

# *Reconstruction of the Extensor Mechanism after Total Knee Arthroplasty*

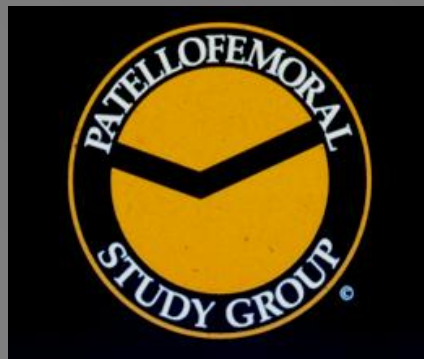
**Lyon DIU 2017**



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Sebastien Lustig**

The authors of the next presentation have identified potential conflicts of interest:  
Amplitude/ Tornier-Corin



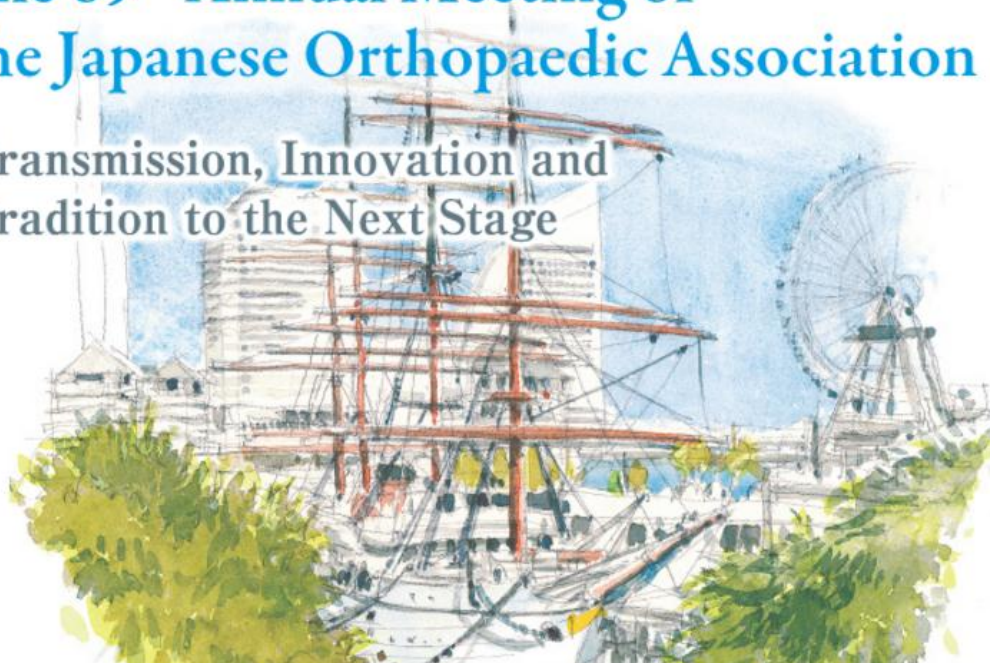
# The 89<sup>th</sup> Annual Meeting of the Japanese Orthopaedic Association

Transmission, Innovation and Tradition to the Next Stage



## The 89<sup>th</sup> Annual Meeting of the Japanese Orthopaedic Association

Transmission, Innovation and  
Tradition to the Next Stage



May 12<sup>Thu</sup>-15<sup>Sun</sup>, 2016 Venues **PACIFICO Yokohama**

Congress  
President

**Tomoyuki Saito**

Department of Orthopaedic Surgery,  
Yokohama City University School of Medicine



# Reconstruction of the extensor mechanism after TKA

- Rare complication
- Challenging cases in knee surgery
- Conventional procedures

Direct suture

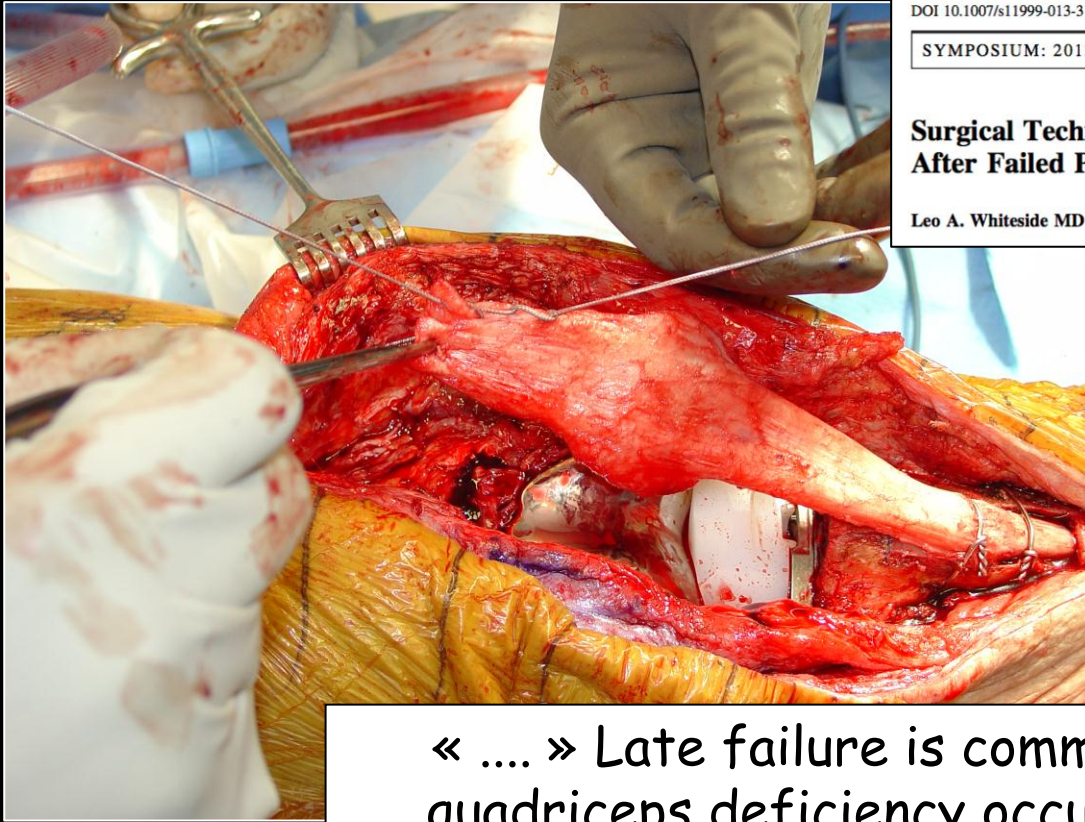
Metallic wire reinforcement

Tendinous reinforcement

**Not efficient !**



# Extensor mechanism « massive » allograft



Clin Orthop Relat Res (2014) 472:218–226  
DOI 10.1007/s11999-013-3101-9

Clinical Orthopaedics  
and Related Research<sup>®</sup>  
A Publication of The Association of Bone and Joint Surgeons<sup>®</sup>

SYMPOSIUM: 2013 KNEE SOCIETY PROCEEDINGS

## Surgical Technique: Muscle Transfer Restores Extensor Function After Failed Patella-Patellar Tendon Allograft

Leo A. Whiteside MD

« .... » Late failure is common, however, and major quadriceps deficiency occurs after removal of the allograft material « ... »

# Hanssen Technique

- USA: Marlex mesh™
- France: Prolène™, Ethicon

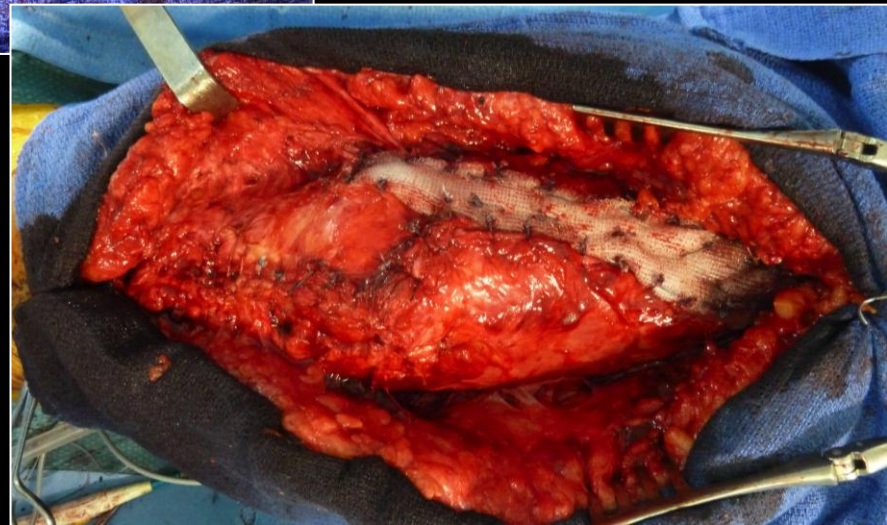
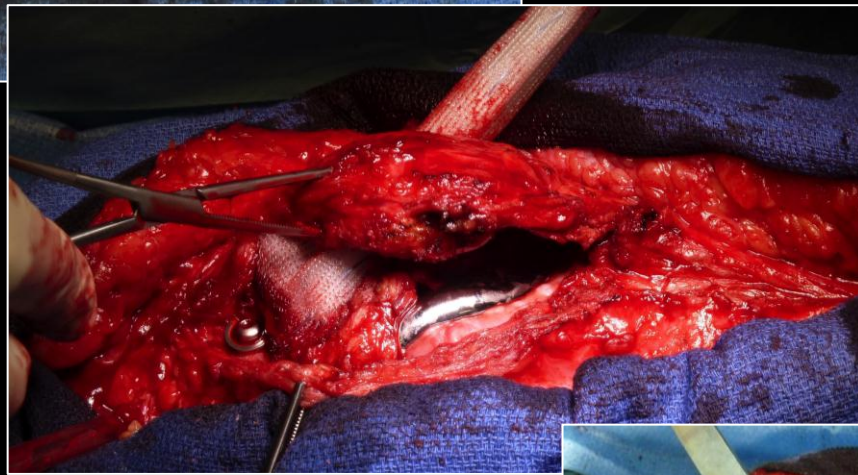
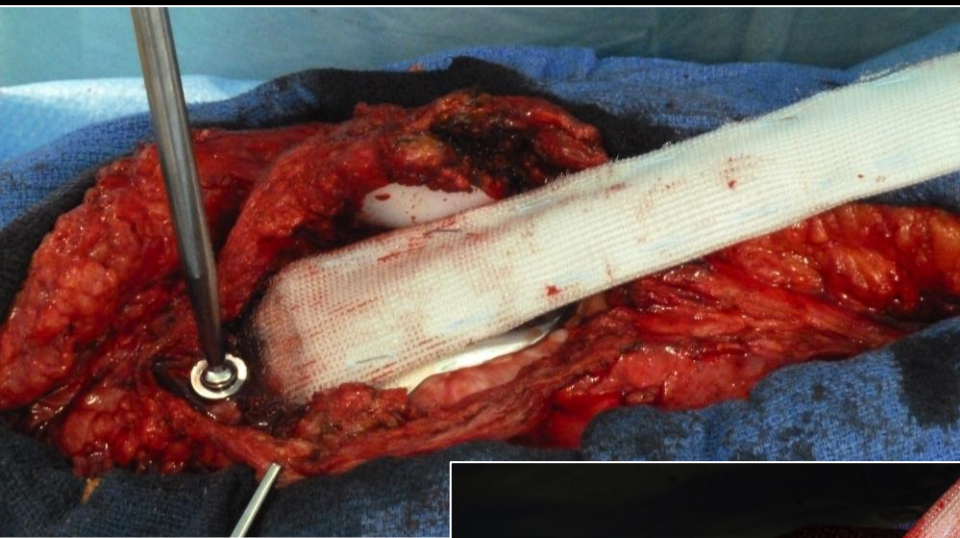


## Reconstruction of Patellar Tendon Disruption After Total Knee Arthroplasty

Results of a New Technique Utilizing Synthetic Mesh

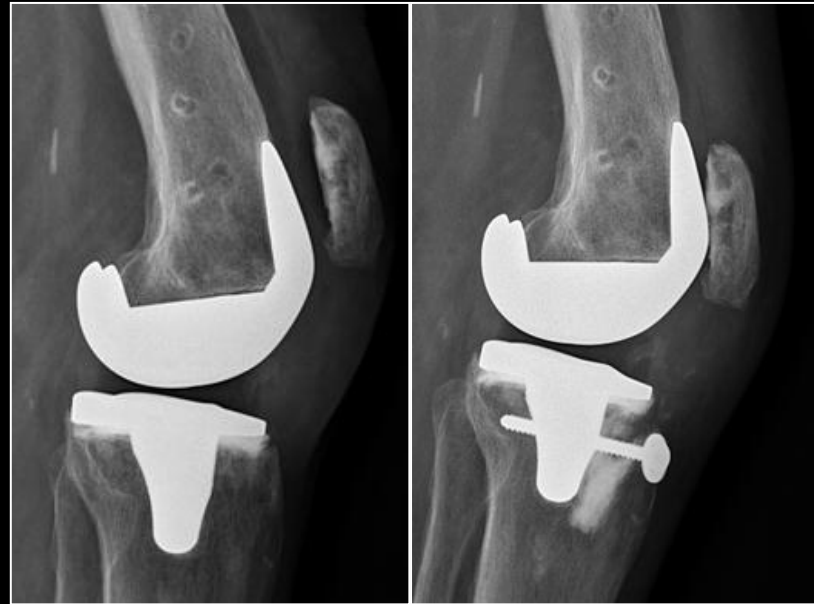
James A. Browne, MD, and Arlen D. Hanssen, MD

JBJS (Am) 2011



Not always  
a slam dunk

...

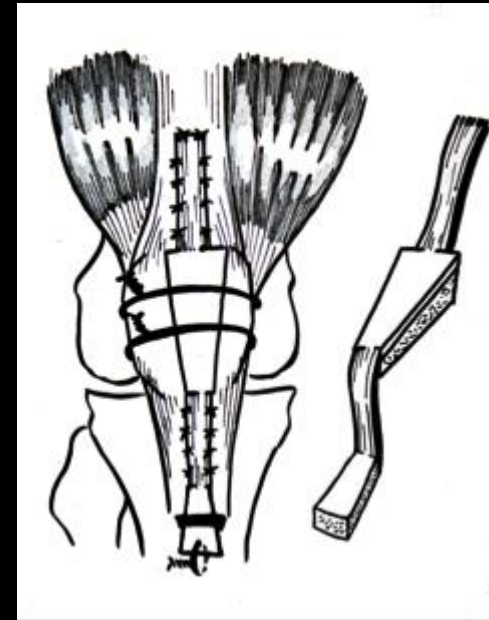




# Alternative option

1991

« Partial » EM graft :



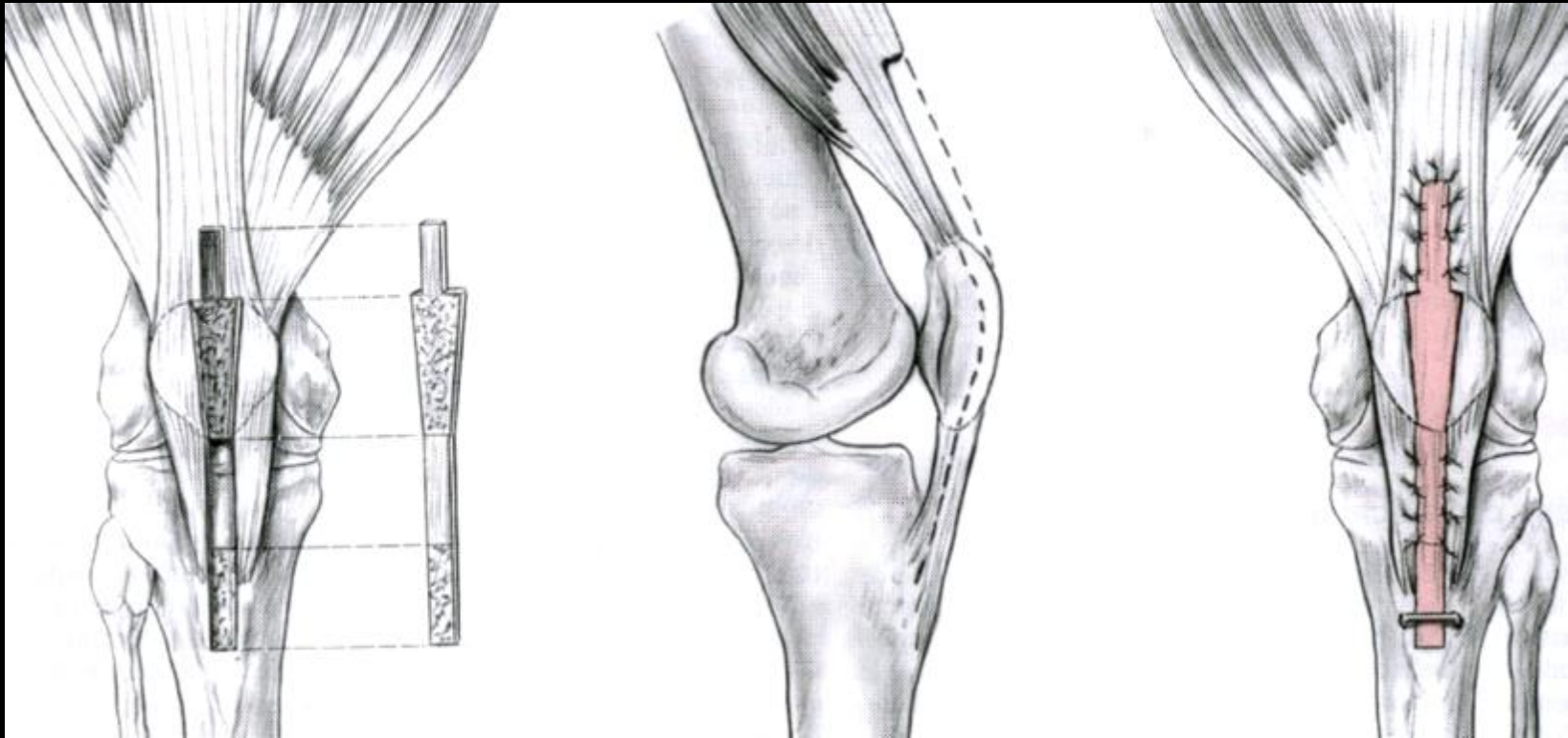
- less « invasive »
- maintain the native patella

DEJOUR H., NEYRET P., DENJEAN S.,

An original surgical technique for old rupture of the patellar tendon.

International Society of the Knee, Toronto (Canada), May 16-17, 1991.

# Our first option : using autograft



# Our first option : using autograft

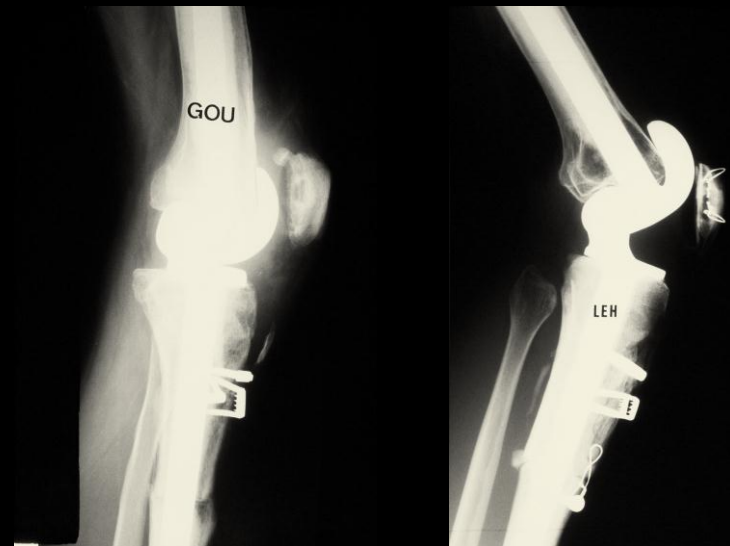
Neyret P, Donell ST, Carret JP, Dejour H. Patellar ligament rupture treated by contralateral patellar ligament autograft and its application in patients with tibial allografts. *The Knee*. 1994;1: 158-60.



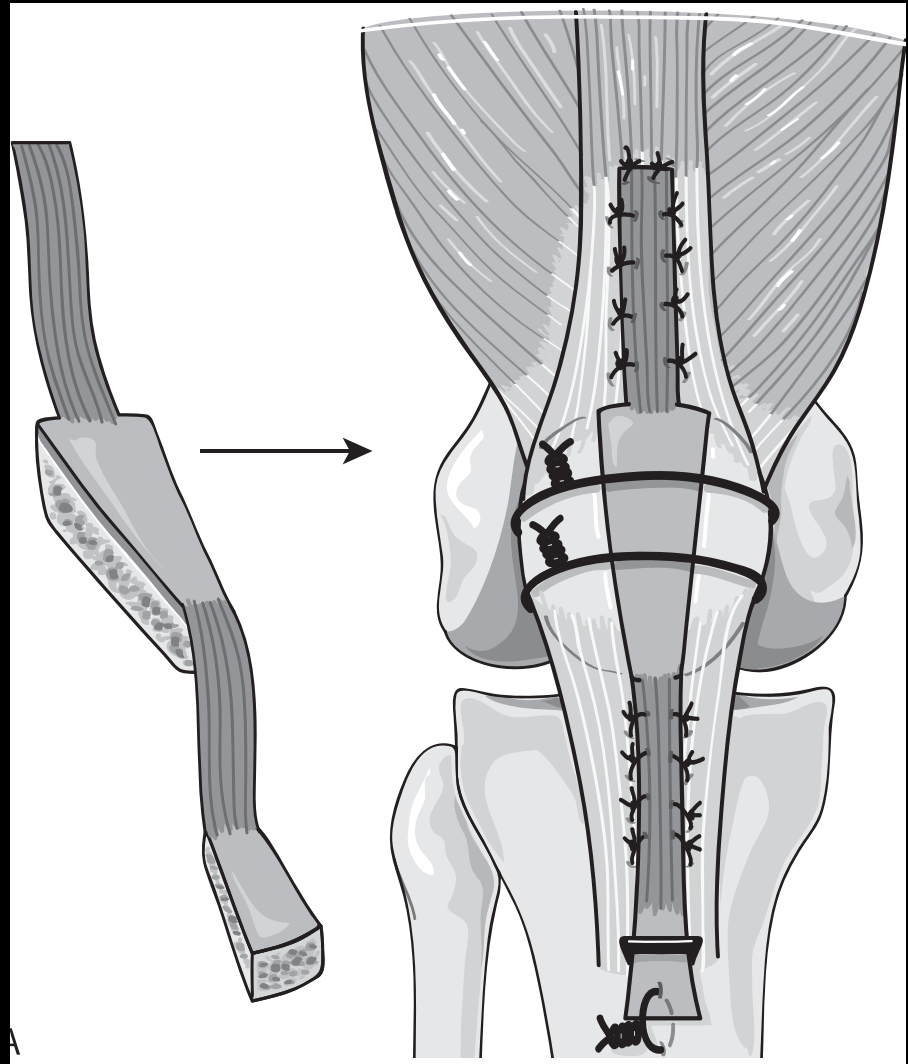
# Osteosarcoma + Tibial allograft

NEYRET P., DONELL S.T., CARRET J.P., DEJOUR H.,  
Patellar ligament rupture treated by  
contralateral patellar ligament autograft and its  
application in patients with tibial allografts.

*The Knee 1994, 1, 158-160.*

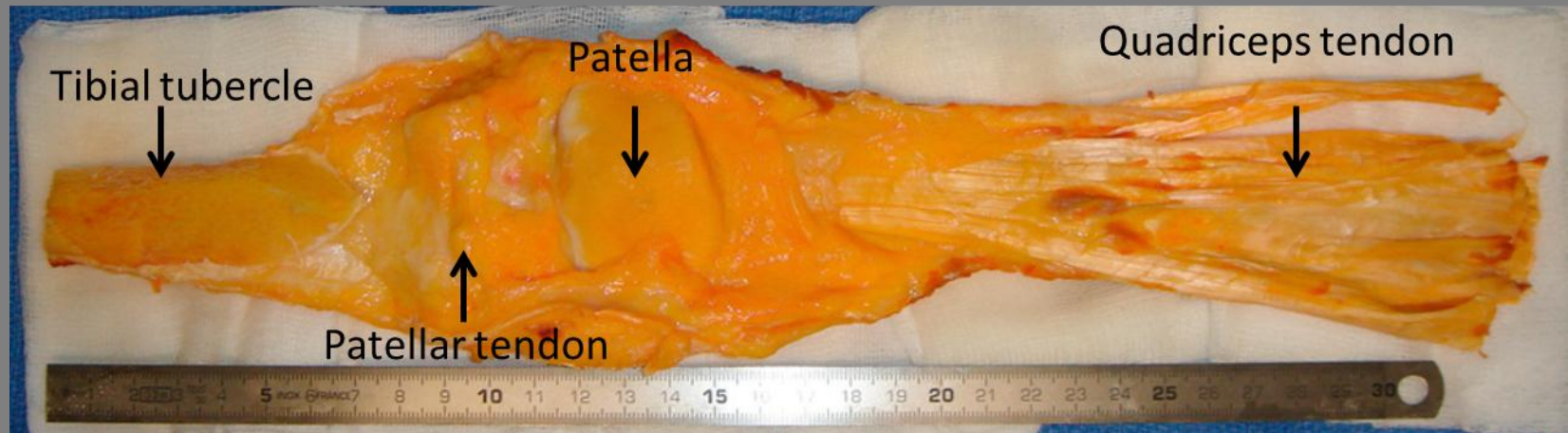


# Other option : allograft



# Surgical procedure

## 1. Graft : extensor mechanism allograft



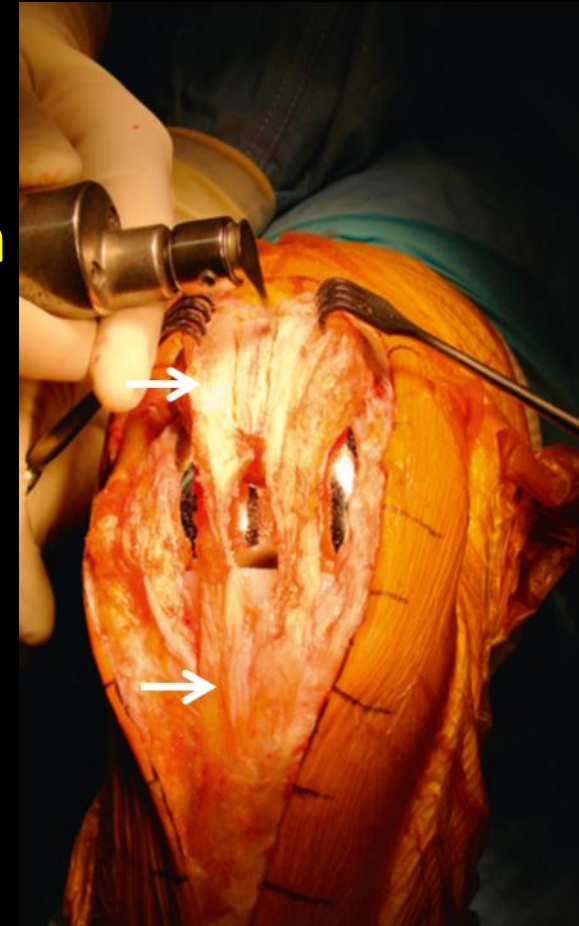
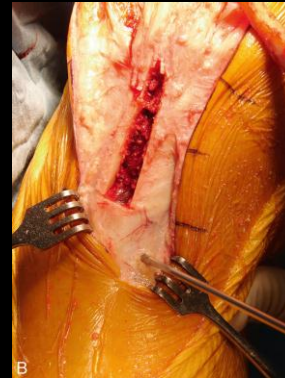
Complete extensor mechanism



Preoperative sizing +++ on x-rays according to the contralateral knee

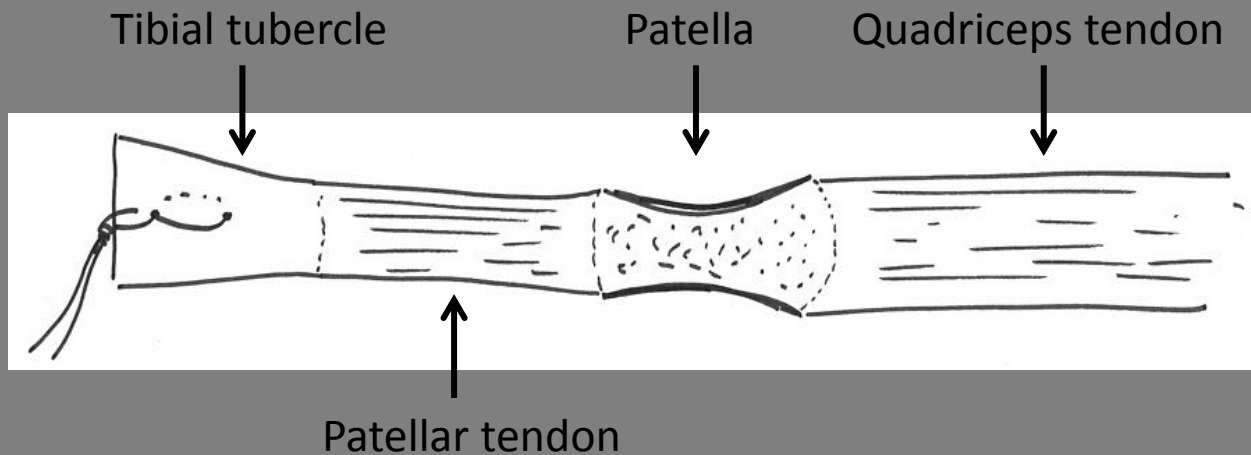
# Surgical procedure

1. Graft : extensor mechanism allograft
2. Preparation of the extensor mechanism channels at the anterior part of the patella and tibial tubercle



# Surgical procedure

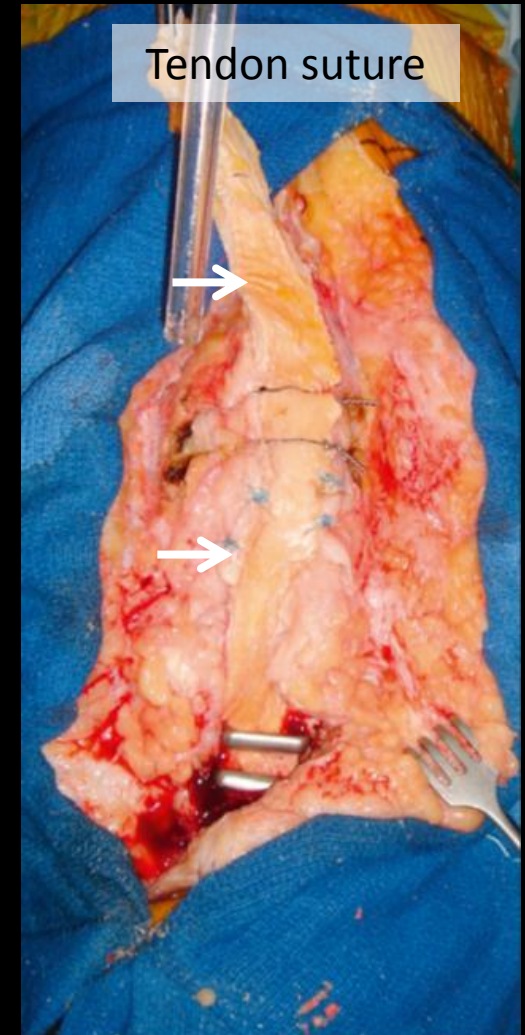
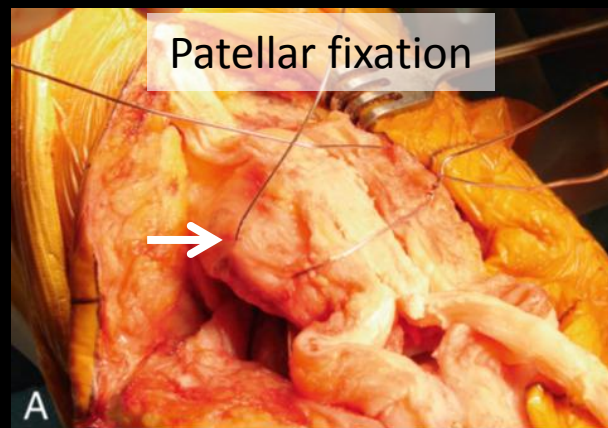
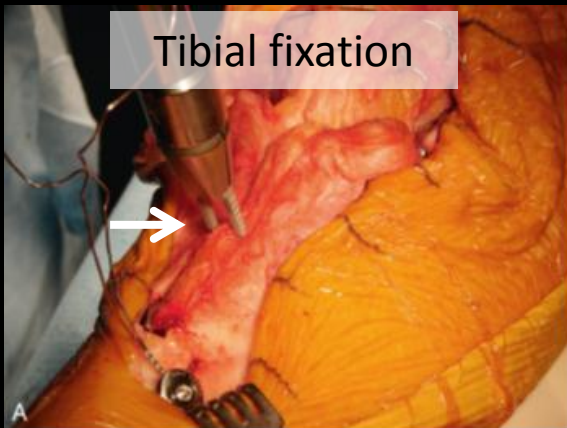
1. Graft : extensor mechanism allograft
2. Preparation of the extensor mechanism
3. Preparation of the allograft





# Surgical procedure

1. Graft : extensor mechanism allograft
2. Preparation of the allograft
3. Preparation of the extensor mechanism
4. **Graft fixation**



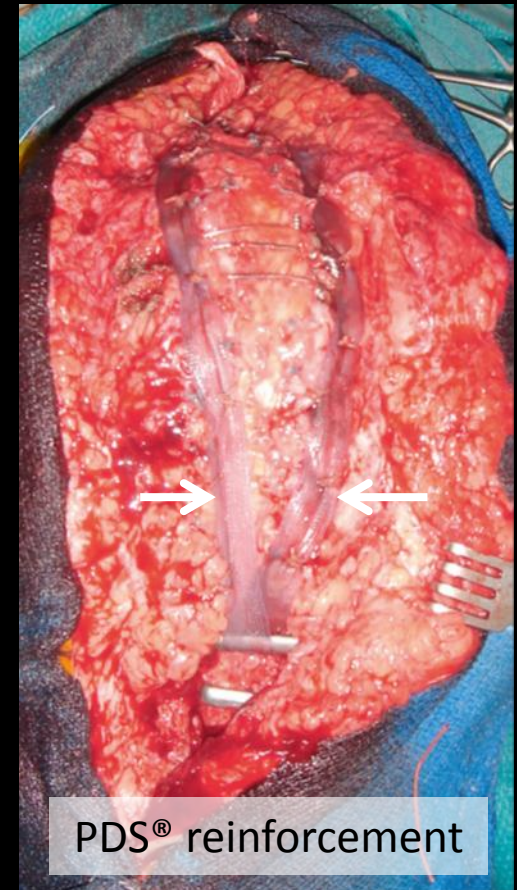


# Surgical procedure

## Ideal procedure

1. Graft : extensor mechanism allograft
2. Preparation of the allograft
3. Preparation of the extensor mechanism
4. Graft fixation
5. Suture and closing

Pds<sup>®</sup> reinforcement sutured at 90° of flexion to protect the allograft



# Surgical procedure

## Ideal procedure

1. Graft : extensor mechanism allograft
2. Preparation of the extensor mechanism
3. Preparation of the allograft
4. Graft fixation
5. Suture and closing
6. **Physiotherapy protocol**

Very careful during at least 3 months

2 MONTHS IN A CAST IN EXTENSION

Progressive flexion protocol

0° to 45°

0° to 70°

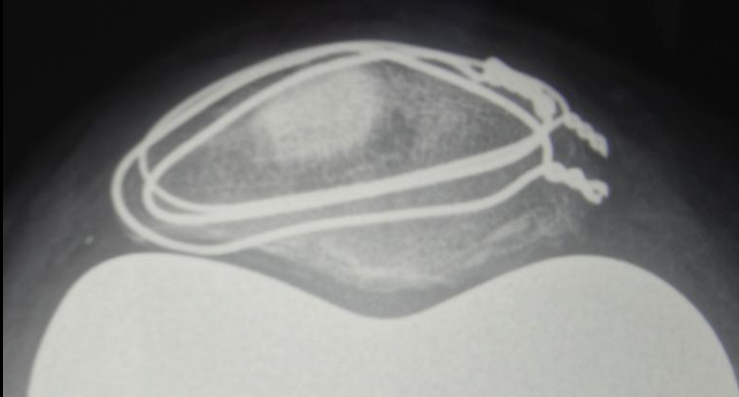
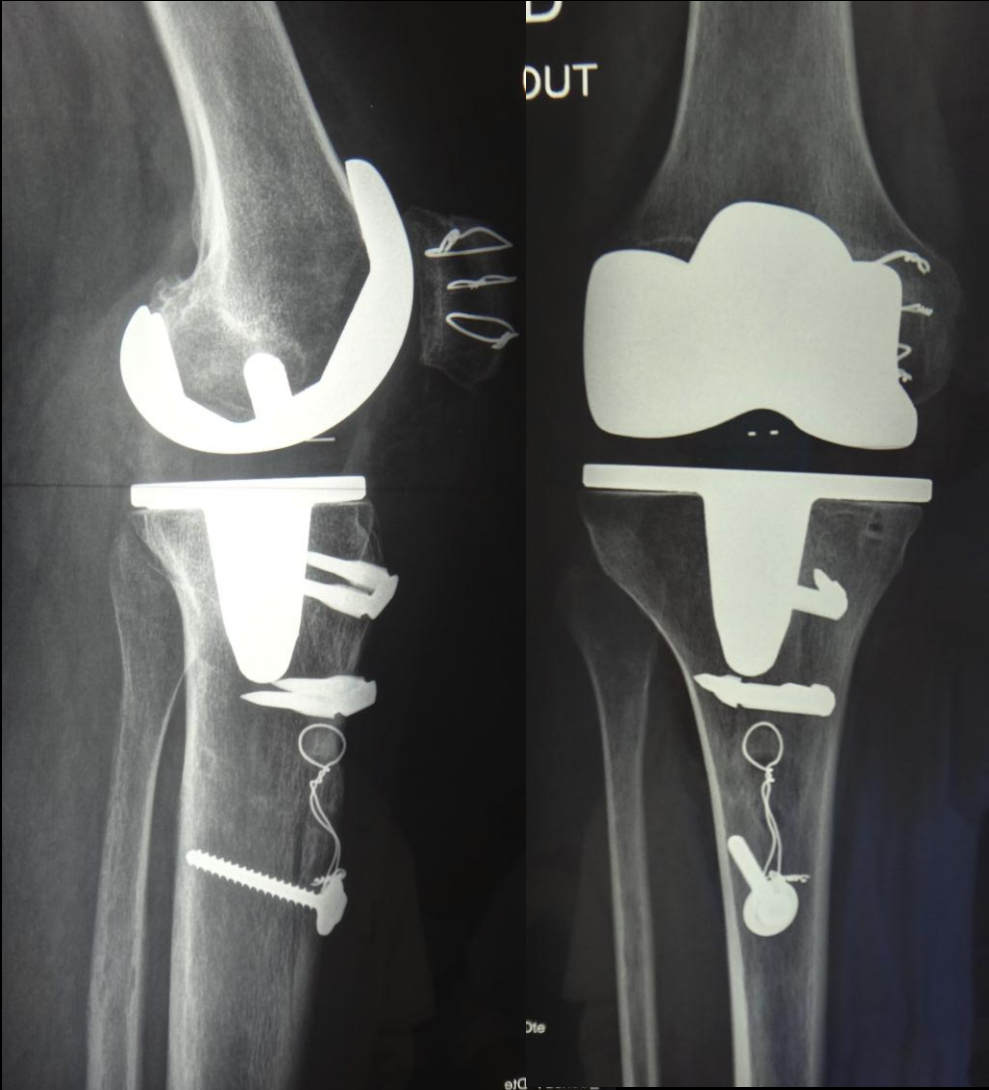
0° to 90°

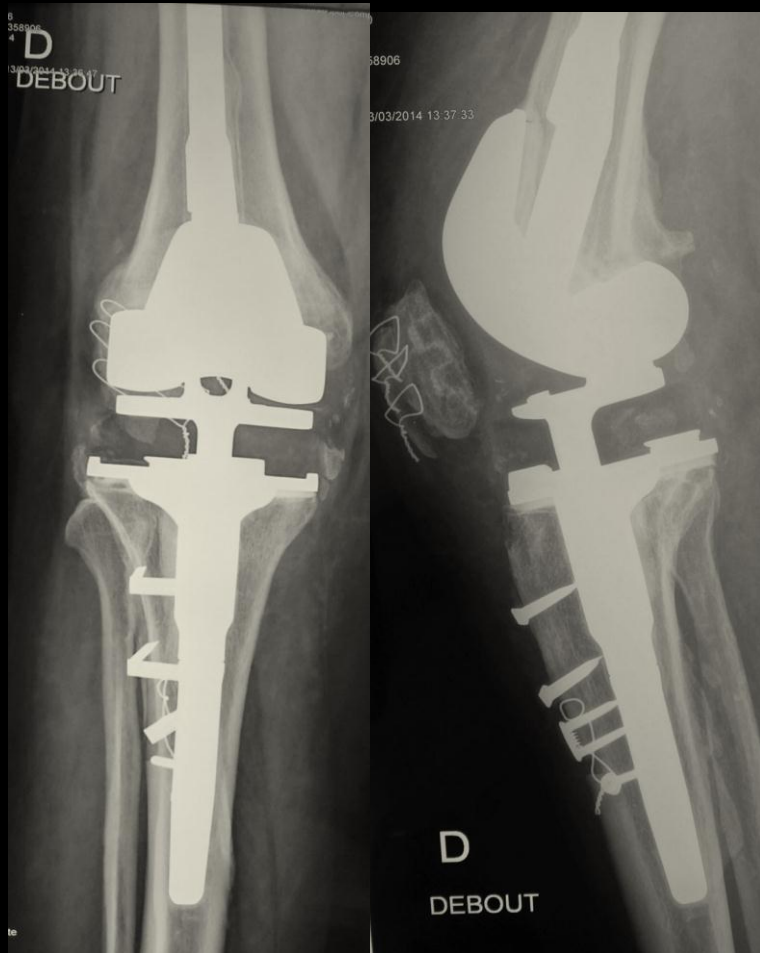
0° to 120° for 6 months

Clinical and radiological control every 45 days



Jan... marcelle In 2012 (1969)  
Partial AlloG diabololo 2013  
Perfect XR 2016





Pag... Claude (1940)  
French Polynesia  
TKA in 2010  
Referred fpr chronic PT rupture  
AlloG of EM in 2013  
FU @ 1Y



# Albert Trillat Center From 2007 to 2014

21 reconstructions of chronic rupture  
of extensor mechanism after TKA



16 conventional  
procedures

14 allografts  
2 autografts

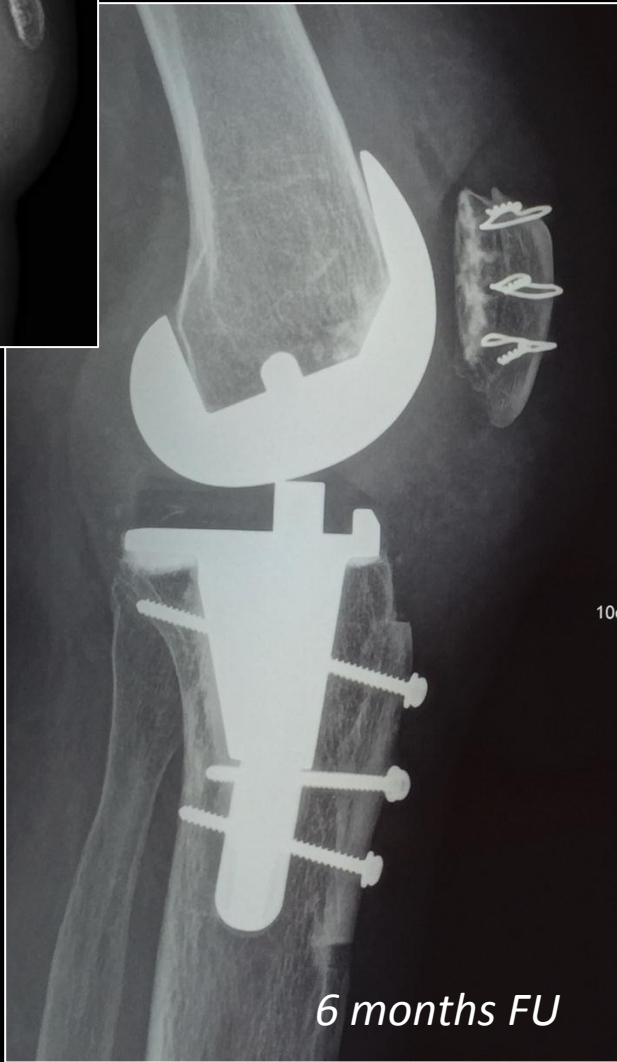
5 synthetic  
procedures



# Complications

- No infection
- No graft rupture
- Transplant sliding (n=2)  
(but no lack of active extension)

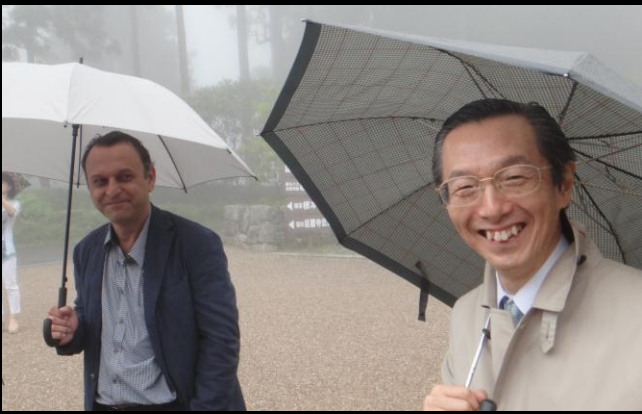




# Take Home Message

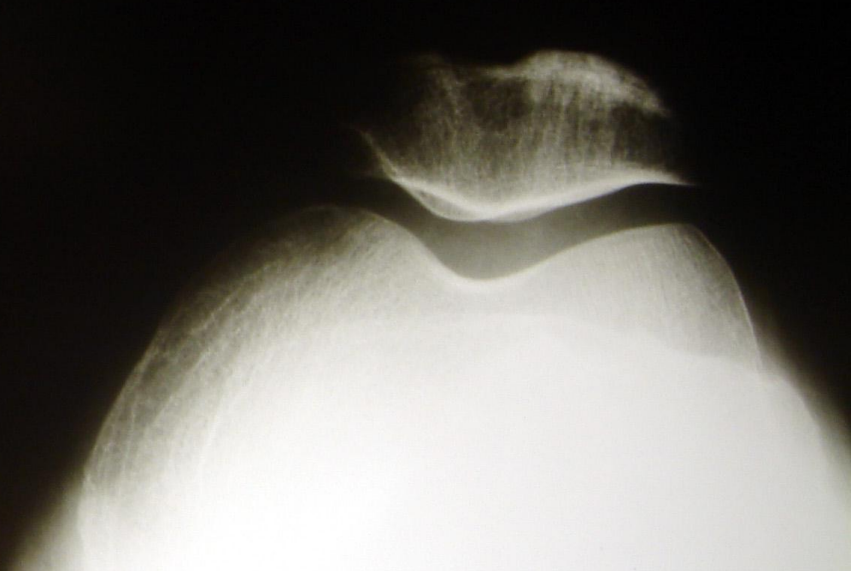
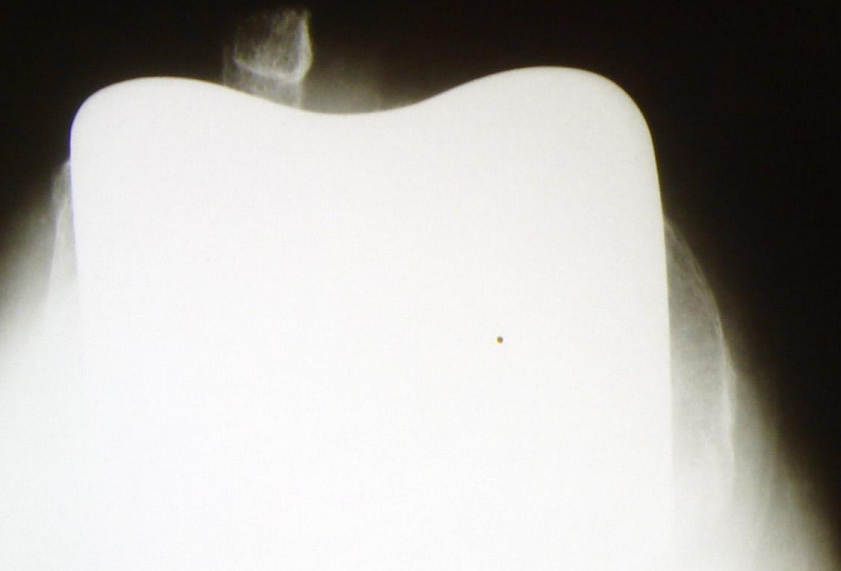
- Challenging situation
- Salvage surgery
- « Conservative » EM Allograft is our first choice for chronic patellar tendon rupture after TKA





# TKA after patellectomy





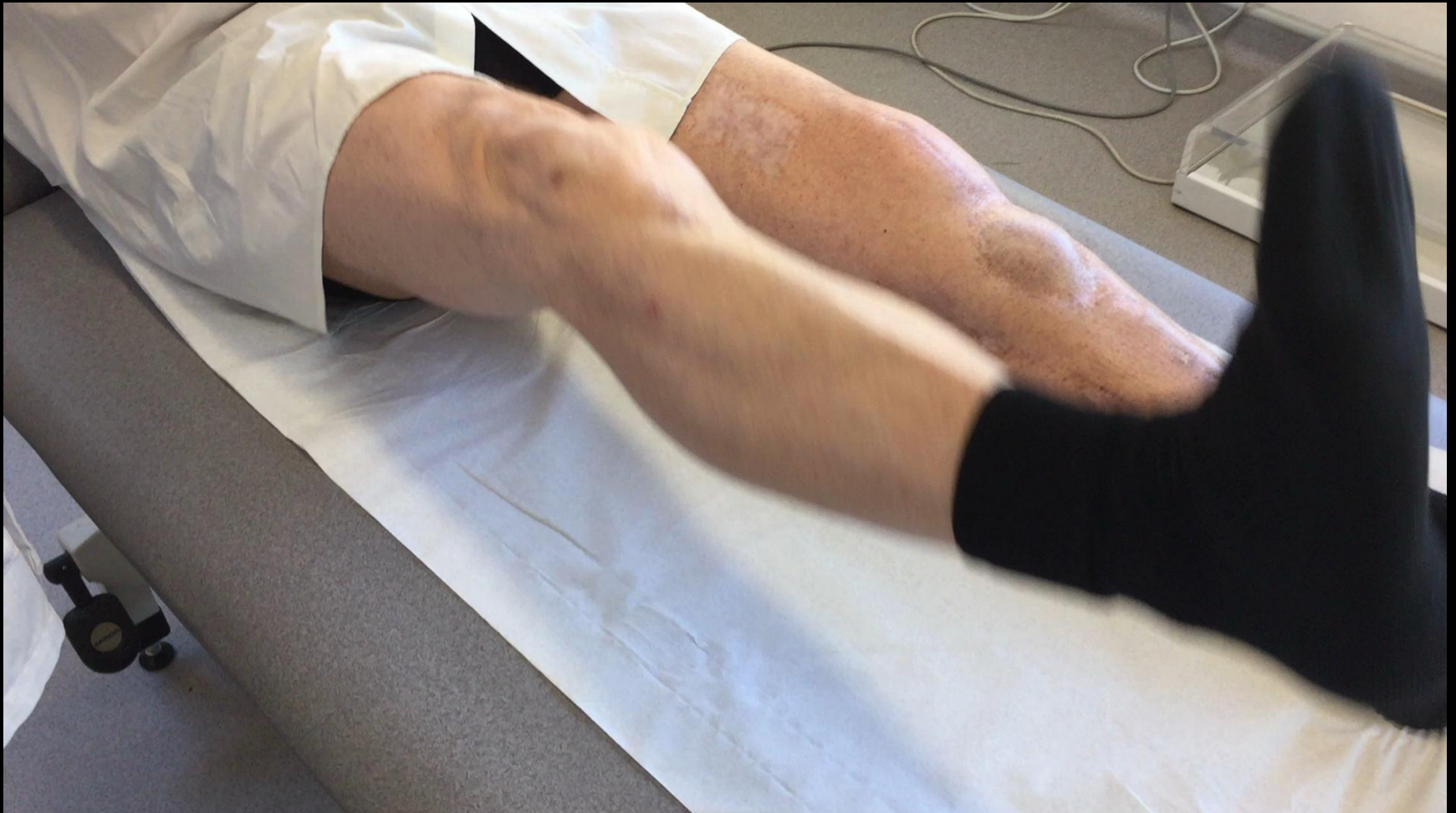
Mar...arthur born in 1957  
Patellectomy in 1989  
And then contral autoG 1991

FU in 2016  
+25 Years



Mar...arthur born in 1957  
Patellectomy in 1989  
And then contral autoG 1991

FU in 2016  
+25 Years



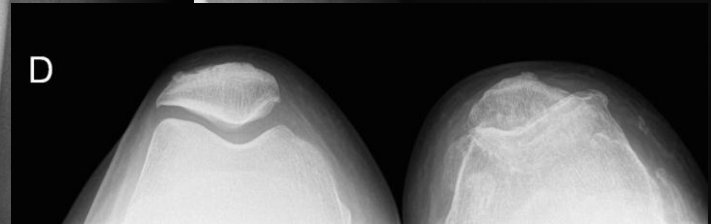






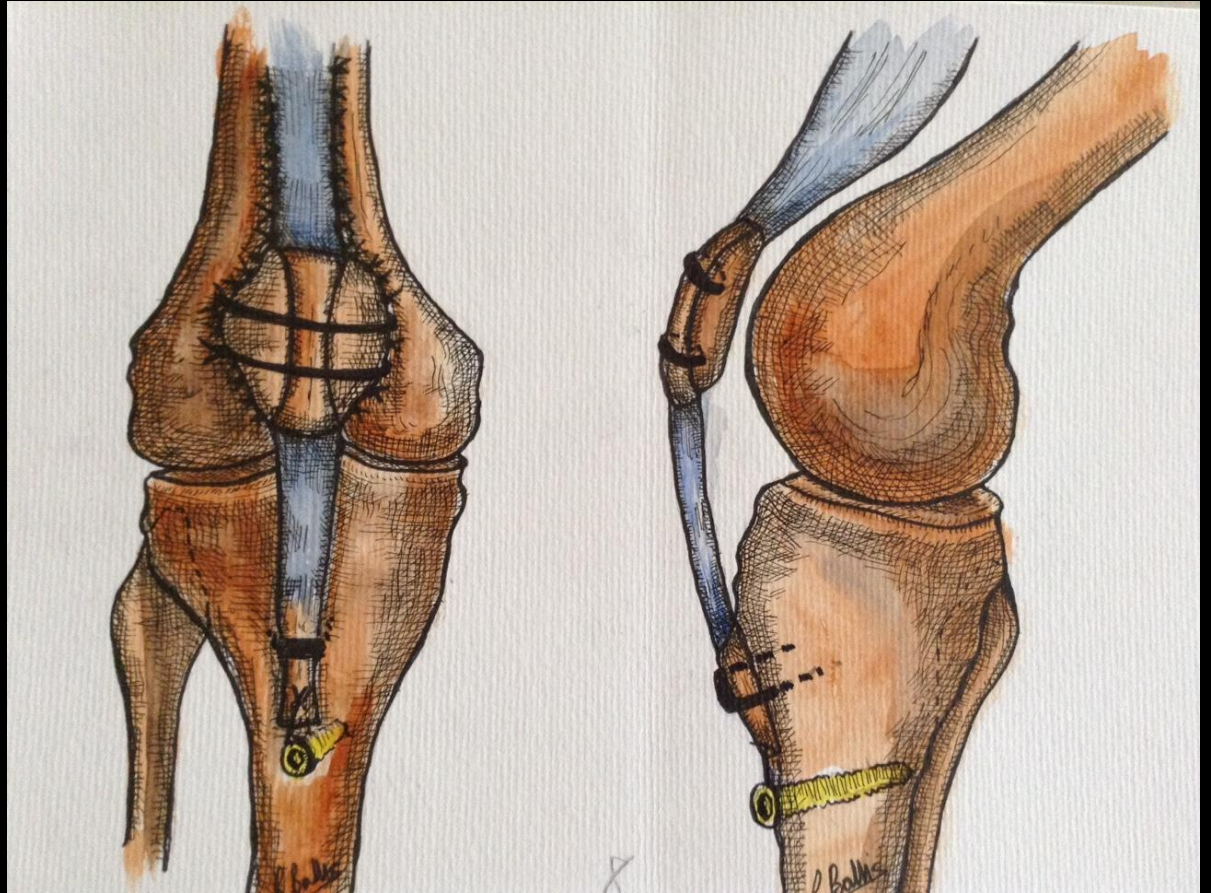
# TKA+EM Allograft

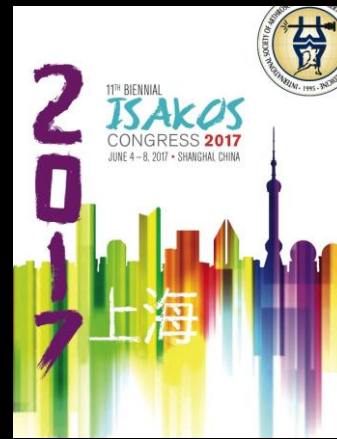
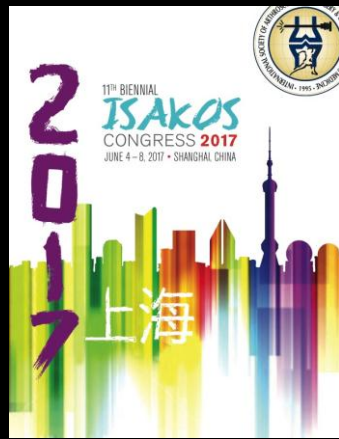
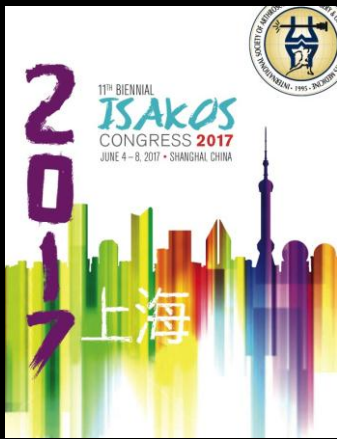




GAU .... Odette 48 years







Merci

