

INDICATIONS FOR PF INSTABILITY

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Acknowledgement: **David Dejour** and the LSKS team (Lyon France),
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(versailles France)



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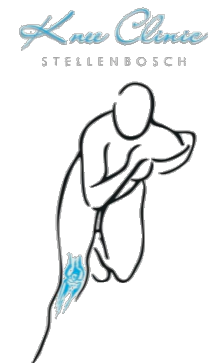


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Knee Clinic
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LA PATHOLOGIE FEMORO-PATELLAIRE

6^{èmes} JOURNEES
LYONNAISES
DE
CHIRURGIE
DU GENOU

LYON 1987

organisées par
H. DEJOUR
G. WALCH



1987

1987 Findings *(1800 patients X Rays analysis)*

4 Instability factors *(Statistical Threshold)*

- **Trochlear Dysplasia 96%**
- **Patella Alta > 1.2**
- **Excessive TT-TG > 20 mm**
- **Excessive Patellar Tilt $> 20^\circ$**

1987 "menu à la carte" for patella dislocation

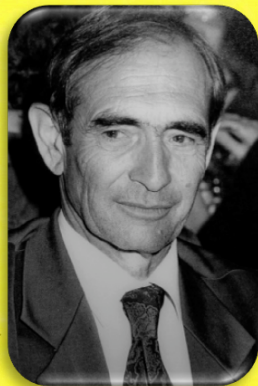
Instability factors	Knee side	Proposed procedure
Trochlear dysplasia	Type I, II, III	→ ????
Patellar height	Index AT / AP	→ Distalization Index = 1
TT-TG	> 20 mm	→ Medialization 10 < TA - GT < 15
Patellar Tilt	> 20°	→ VMO Plasty



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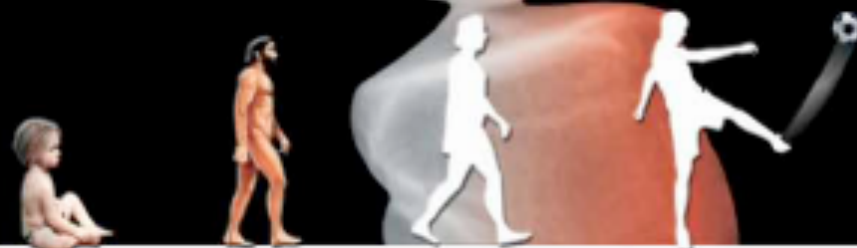
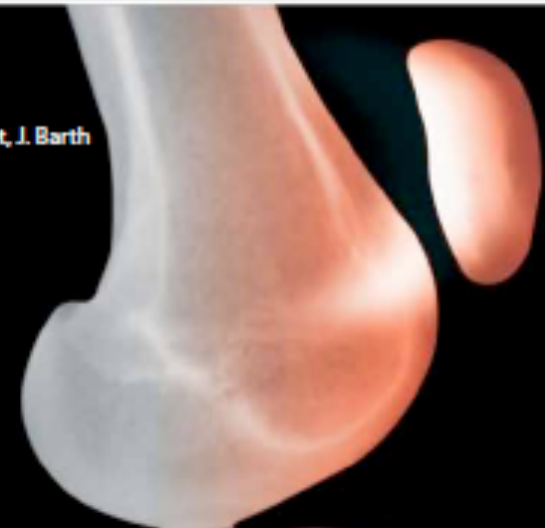
25 years later...

15^{èmes} Journées Lyonnaises de Chirurgie du Genou



La Patella

D. Dejour, M. Bonnin
E. Servien, J-M. Fayard
G. Demey, F. Trouillet
N. Bonin, B. Sonnery-Cottet, J. Barth



25 ans après... 25 years later..

2012

ALRM Since 1969

Past presidents : Albert Trillat, Henri Dejour, Pierre Chambat, Philippe Nayrot.

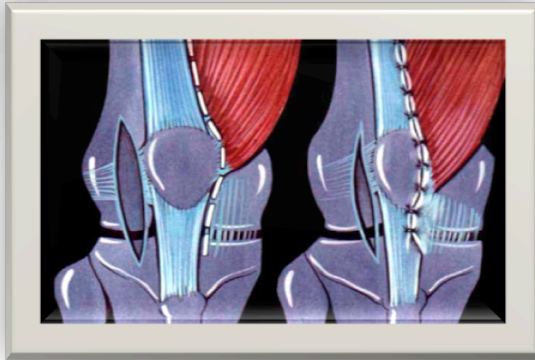


1987





2012 Surgical Algorithm ...

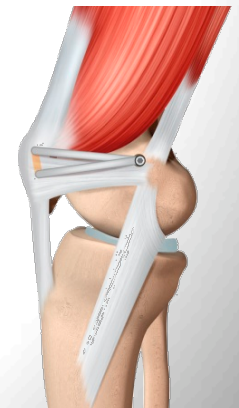
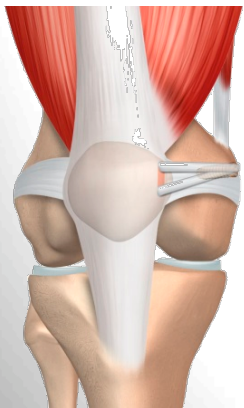


~~VMO Plasty + LR~~
~~for the Patellar Tilt~~



MPFL isolated or combined

All cases





MPFL has to be reconstructed *Restore "torn anatomy"*

Primary restraint

Always torn or no competent after the first dislocation

Positioning rules :

Fluoroscopy: lateral views+++

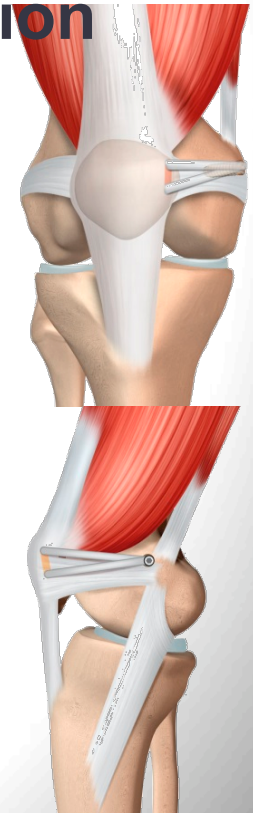
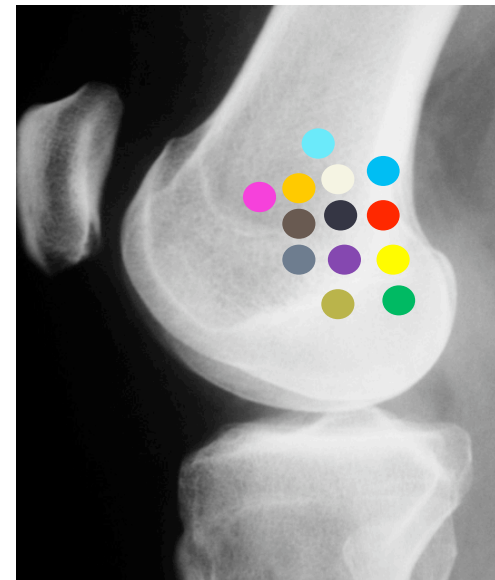
Avoid femoral malpositioning

Indication for isolated:

No Patella alta

Avoid hypercorrection and fixed patella

Graft: for primary surgery preserve extensor mechanism





TT osteotomy

Correct "abnormal alignment"

CT or MRI mandatory : objective measurement

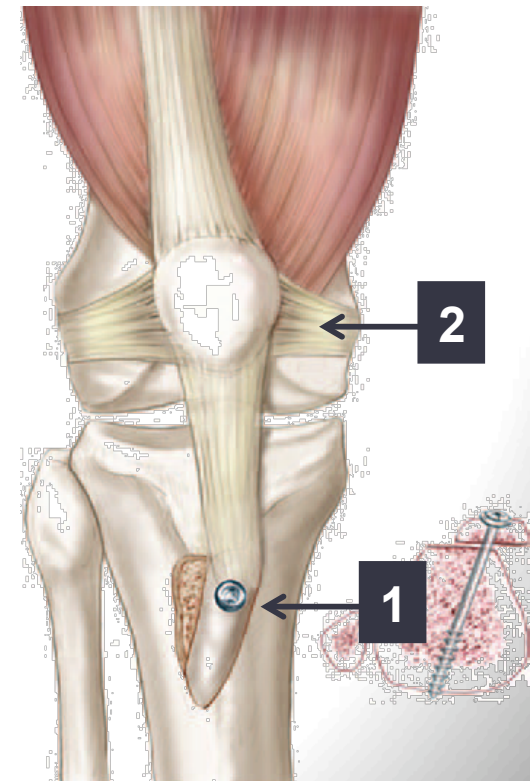


Medialization

→ $10 \text{ mm} < \text{TT-TG} < 15 \text{ mm}$

Procedure rules :

- Prior to MPFL reconstrsuction
- No over correction





TT osteotomy

Correct "abnormal height"

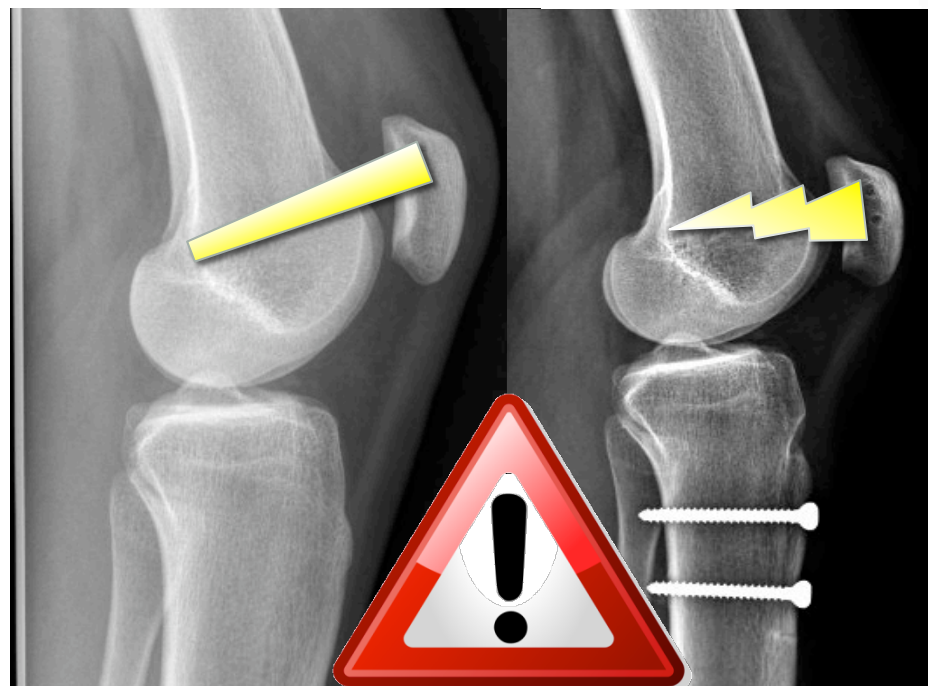


Distalization → index C&D = 1

Procedure rules :

Adapted to trochlear shape

Prior to MPFL
reconstruction



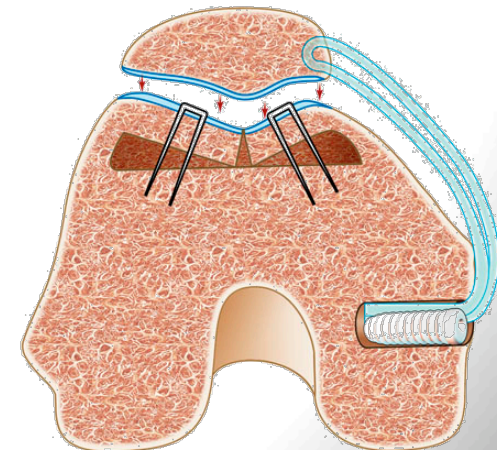
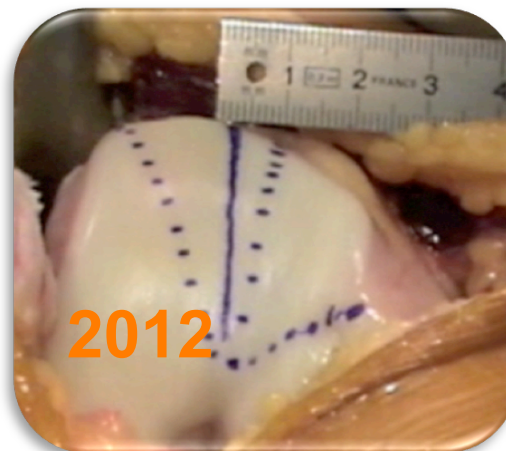


Deepening Trochleoplasty Restore "Normal Anatomy"



Proximal realignment + prominence removal

- Dysplasia Type B or D
- Abnormal patellar tracking

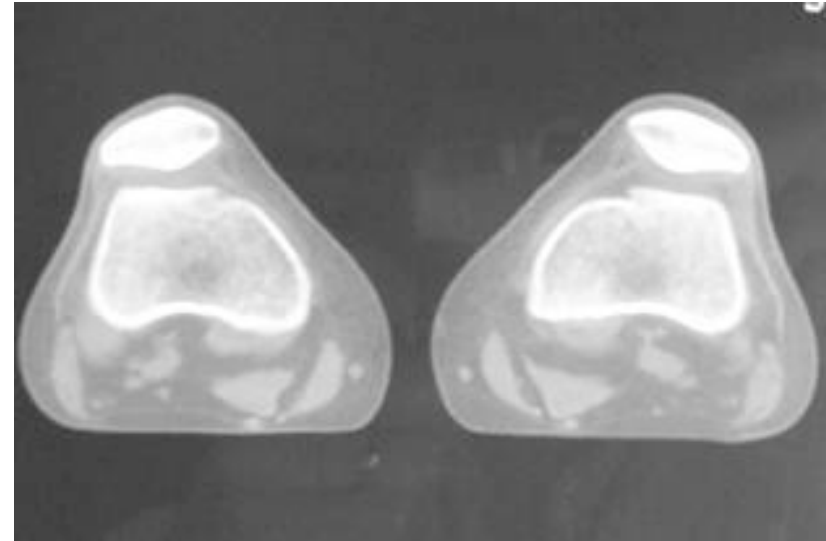


« A la carte » surgery concept

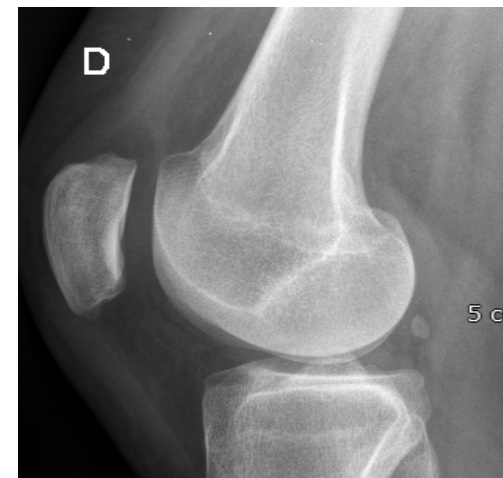
Static Abnormalities

Bone :

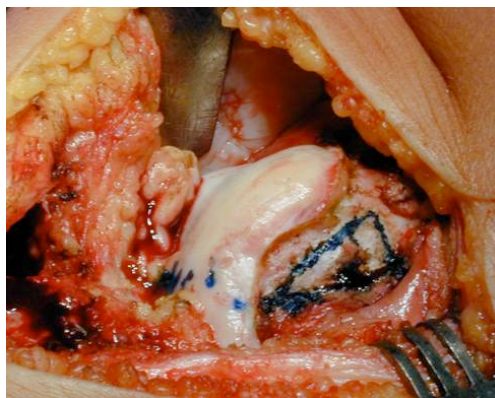
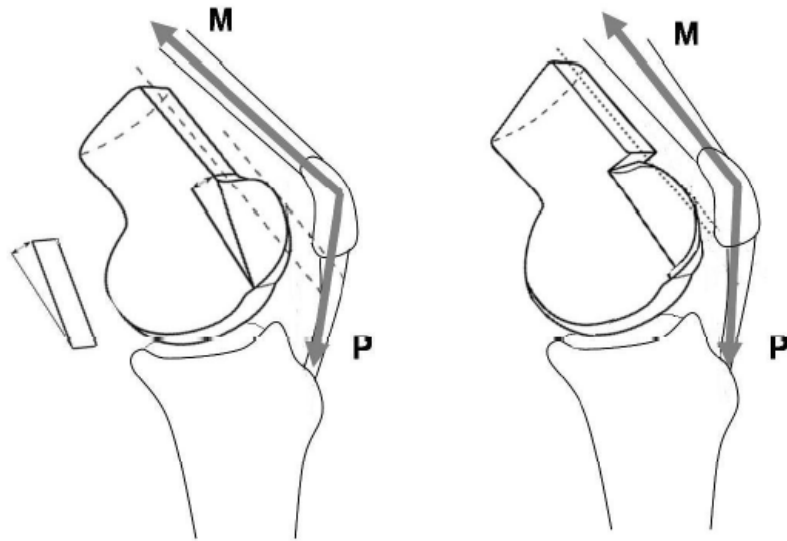
- Patella
- Patellar Height
- Bony Torsion
- Trochlear dysplasia



□ « A la carte » surgery



Recession wedge trochleoplasty



*Trochleoplasty in major trochlear dysplasia: current concepts
Beaufils P, Thauat M, Pujol N, Scheffler S, Rossi R, Carmont M..
Sports Med Arthrosc Rehabil Ther Technol. 2012*

Recession wedge trochleoplasty Results

- 19 knees – 34 months FU
- 18 recurrent dislocations ; 1 painful knees (previous surgery)
- Previous surgery failure : 7 knees
- Trochlear bump > 5mm
- Always associated with other procedures
 - ATT distalization +- medialization : 18 knees
 - MPFL reconstruction : 8 knees

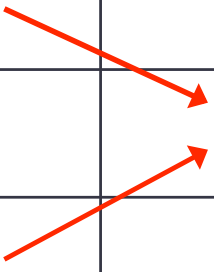
First Group : previous surgery

- 7 cases
- Stability : 7/8 OK
- Pre Op pain (8 cases) was improved in 7 cases, didn't change in 1.

Second Group : primary surgery

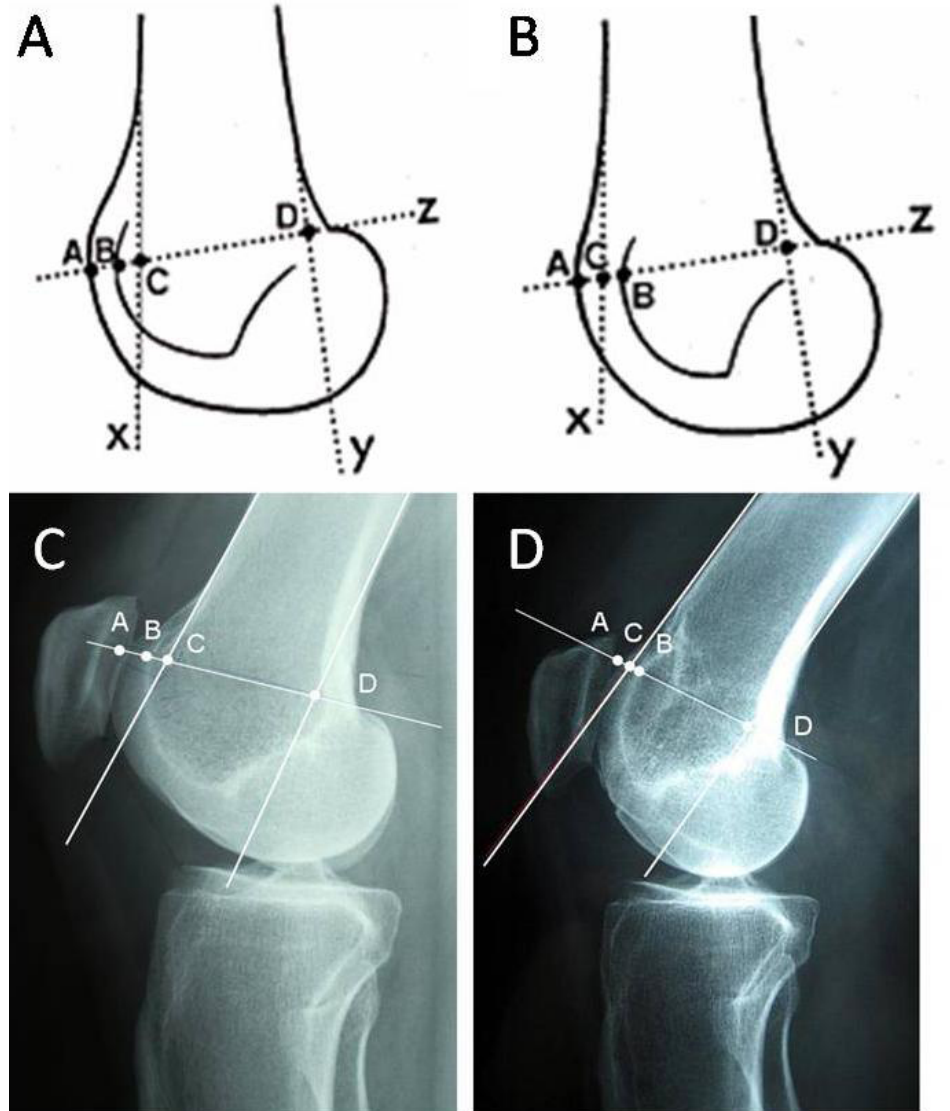
- 12 cases
- Stability : OK
- Pain :

	Preop	Postop
0	8	0
low	0	12
moderate	4	0
high	0	0



X Rays

- Decrease of Trochlear protrusion :
BC: +4.8mm → -0.8mm
AC: +9.1mm → 3.4mm
- Decrease of patellar tilt :
14° → 6°
MPFL+ : 14° → 5°
MPFL- : 14.3° → 6°



Literature

Authors	Year	N	F-U	Previous (months) surgery (%)	Indication Pain (%)	Instability (%)	Surgical technique	Additional procedures (%)	Satisfaction (%)	Results Failure (%)	Complications Pain (%)	Stiffness (%)
Masse et al [4]	1978	18	40	2	61	100	Deepening trochleoplasty	?	?	0	11	17
Reynaud et al [10]	1995	40	33	50	?	97	Dejour trochleoplasty	100	77	2	?	7
Gougeon et al [9]	1996	51	40	41	?	80	Albee(75%) deepening (25%)	?	?	2	?	11
Goutallier et al [13]	2002	12	48	92	100	0	Recession wedge trochleoplasty	64	67	0	83	0
Verdonk et al. [12]	2005	13	18	77	100	54	Dejour trochleoplasty	23	77	0	46	46
Von Knoch et al. [5]	2006	45	96	33	77	100	Bereiter trochleoplasty	?	100	0	91	0
Donell et al. [8]	2006	15	36	60	?	100	Modified Dejour trochleoplasty	100	80	0	?	33
Utting et al. [11]	2008	59	24	30	?	100	Bereiter trochleoplasty	49	92	0	15	2
Thaunat et al [14]	2011	20	34	40	60	100	Recession wedge trochleoplasty	100	94	10	100	5



Indication for isolated MPFL-R ?

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CLINICAL ARTICLE

CLINICAL ARTICLE

A philosophy and technique for reconstruction of the medial patellofemoral ligament

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Dr M Thunat

Department of Orthopaedic Surgery, Knee Clinic, Tygerberg Hospital, University of Stellenbosch



« *Form follows function* »

Isolated MPFL-R

20 patients operated (22 knee)
F-Up 2,3 years (9-54 months)

Mean Age: 22 (+/- 5) years

No recurrent dislocation

Mean Kujala : 93 (+/-6)

Bernageau index: 6.8 (+/- 4.4) mm

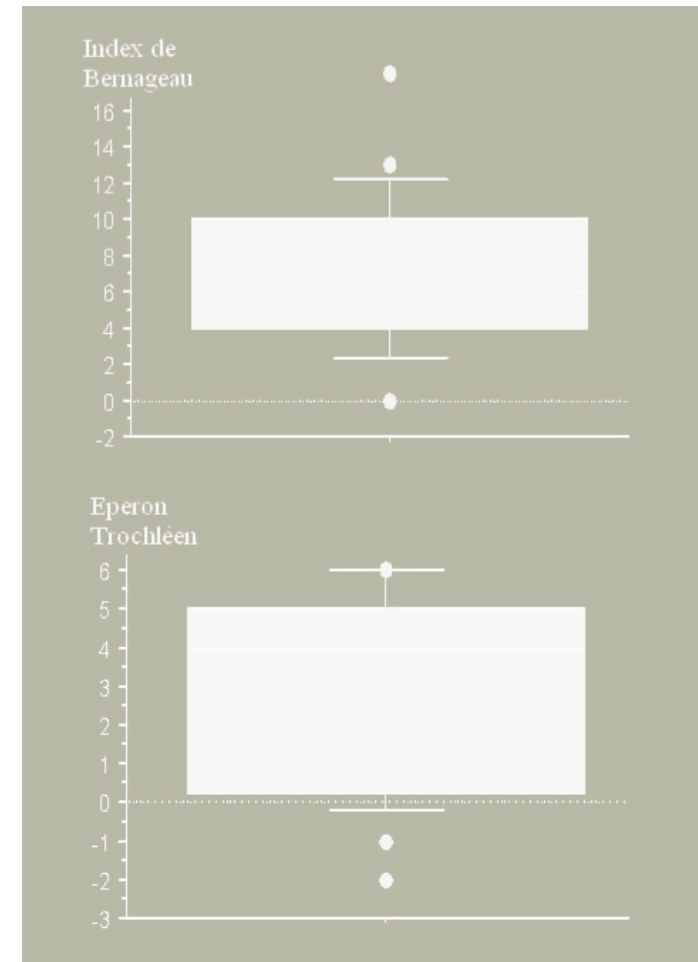
Caton Deschamps: 1.22 (+/-0.18)

T Dysplasia: 2.9 (+/- 2.5) mm

Complication: extension lag

Months 3:n=10

Last fu:n=1



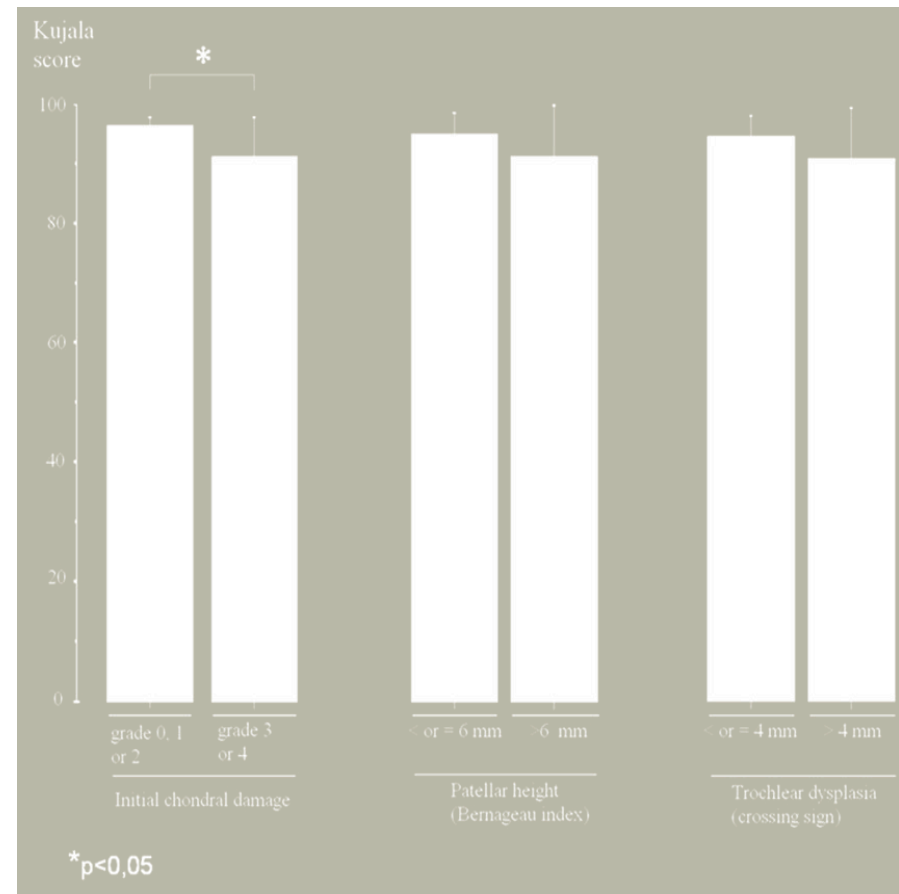
Results

- Functional Results depend:

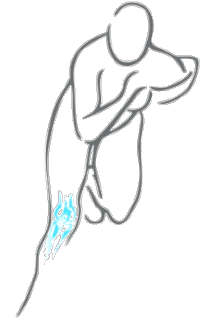
- **Cartilage damage :**
Grade 1 et 2 vs
Grade 2 et 3

- **Patella H :**
Bernageau < ou > à
6mm

- **T Dysplasia:**
Spur < > 4mm

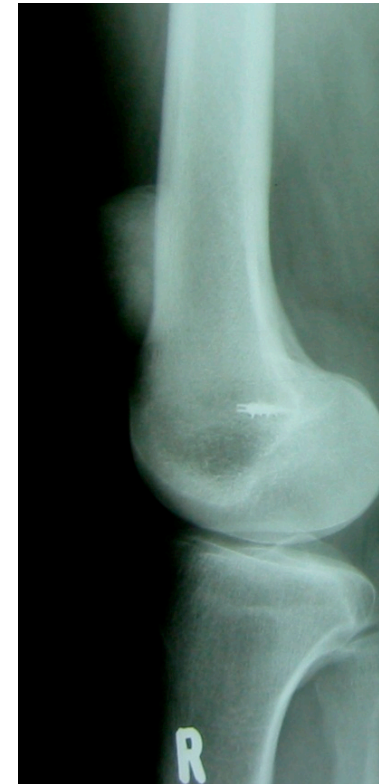


Loss of extension



• Extensor lag

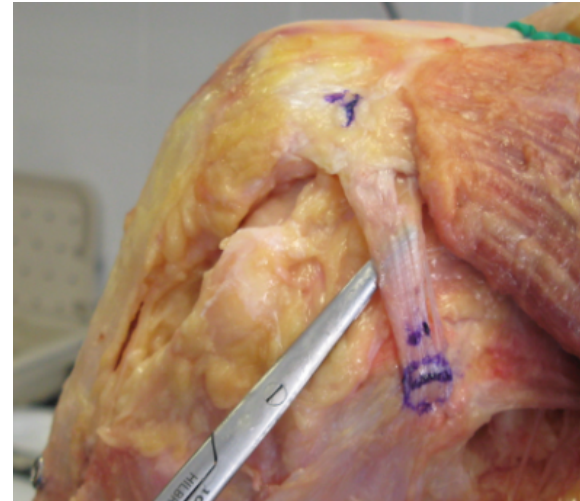
- Often temporary
- Too tight in extension
- tension in the MPFL > Patellar tendon
- More frequent in case of Patella alta



Thaunat M, Erasmus PJ. The favourable anisometry: an original concept for medial patellofemoral ligament reconstruction. Knee. 2007

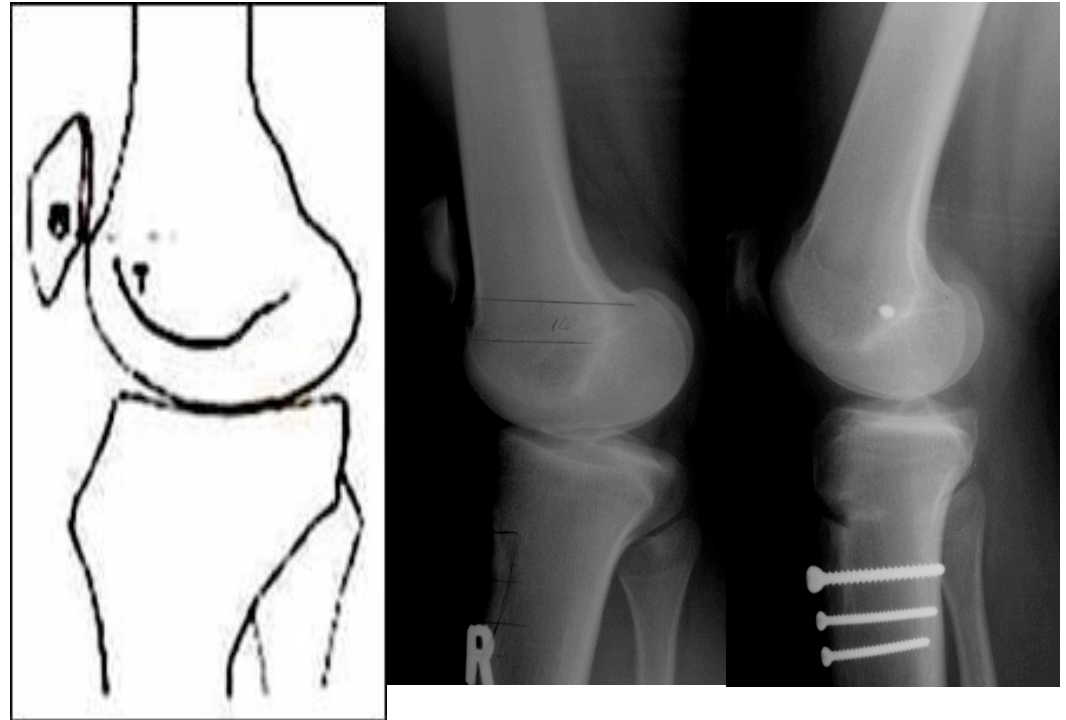
Isometry and patellar height

- Patellar height
- If the tibial tubercle was moved 10 mm proximally the average change was 6mm.
- When the tubercle was moved 10 mm distally the average length change was only 3 mm



Patella alta

- Bernageau index : height of the patella in relation to the superior border of the trochlea
 - If $> 8\text{mm}$ distalization of TT



Maltracking

- An isolated MPFL reconstruction is unlikely to eliminate patella J-tracking.
- the patella appears to take the course of an inverted J during the initiation of early flexion.
- The MPFL is not meant to “pull” the patella into position. Its role is to stabilize a located patella against excessive lateral force



Conclusion:

- **Ideal Candidate for isolated MPFL-R**
 - Episodic patellar dislocation with no pain between episodes
 - $< 25^\circ$ of Q angle
 - Trochlear morphology; normal or type A or C dysplasia, Bump $< 5\text{mm}$
 - Tibial tuberosity–trochlear sulcus angle distance $< 20\text{ mm}$
 - No patella alta (Caton-Deschamps < 1.2 / Bernageau index $< 8\text{mm}$)
 - Absence of patellar mal-tracking (abnormal J sign)
- **As adjunct to: Trochleoplasty /Distal realignment/Varus Femoral Osteotomy ?**
- **Threshold ?**

Conclusion:

- Form follows function (isolated MPFL-R)
 - Less invasive, do not compromise any other procedures
 - It is a stabilizing procedure, effects on pain are unpredictable
 - Limits: Patellar maltracking and patella alta
- A la carte surgery concept (Every bony predisposing factors are corrected)
 - Very efficient on stability
 - Improves pain on iterative surgery group
 - Limits: Technically demanding, morbidity.

Dankie

Knee Clinic
STELLENBOSCH

