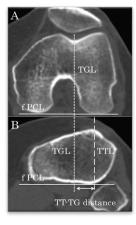
# Indication For Tibial tubercle transfer













Johannes Barth and David Dejour Grenoble-Lyon, France



#### **DISCLOSURE**

- 1. Royalties from Move Up
- Consulting income from Arthrex, Move-Up and SBM
  - 3. No Research and education support



4. Past-president of SFA





#### **Background**



#### LA PATHOLOGIE FEMORO-PATELLAIRE



**LYON 1987** 



organisées par

H. DEJOUR G.WALCH





#### 1987 "menu à la carte" for patella dislocation

Instability

Trochlear dysplasia

Patellar height

Caton 年 Deschamps

TT-TG

CT-scan

Patellar Till (CT)

Knee side

Type I, II,

Index AT / AP

> 20 mm

> 20°

Proposed

Distalization
Index = 1

Medialization
10mm<TT-TG<15mm
VMO Plasty

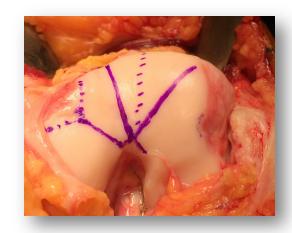
### **Anatomical study 1987-2012**

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

Statistical differences 3 factors (H. Dejour – G. Walch)

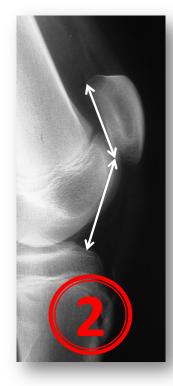




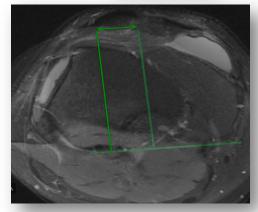


**Trochlear dysplasia** 

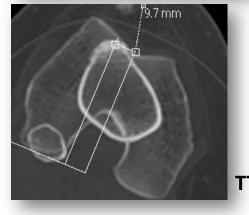
French J. Orthop. 1990 Knee Surg. Trauma 1994



Patella Alta > 1.2



TT- TG > 13 mm MRI





TT- TG > 20 mm CT

## **2982** Instability factors **₹** 3

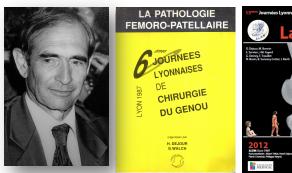
**Trochlear dysplasia: YES** 

Patella Alta: YES

TT - TG: YES

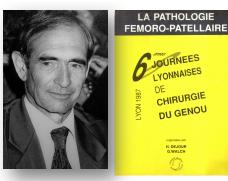
Patellar Tilt:

Resulting factor of all the others

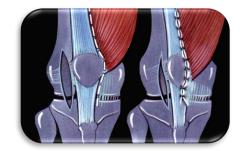




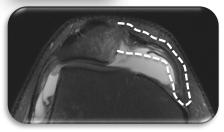
# Treatment Algorithm Chronic PF Instability







VMO Plasty + LR for the Patellar Tilt





MPFL isolated or combined All cases

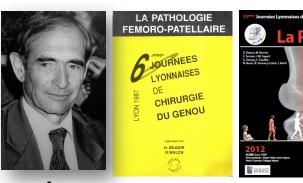






#### **Indication for TT Transfer**

Only for Objective Patellar Dislocation





#### Medialization

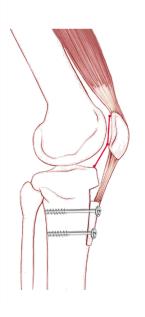
If excessive TT-TG > 20 mm

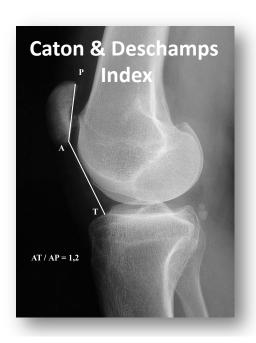






If Patella Alta > 1.2



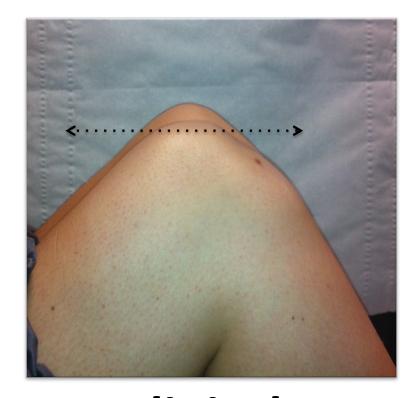


## **How to define Patella Alta?**

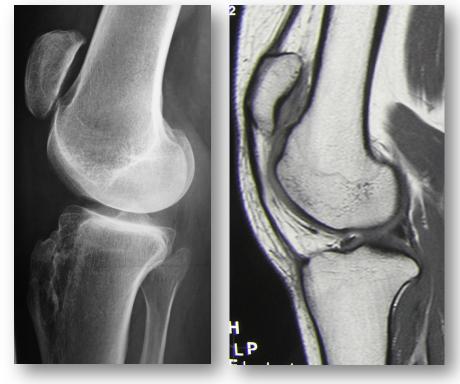




### Different Information



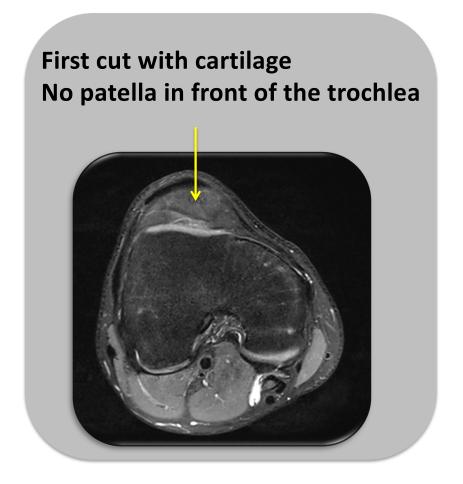
Clinical



X-Rays

MRI

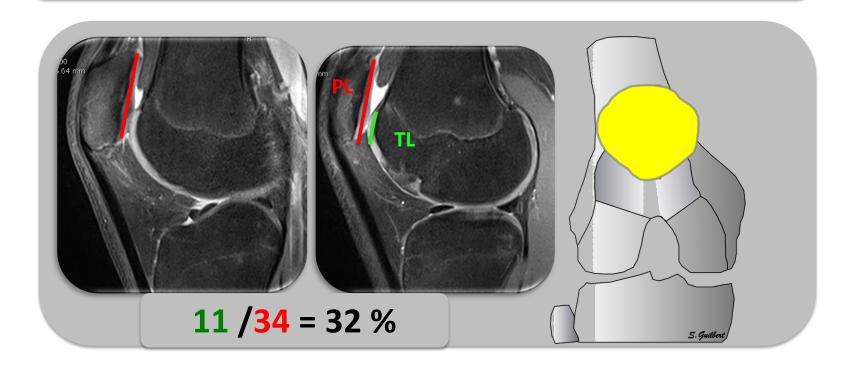
## Imaging Sagittal Patellar Engagement : MRI Undirect sign of a patella Alta





#### **Imaging Sagittal Patellar Engagement: MRI**

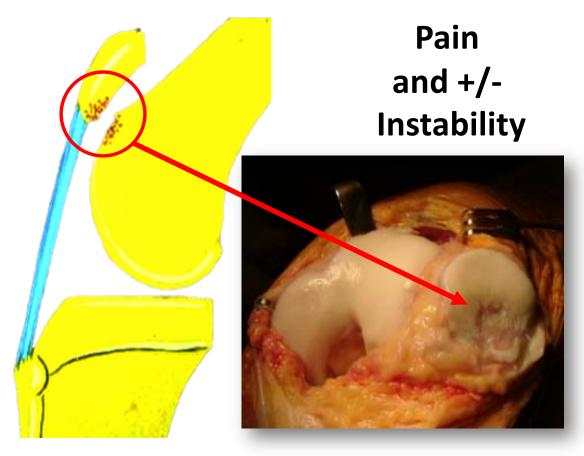
**Quantification: Patellar Engagement**Trochlear Length / Patellar Length

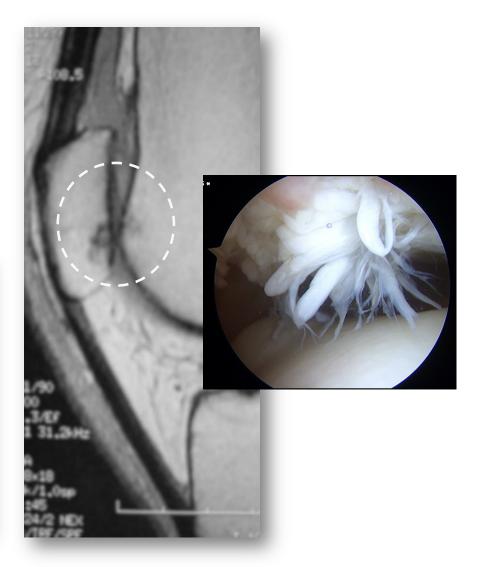


## Patella Alta gives specific

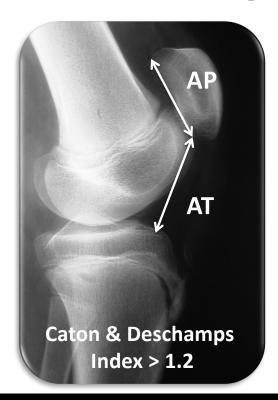
**Cartilage damage** 





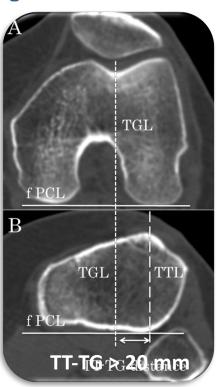


## **Planification**



#### Distalization

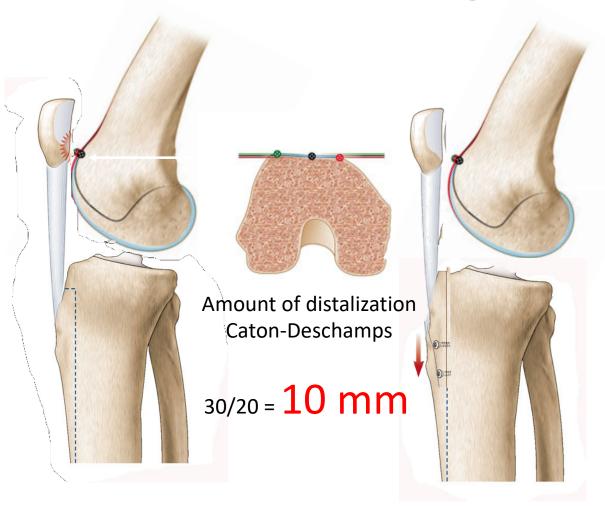
 $\rightarrow$  index C&D = 1

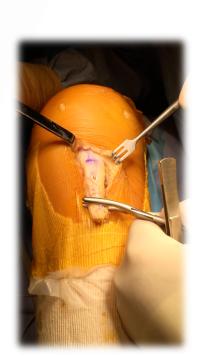


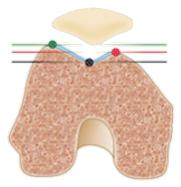
#### Medialization

→ 10 mm < TT-TG <15 mm

## Distalization will relocate the patella where the groove is deeper









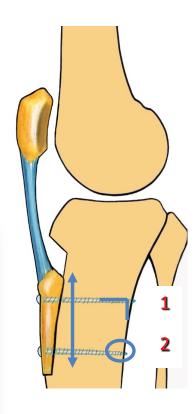
#### Be aware of technical procedure!!

- Mal-union
- Fracture
- insufficient correction



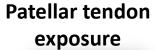






Insufficient correction is the first recurrence factor for dislocation

## Tibial Tubercle Distalization Technical Tricks







Pre drilling 4.5







Quantify the correction





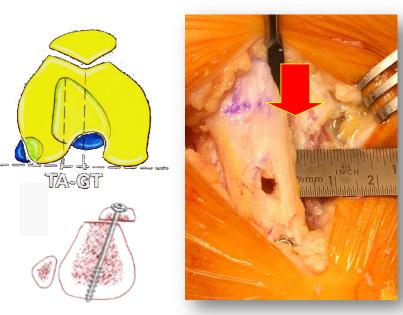






## Distalization leads to automatic medialization = 4 mm







Decreased TT-TG Medialized the patella

#### Distalization can be avoided in Patella Alta

X-ray Index > 1.2 + MRI Engagement

Positive engagement

Negative engagement





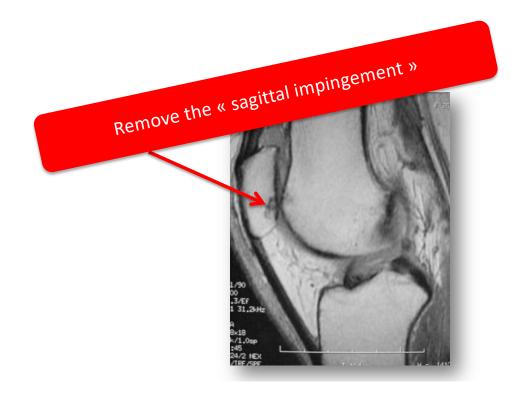




#### Distalization can be proposed without Patella Alta

1 < Index < 1.2 + Flat trochlea or type B Low sagittal engagement





## CONCLUSION

#### Bony procedures

Correct anatomical Malalignment

- Axial Alignment : excessive TT-TG
- Sagittal engagement : Patella alta

Soft tissue procedure (MPFL) Restore the "torn anatomy"

Shah JN1, Howard JS, Flanigan DC, Brophy RH, Carey JL, Lattermann C. Am J Sports Med. 2012

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