

# Revision TKA: How restoring the joint line?

*Michel Bonnin MD, PhD*

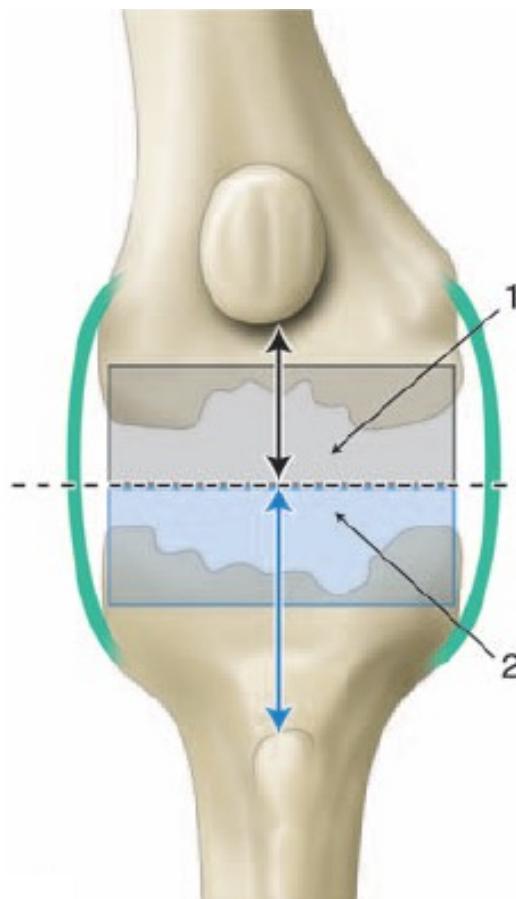
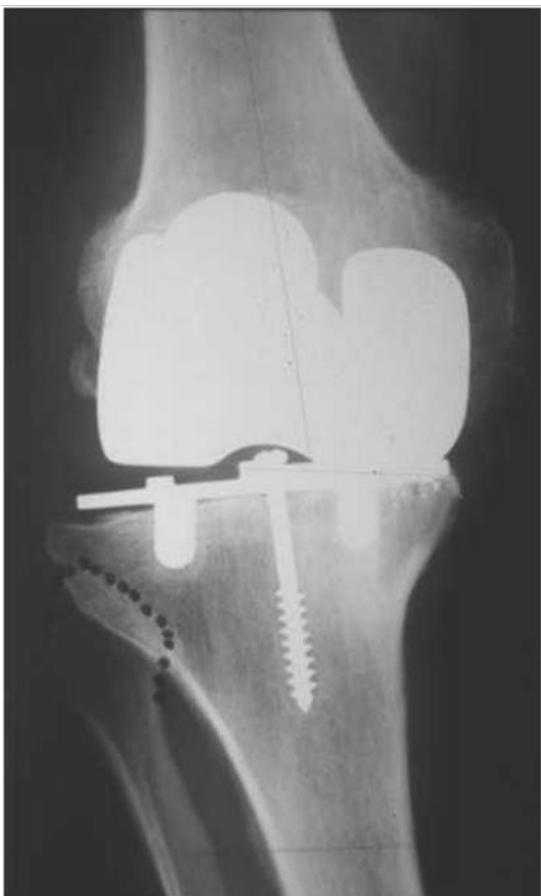
*Centre Orthopédique Santy, Lyon France*

**1-**

*The knee envelope*

1-

# Knee enveloppe is intact

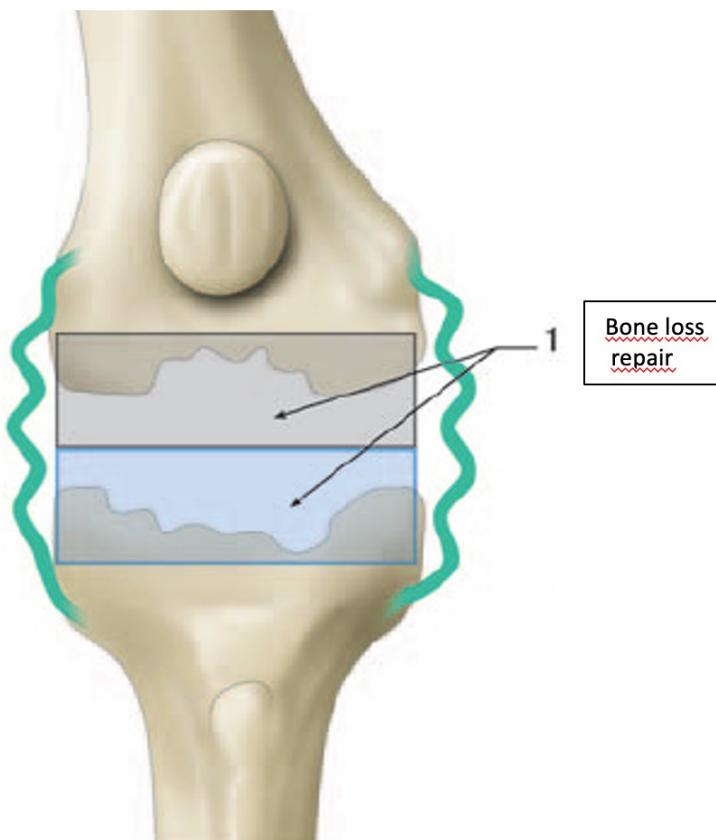


Anatomic Femur  
Reconstruction

Anatomic Tibial  
Reconstruction

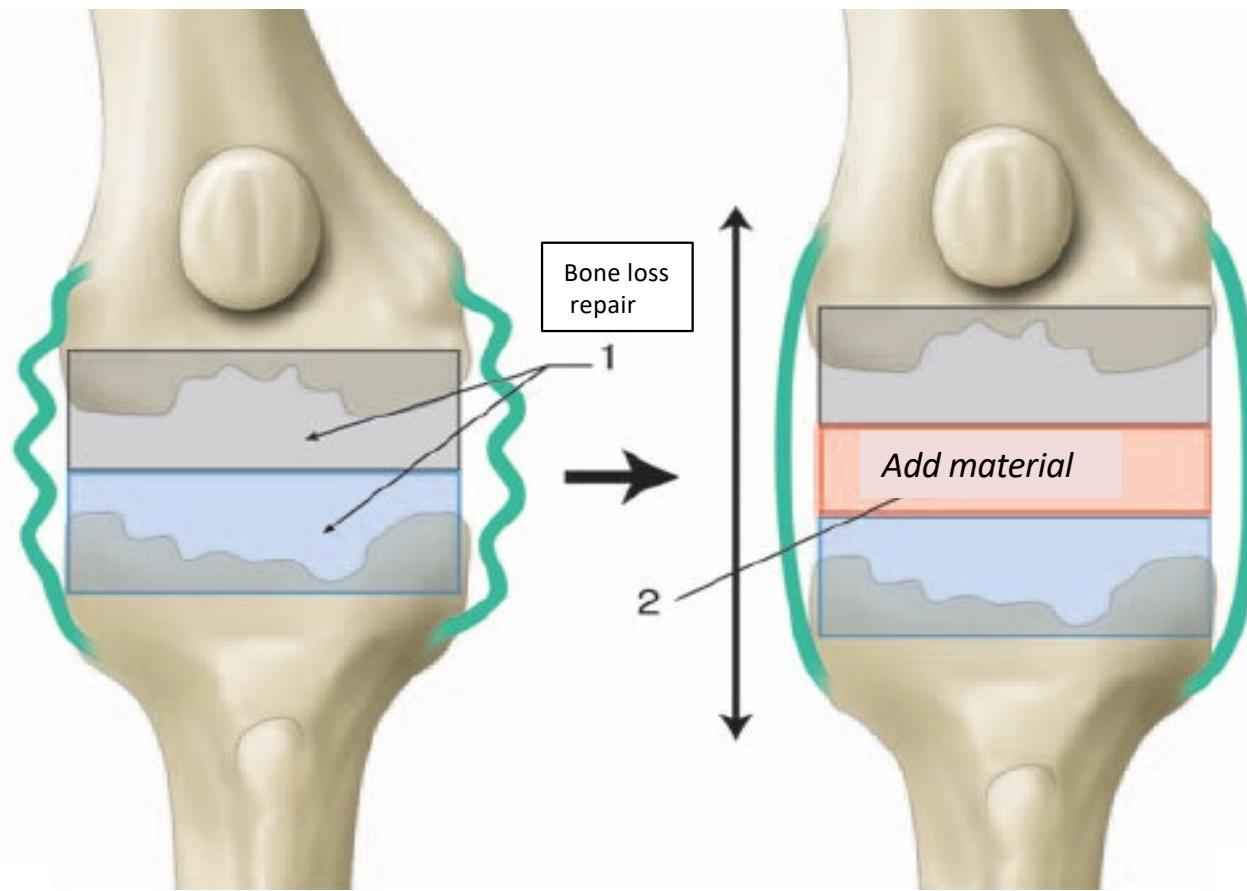
2-

## Damaged Knee enveloppe



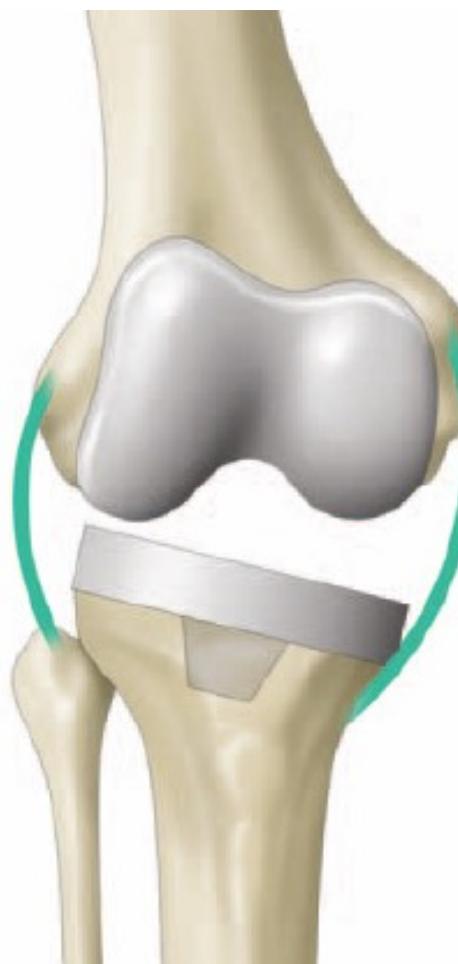
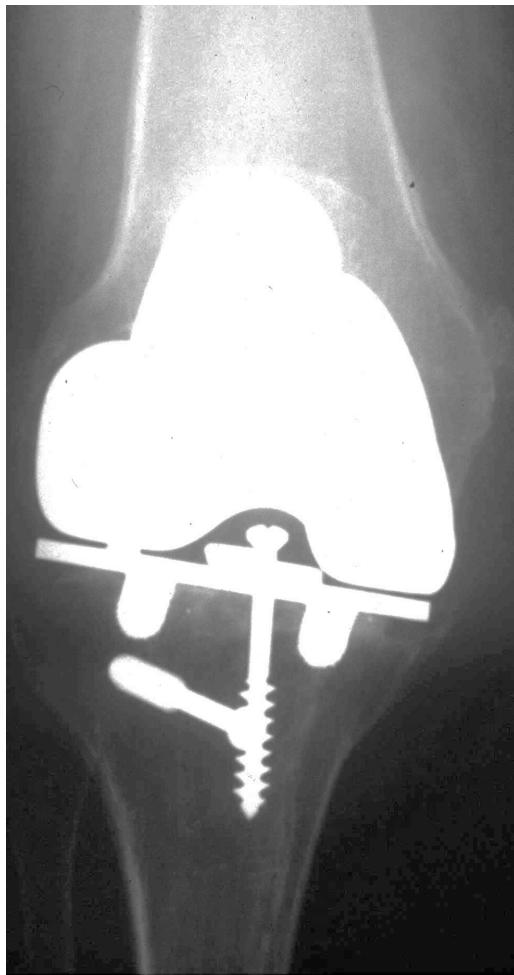
2-

## Damaged Knee enveloppe



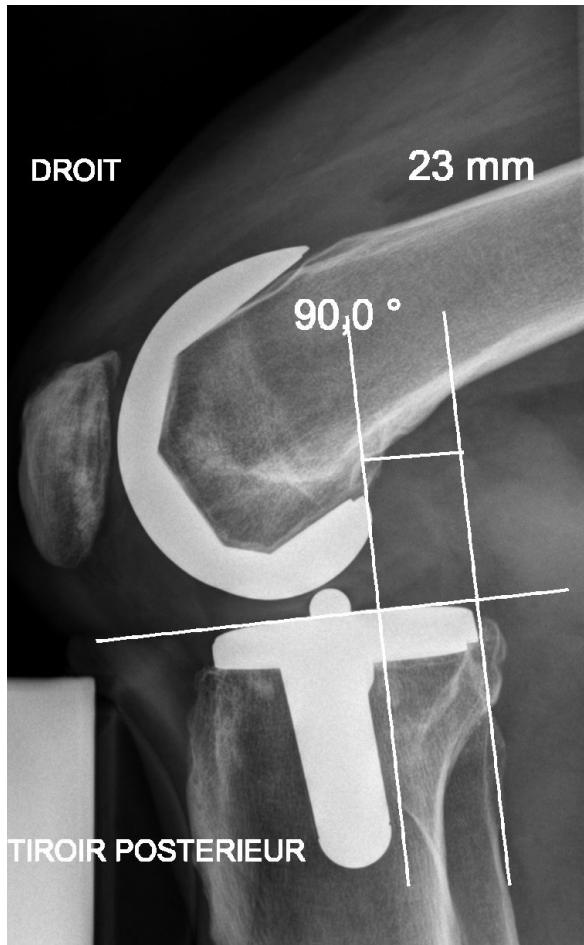
3-

## «Pseudo-laxities » due to malposition



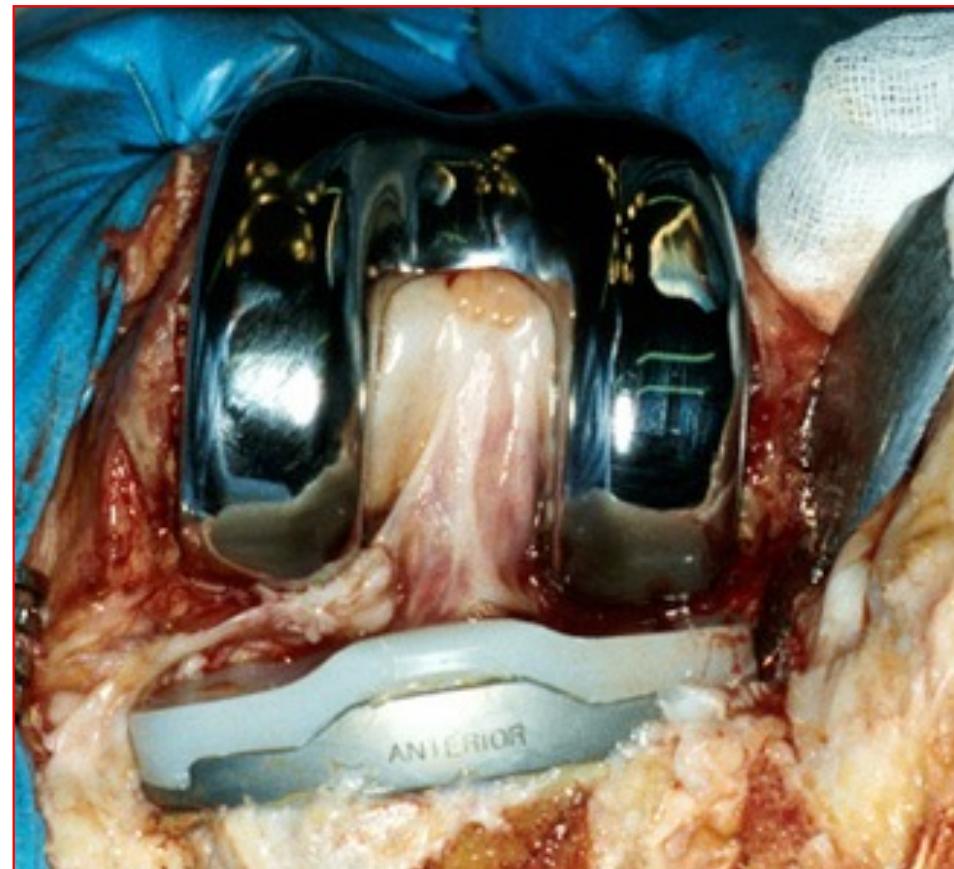
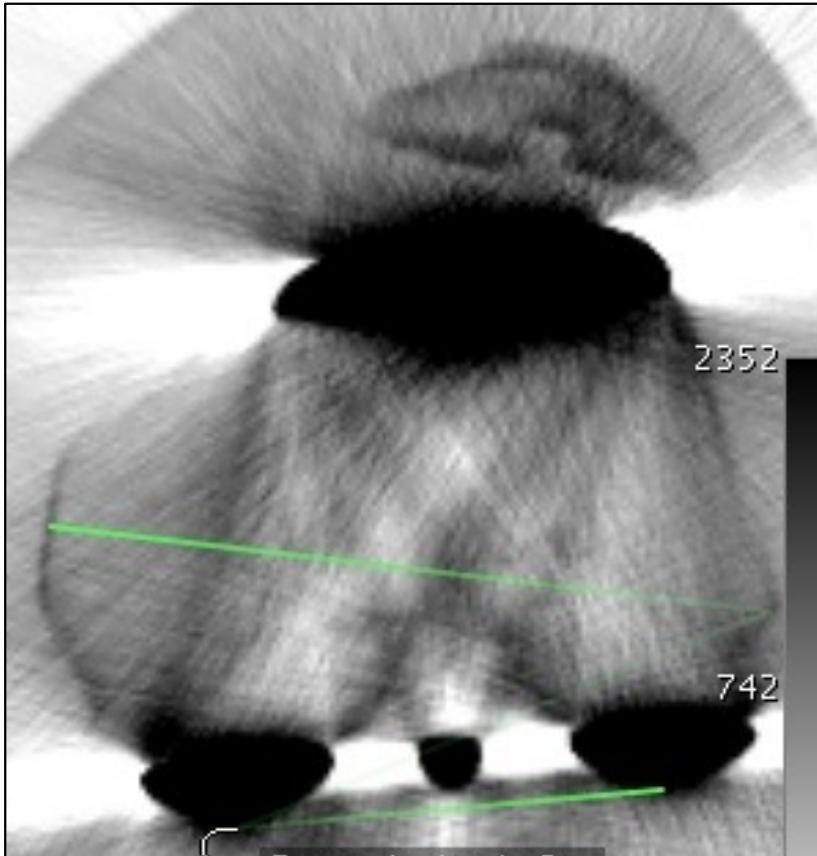
**3-**

## «Pseudo-laxities » due to undersizing



3-

## «Pseudo-laxities » due to malrotation



**2-**

*How balancing the knee?*

# How balancing the knee?

## Tool box

1- Polyethylene

2- Size of femur

3- Rotation femur

4- AP Position femur

5- Position femur ( $\pm$  distal)

# How balancing the knee?

Tool box	Flexion Gap
1- Polyethylene	+
2- Size of femur	+
3- Rotation femur	+
4- AP Position femur	+
5- Position femur ( $\pm$ distal)	-

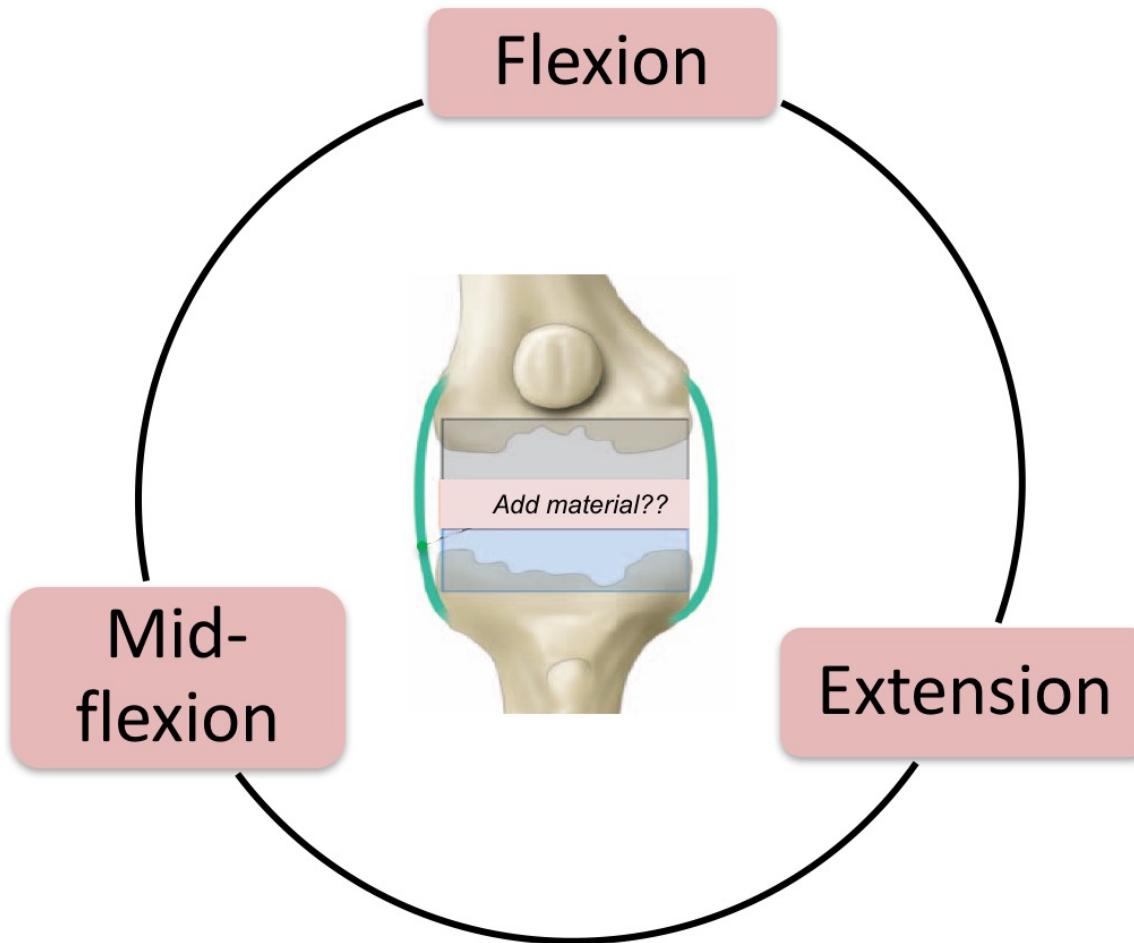
# How balancing the knee?

Tool box	Flexion Gap	Extension Gap
1- Polyethylene	+	+
2- Size of femur	+	-
3- Rotation femur	+	-
4- AP Position femur	+	-
5- Position femur ( $\pm$ distal)	-	+

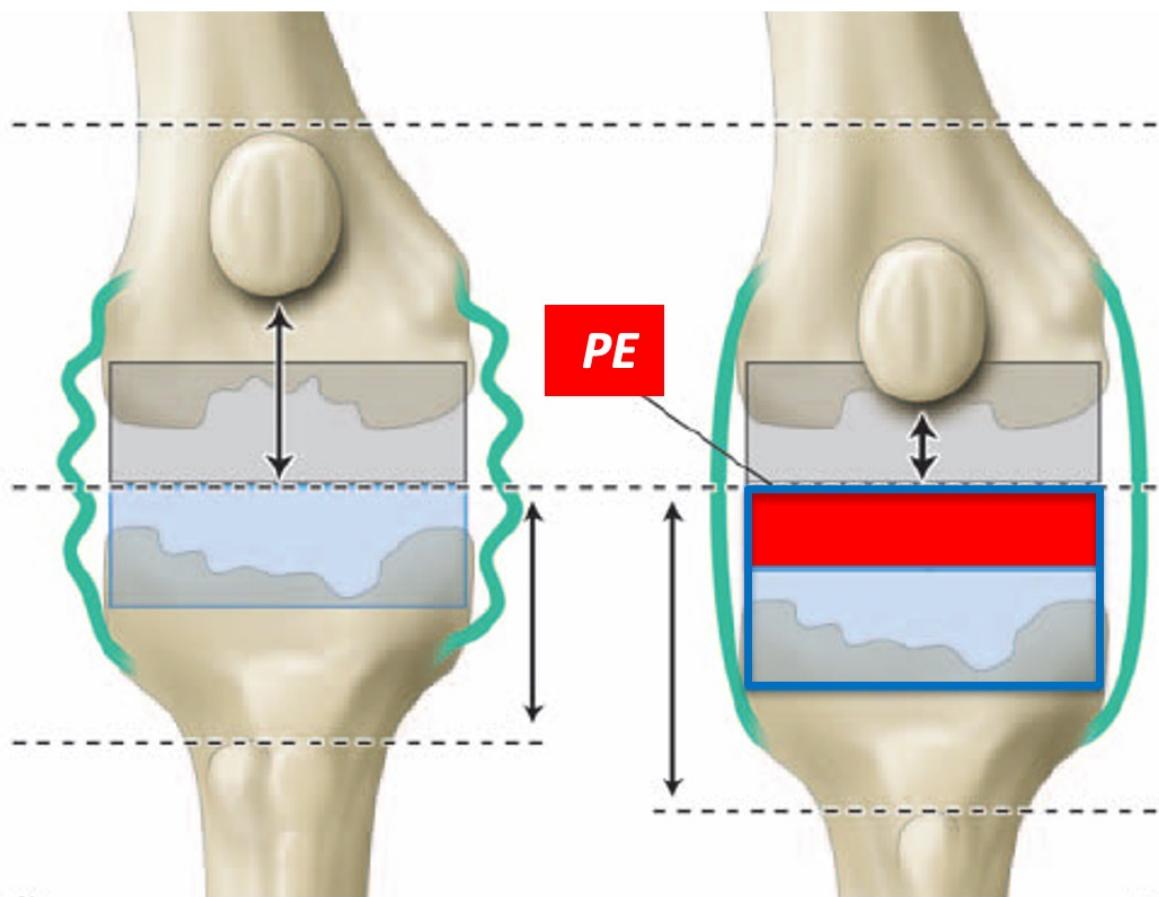
# How balancing the knee?

Tool box	Flexion Gap	Extension Gap	Mid-flexion Gap
1- Polyethylene	+	+	?
2- Size of femur	+	-	?
3- Rotation femur	+	-	?
4- AP Position femur	+	-	?
5- Position femur ( $\pm$ distal)	-	+	?

# The real life is not so simple...

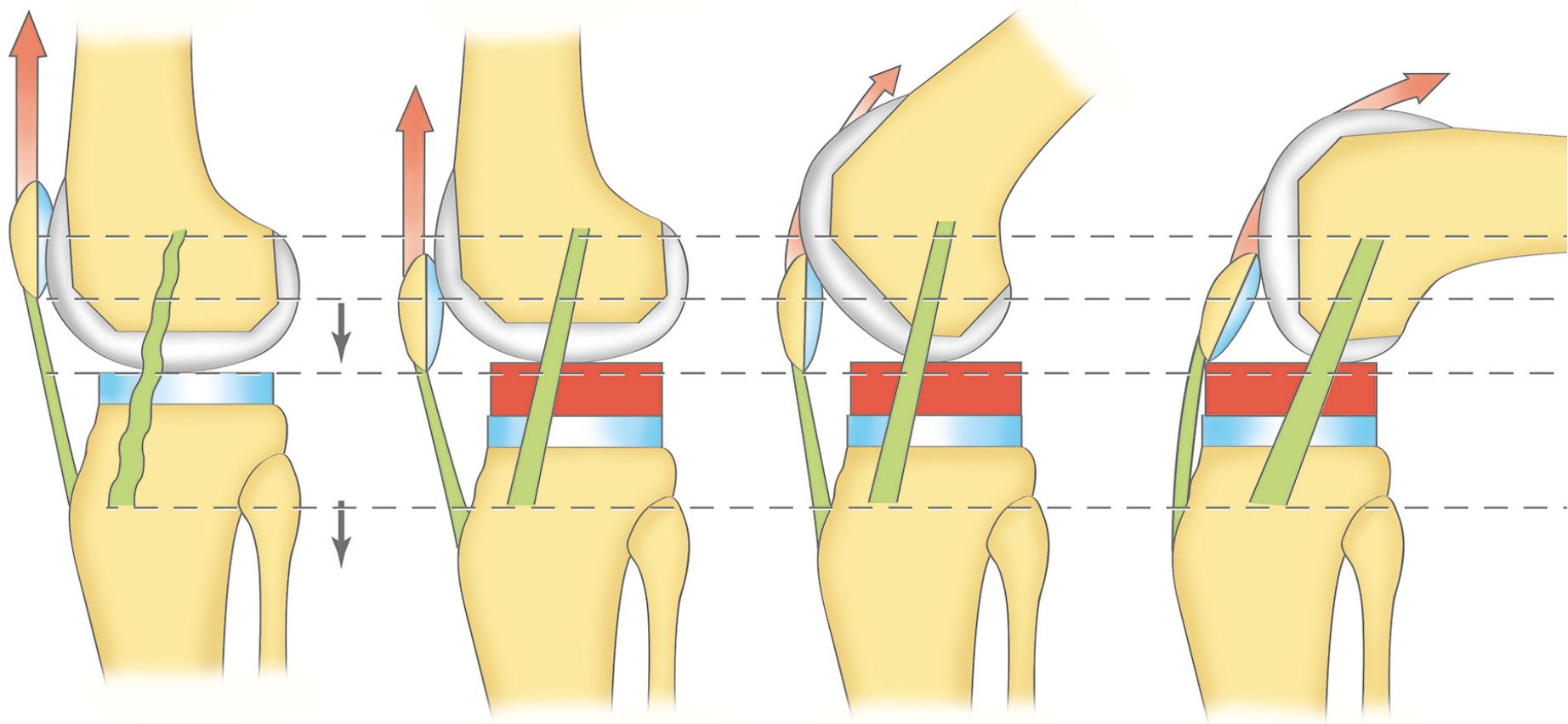


# Option 1: Polyethylene

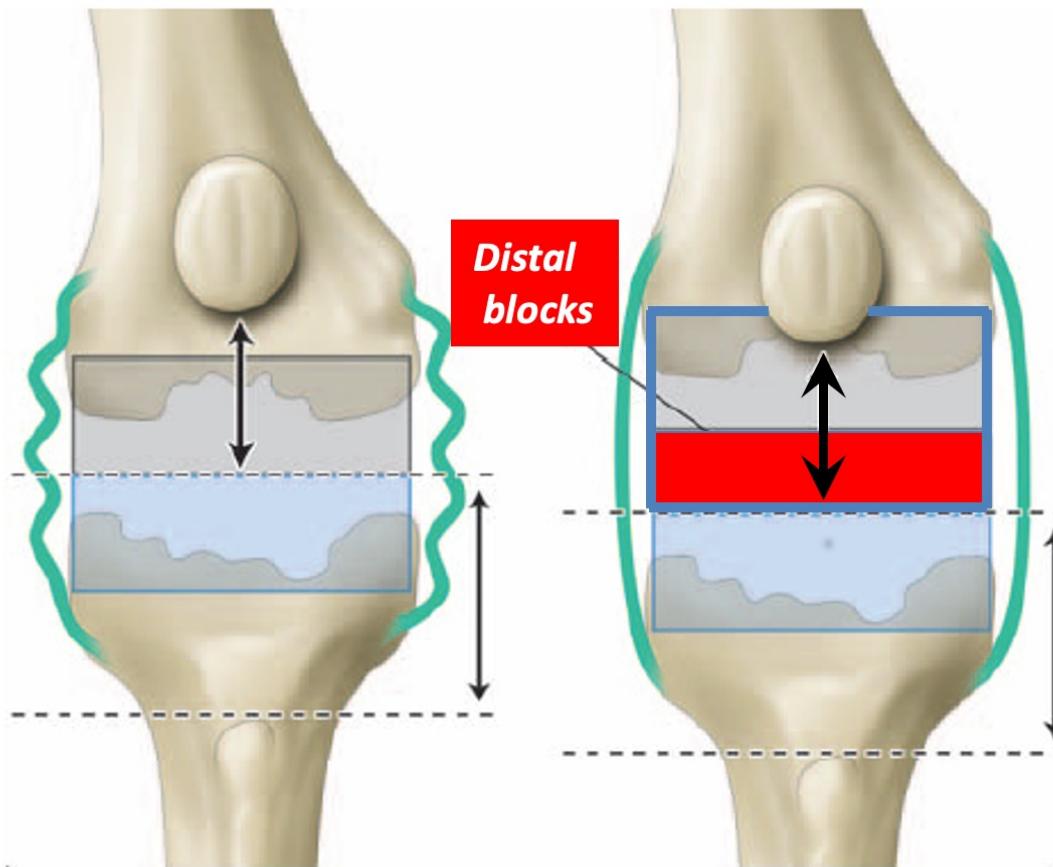


# Option 1: Polyethylene

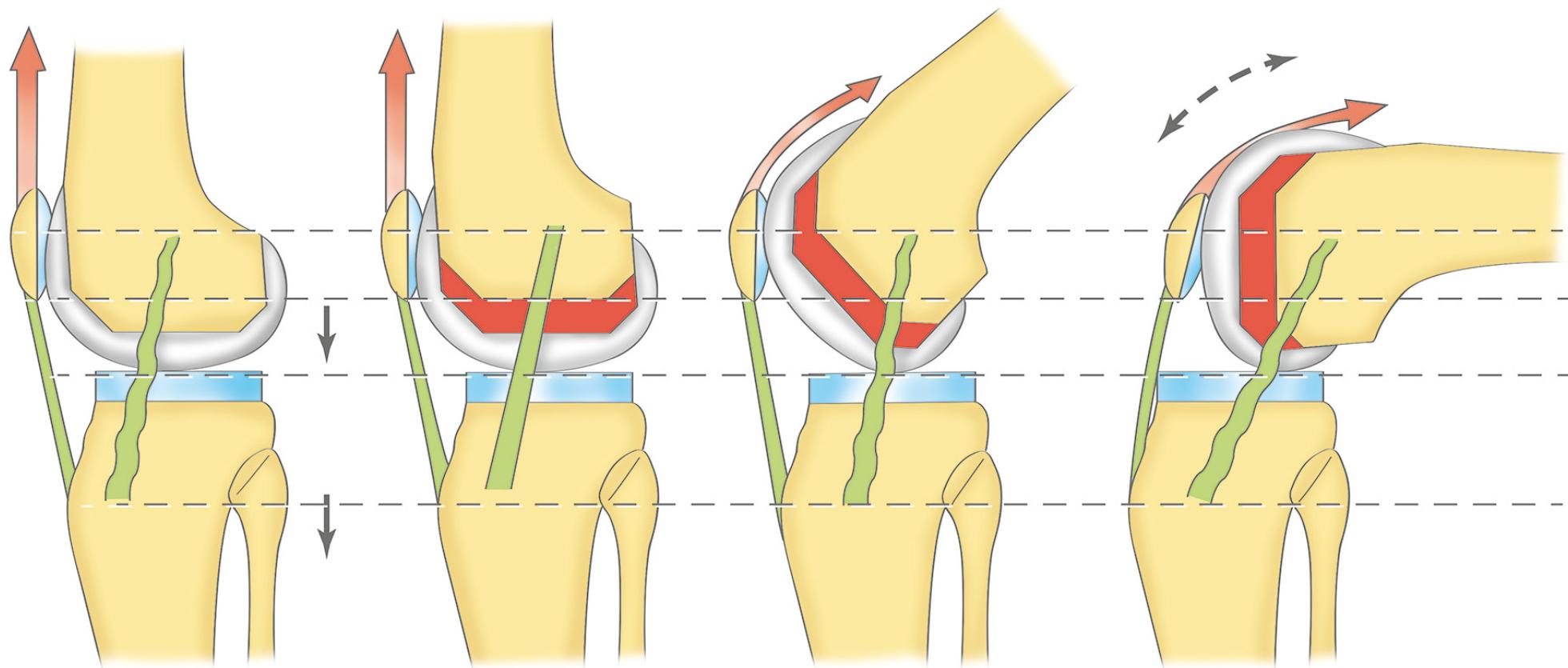
☞ Patella Infera



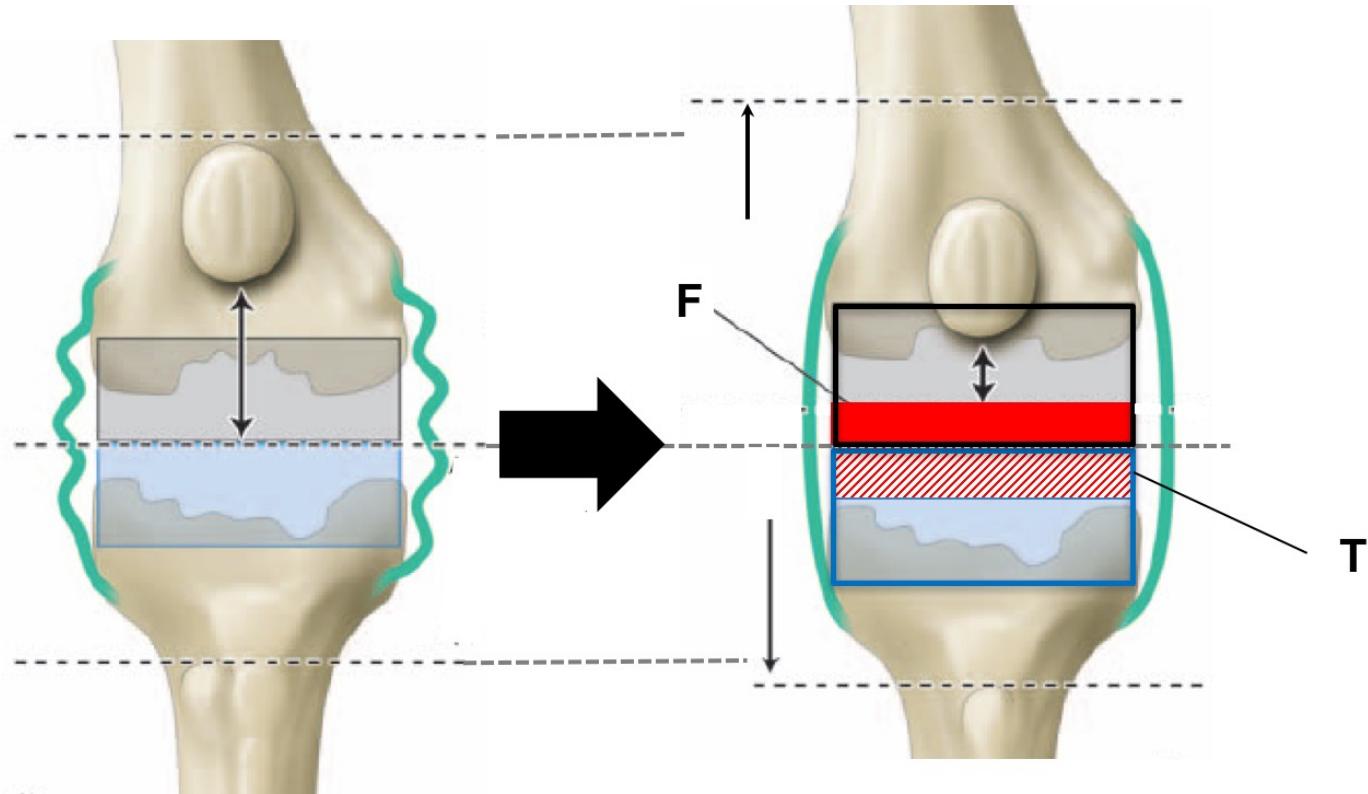
## Option 2: Distal femur blocks



## Option 2: Distal femur blocks ↗ Lengthening the femur



## The real life: Tibia + Femur

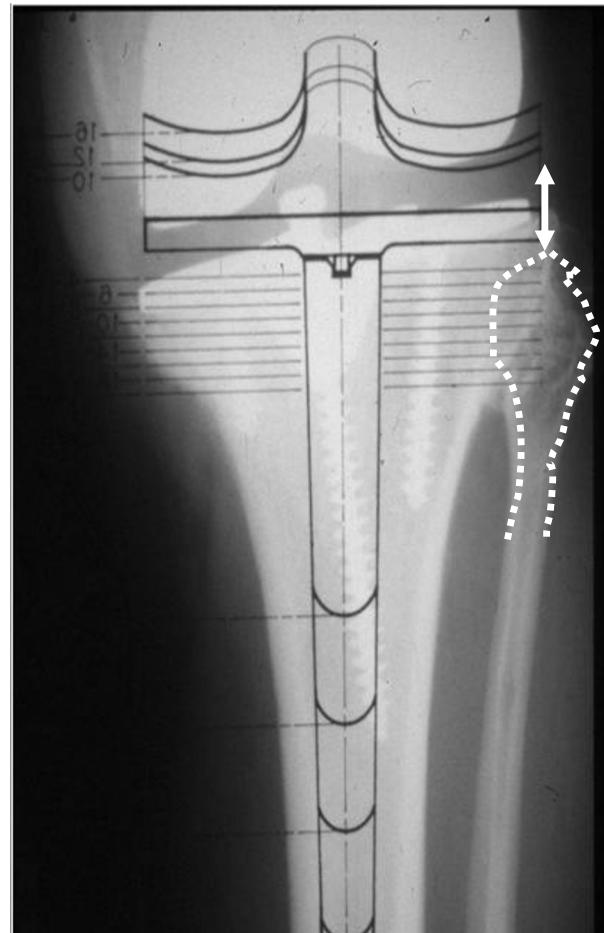
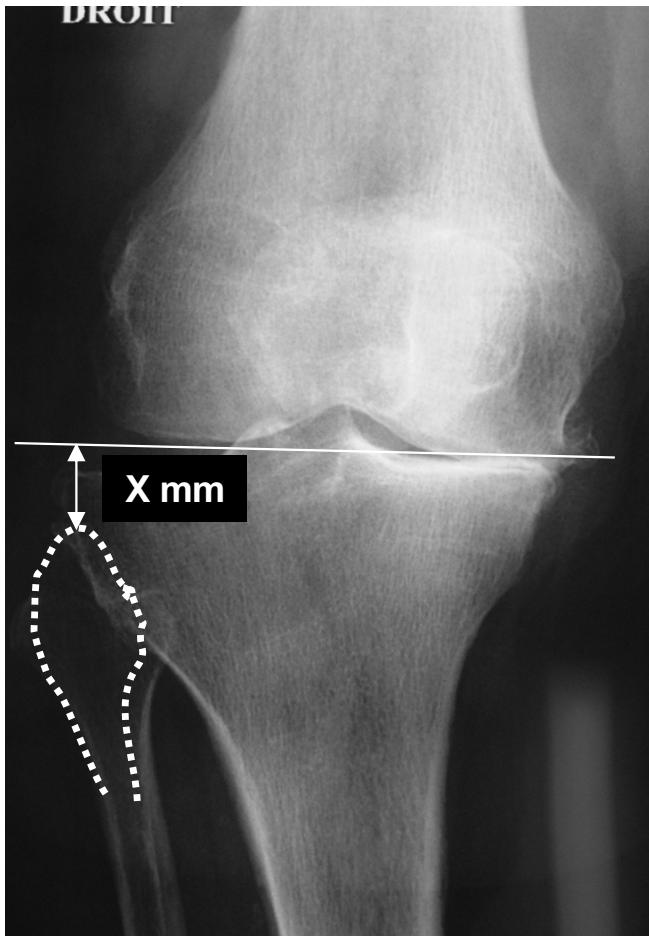


**3-**

*The 3 steps strategy*

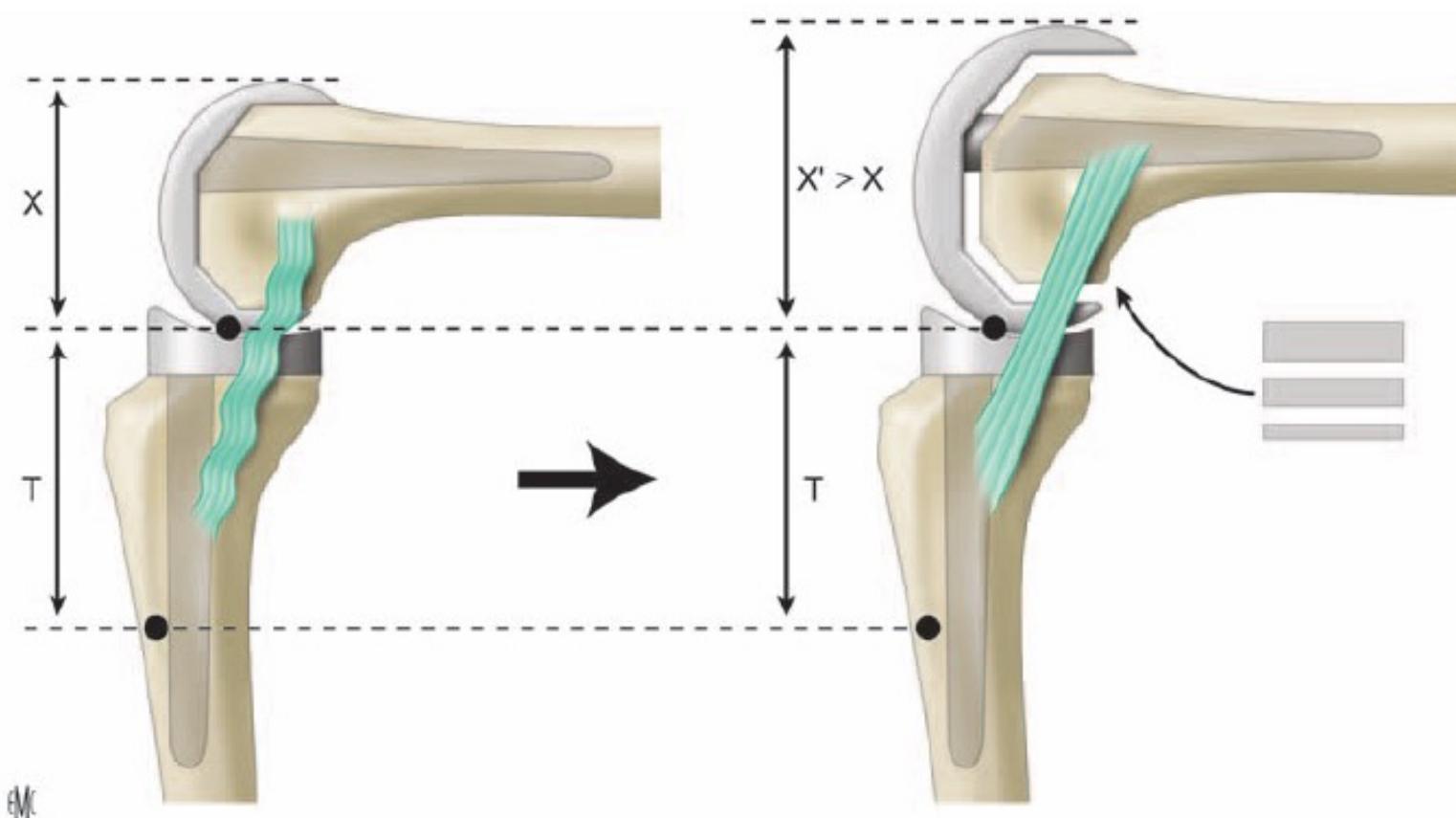
## 1<sup>st</sup> Step

### ☞ Anatomic Tibial Baseplate



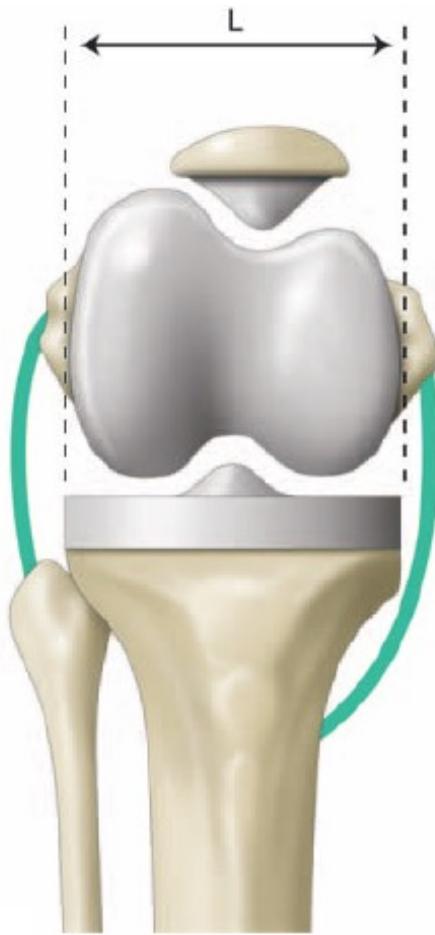
## 2<sup>nd</sup> Step

### 👉 Balancing in flexion



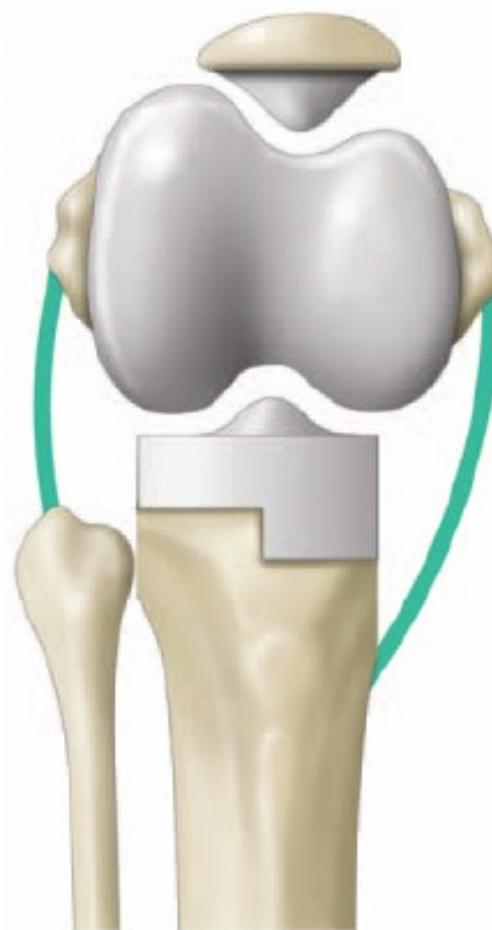
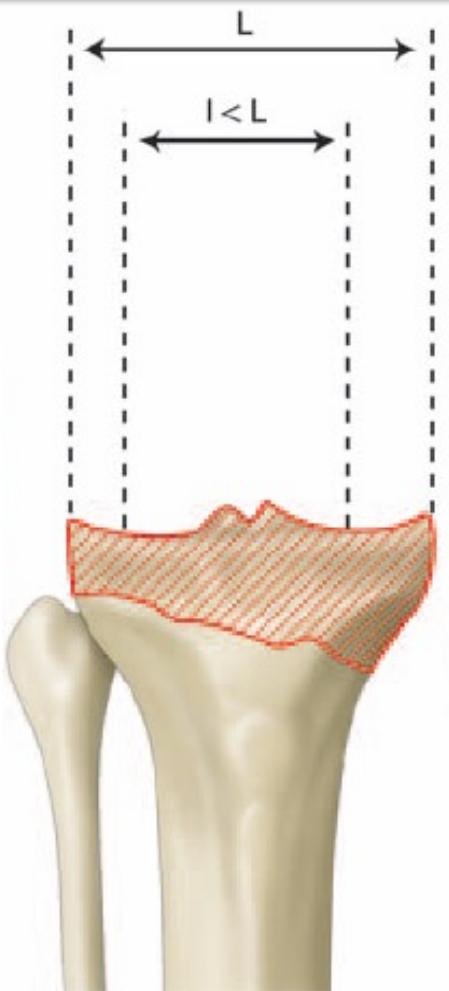
⚠ 1<sup>st</sup> difficulty

## ML size of the femur



⚠ 2<sup>nd</sup> difficulty

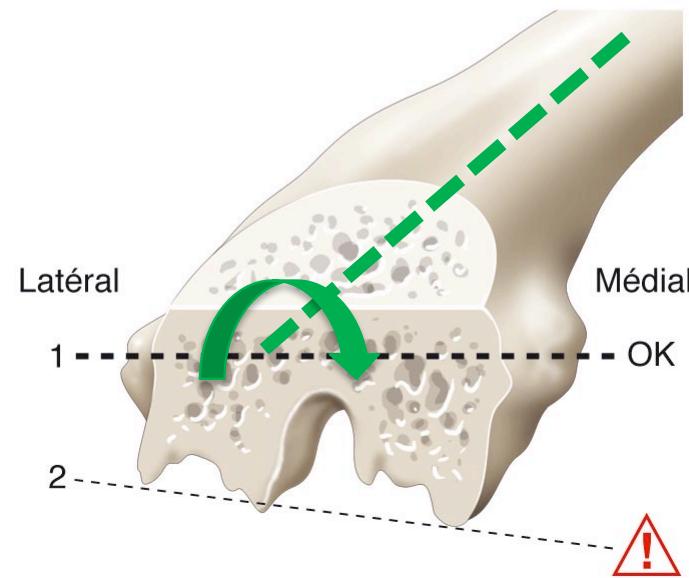
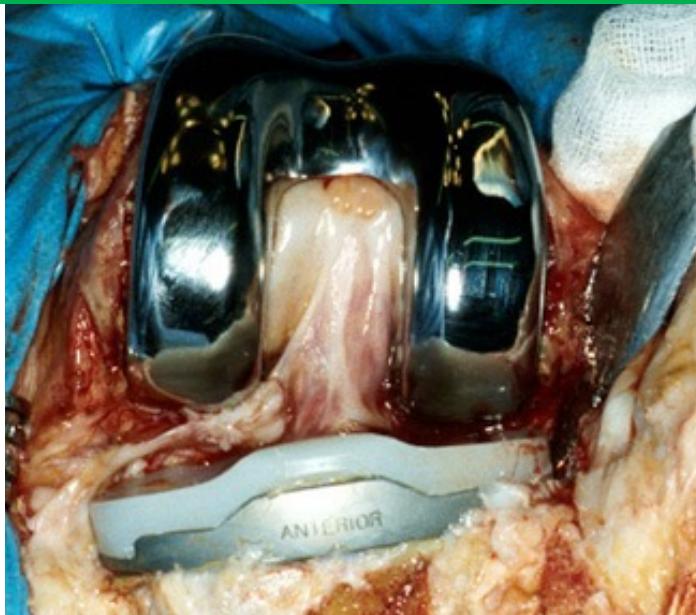
## Mismatch Femur / Tibia



⚠ 3<sup>rd</sup> difficulty

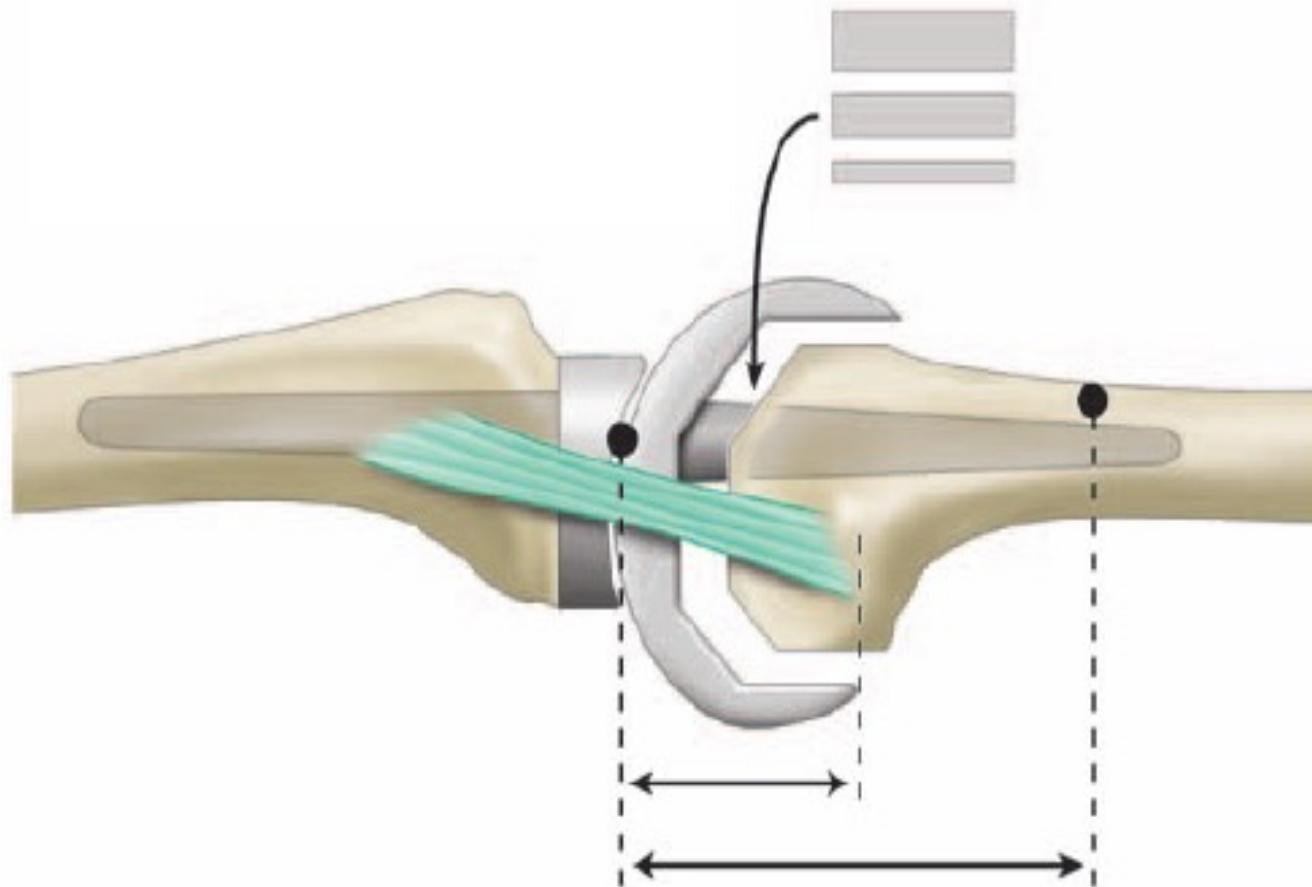
## ☞ External rotation of the femur

Difficult to adjust with an IM stem

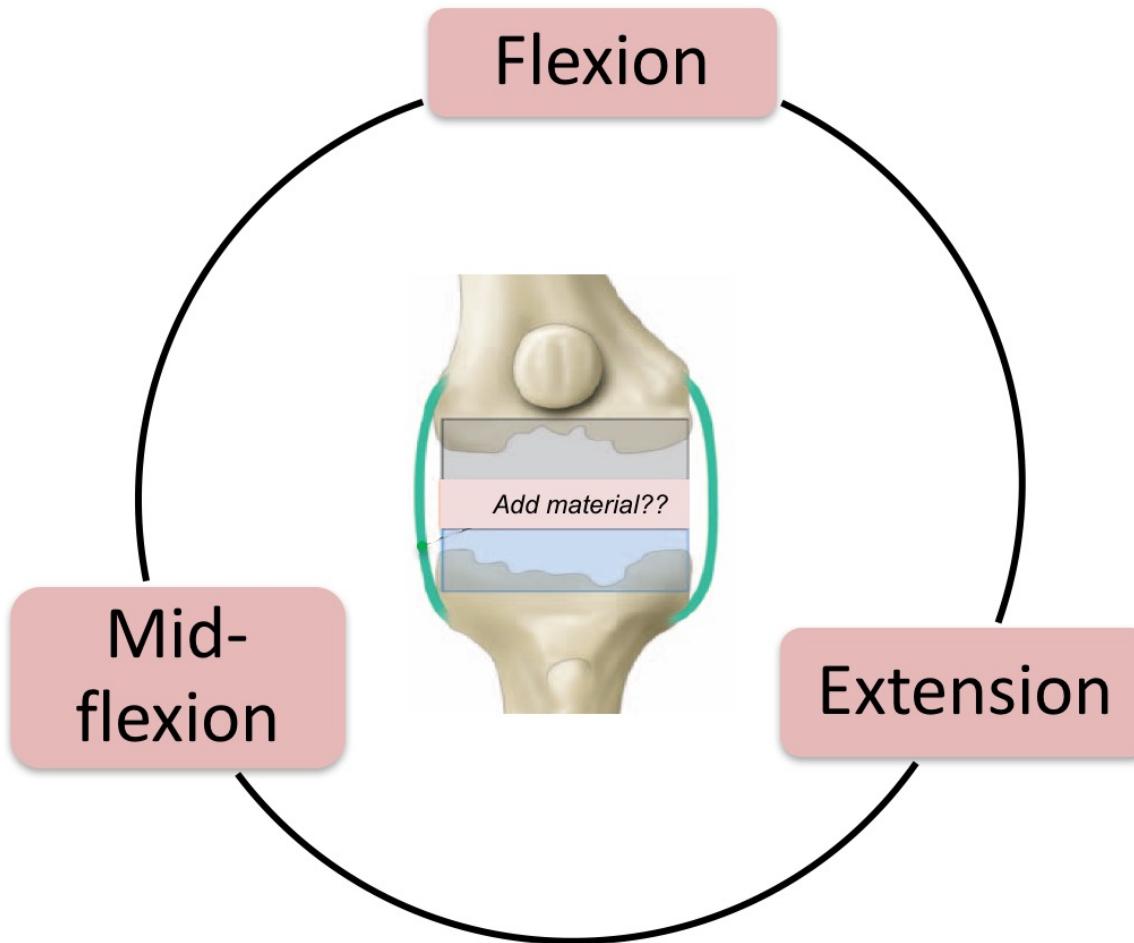


### 3<sup>rd</sup> Step

### ☞ Balancing in extension



# The real life is not so simple...



**4-**

*What if balancing impossible?*

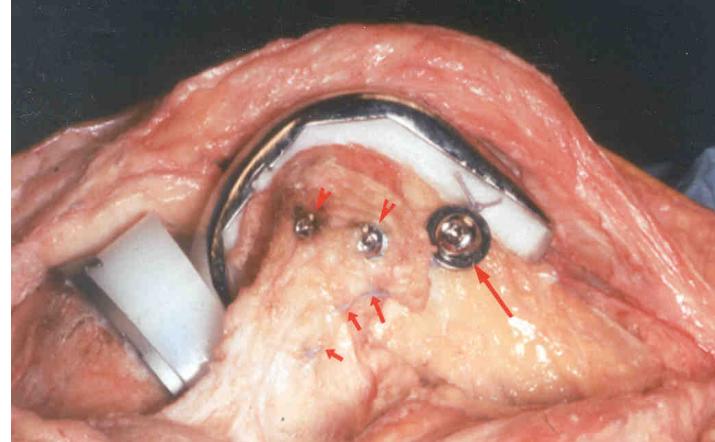
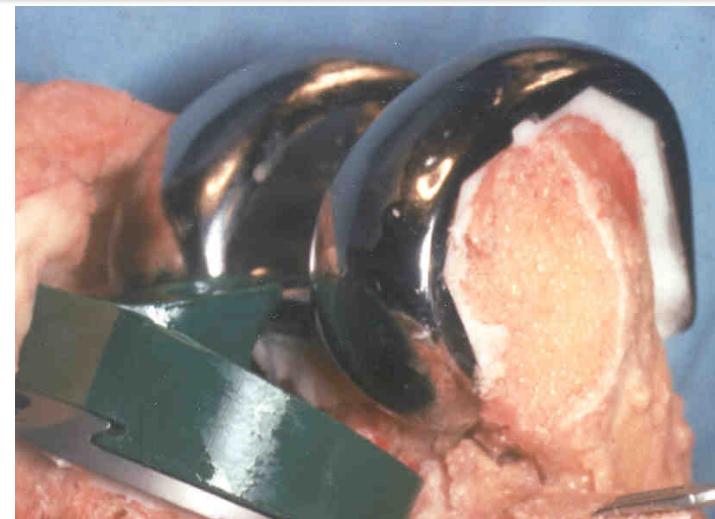
## ☞ Constrained TKA?

Stability in flexion	Stability in extension	Constraint
±	+	PS
-	±	CCK
-	-	Rot Hinge

☞ But constraint is not magic!!



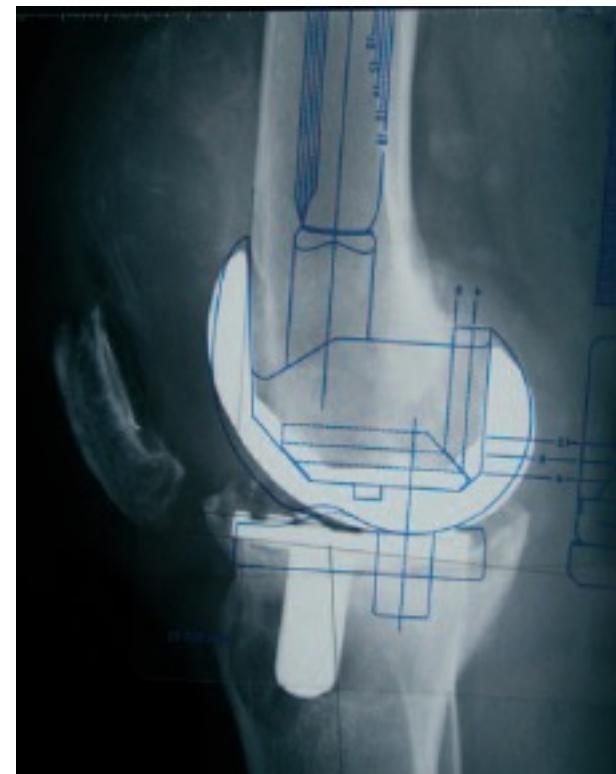
# Ligament reinsertion



*K Vince in Osteoarthritis of the knee. Springer 2004*

# Conclusion

- ✓ Analyse the cause of the failure
- ✓ Pre-op planning
- ✓ Step by step reconstruction
- ✓ Minimal constraint
- ✓ Constrained TKA in the OR



A photograph of the Lyon skyline in winter. In the foreground, a bridge with a metal railing covered in snow spans a river. Above the bridge, several thick black cables of a funicular or cable car system fan out against a hazy sky. The background features a dense cluster of buildings, including a prominent yellowish-brown classical-style building with multiple towers and crosses. A hillside covered in snow rises behind the buildings.

**Thank you**

Toutes les photos de LYON ! <http://www.Lyon-Photos.com>