

UNSTABLE TKA



Minimal Revision

Soft Tissue Procedure Change PE

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Revision after TKA

Aseptic loosening	36.2%
Patella and extensions mechanism problems	18.5%
Instability	12%
PE wear	8%
Malalignment	3.6%
Stiffness	3.3%
Failed unicondylar prosthesis	11.6%

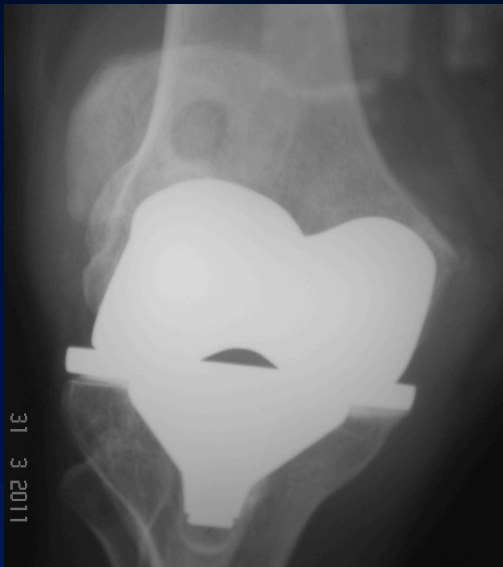
- 10 to 22%
- Early
- Late

Sierra *COOR* 2004
Vince *J Arthroplasty* 2006
Paratte *JBJS Am* 2008
Rodriguez Merchant *HHS J* 2011
Al-Jabri *JOSR* 2021

UK national registry 1.145.050 TKA
17,4% revision/instability

Conservative treatment in acute cases

without clear malpositionning



closed reduction
brace immobilization

strenghtening

time to soft tissue enveloppe healing

Mac Auley, Engh, Ammeen *Inst course 2004*
Abdel *JBJ5 Br 2014*

- ~~Per op~~

Rodriguez-Merchant *HHS Journal* 2011

- Early

- malalignment of the components
- no restoration of mechanical axis
- improper balancing of Fle-Ext spaces
- Rupture / stretching of PCL or collateral ligaments (mid term too)
- Patellar instability

- Late

- loosening
- PE wear \pm ligament insufficiency

Clinical Testing



Antero posterior instability



Medio lateral instability

**Extension & flexion @ 30°, 45°-60° and 90°
condition of the soft tissue envelope**

Directions

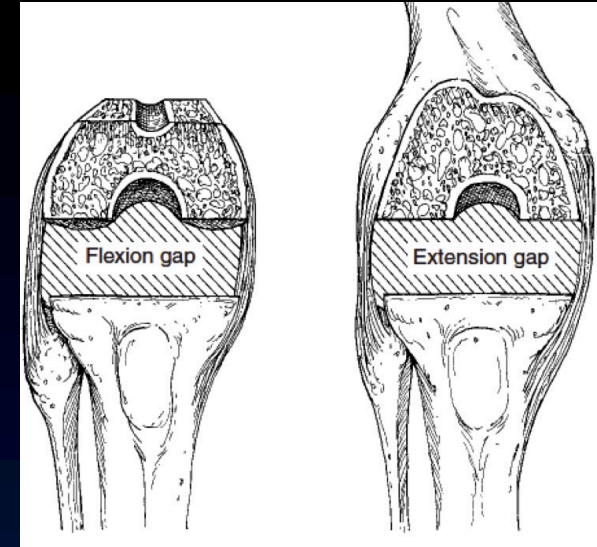
- Valgus Varus
- Flexion
- Extension
- Recurvatum
- Mid Flexion
- Global



Symetric or asymetric

- Patella dislocation

- Symetric = bone loss



- Asymmetric = soft tissue imbalance
persistent or iatrogenic collateral
ligament insufficiency
 - Coronal or axial malalignment of implants
 - Inadequate release
 - Over release
 - PE wear

Revise any clear malposition of implants

Instability is not synonymous with ligament failure and the treatment does not always require mechanically a more constrained implant

(augment, size, position, PE)

Degree of constraint / TKA

- As a general rule, it is recommended that the minimum amount of constraint necessary to achieve stability should be used.
- To protect bone-prosthesis interface overload in the future
- Youngest patients
- Elderly to avoid huge revision

Change PE alone / instability

- **Babis *JBJS Am* 2002**

The effectiveness of isolated tibial insert exchange in revision of TKA

• 27 pts / Instability 55% @ 5,5y

- **Tetreault *Bone & Joint J* 2021**

Isolated tibial insert exchange in revision total knee arthroplasty : reliable and durable for wear; less so for instability, insert fracture/dissociation, or stiffness

• 145 pts / Instability 69% @ 10y

Change PE alone / instability

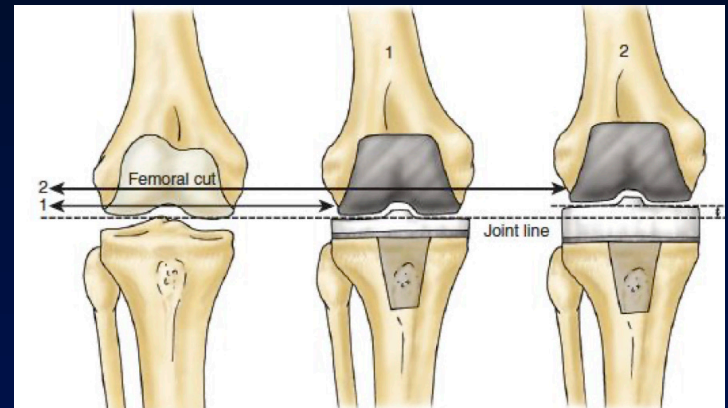
- Fixed plateau : CR to PS
- Mobile plateau: Standard to UC



For which type of instability

- Mild Symetric instability

- Extension
- Flexion
- PCL rupture in CR
- Under corrected deformity



- Pay attention to joint line heigh (8mm)

- Not indicated for recurvatum

- Can be combined to soft tissue procedure

Soft tissue procedures / instability

- Transfer or reconstruction
(graft to local plasty)
- Can be proposed in combination with change of TKA
- To consider in younger and active patients to avoid constraint

Leopold *JBJS* 1986

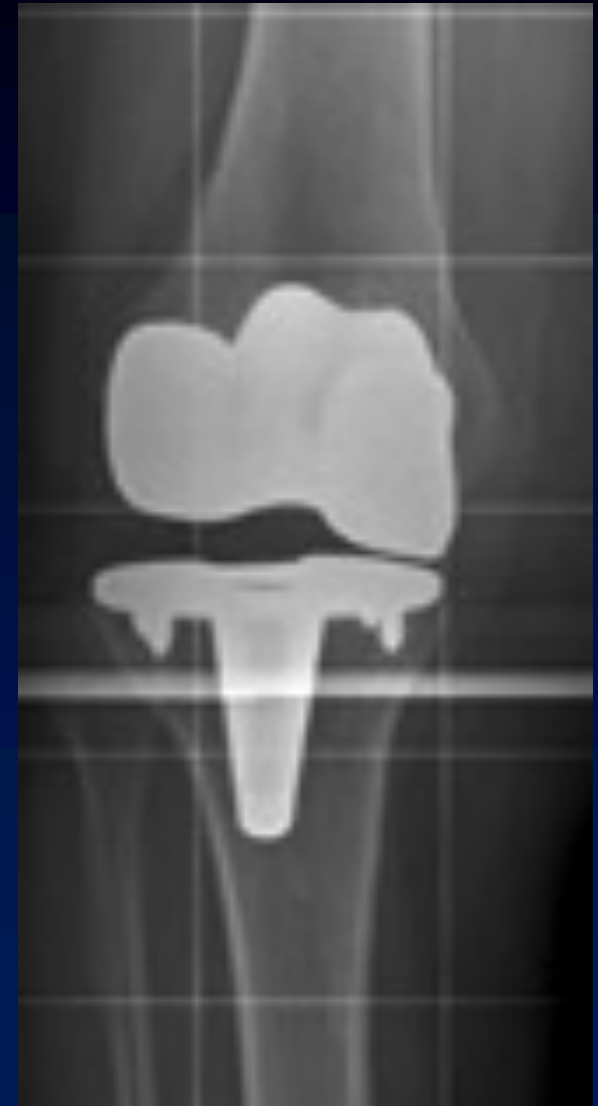
Krackow *JBJS Am* 2006

Vince *AAOS Proceedings* 1997

Peters *J Arthroplasty* 2004

Medio Lateral instability

- Functional soft tissue envelope is needed to provide varus-valgus stability in PS TKA
- Lack of collaterals = asymmetric instability
- Collateral ligament imbalance (traumatic disruption or under/over release)

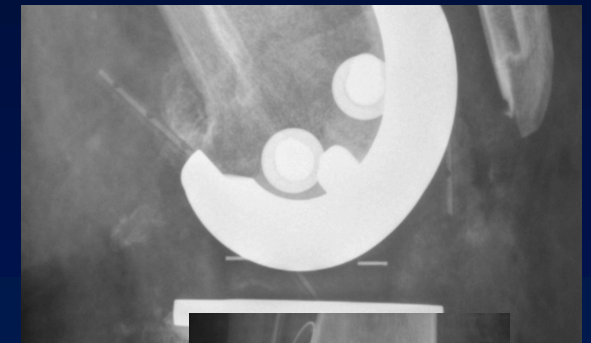
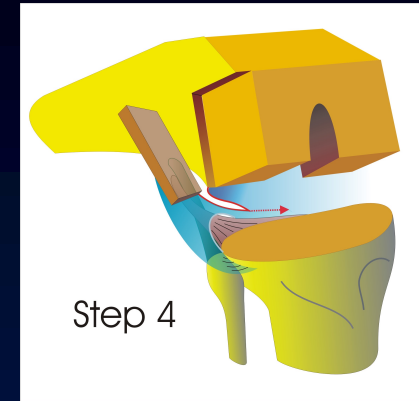


Asymmetric instability

- Over release
- Under correction of a tight compartment predispose over time to distension on the opposite site (& PE wear)
The extension gap become trapezoidal
- Posterior under release leads to mid flexion instability

Soft tissue procedures

- Tight side : sequential release
- Loose side :
 - Shrinkage / Suture
 - Ligament attachment transfer
 - Reconstruction
- Often needs a thicker PE



Whiteside *CORR* 1999

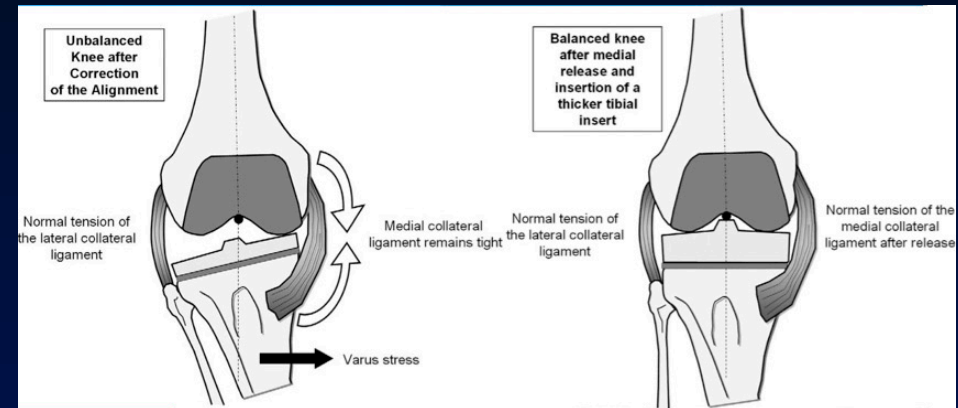
Brassard & Insall in Scott « surgery of the knee » 2006

Meftah *JBJS* 2012

For which type of instability

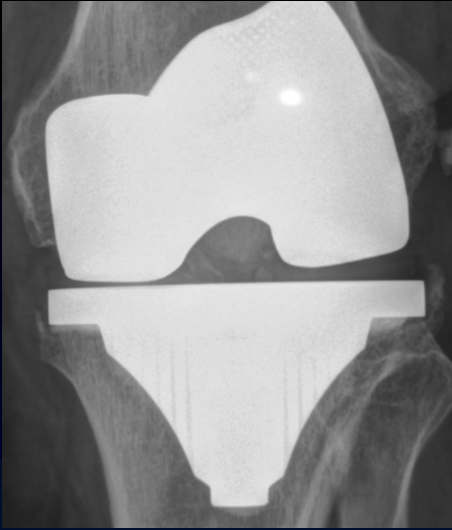
- Asymmetric instability

- Extension
- Flexion
- Early or late



- To combined with PE change

- Pay attention to joint line height (8mm)



LAate Instability

Wear of PE

- Babis 24 / wear 79% @ 5,5 y
- Tetreault 105 / wear 82% @ 10y
- Without loosening and / debris which is difficult to assess... (bone & CT scan)

Patellar dislocation

- Without tibial or femoral implants trouble
- MPFL reconstruction
 - fixed on the anterior patellar surface



Conclusion

- Mild instability can be treated with low aggressive procedures
- Young patients and older ones
- Without wrong TKA components implantation