA 2006,
Sports Med Arthrosc 2007*

Dysplasia type A

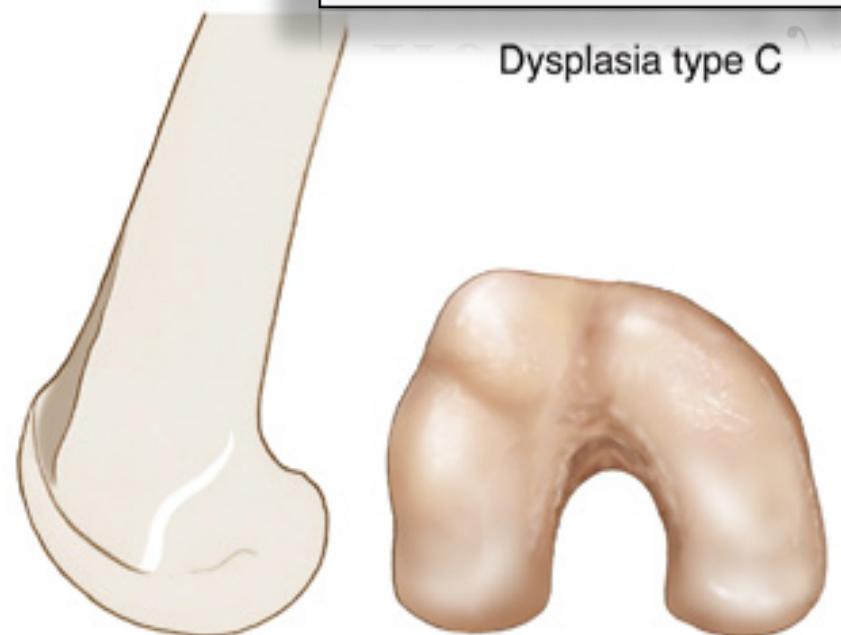


Dysplasia type B

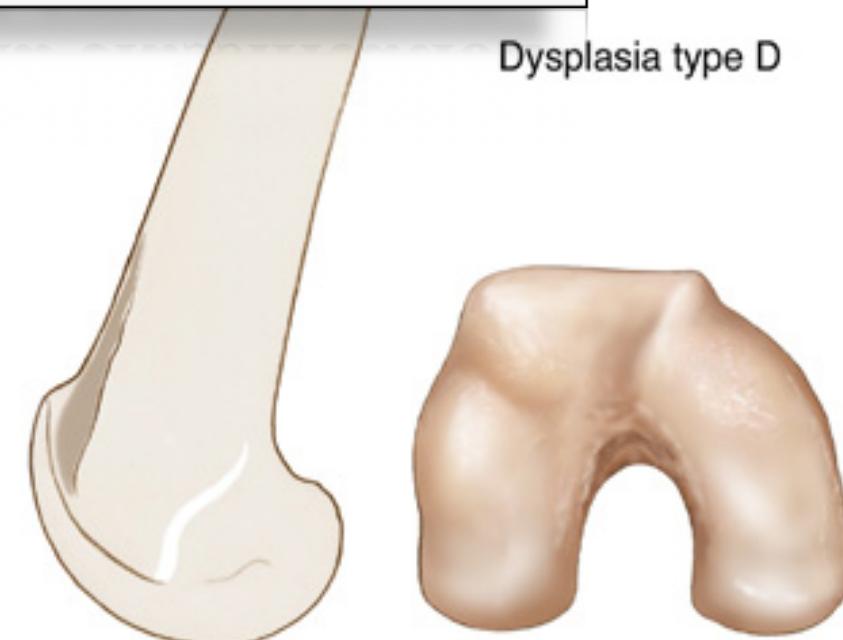


Trochlear dysplasia classification

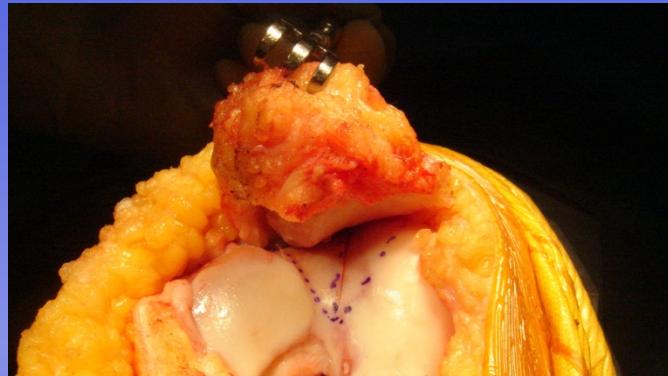
Dysplasia type C



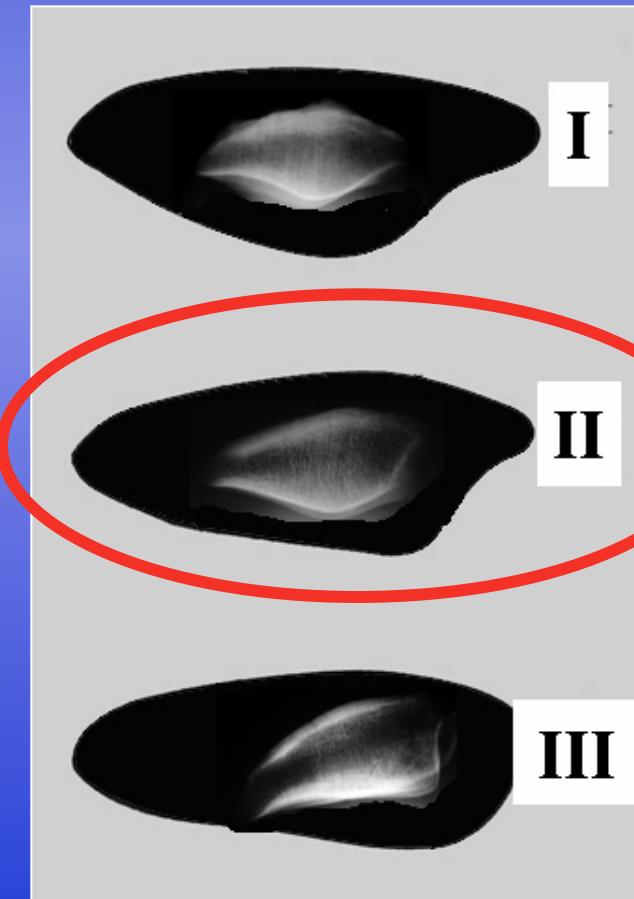
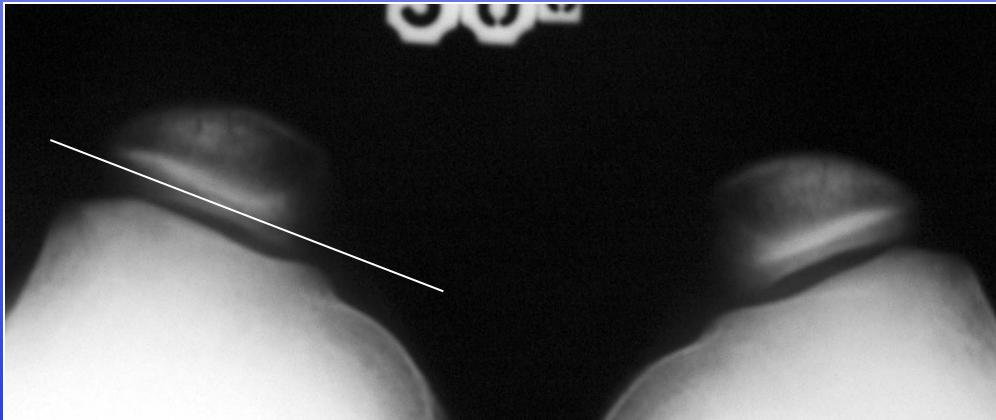
Dysplasia type D



Patellar Dysplasia ?



- Wiberg Classification



The Patella Alta

30 %

*Dislocation
population*

Caton - Deschamps Index
 $> 1,2$

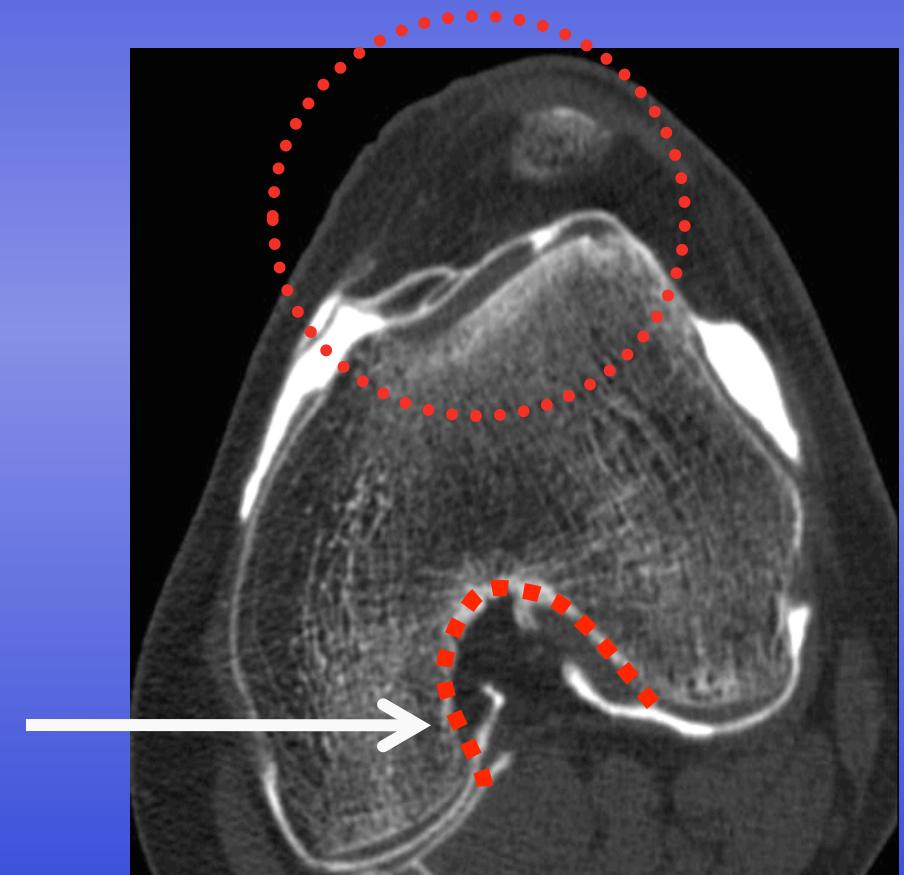
Control = 0 % P = 0,001



Patella height

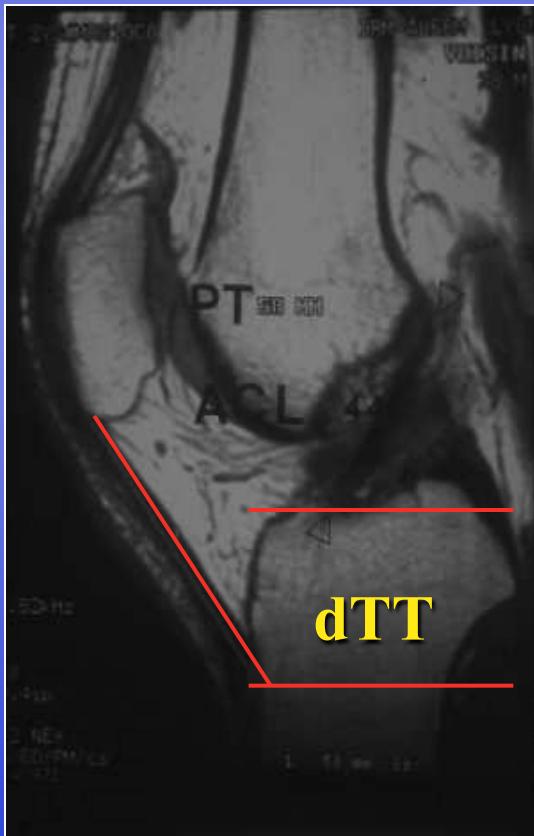
- CT Scan or MRI :

No patella in
front
of the trochlea
Reference cut



Patella height

Patellar tendon length analysis



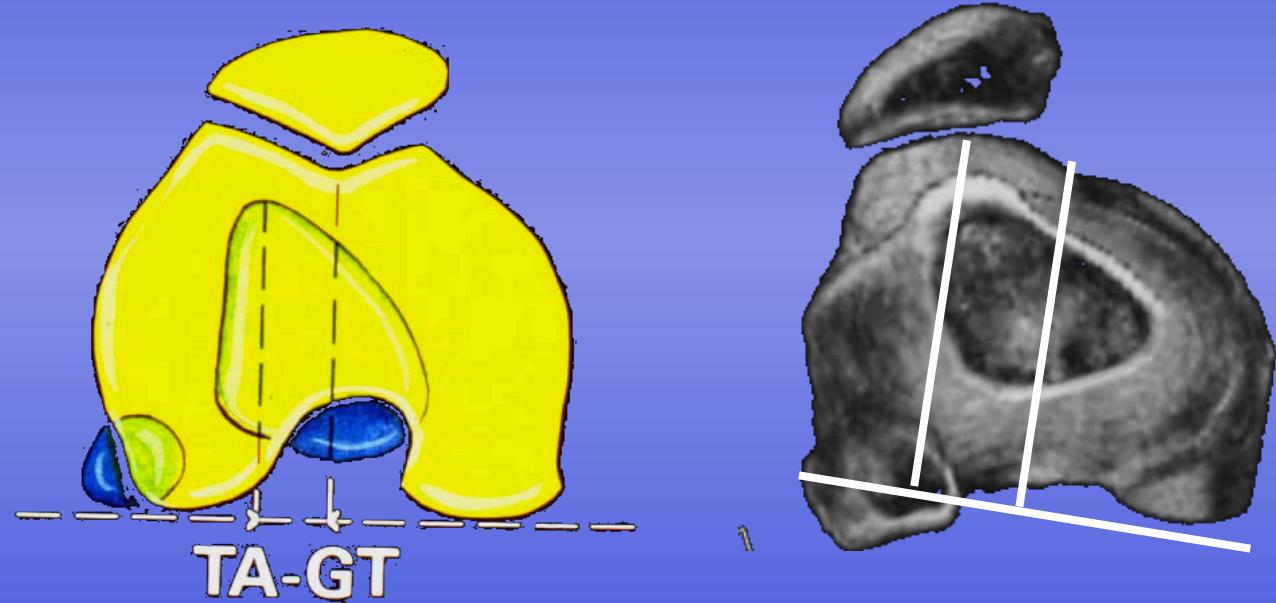
MRI

*Neyret and Coll
Rev. Chir. Orthop. 2003*

Tibial Tubercle - Trochlear Groove

Malignment evaluation

*56 % > 20 mm
Dislocation
population*

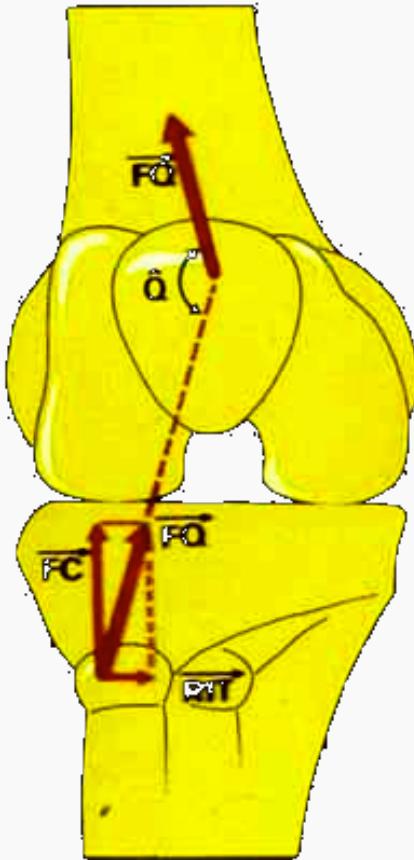


Control 12 mm P = 0,003

CT Scan in extension

Goutallier 1978

Question Angle ??



~~Angle Q~~

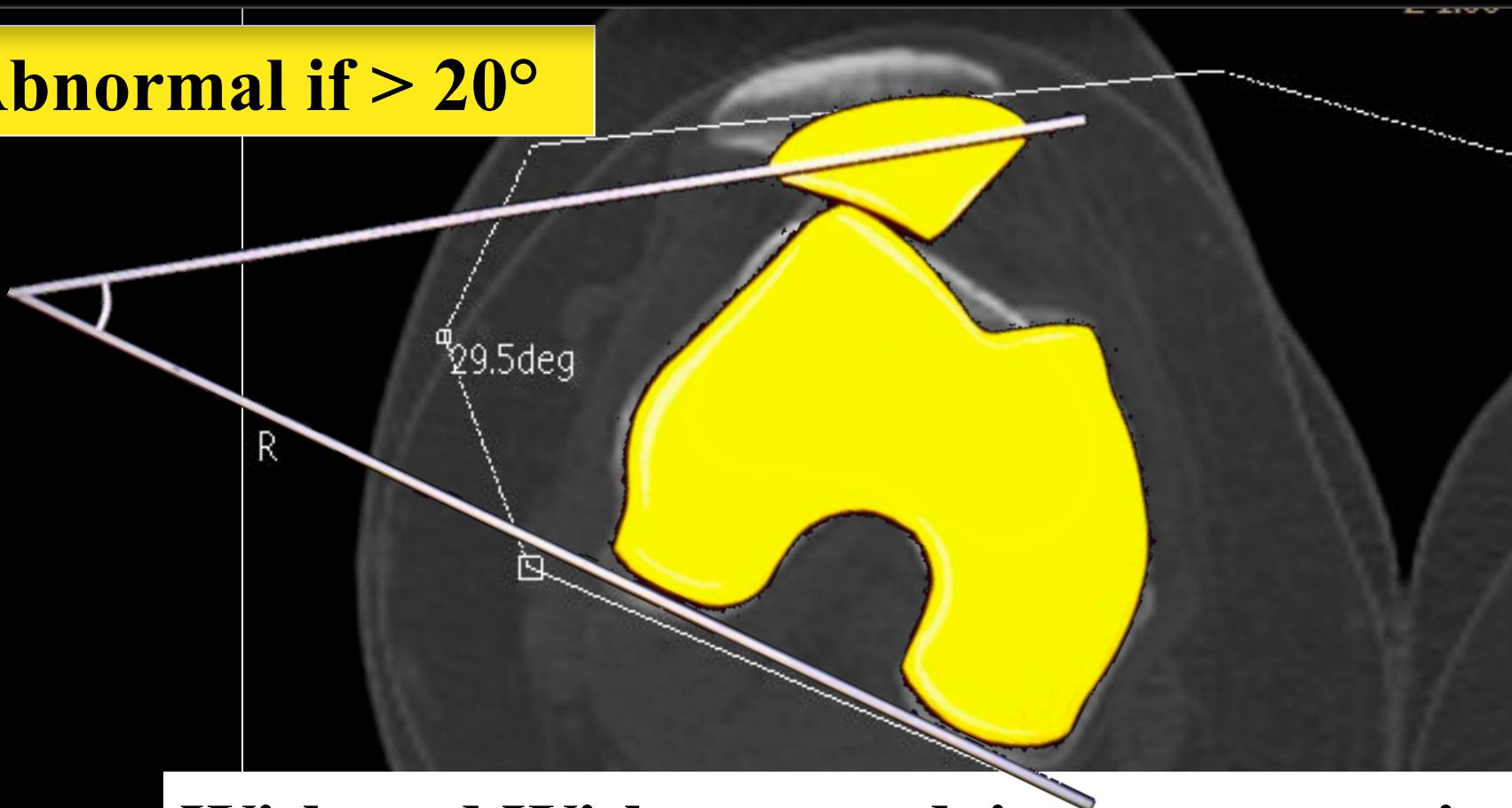


1. Difficult to quantify
2. Not reliable
3. False positive

Patellar tilt

CT Scan or MRI

Abnormal if $> 20^\circ$

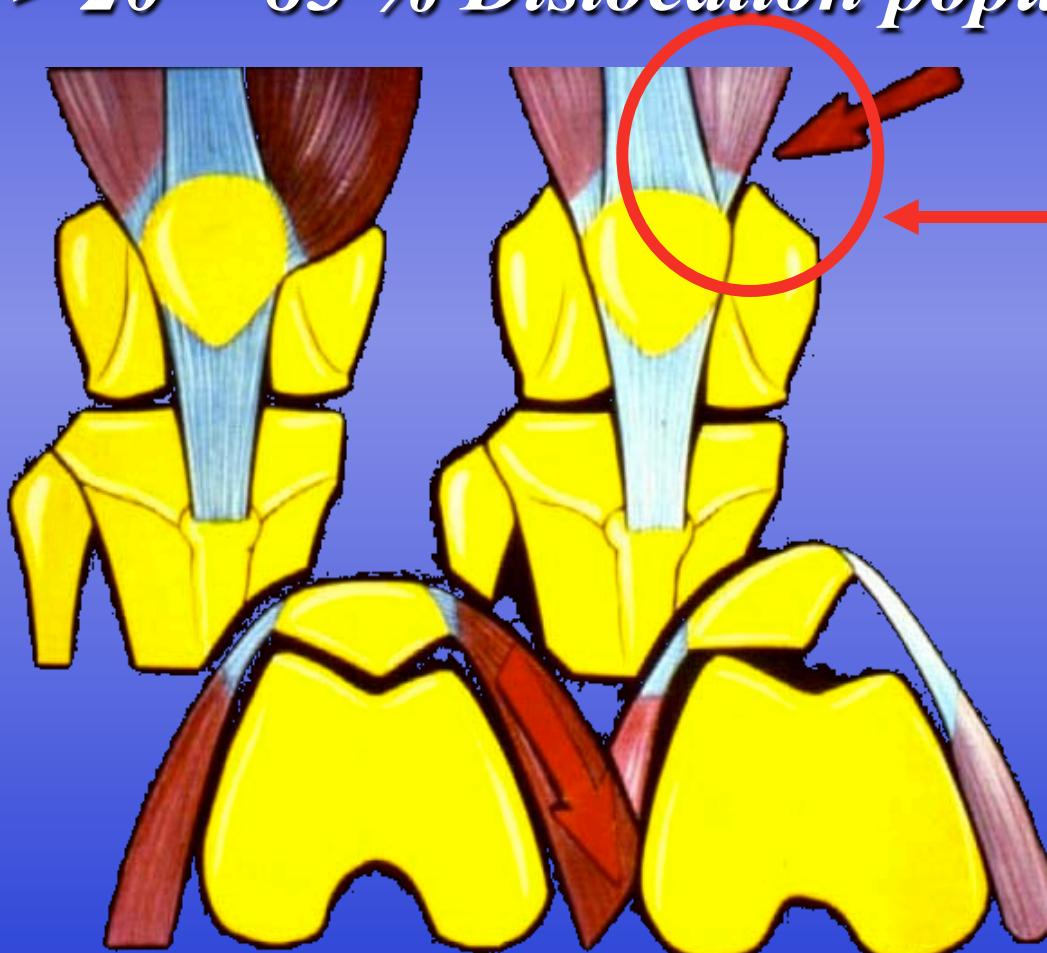


With and Without quadriceps contraction

Patellar tilt

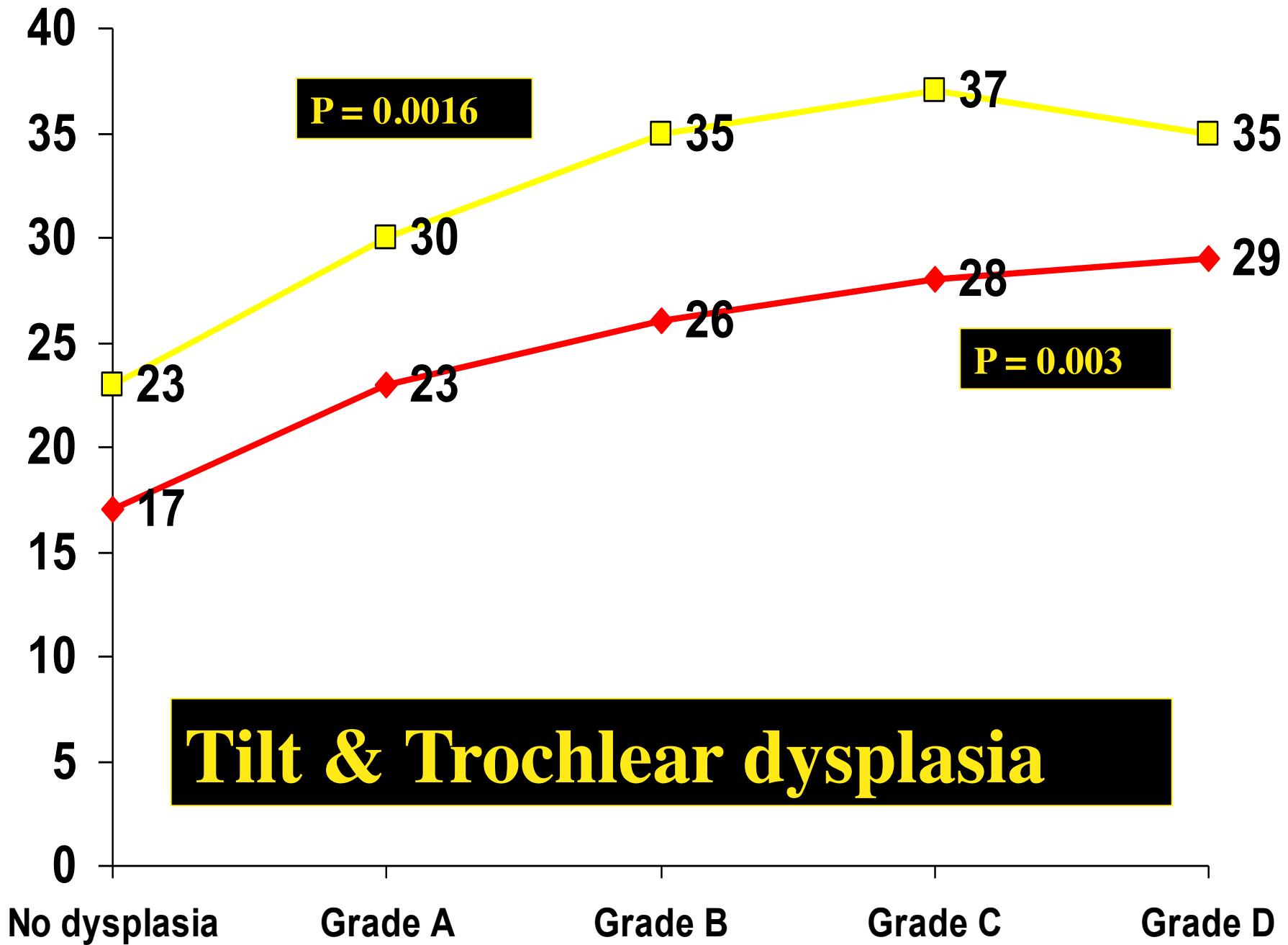
$> 20^\circ$ 83 % *Dislocation population*

Control 3 % p = 0,001

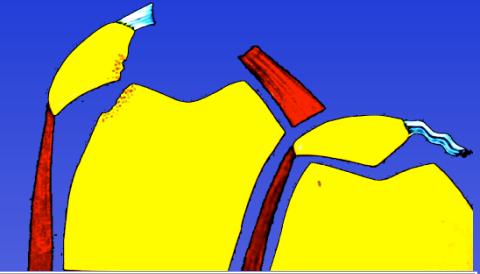
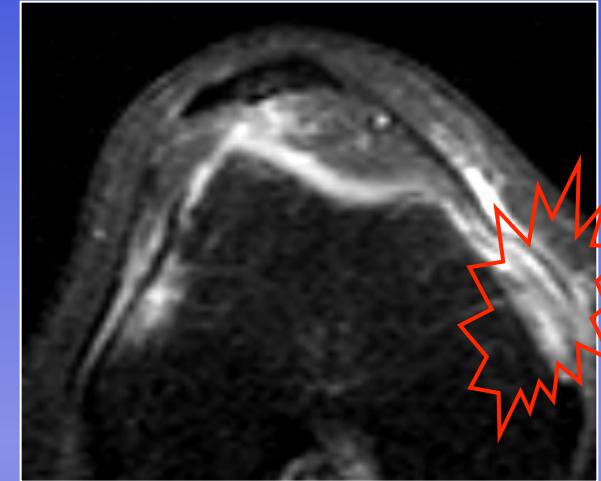
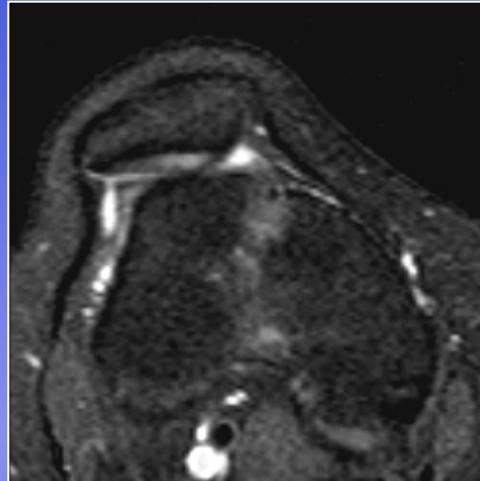


**Vastus Medialis
Dysplasia**

Yes
But ...



MPFL rupture or distension



Is a constant data in Patellar dislocation

It allows recurrent dislocation...

BUT ... It is **ONLY** a dislocation consequence
It is **NOT** a initial instability factor

D. Fithian, A. Amis, E Arendt, P. Erasmus, J. Fulkerson ...



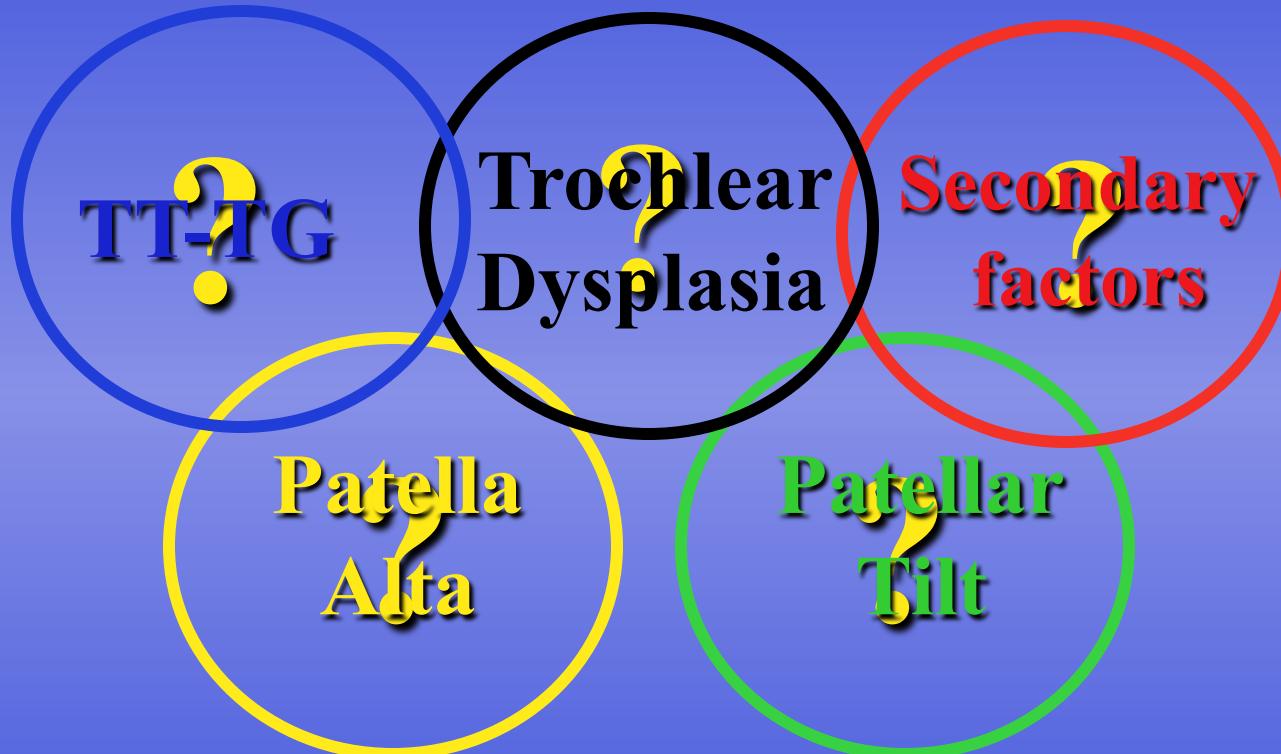
Secondary Factors

Significant but no statistical threshold

- Genu Valgum
- Torsion abnormalities
 - . Femur
 - . Tibia
- Genu recurvatum



How to Win The Olympic Patellar Games



Know Instability factors

Surgical Algorythm

“le menu à la carte”

de LYON

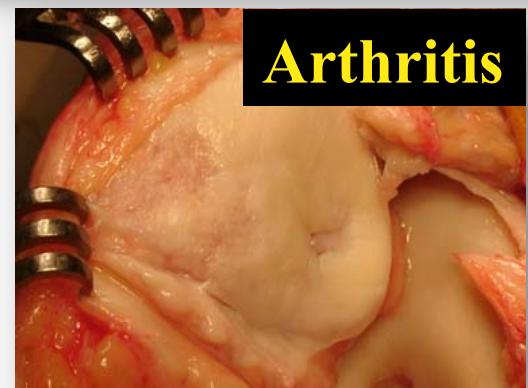
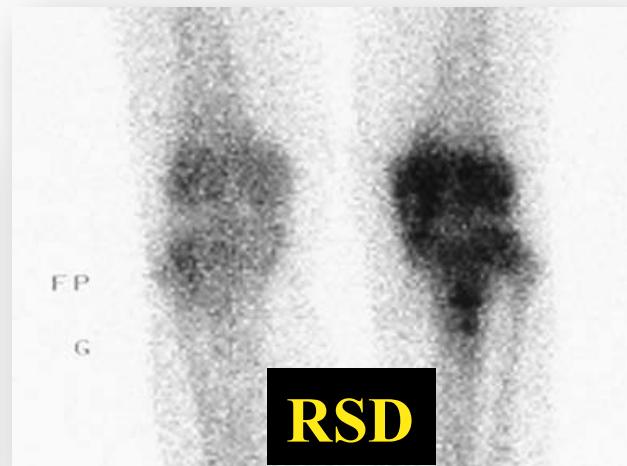
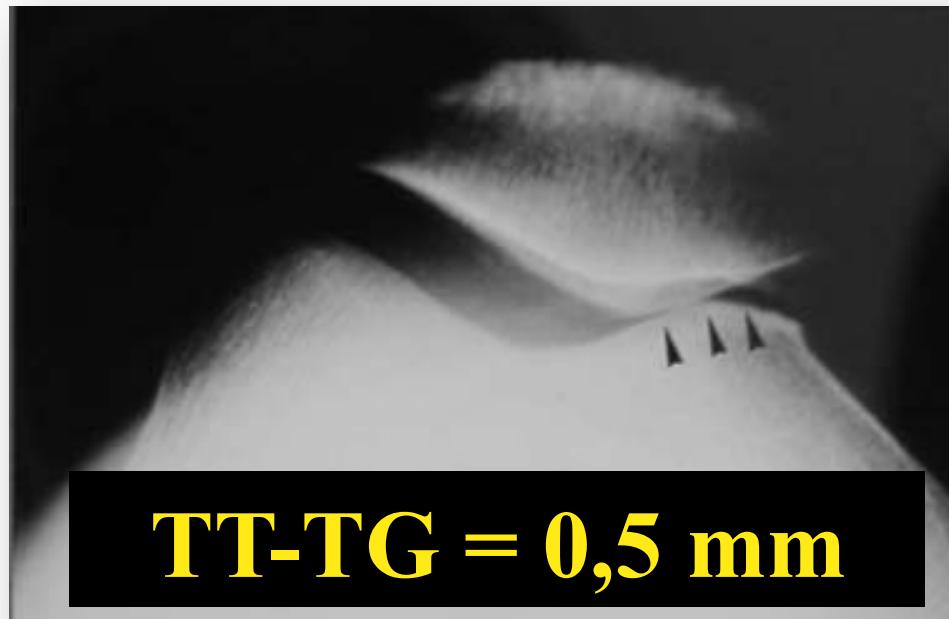
H. Dejour

1987

2012

Only for TRUE
dislocation !!!!!

Never forget that a BAD surgical indication could lead to ...



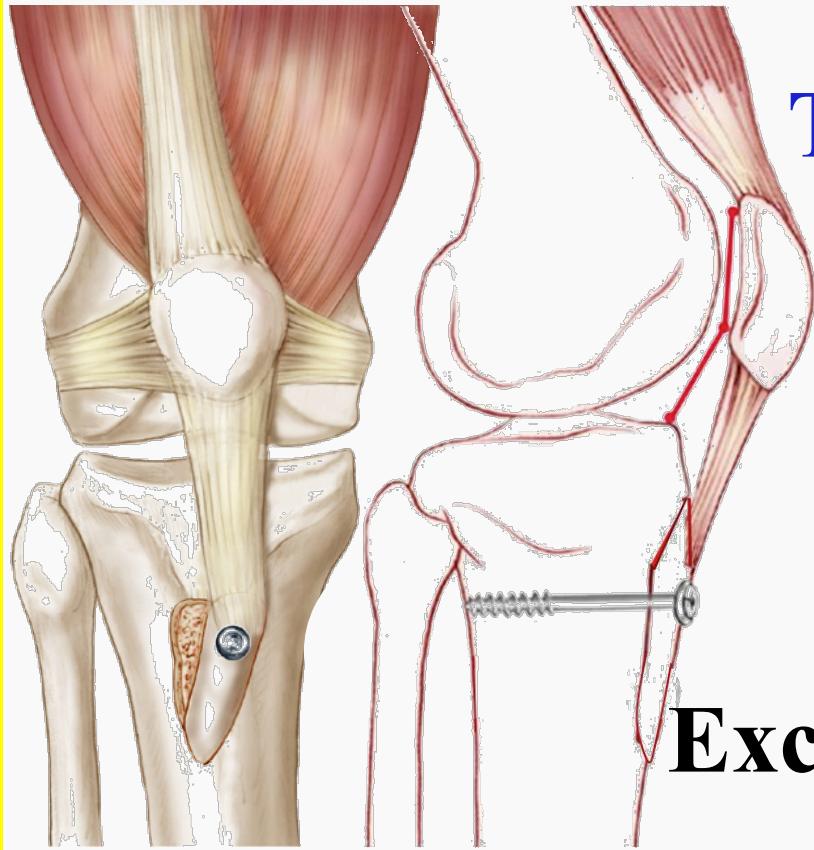
1987 Algorythm for PF Instability



Henri
DEJOUR

	Side	Correction
Trochlear dysplasia	Type I, II, III	????
Patellar height	Index AT / AP	Distalisation Index = 1
TT-TG	> 20 mm	Medialisation $10 < TA - GT < 15$
Patellar Tilt	> 20°	VMO Plasty

Tibial Tuberclle Medialisatioin Is Indicated IF...

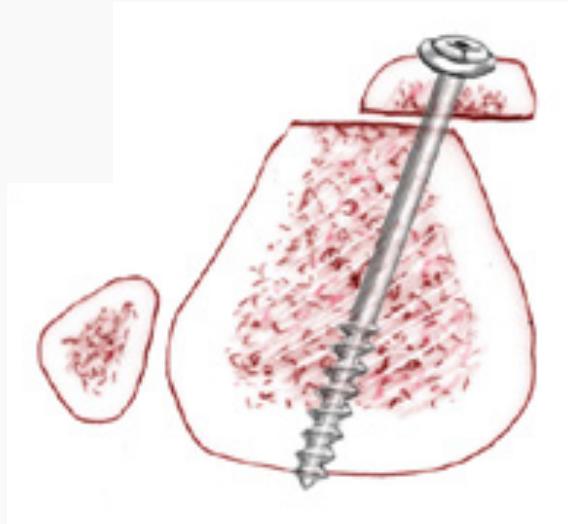


True Patellar Instability



Excessive TT-TG > 20 mm

Medialisation



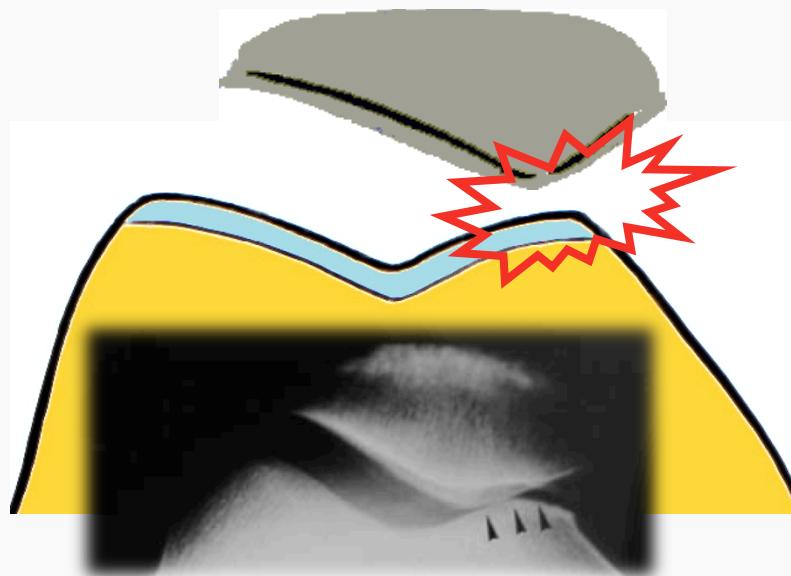
- **Medialisation**
- **No advancement**
 - 1. Kneeling pain
 - 2. Skin healing
 - 3. Unaesthetic aspect



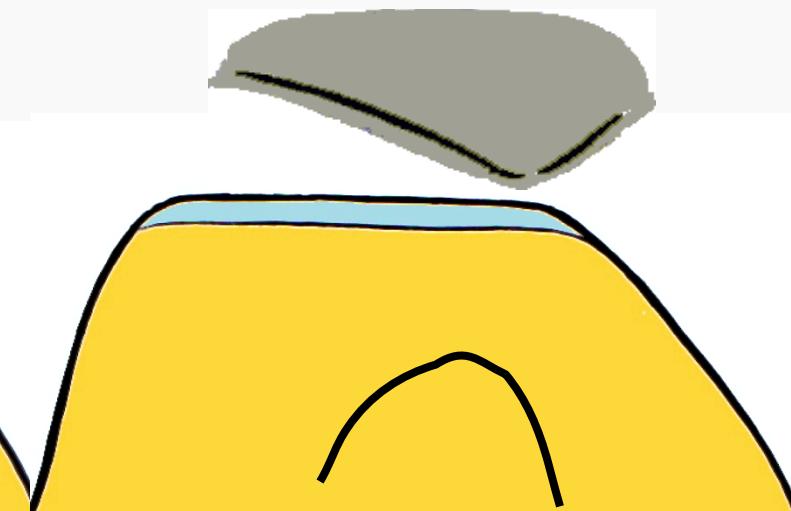
Correlation Medialisation & Trochlear shape

Flatter trochlea is, higher could be the transfer

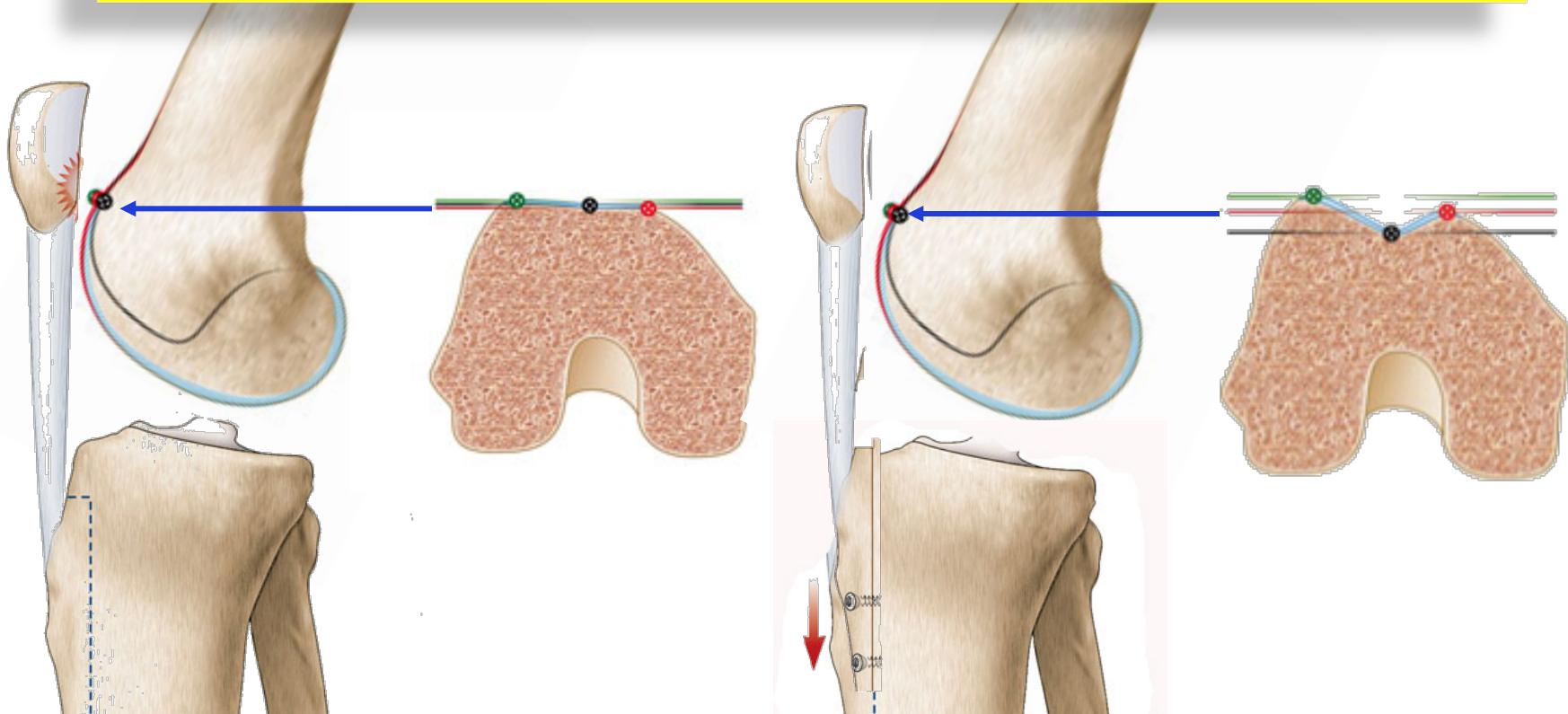
Hypercorrection



Hypercorrection



Tibial Tubercls/> Distalisation Is Indicated IF...



**Distalisation relocates the patella
where the groove is deeper**

Distalisation if index > 1,2



But also if

Index border line

No patella on the CT scan

No trochlear groove



Mild distal. = 5 mm

Patellar Tilt ??

1987

Patellar tilt

=

VMO dysplasia

=

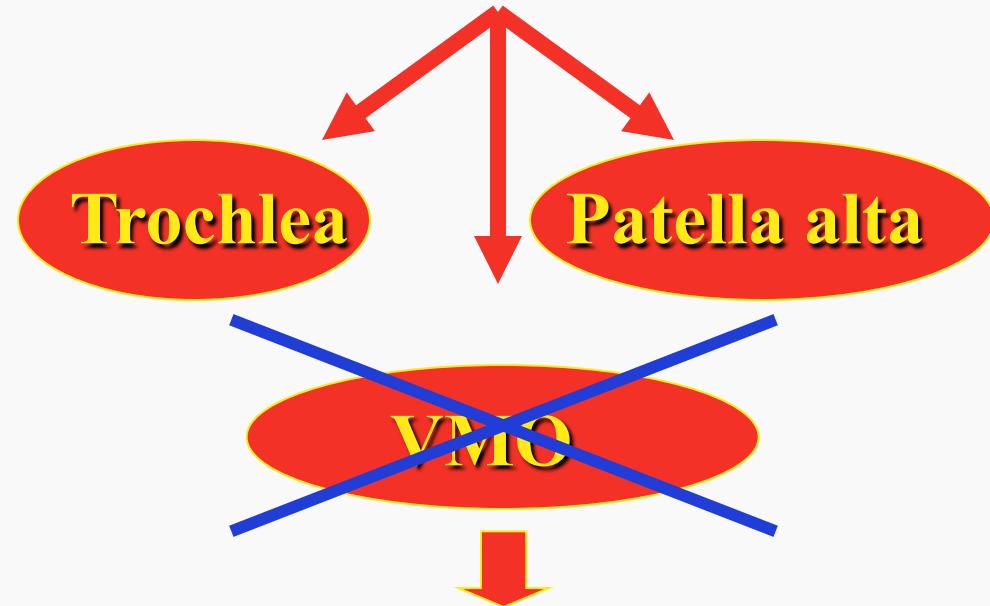
VMO plasty



Correction 5° !!!!!!

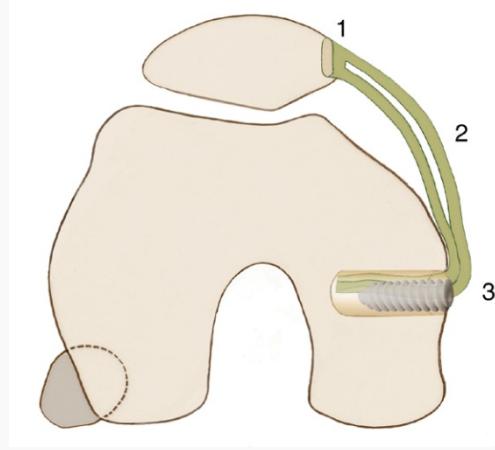
2012

Patellar tilt



MPFL PLASTY +++

If Patellar Tilt $> 20^\circ$
and /or
No Lateral End Point...



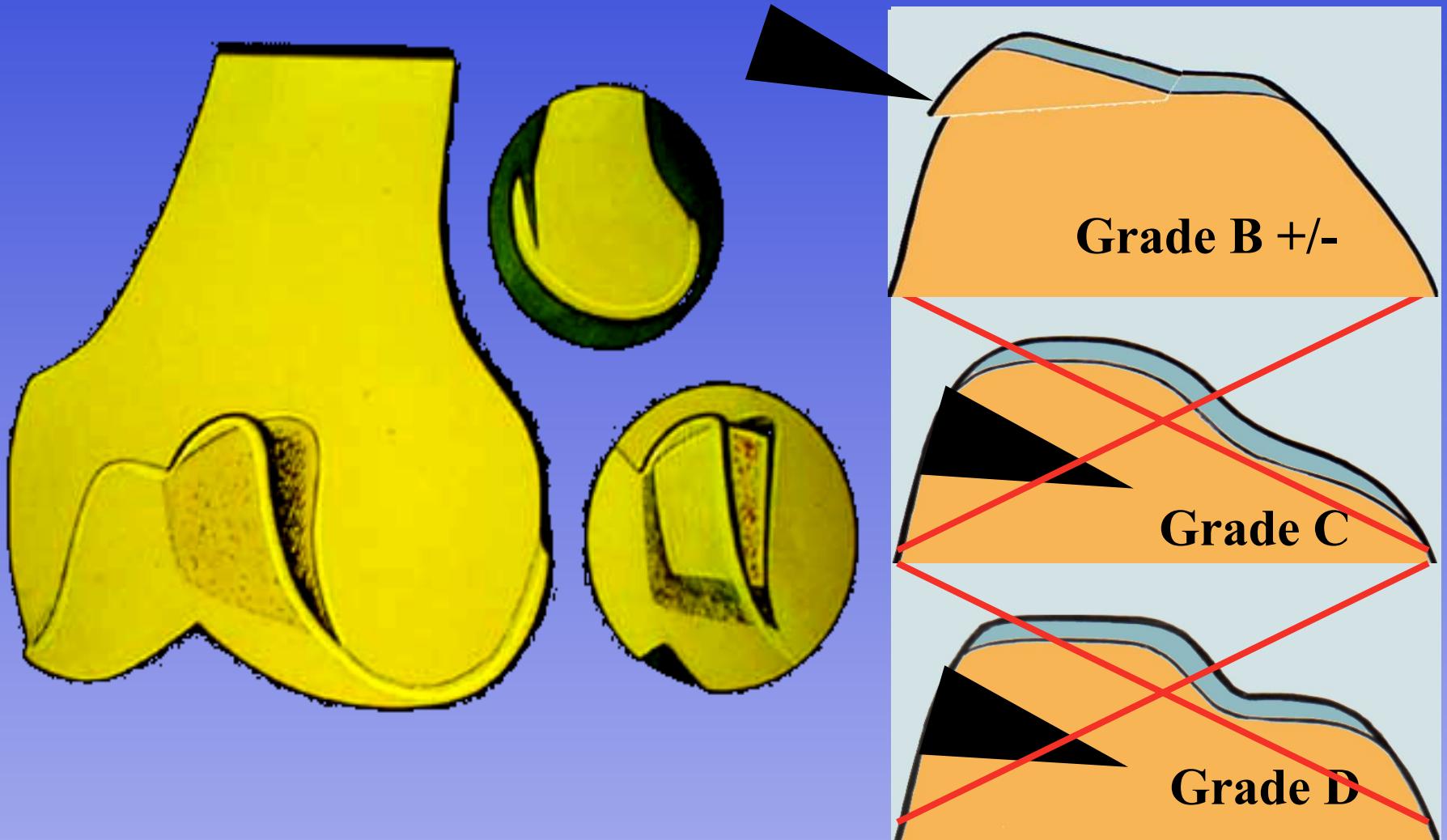
MPFL reconstruction

**What about
Trochlear Dysplasia**

???????

ALBEE Procedure

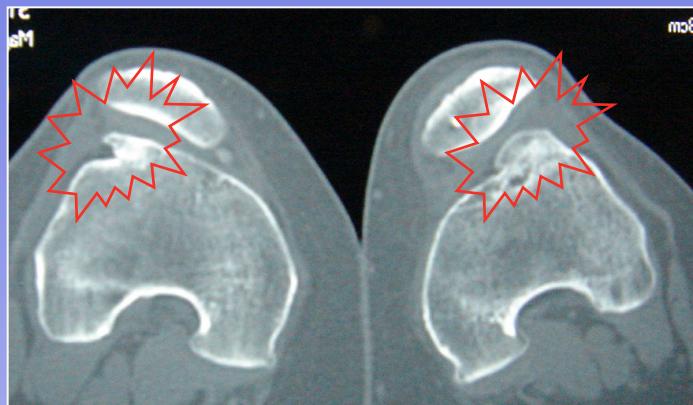
Elevating trochleoplasty



ALBEE Procedure

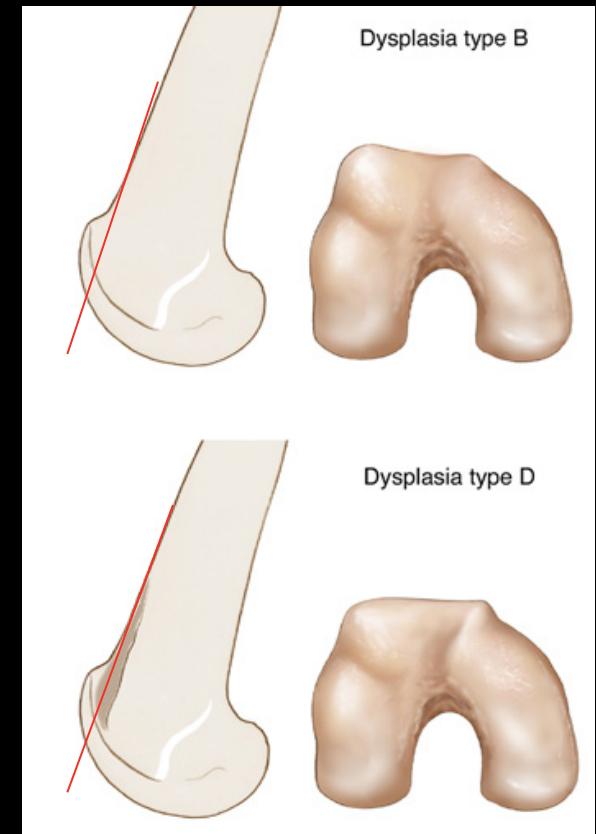
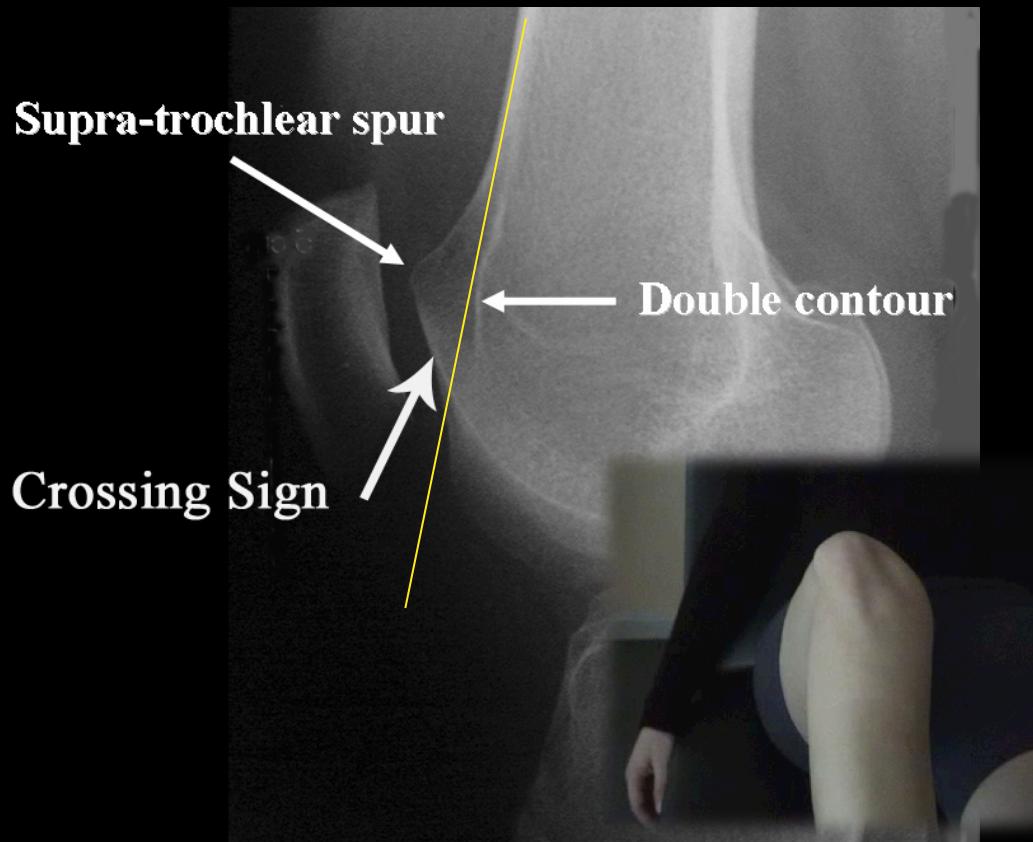
- Very efficient : Stability
- Increase lateral pressure
- Increase trochlear proeminence

Pain ?? Future arthritis ?? Medial Tilt !!!



High Grade Abnormalities

Trochlear Dysplasia Type B and D



Trochlea Bump +++ impingement with Patella

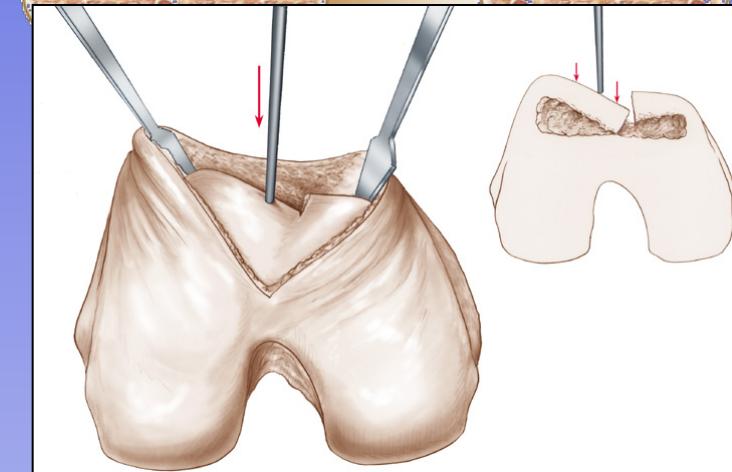
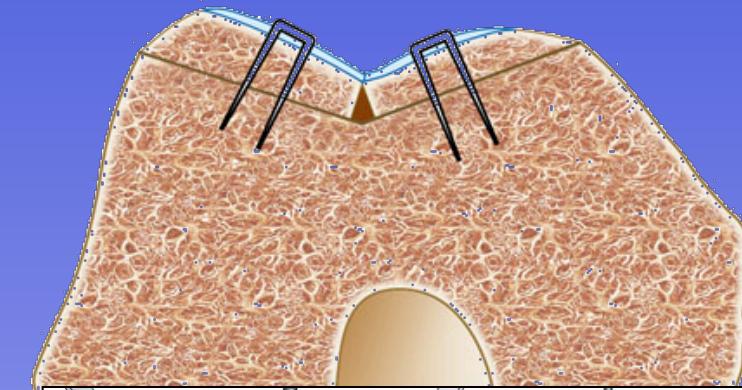
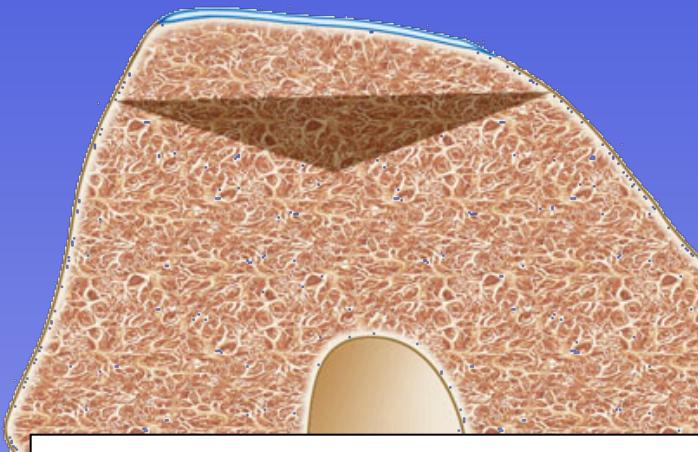


Deepening TROCHLEOPLASTY

Henri Dejour 1987 (Masse 1978)

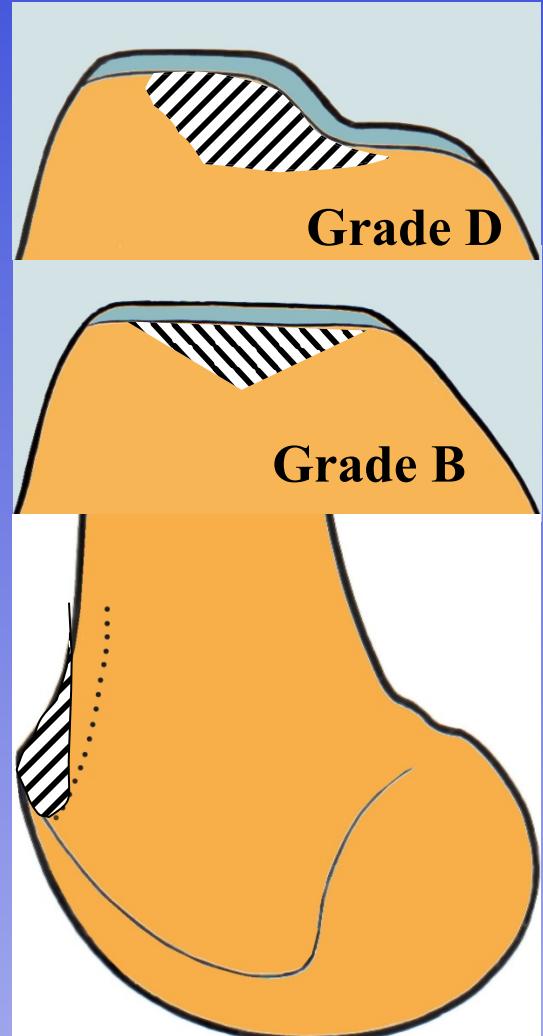
Create a new groove – Remove the prominence +++

D. Dejour and All Sports Med Arthrosc 2007

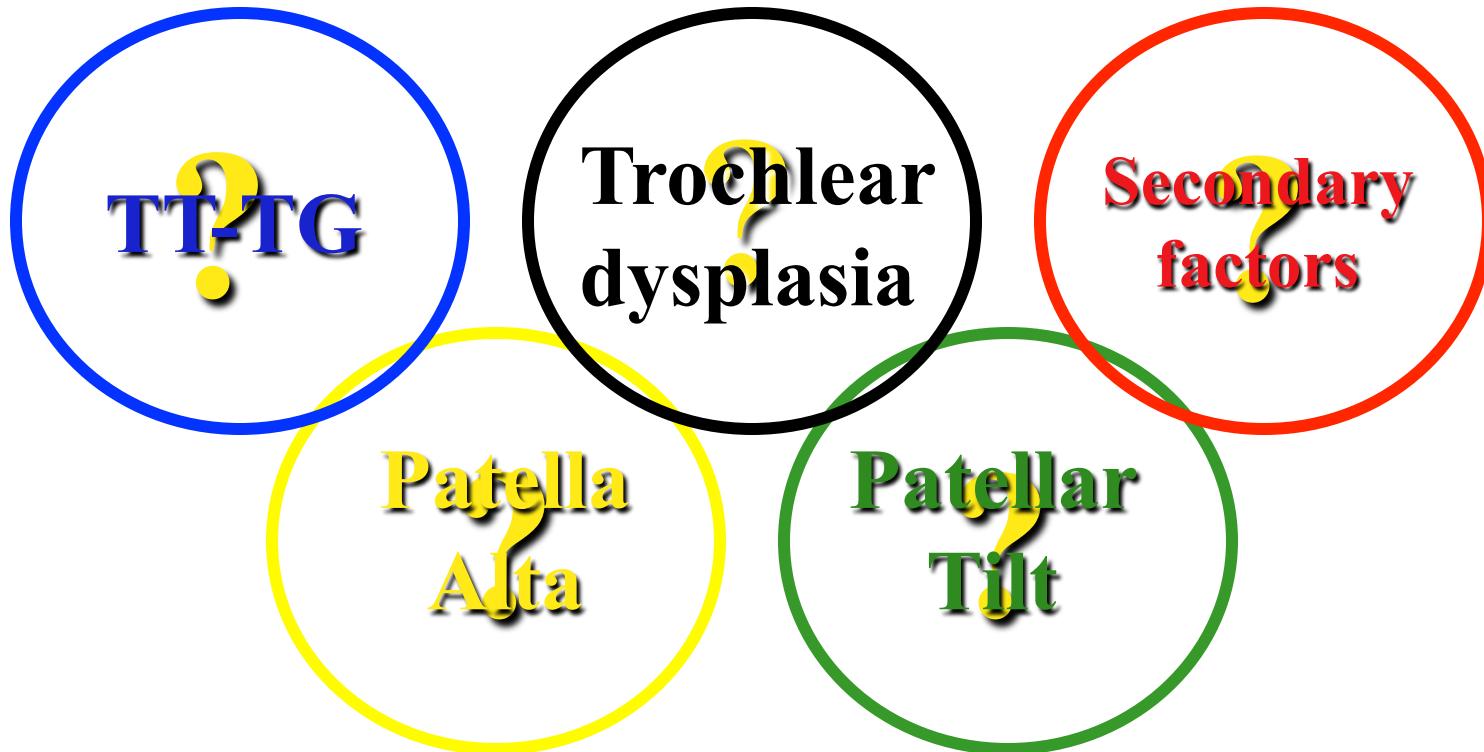


Indication for Deepening TROCHLEOPLASTY

- Rare & high demanding
- Very efficient on the stability
- Aetiological
- Indicate for Type B et D



How to WIN the Patella Olympic Games



Identify instability factors
Correct them one by one...

10 mm < X < 15 mm

**Grade B & D
Trochleoplasty**

No indication

TT-GT

**Trochlear
Dysplasia**

**Secondary
Factors**

**Patella
Alta**

**Patellar
Tilt**

Index = 1

Algorythm 2012

- . VMO plasty
- . MPFL
- . trochleoplasty

AFTER...



The brand new
“menu à la carte”

September
LYON 2012

**15^e JOURNEES LYONNAISES
DE CHIRURGIE DU GENOU**

Scientific Committee : ALRM

**La
Patella**

LYON 2012
20-22 september
Convention Centre

www.lyon-genou.com

Organization : MCO Congrès
27, rue du Four à Chaux - F-13007 Marseille
Contact partenaires : Fabrice GUEZ - fabrice.guez@mcocongres.com
Registration: Viviane Barbarisi - viviane@mcocongres.com
Phone +33 (0)4 95 95 38 00 - Fax +33 (0)4 95 95 38 01

