

*Val d'Isère 2022*



# Stiffness in TKA?

## Diagnosis

*David DEJOUR*



LYON **ORTHO** CLINIC



# The first Step is : Clinical history

- ✓ *How was the preop ROM?*
- ✓ *How was the X-ray & Initial Diagnosis*
- ✓ *How was the immediate post op?*
- ✓ *What is the delay since surgery ?*
- ✓ *Ask for the operating report (s)*



# Why do we get a stiff knee :

✓ *Biology ?*

✓ *Arthrofibrosis ???*

✓ *Infection +++*

✓ *Mechanic !!!*

✓ *Ligaments balancing*

✓ *Bone Cuts*

✓ *TKR Design*

## When does the knee started to be Stiff ?

### Early stage

- ✓ *RSD ?*
- ✓ *Mechanical*

### Late stage > 3months

- ✓ *Low grade infection*
- ✓ *Mechanical*
- ✓ *Patella infera*



# Early stage

## Clinical exam

Quadriceps activation

Patellar mobility

Quality of walking

Pain Night / Day / Effort ...

## X-Rays

Check implant positioning

Patellar height

**Bone Scan : NO NO NO**

Always positive

Always frightening

# Chronic stage

## Clinical exam

- Quadriceps activation
- Patellar mobility
- Quality of walking
- Pain Night / Day / Effort ...

## X-Rays

- Check implant positioning
- Patellar height

## CT-Scan

- Check implant positioning
- Check implant size

**Bone Scan : Yes**

**Punction & Biology**  
*If infection suspicion*

# **The key is looking for Technical errors in TKA**

**Over sizing**

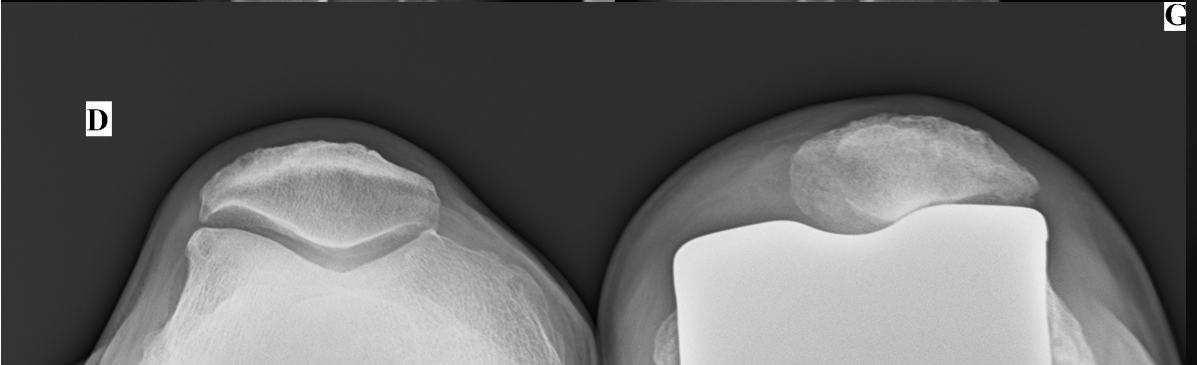
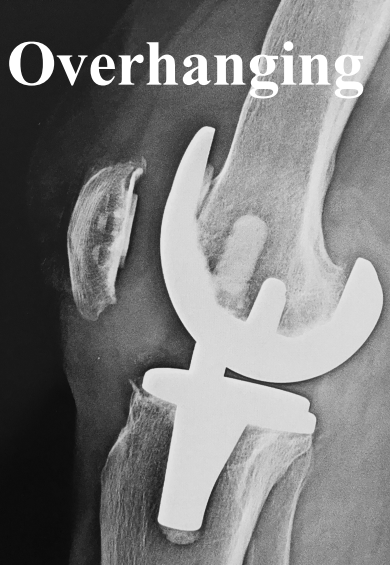
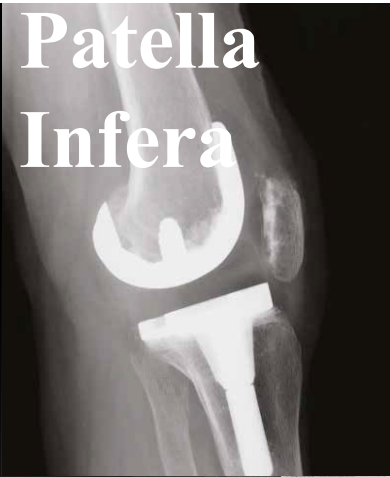
**Increasing posterior condyle offset**

**PCL sparing ?? Ligaments balancing**

**Inverted tibial slope – flexum in femoral component**

**Malrotation in the component (CT scan)**

**Patellar thickness, Trochlear Prominence**



**G**

# Diagnostic is given

**X-Rays + Long standing  
Stress X-Rays ...**

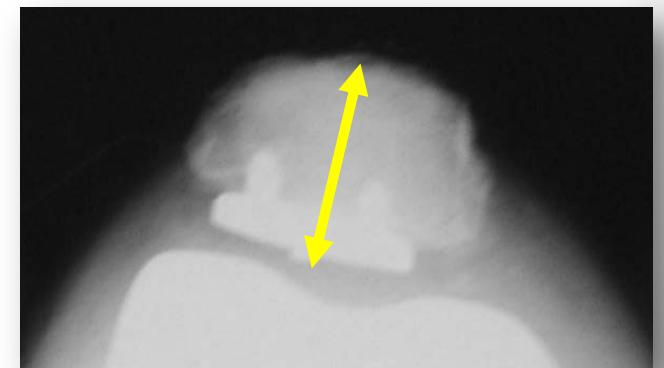
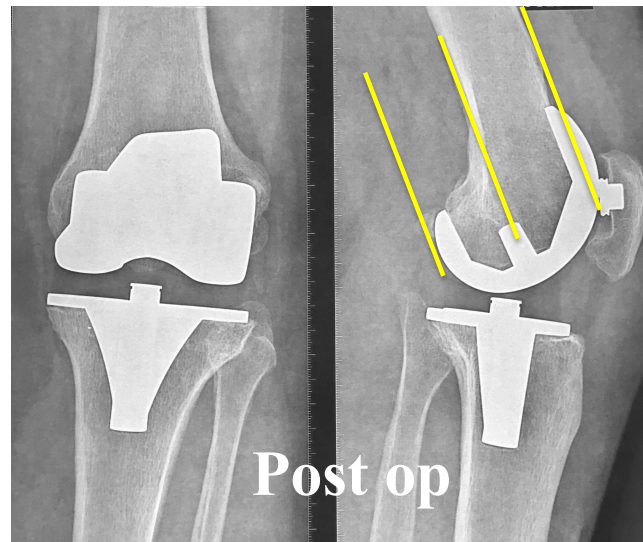
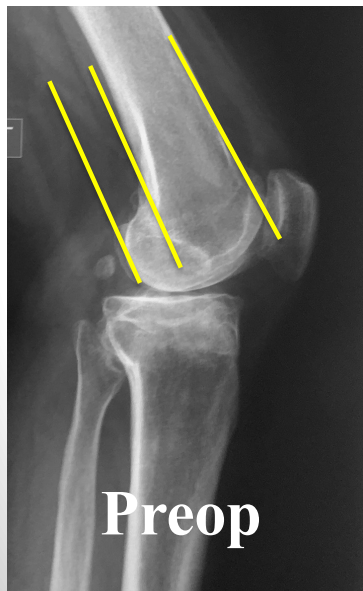
*Measurement*

*Size*

*Offset*

*Patellar height*

*Patellar thickness*

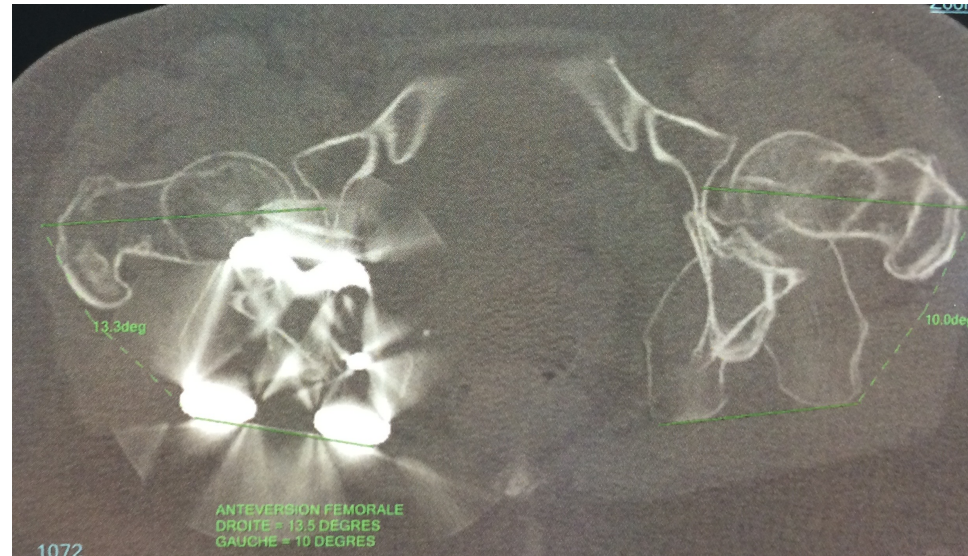
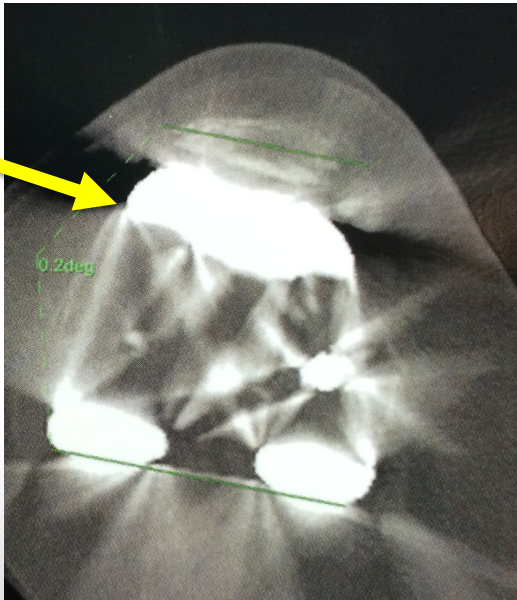




# Diagnostic is given

## CT Scan (hip to ankle) measurement

Size and flushness of the component  
Comparative rotations and angles  
Fixation



**A specific diagnosis...**

**Patella Infera ?**

*Pain and Stiffness*



In the history **RSD** ?:

## Patella Infera

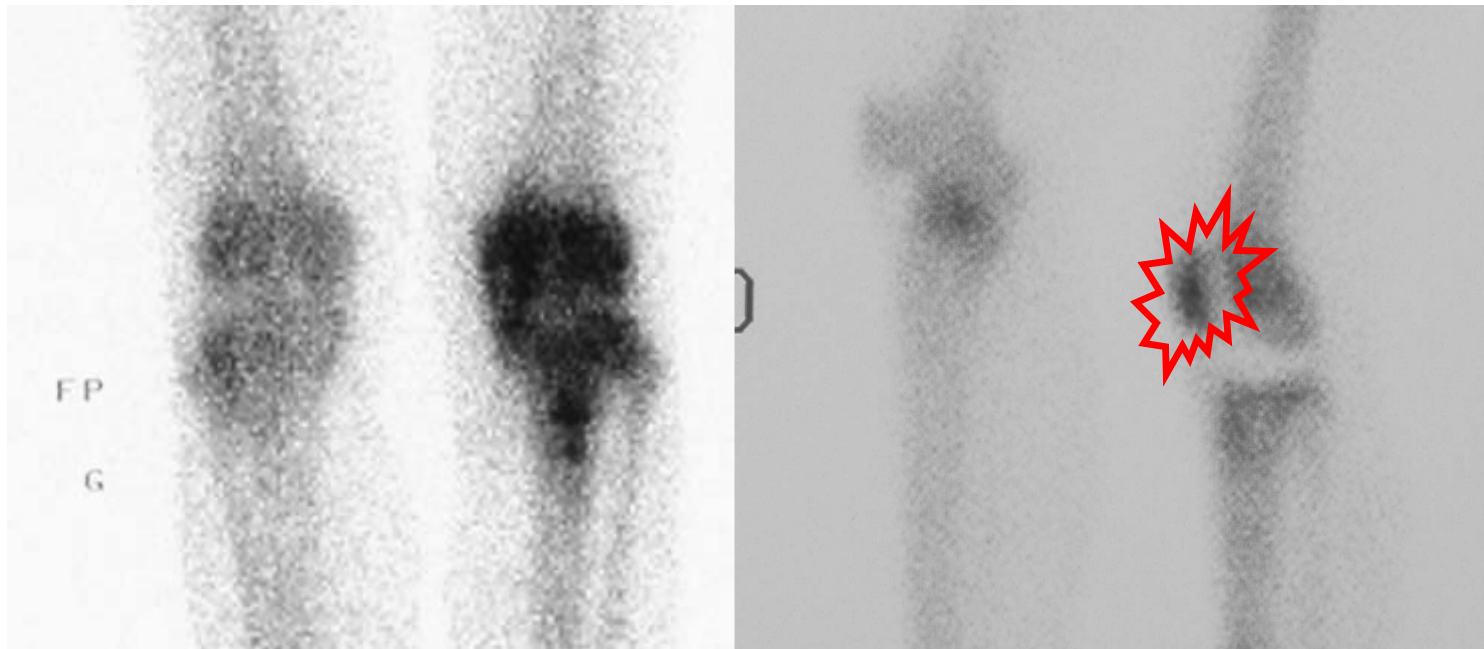
- **Stiff Knee**
- **Uncontrolled Pain**
- **Difficult Rehabilitation**
- **Night Pain**

*Immediate  
Painful post  
operative care*



**Quadriceps Inhibition +++**

# Bone Scan

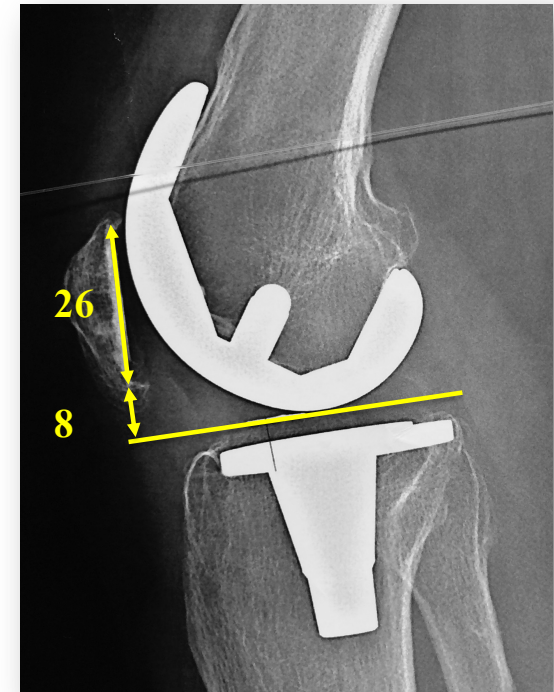
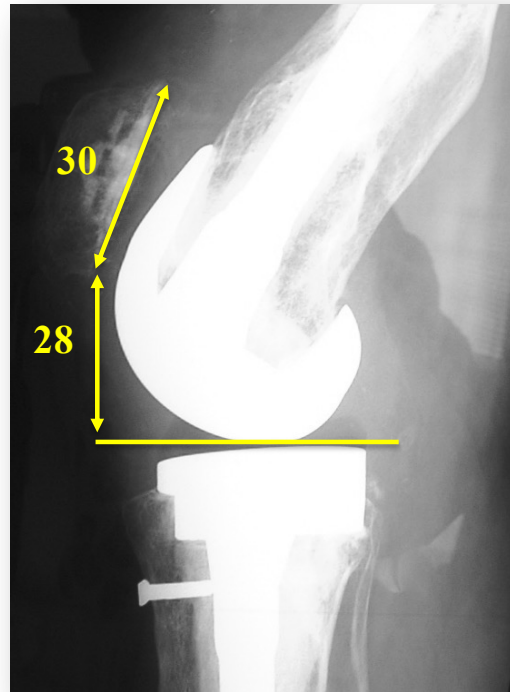
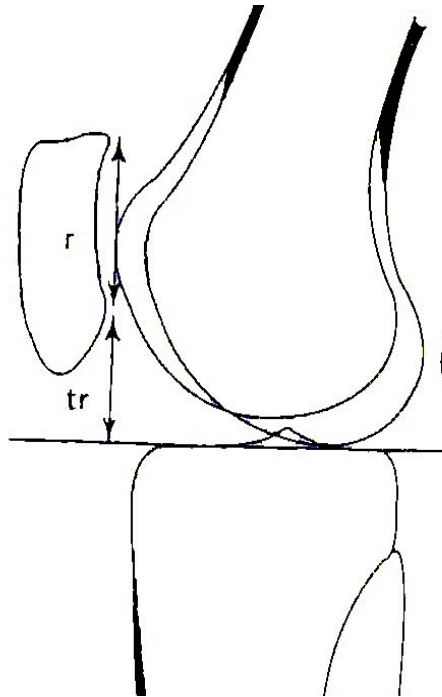


**Rates the “Phase” of RSD**

# Patellar Index...

# TKA Analysis

+++



**Blackburne & Peel (1977)**

**Infera < 0.5**

# Aetiologies?

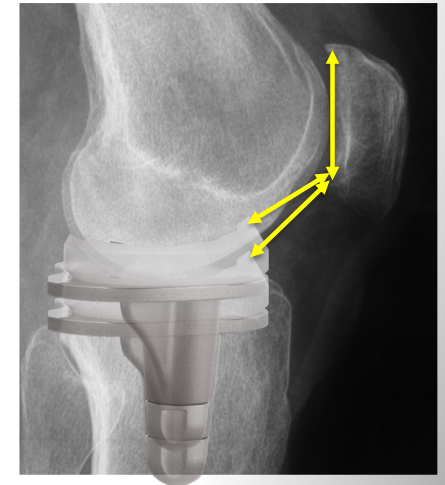
## Pre op patella infera

- Constitutional
- Pseudo patella infera
- Surgical antecedent



## Post op patella infera

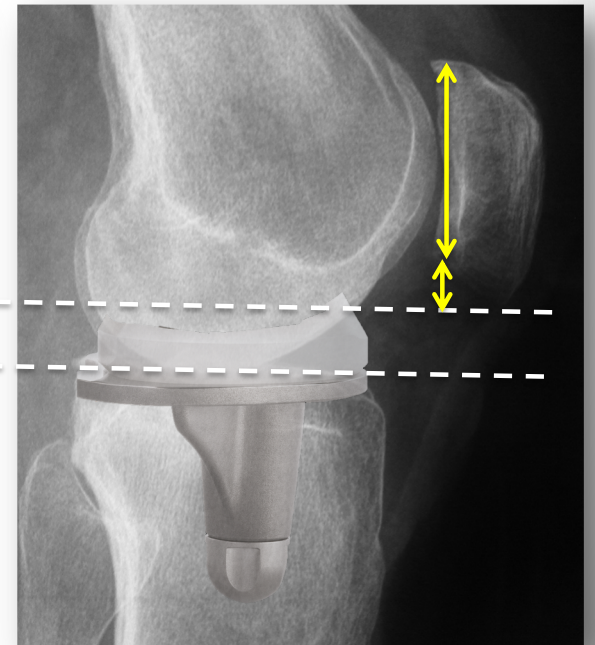
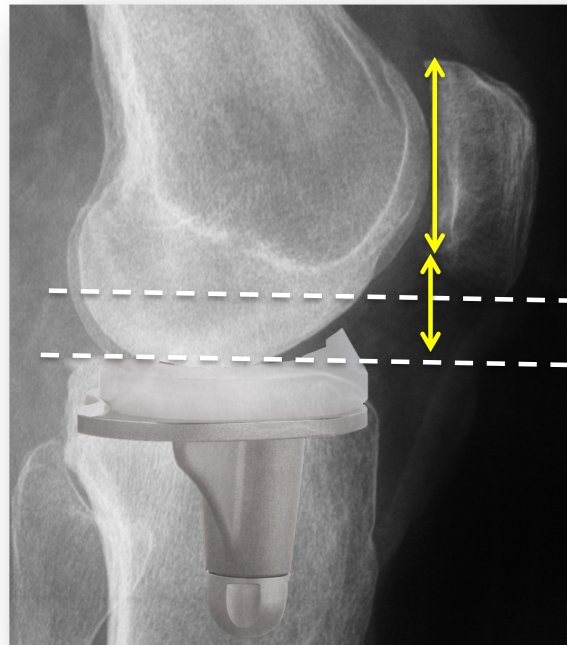
- Joint line level
- Secondary RSD



# Post op patella infera

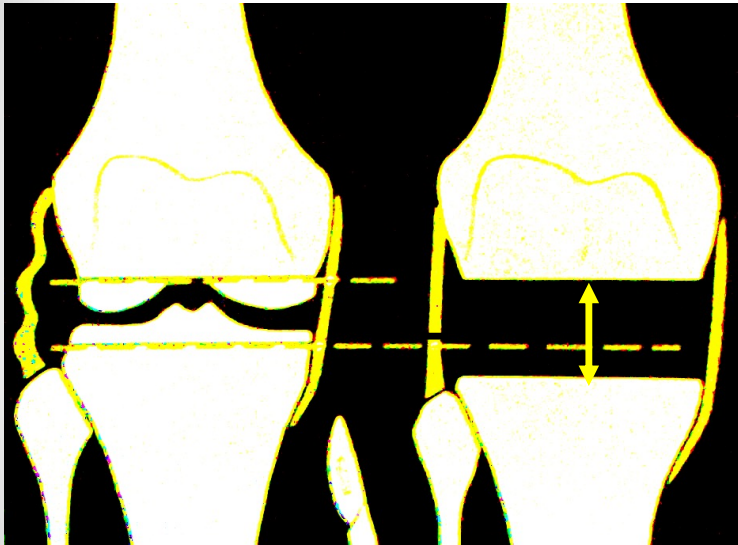
Joint line level 

- Increase poly thickness
- Under tibial resection



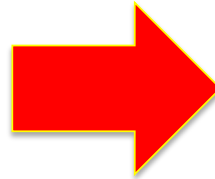


# Possible consequences of a bad balancing

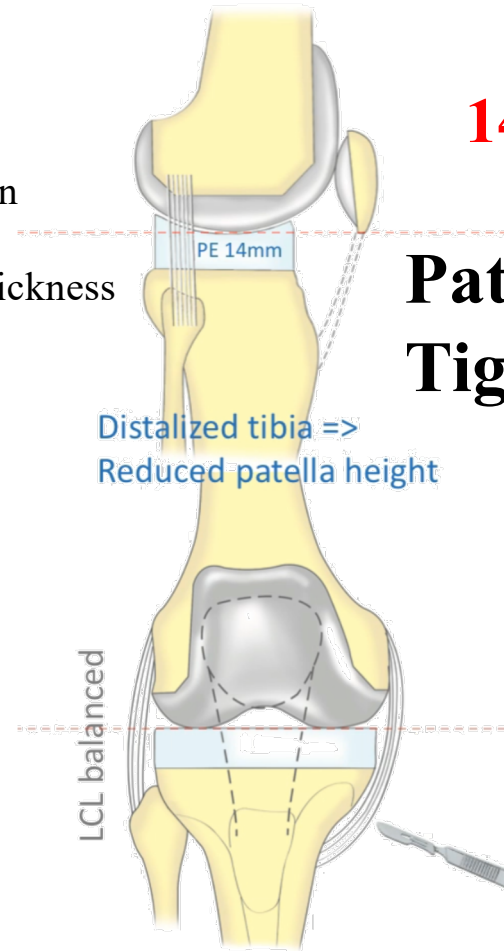


**Independent cuts  
Over cutting**

Compensation  
By  
Increasing Poly Thickness



Standard Solution



**14 mm Poly !!!**

**Patella Infera  
Tightness in flexion**

*Independent cuts  
The Poly thickness  
compensates the laxity  
in extension*

# Clinical signs

## *Chronic phase*

- **Permanent Pain (activity & rest & night)**
- **Burning sensations**
- **Feeling “Knee in a vice”**
- **Stiff knee in flexion 120°**



**Monopodal Weight bearing  
30° and 60° Impossible**



# **“Patellectomy like” in flexion**



# Take Home message



1. **Time delay since the knee is stiff ?**
2. **Pre op conditions (X-rays, Reports)**
3. **Clinical Exam**
4. **Standard exam (X-ray, Ct Scan)**
5. **Biology if infection suspicion**
6. **Bone Scan > 6 months**
7. **Look For Mechanical problems.... This is the key...**

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# *Conclusion*

*David DEJOUR*





2022

