

Patella Baja and total knee arthroplasty

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Val d'isère 2016



CENTRE
OSTÉO-ARTICULAIRE
DES CÈDRES



Clinique des Cèdres
Certifiée ISO 9001:2008
Certifiée HAS V2010

Disclosure

- Consultant – royalties Groupe Lepine
- Special acknowledgement to Jacques CATON

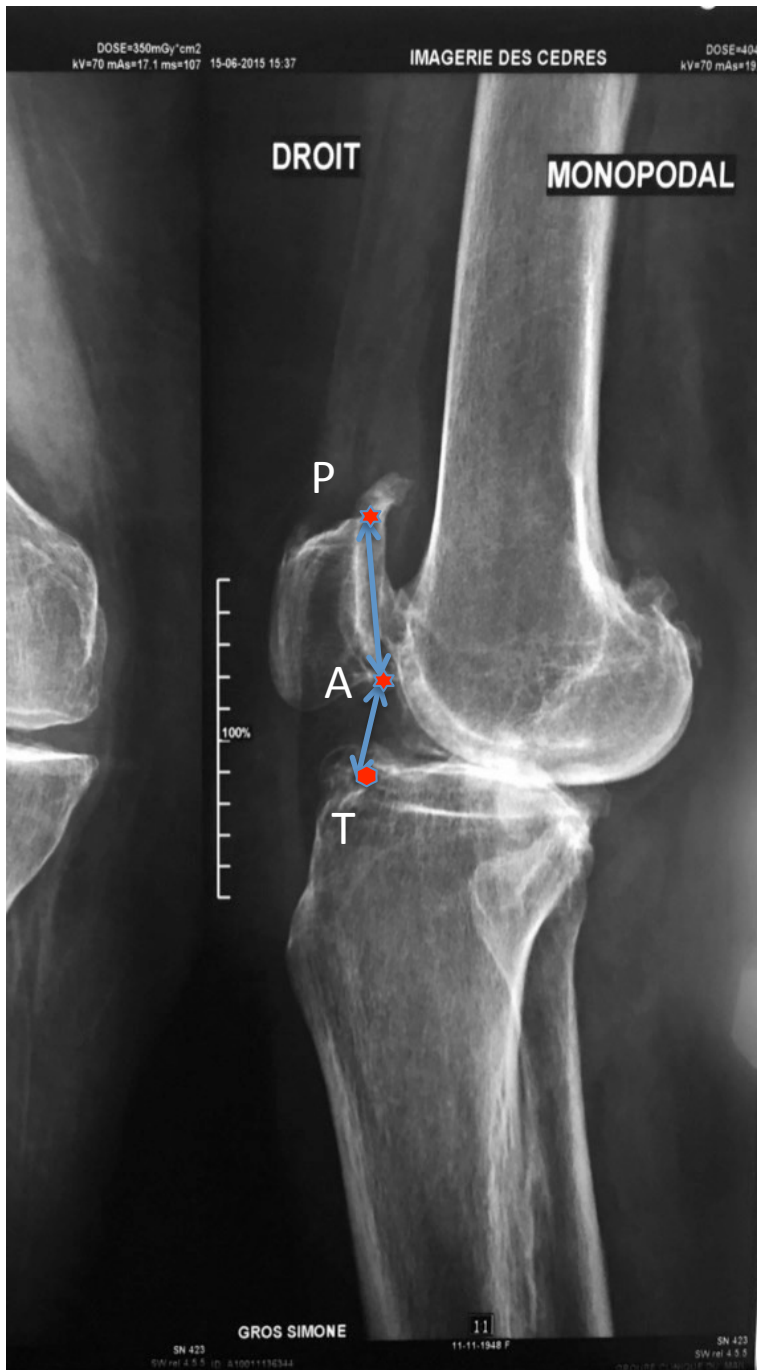




67 y.o. female
 Severe overweight
 Charnley C
 Function score 25
 Knee score 8
 ROM 0/120

3 questions

- Is the patella baja?
- Which surgical approach?
 - Antero medial
 - Anterolateral
 - ATT osteotomy?
- Which type of TKA?
 - Regular PS TKA
 - High constrained
 - Hinge



Caton & Deschamps Index

AP	2.1
AT	1.4
CD original Index	0.6

CD original index is under 0.8
Pre op Patella is baja

Questions:

- How to measure patella height?
- Pre operative patella baja: what are the specific technical issues?
- Post operative patella baja:
 - Do we modify patella height?
 - what is the impact on knee function (score and ROM) ?

Patella height measurement methods

- JANSEN 1929
- BOONITT 1930
- Blumensaat 1933
- Insall-Salvatti 1971
- Caton 1977
- Blackburne-Peel 1977
- Laurin 1978
- Caton-Deschamps 1982
- Linclau 1984
- Bernageau 1984
- De Carvalho 1985
- Koshino-Sugimoto 1989
- Grelsamer 1992
- Leung-Wai 1996
- Picard-Saragaglia 1997
- Biedel-Albrecht 2006
- Chareancholvanich – Narkbunnam 2012

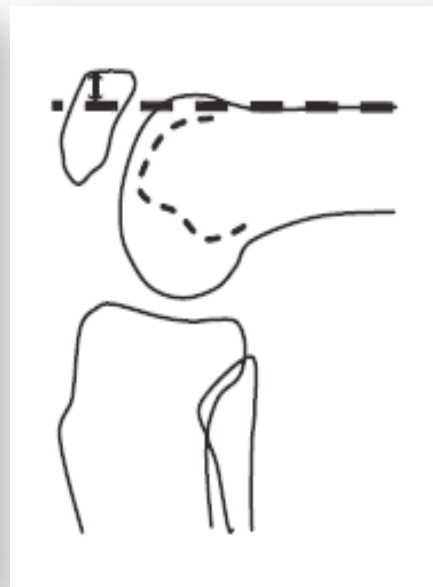


Patella height measurement methods

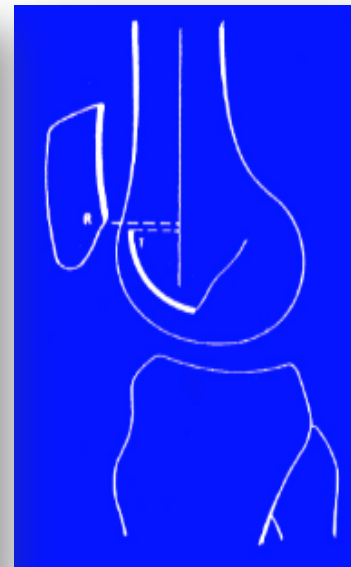
Femoral reference



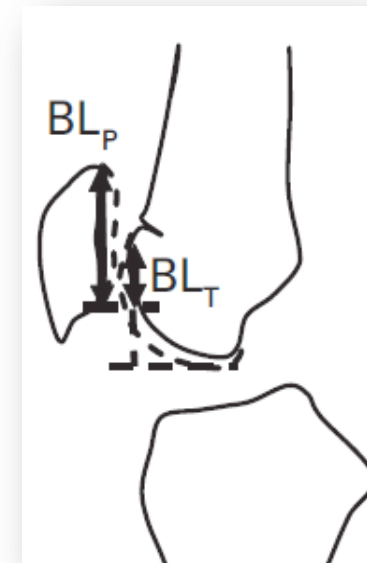
Blumensaat
(1938)



Labelle, Laurin
(1977)



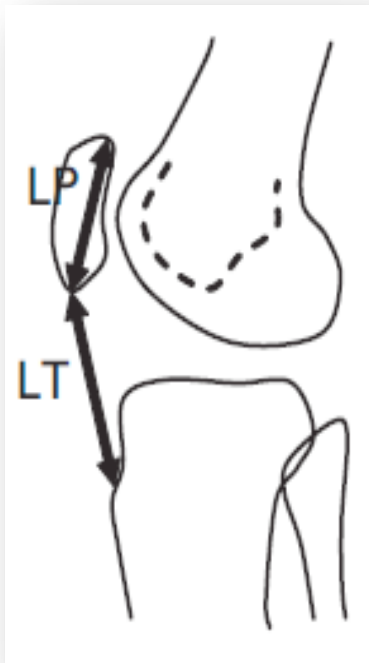
Bernageau,
Goutallier
(1984)



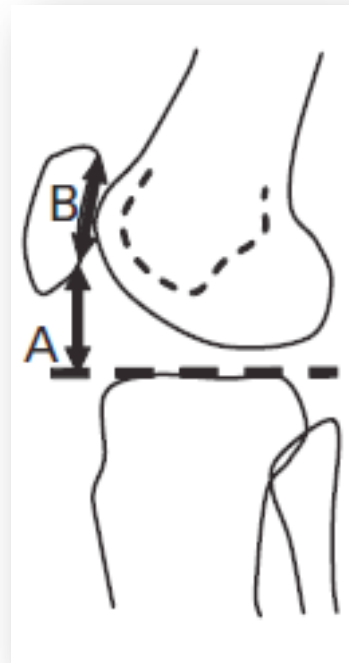
Biedert,
Albrecht (2006)

Patella height measurement methods

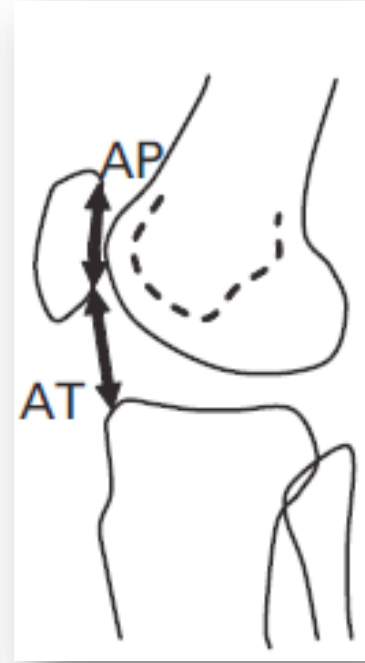
Tibial reference



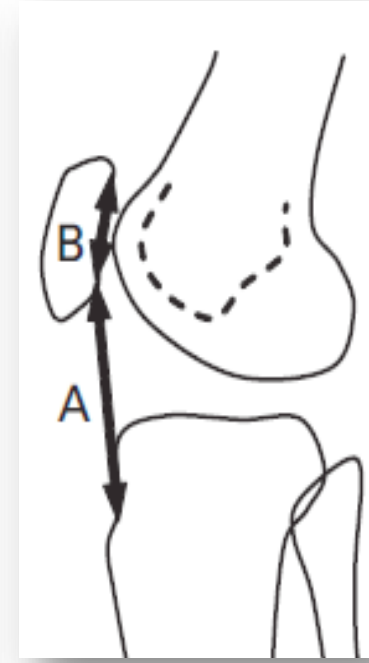
Insall, Salvati
(1971)



Blackburne,
Peel (1977)



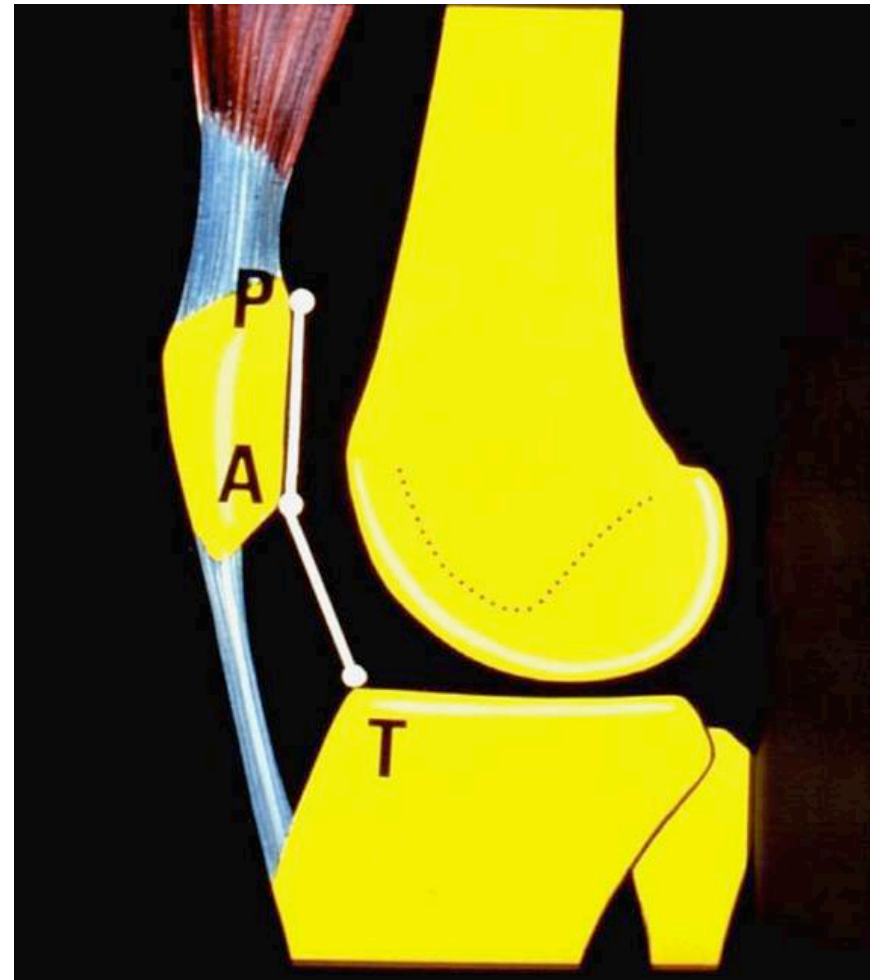
Caton,
Deschamps
(1981)



Grelsamer
(1994) (Insall-
Salvati modifié)

Caton-Deschamps Index

1. This measure clears off patella abnormalities
2. This measure clears off ATT & tibial abnormalities
3. AT/AP index is not modified by knee flexion angle



Caton-Deschamps index and TKA

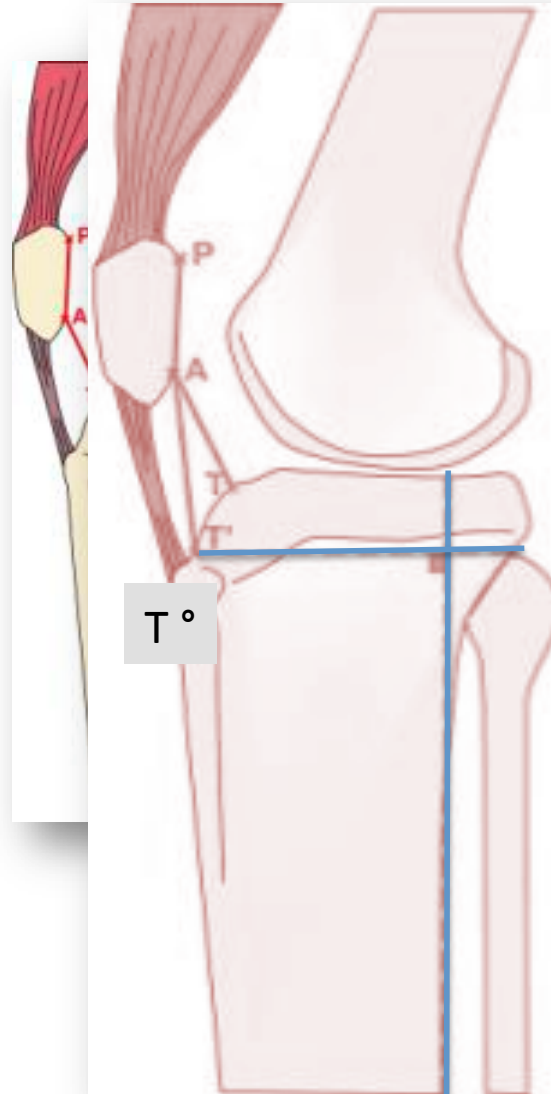


(Pre-Op)

- Original CD index (AT/AP)
- Modified index AT'/AP (J. Caton)

Caton-Deschamps index and TKA

- Original CD index (AT/AP)
- Modified index AT'/AP (J. Caton)



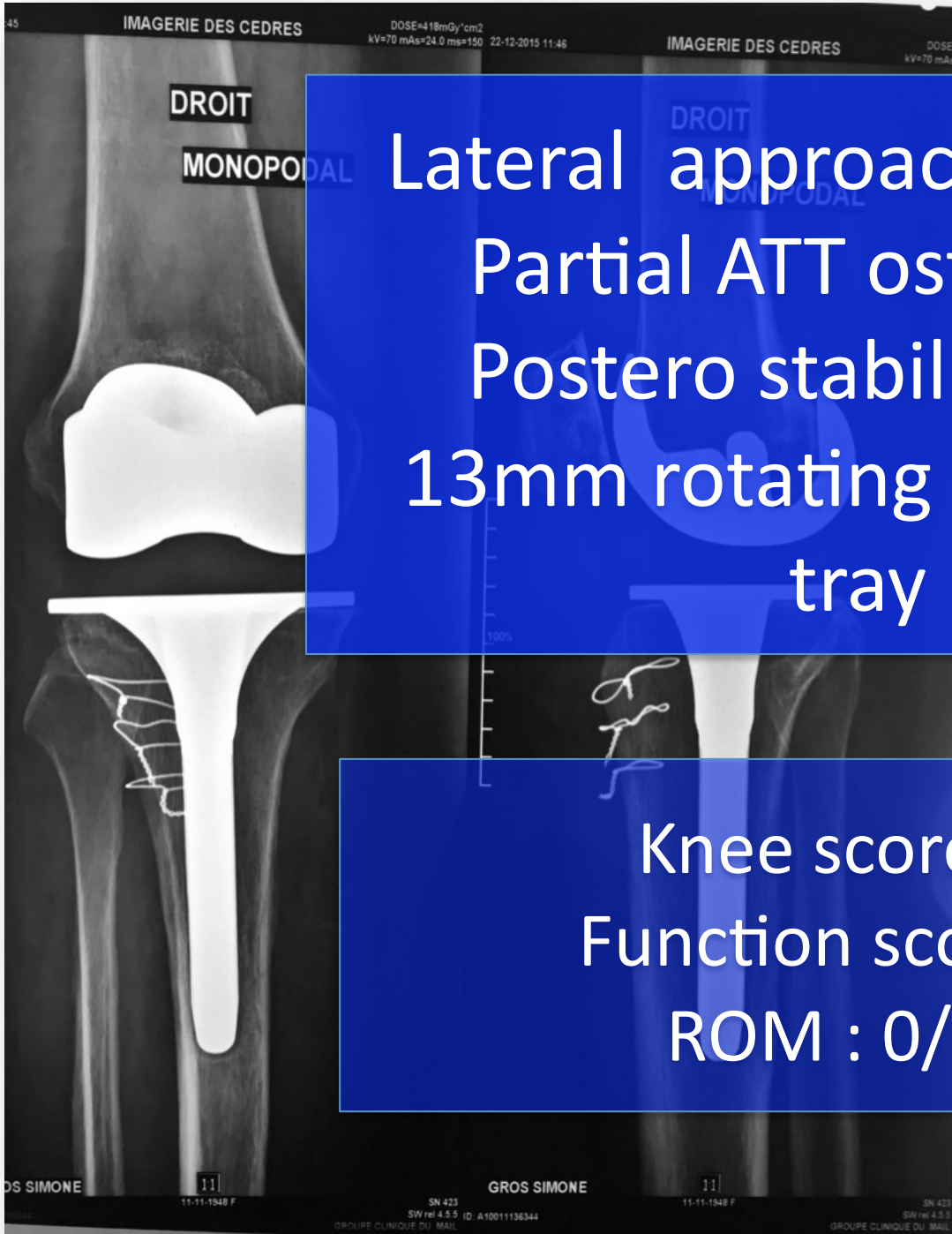


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Severe overweight
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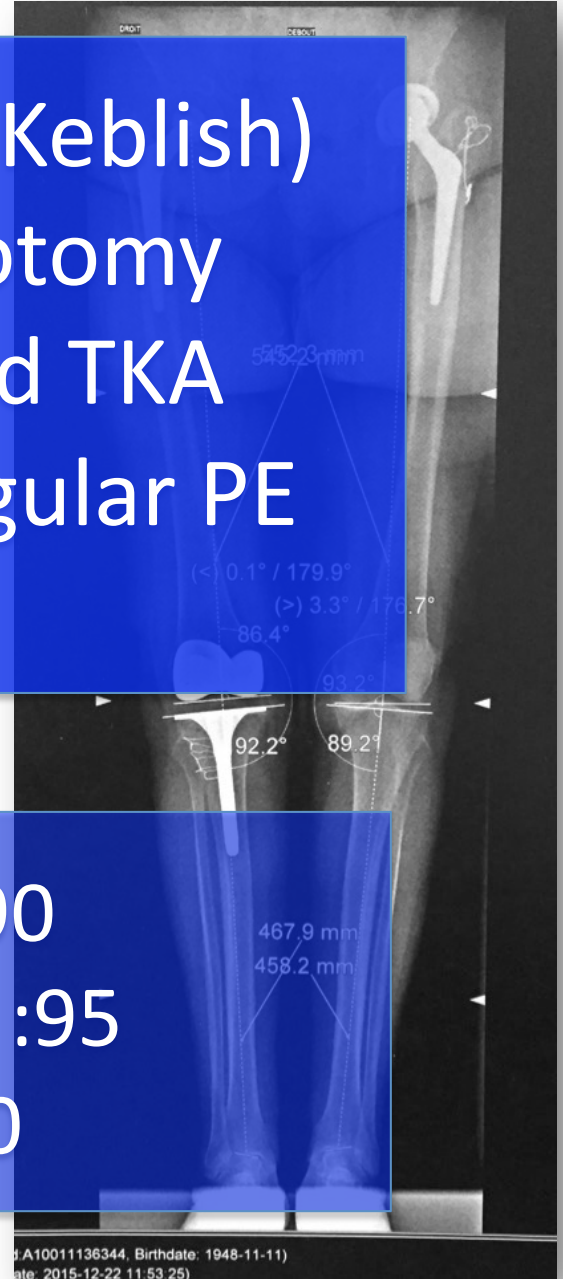


TECHNICAL ISSUES previously discussed:

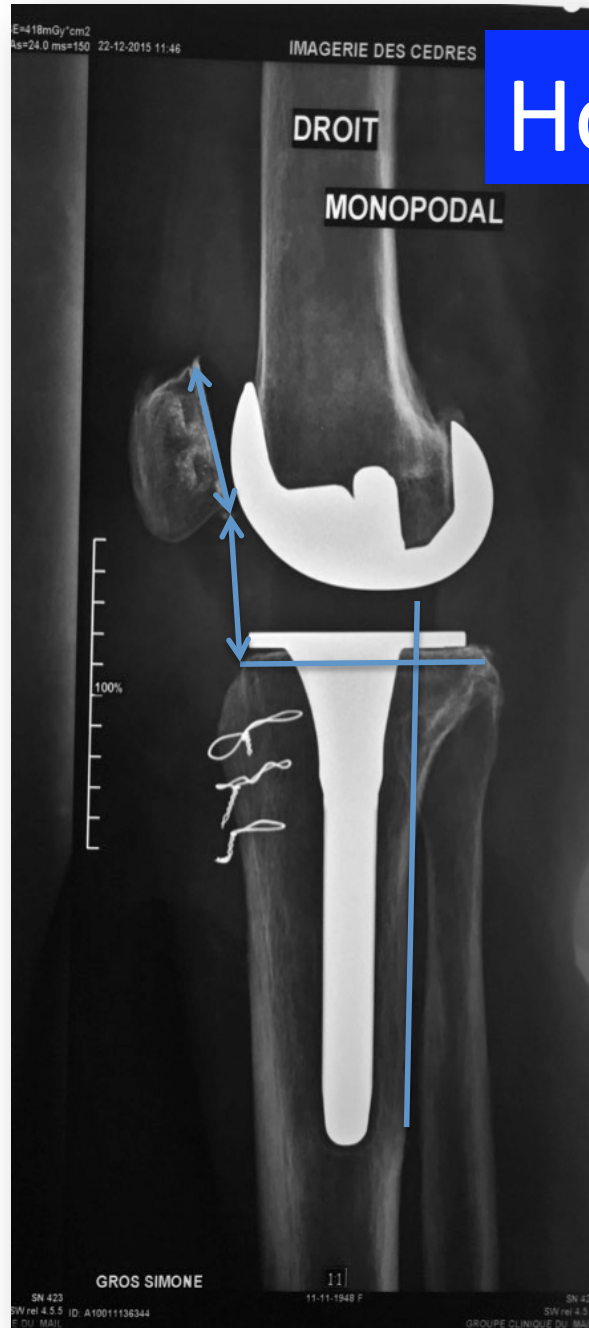
- Surgical approach ?
- Ligament management ?
- type of TKA
- Patella ?



Lateral approach (Keblish)
Partial ATT osteotomy
Postero stabilized TKA
13mm rotating regular PE
tray

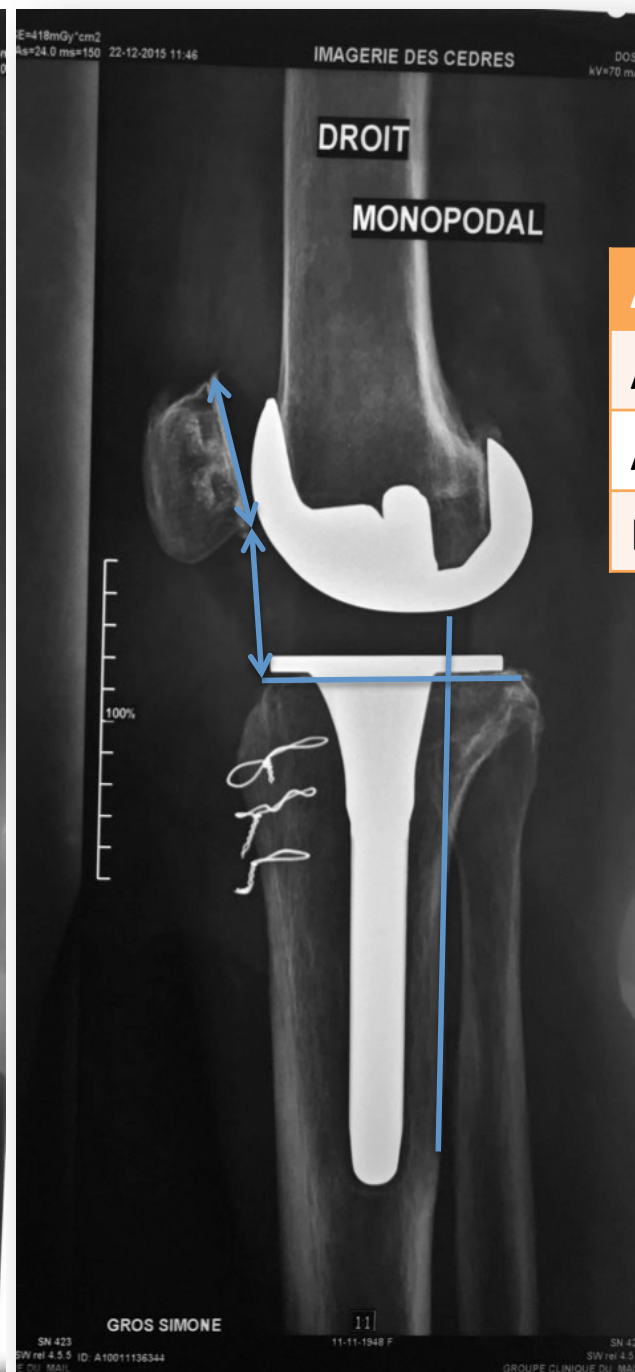


Knee score: 90
Function score :95
ROM : 0/130



How about the patella?

AP	2
AT°	1.9
INDEX	0.95



Pre-op

AP	2.1
AT	1.4
AT°	2.1
Modified index	1

Post-op

AP	2
AT°	1.9
Modified index	0.95



How much do we modify patella height in TKA ?

- purpose of the study:
 - Using modified Caton patella index,
 - 1 Validate the method
 - 2 Analyse modifications of patella height before and after TKA
- material – methods
- 3 results
- 4 discussion

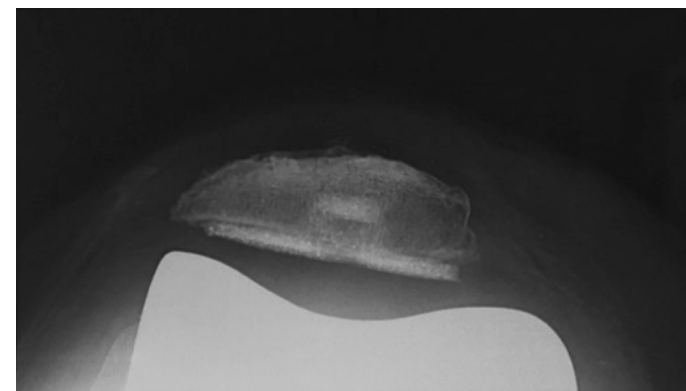
Material method

- 60 consecutive TKA implanted from april 2014 to april 2015
- Postero stabilized rotating cementless THA (groupe lépine TM)
- One senior surgeon



Material method

- Patella replacement in all cases
- Domical shape
- full Poly Cemented component
- Data collected on file maker Pro
- 2 evaluators



Material method

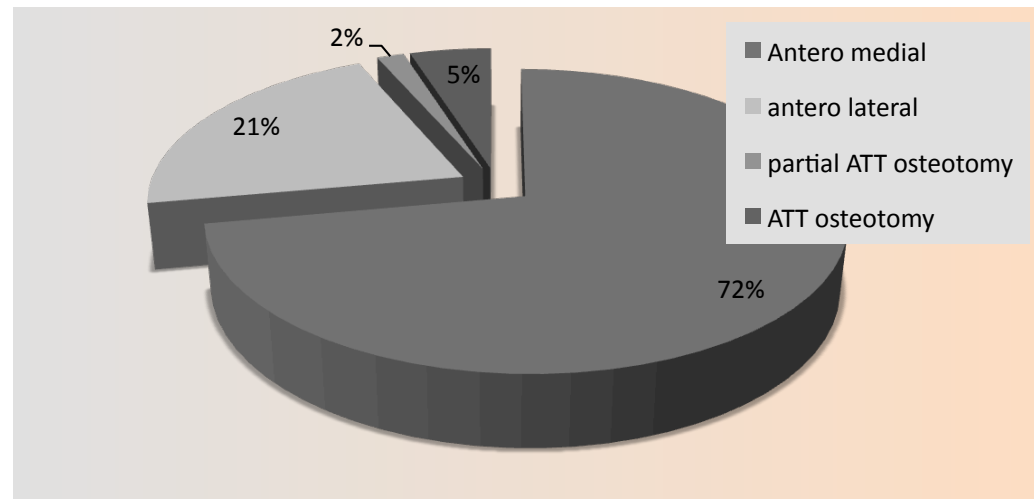
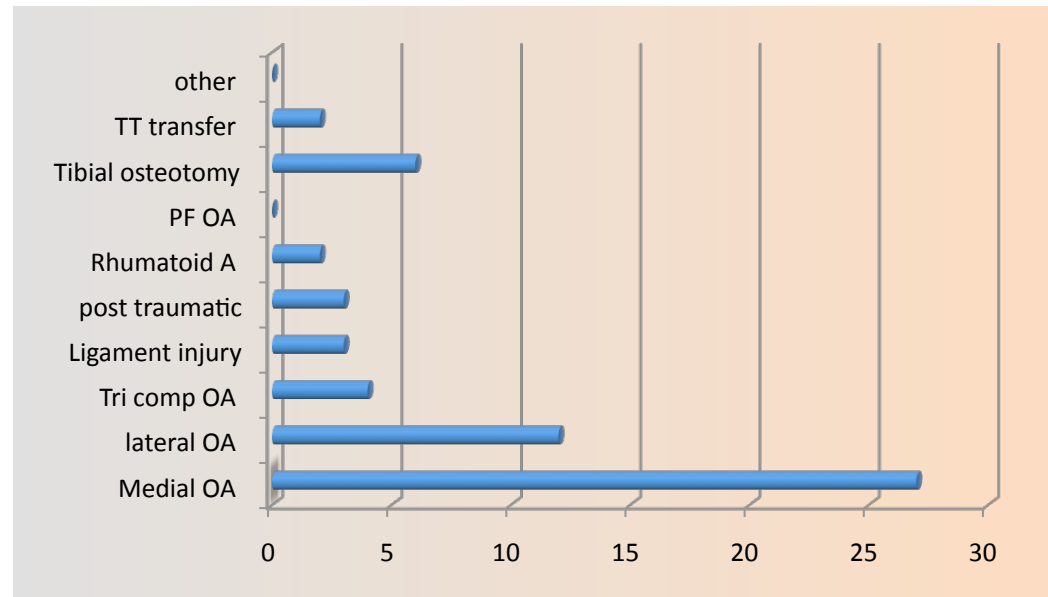
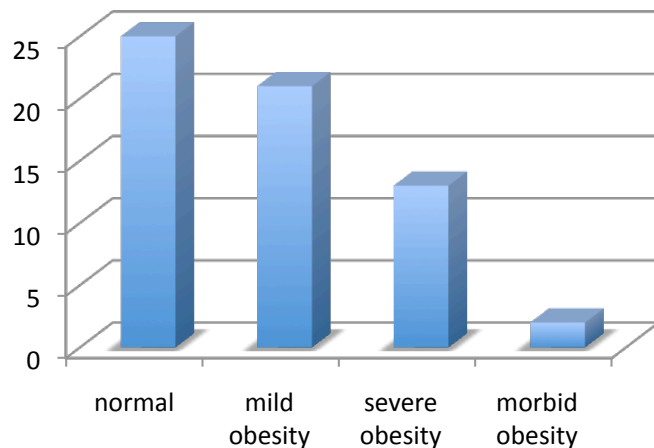
29 females, 31 males

Age: 70.5 (53-86)

Status

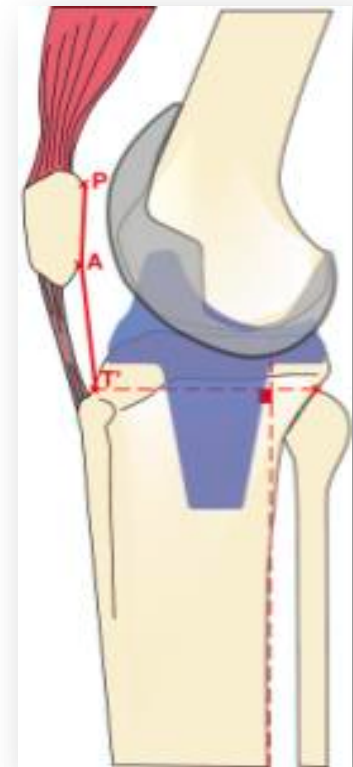
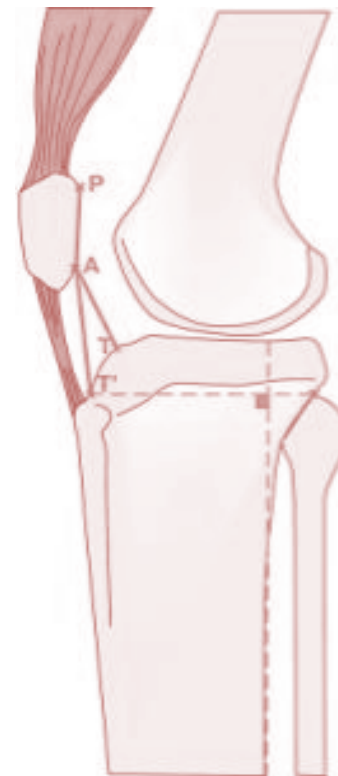
Aetiology

Surgical approach

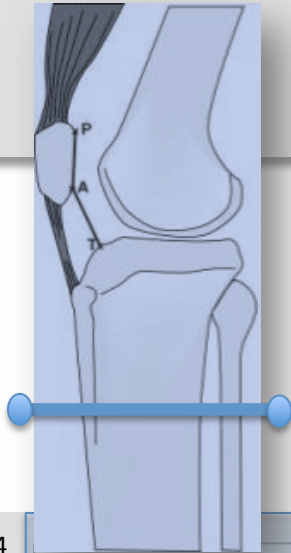


Material method

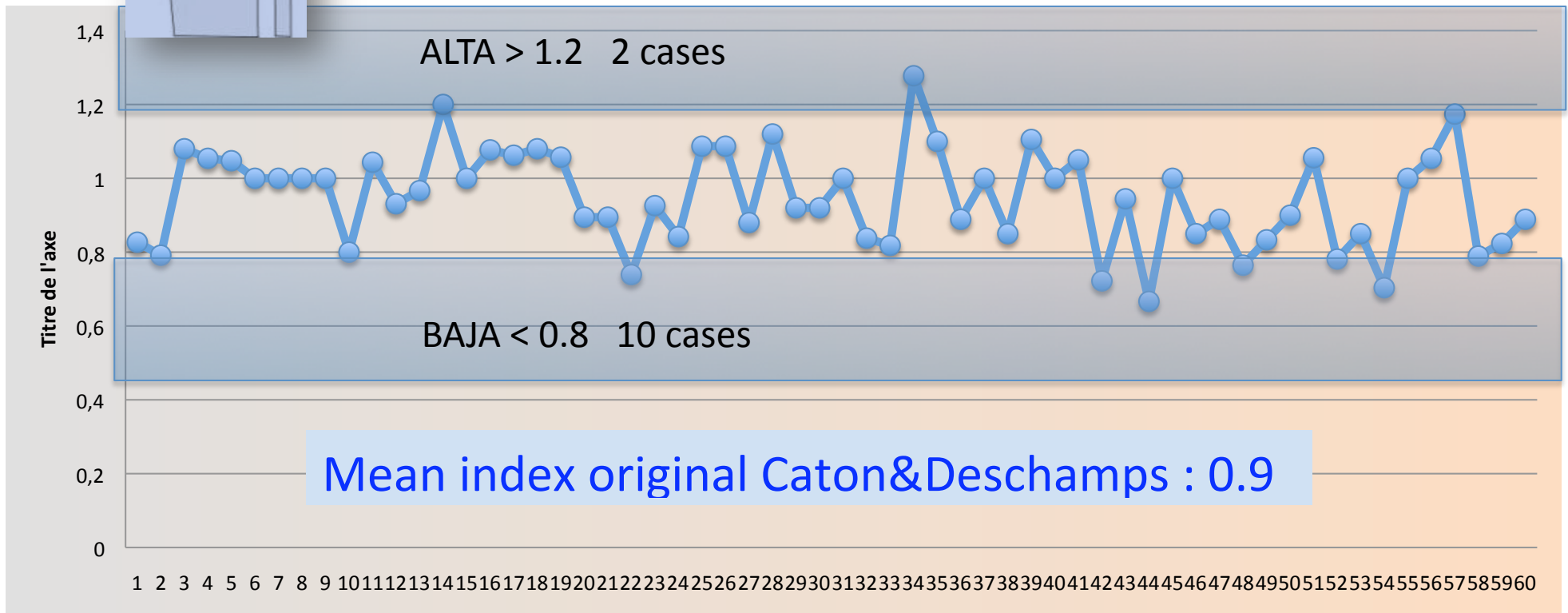
- IKS Score: (knee +function) pre and post op
- ROM: pre and post op
- Original Caton Deschamps index pre op
- Modified Caton Index: pre and post op



results



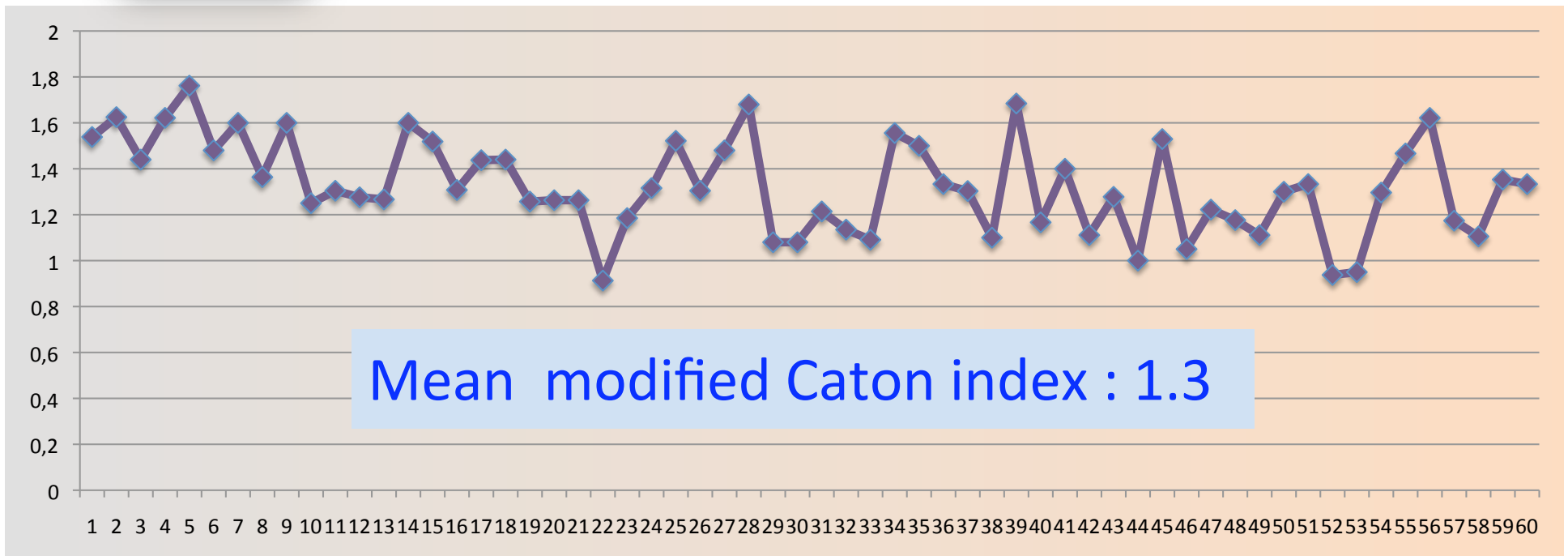
– Original Caton Deschamps index pre op



results

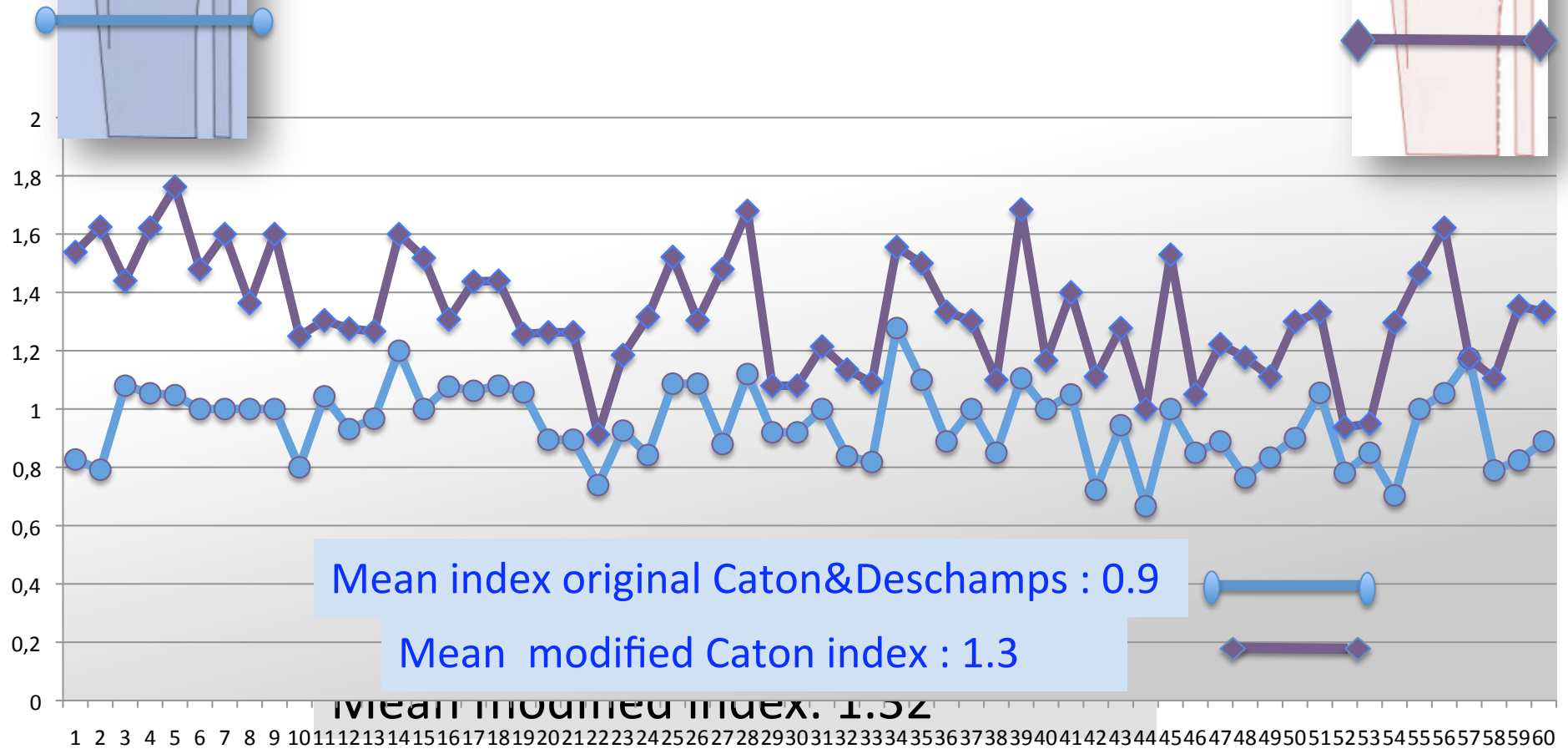


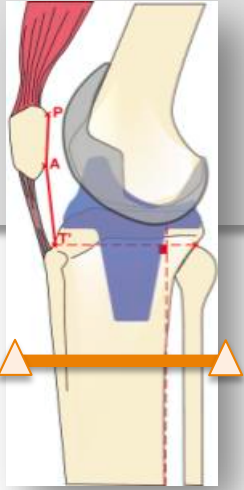
Modified Caton Index: pre op



results

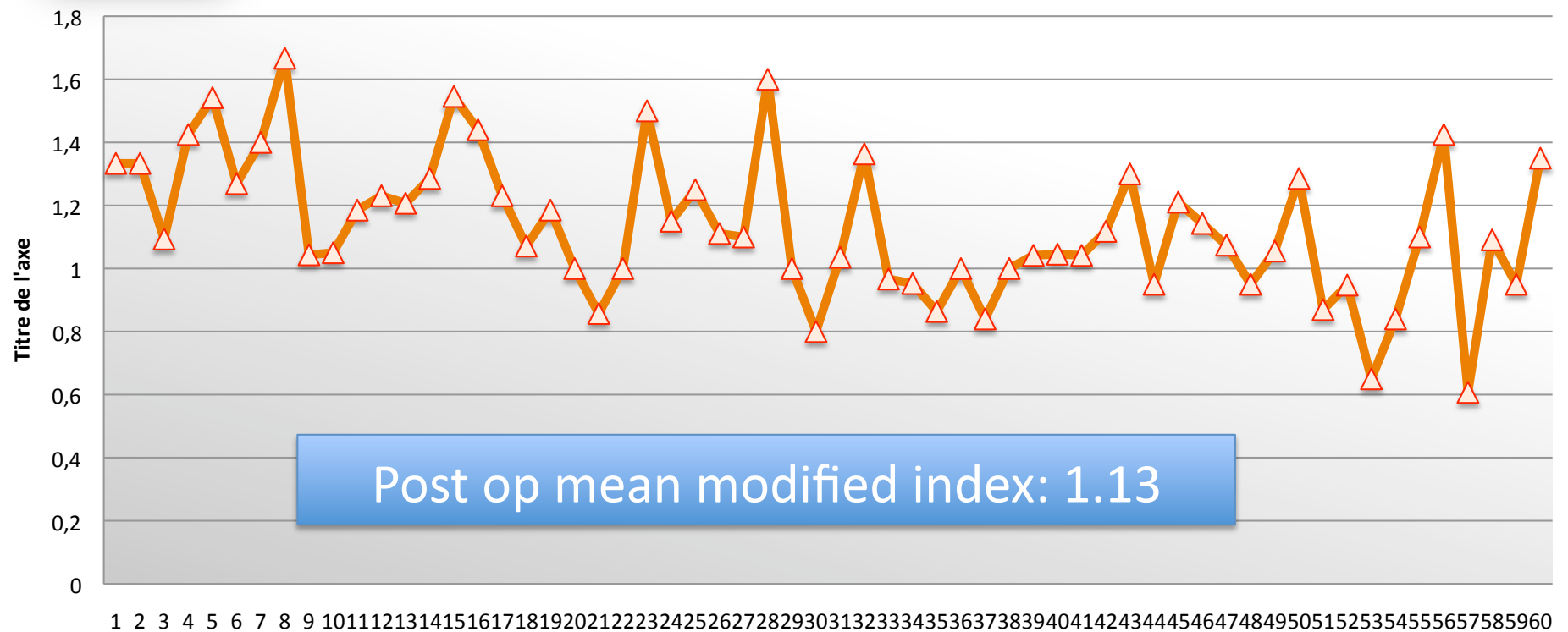
Original index vs modified Index pre op





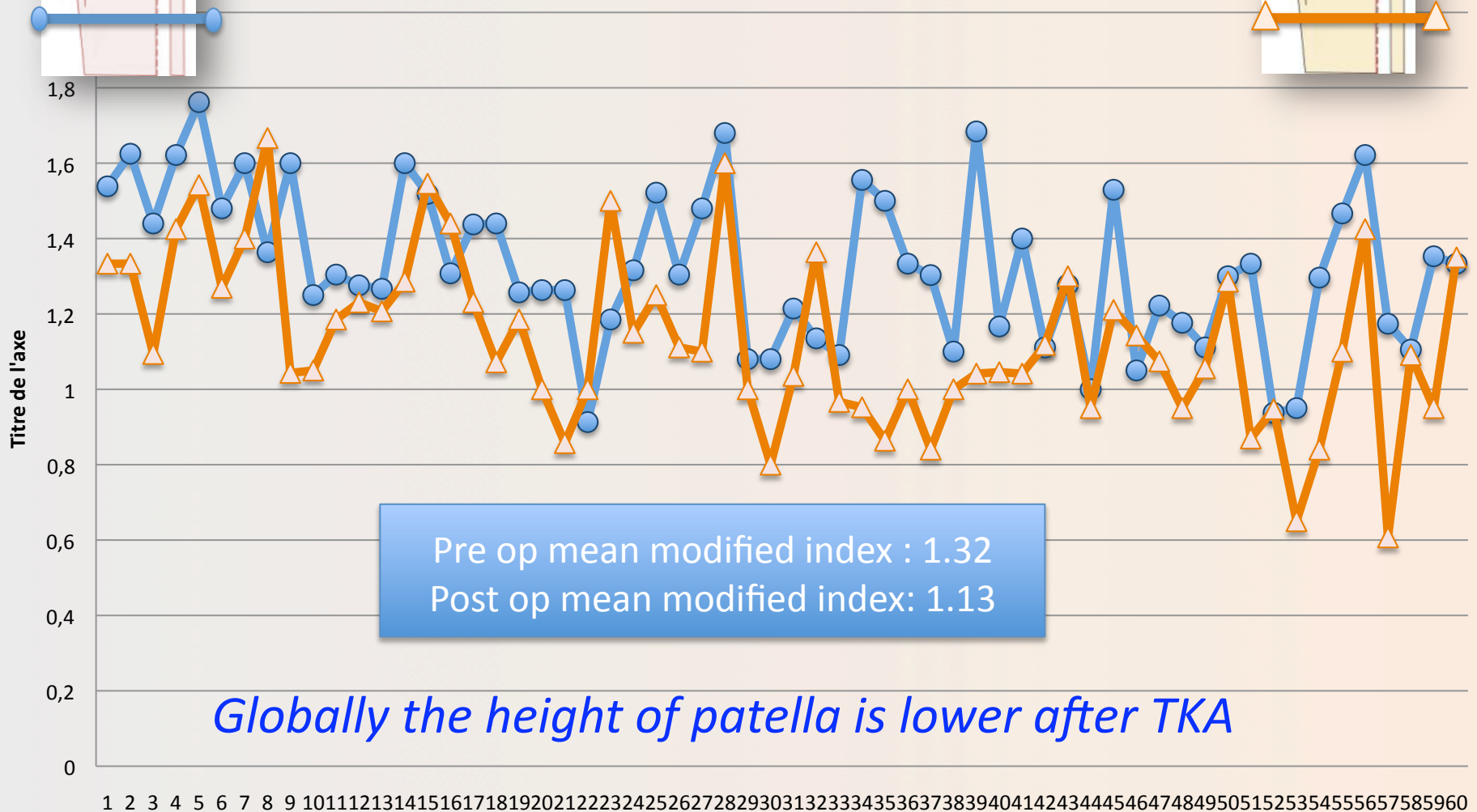
results

modified Index post op

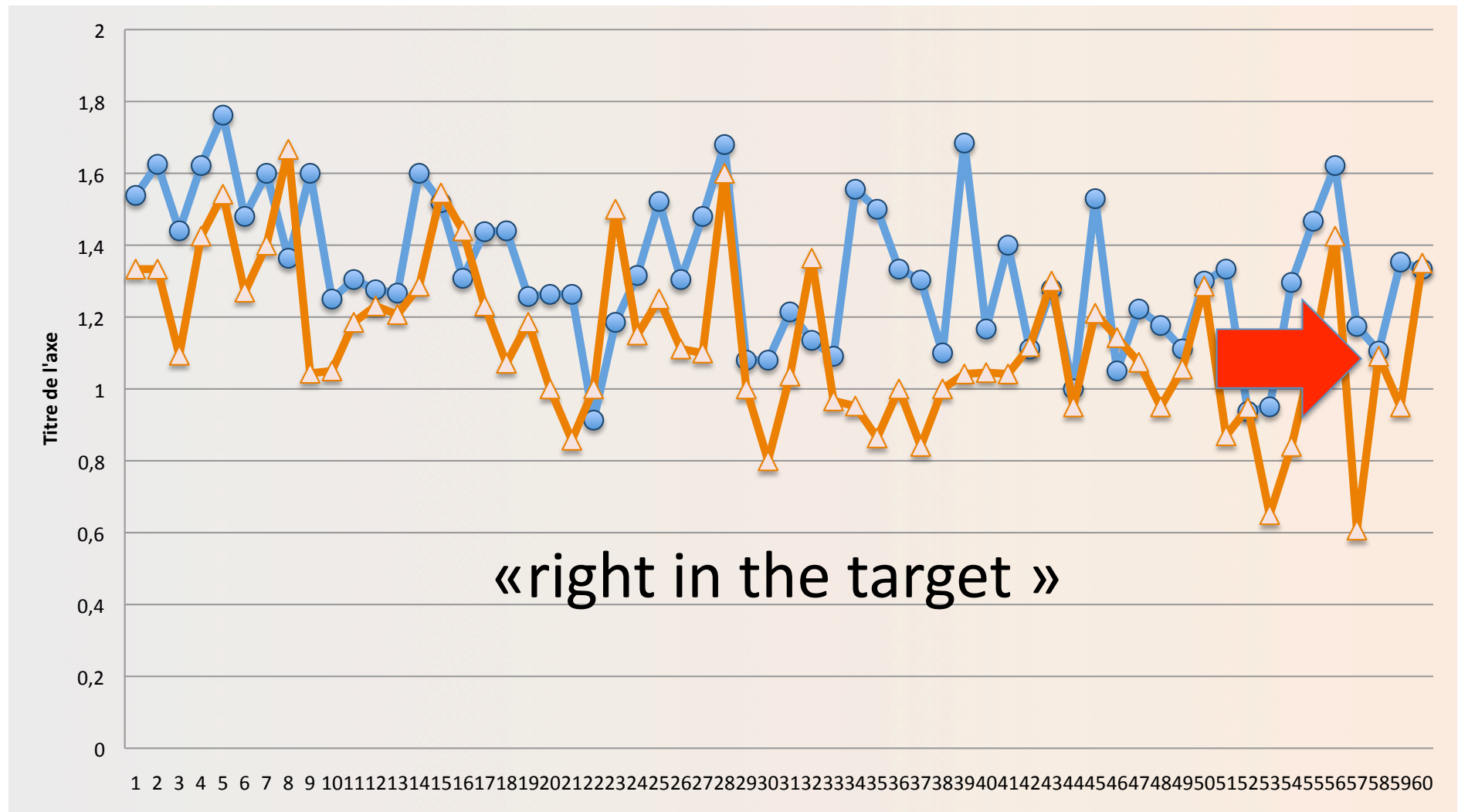


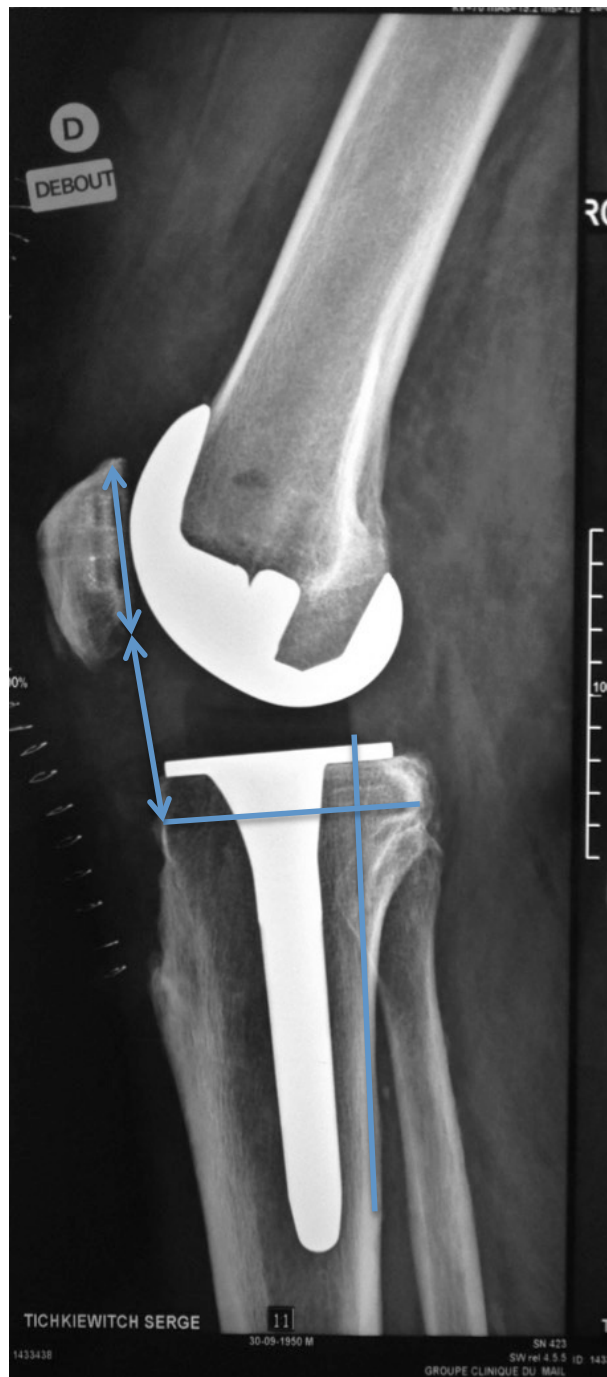
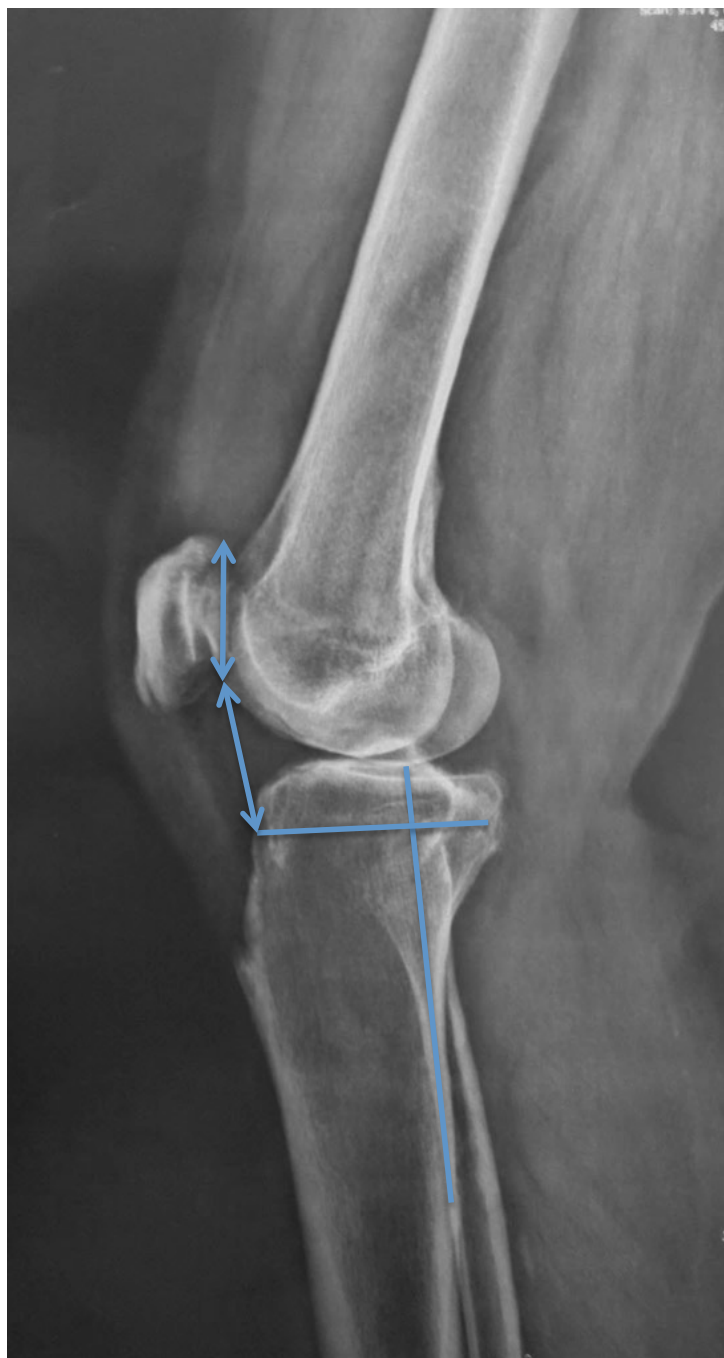
results

modified Index pre op vs post op



Focus on some results...





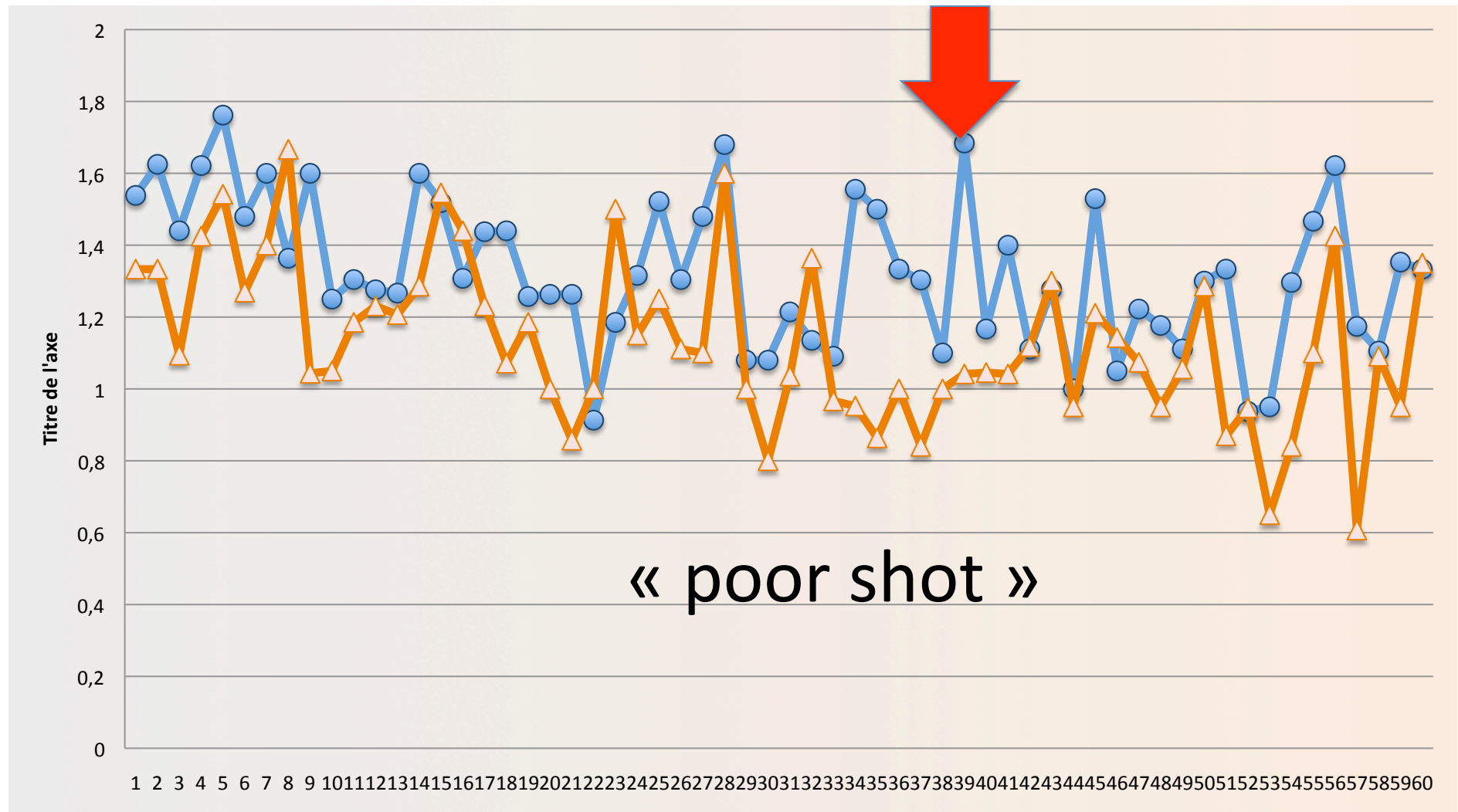
AP	1.9
AT°	2.1
Index modifié	1.1

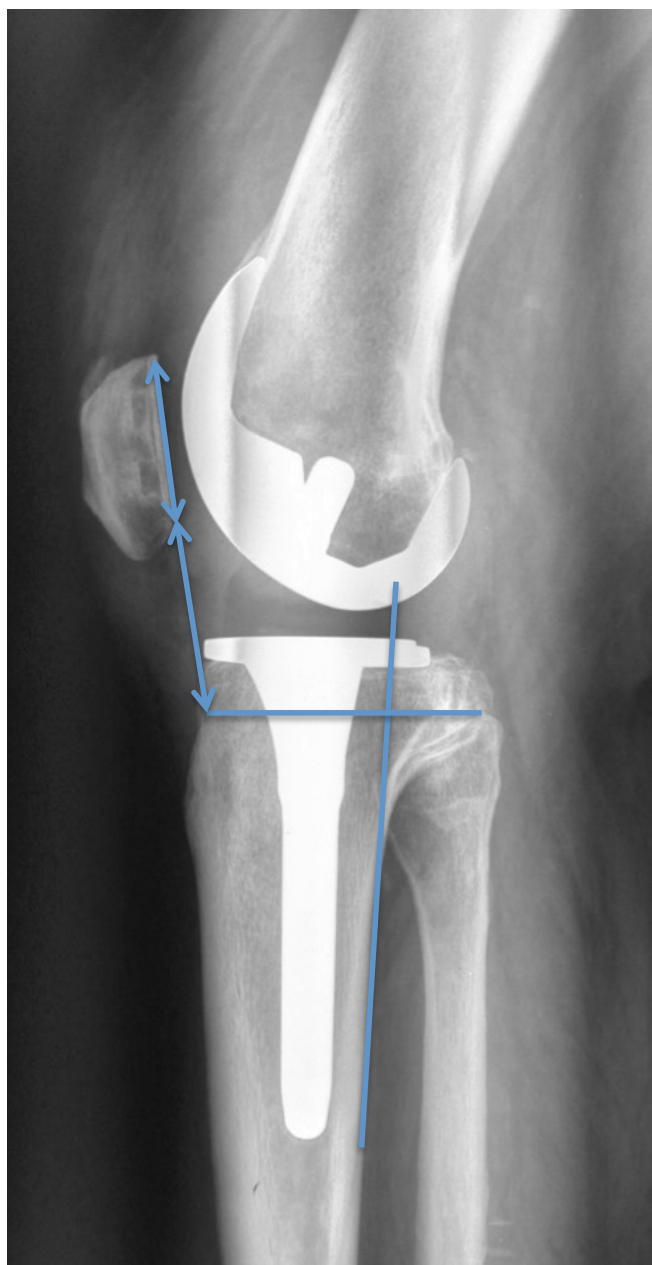
Pre op	
knee	15
function	20
ROM	0/120

AP	2.2
AT°	2.4
INDEX	1.1

Post op	
knee	82
function	75
ROM	3/120

Focus on some results...





AP	1.9
AT°	3.2
Index modifié	1.7

Pre op	
knee	49
function	60
ROM	0/120

AP	2.4
AT°	2.5
INDEX	1,05

Post op	
knee	60
function	62
ROM	5/120

Discussion: further questions to answer

- Patella baja or pseudo patella baja ?

J Arthroplasty. 2002 Jan;17(1):66-9.

Patella baja after total knee arthroplasty: is it really patella baja?

[Grelsamer RP](#).

- Surg Technol Int. 2004;12:231-8.

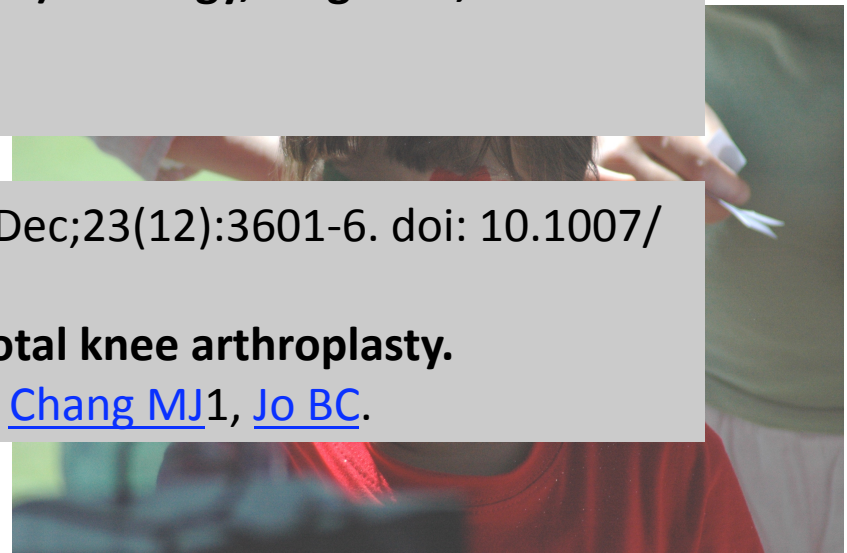
Patella baja and total knee arthroplasty (TKA): etiology, diagnosis, and management.

[Chonko DJ](#), [Lombardi AV Jr](#), [Berend KR](#).

- Knee Surg Sports Traumatol Arthrosc. 2015 Dec;23(12):3601-6. doi: 10.1007/s00167-014-3257-1. Epub 2014 Sep 2.

Prevention of pseudo-patella baja during total knee arthroplasty.

[Seo JG](#), [Moon YW](#), [Kim SM](#), Park SH, [Lee BH](#), [Chang MJ](#)¹, [Jo BC](#).



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Données JC 2008

IHR Pré-Op	IHR Pos-Op
1,5	1,42
1,73	1,63
1,66	1,44
1,72	1,71
1,63	1,32
1,46	1,41
1,4	1,3
1,72	1,41
1,42	1,6
1,61	1,62

- Hauteur rotulienne avant et après PTG (Hermes PS)

