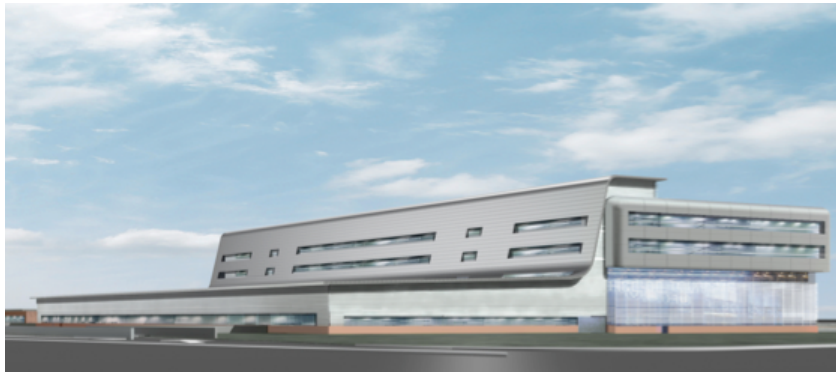


Is implant sizing of importance?

O.Courage,
France

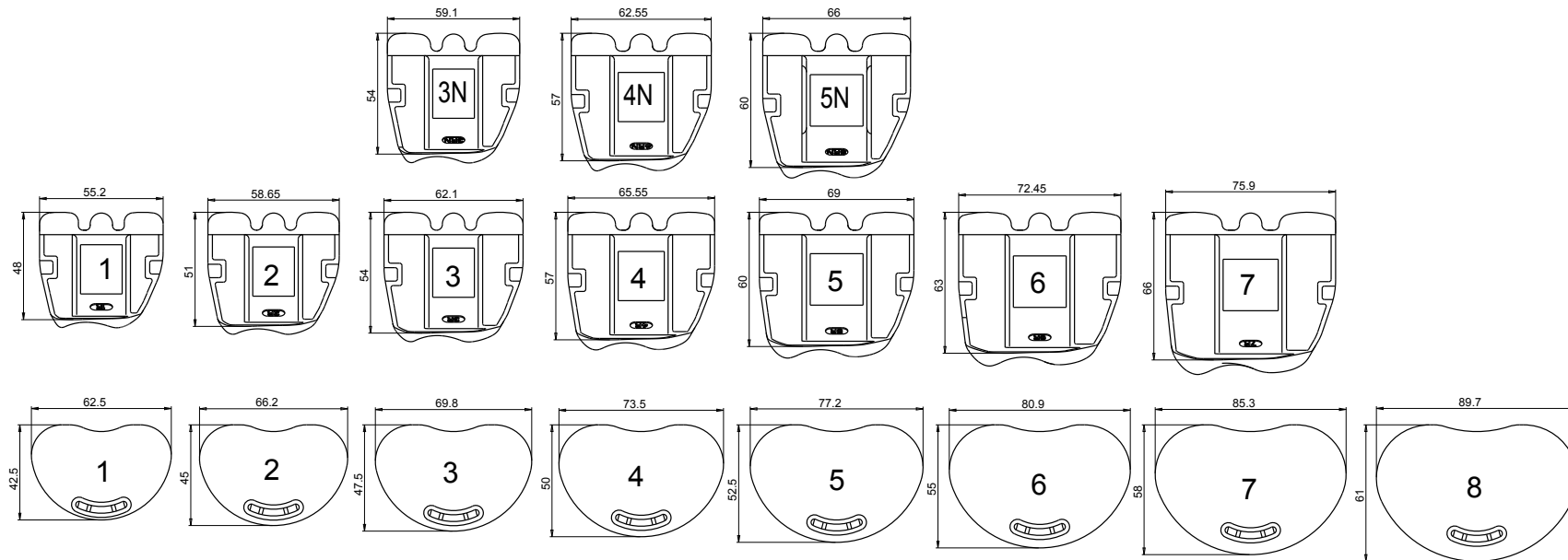


6th Advanced Course on Knee Surgery

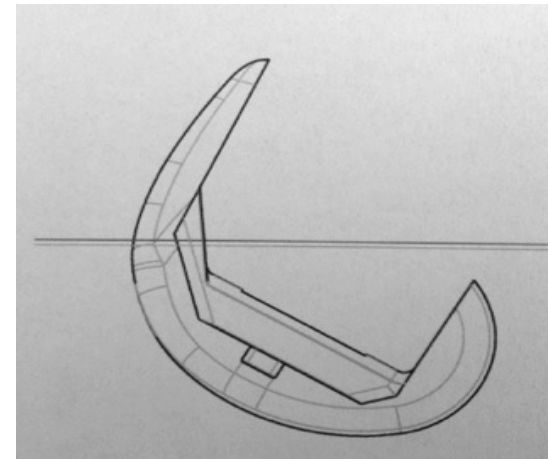
January 31st – February 5th, 2016 Val d'Isère - France

How I do, in the real live !

- Planification at the OR ...
- Company propose the size



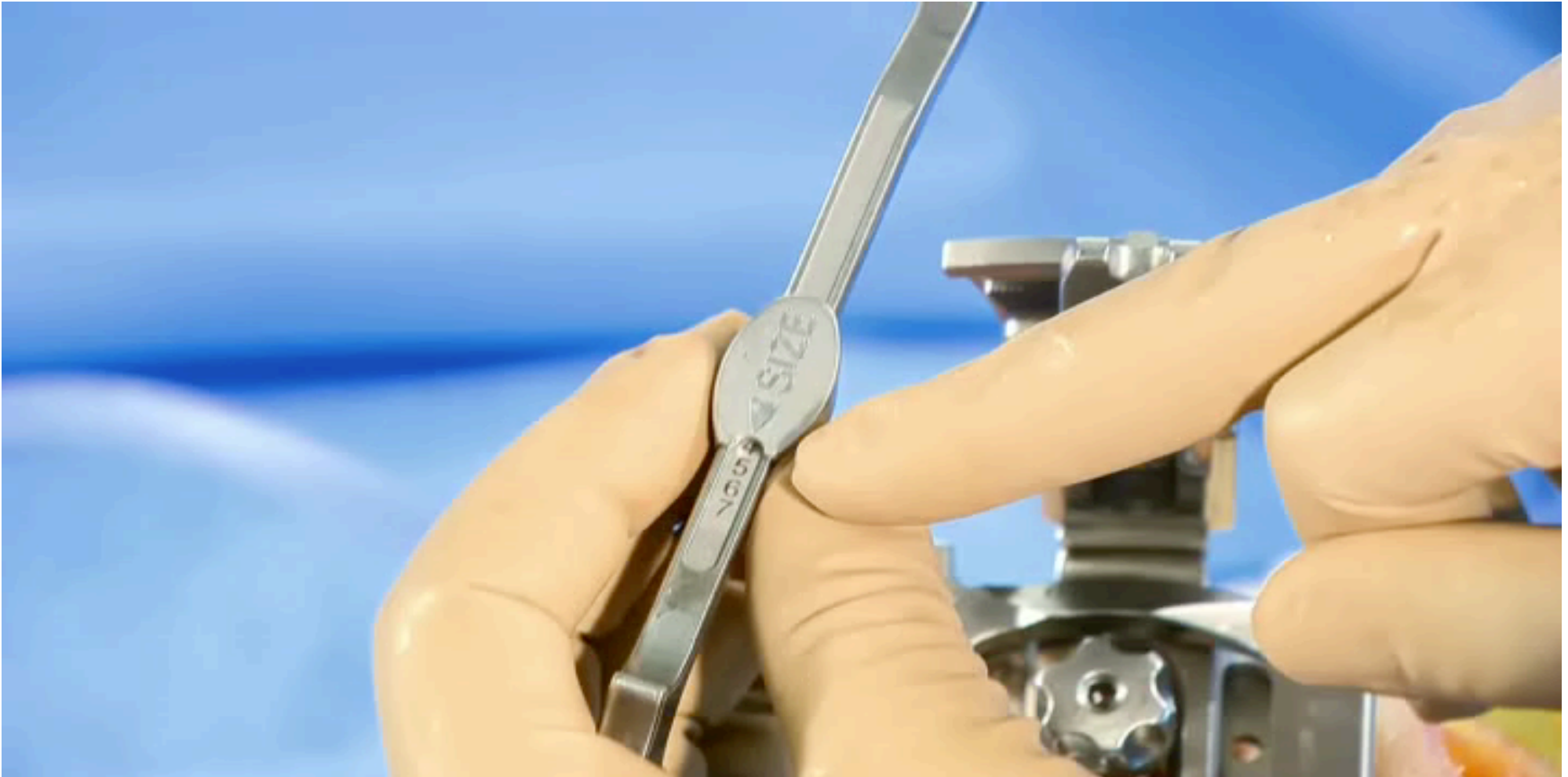
With standard X ray



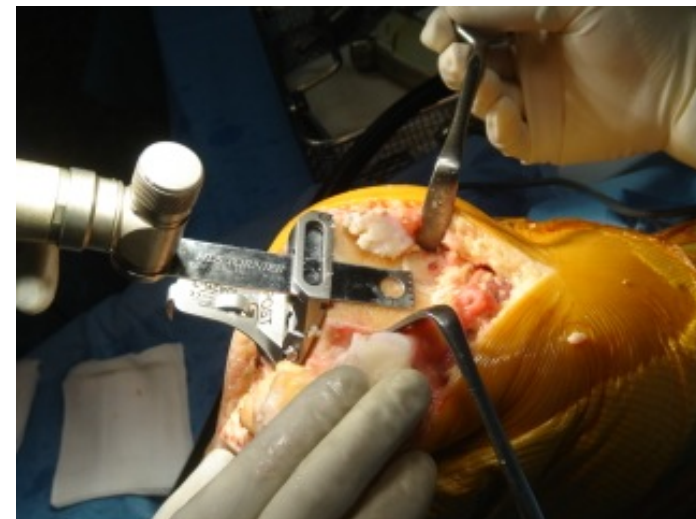
Blame the radiologist: 100 % ?



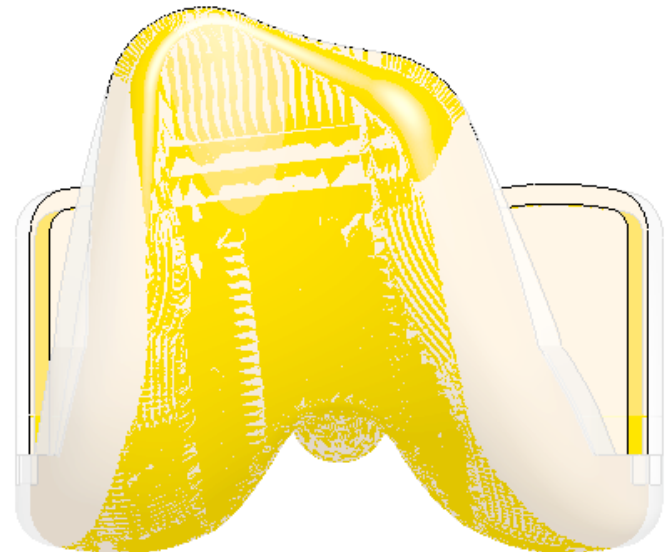
I'll do that during the procedure



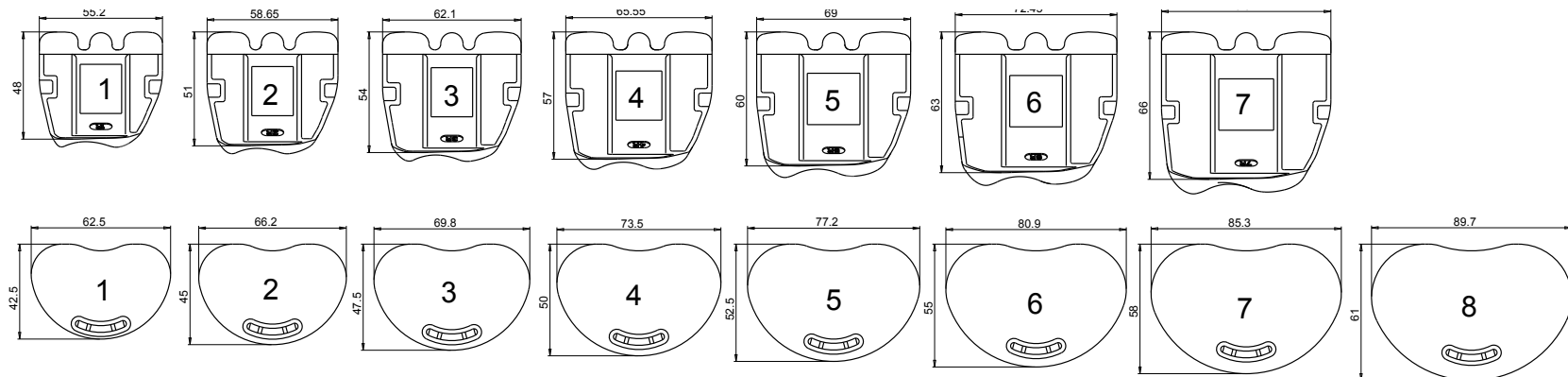
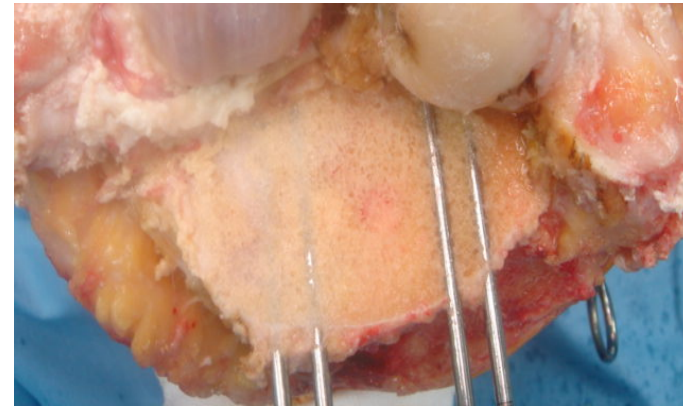
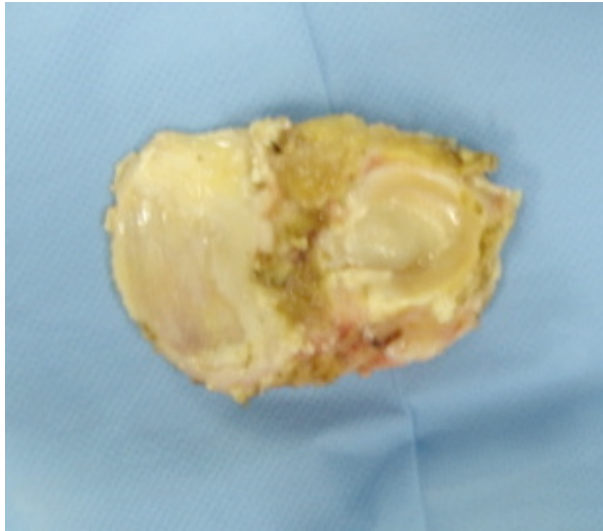
Sizing on the patient



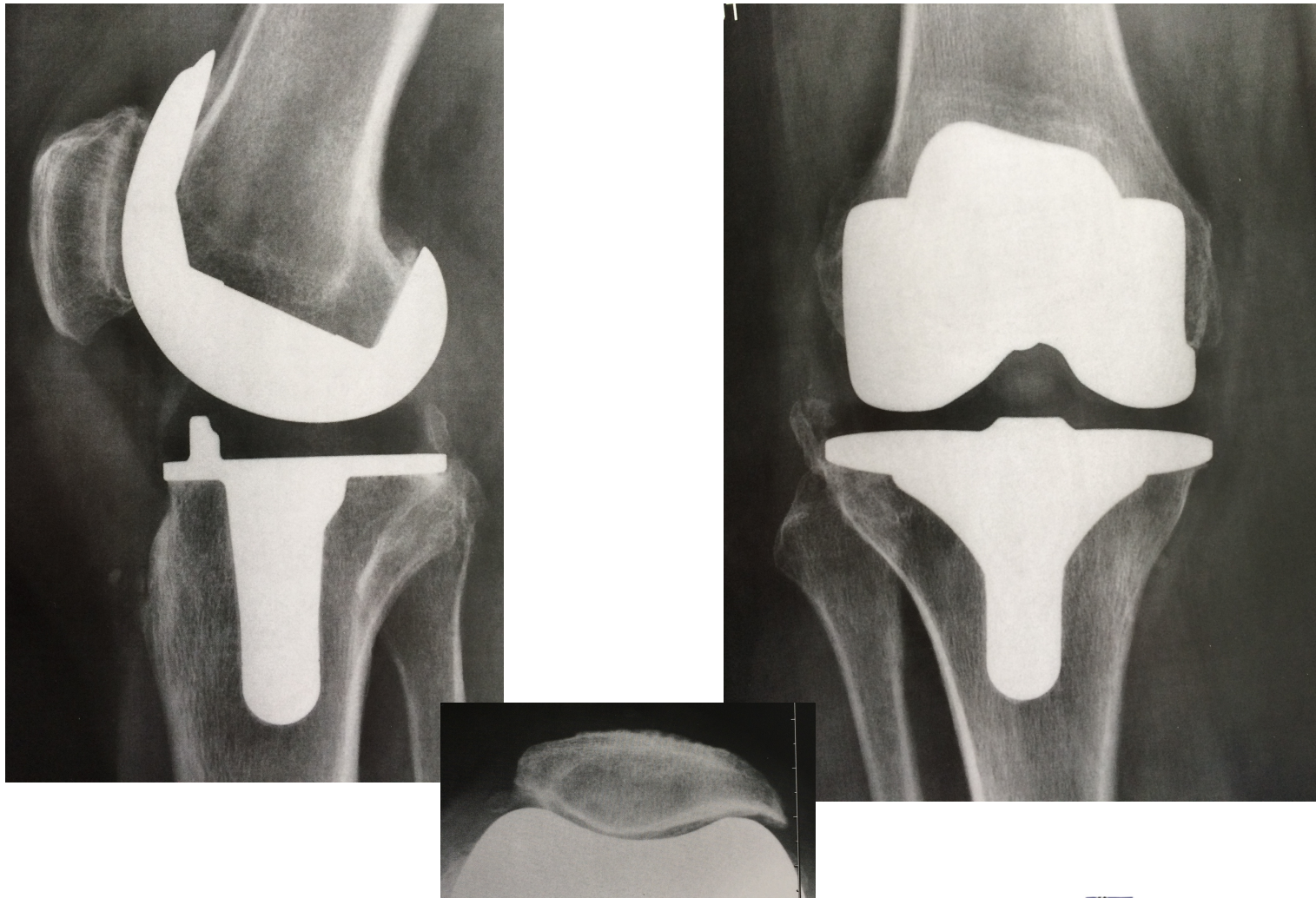
Narrow or not (for the women)



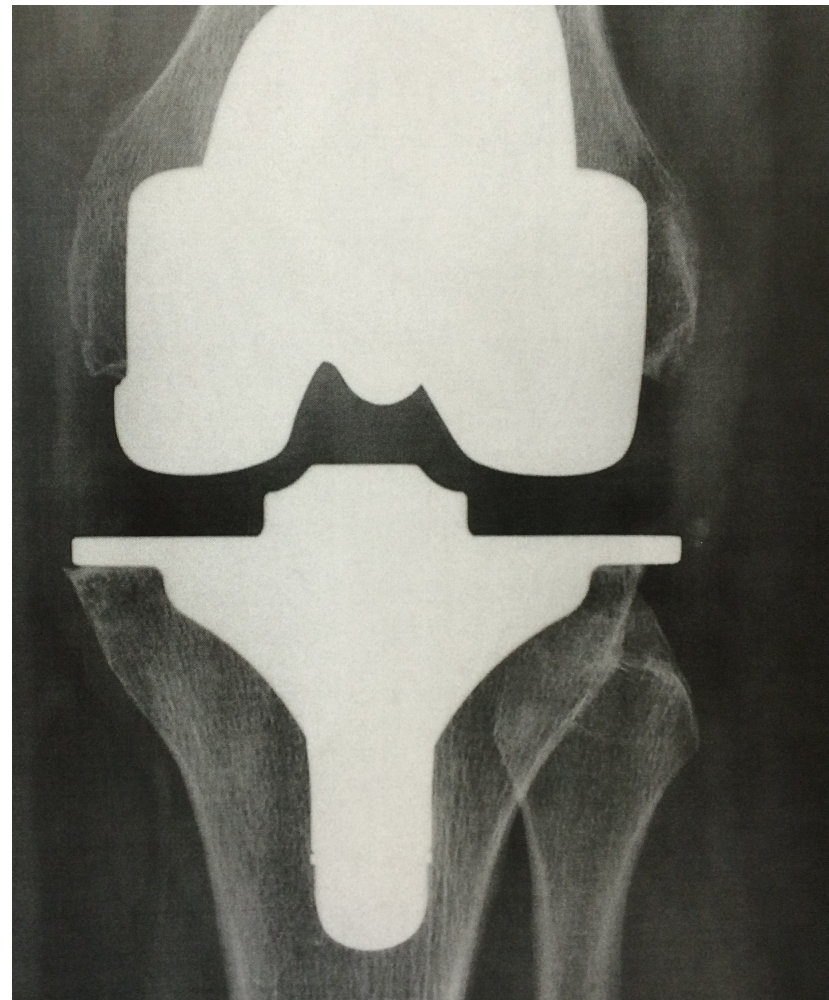
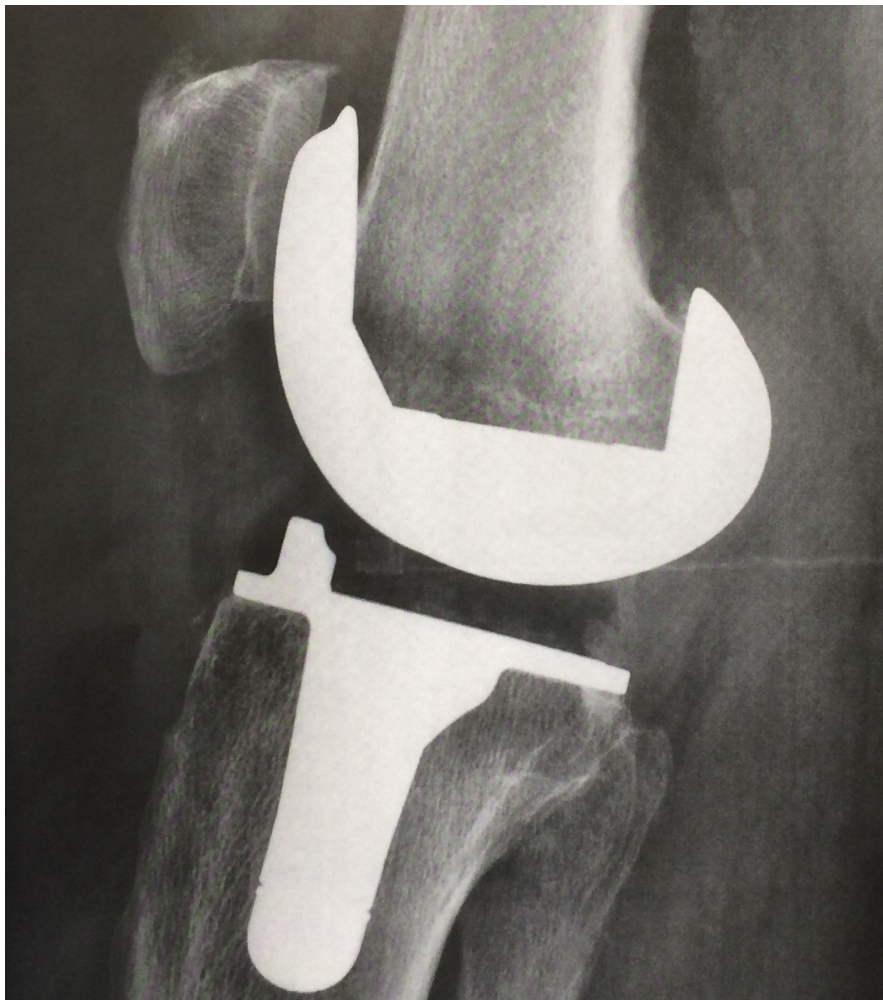
For the tibia ? match with the femur compromise



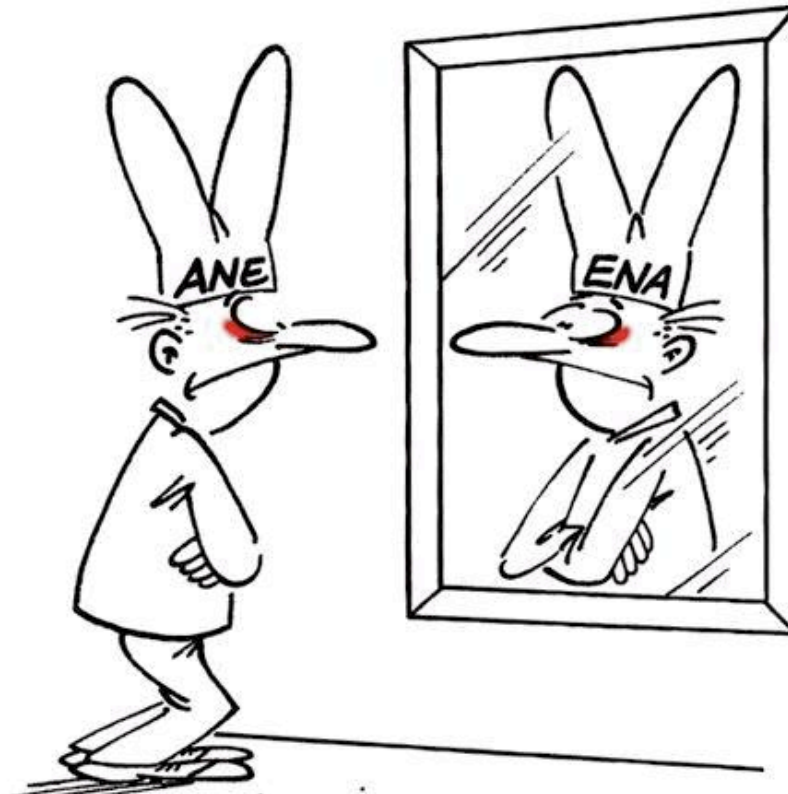
Most of the time it seems to work



But over sizing is frequent ...



How to improve ? Read the litterature



I'm not the only one !
not so many papers

- Planification was change
 - for the femoral size in 16%
 - For the tibia size 18%

[Pietsch M](#)¹, [Djahani O](#), [Hochegger M](#), [Plattner F](#), [Hofmann S](#).

Patient-specific total knee arthroplasty: the importance of planning by the surgeon.

Knee Surg Sports Traumatol Arthrosc. 2013 Oct;21(10):2220-6. doi: 10.1007/s00167-013-2624-7. Epub 2013 Aug 13.

Tibial and femoral under sizing increase the laxity over sizing increase: Pain and PCL tension

[Mueller JK](#)¹, [Wentorf FA](#), [Moore RE](#).

Femoral and tibial insert downsizing increases the laxity envelope in TKA.

Knee Surg Sports Traumatol Arthrosc. 2014 Dec;22(12):3003-11. doi: 10.1007/s00167-014-3339-0. Epub 2014 Oct 2.

Author information

[Kuriyama S](#)¹, [Ishikawa M](#)², [Nakamura S](#)², [Furu M](#)², [Ito H](#)², [Matsuda](#)

Posterior tibial slope and femoral sizing affect posterior cruciate ligament tension in posterior cruciate-retaining total knee arthroplasty.

Clin Biomech (Bristol, Avon). 2015 Aug;30(7):676-81. doi: 10.1016/j.clinbiomech.2015.05.006. Epub 2015 May 16.

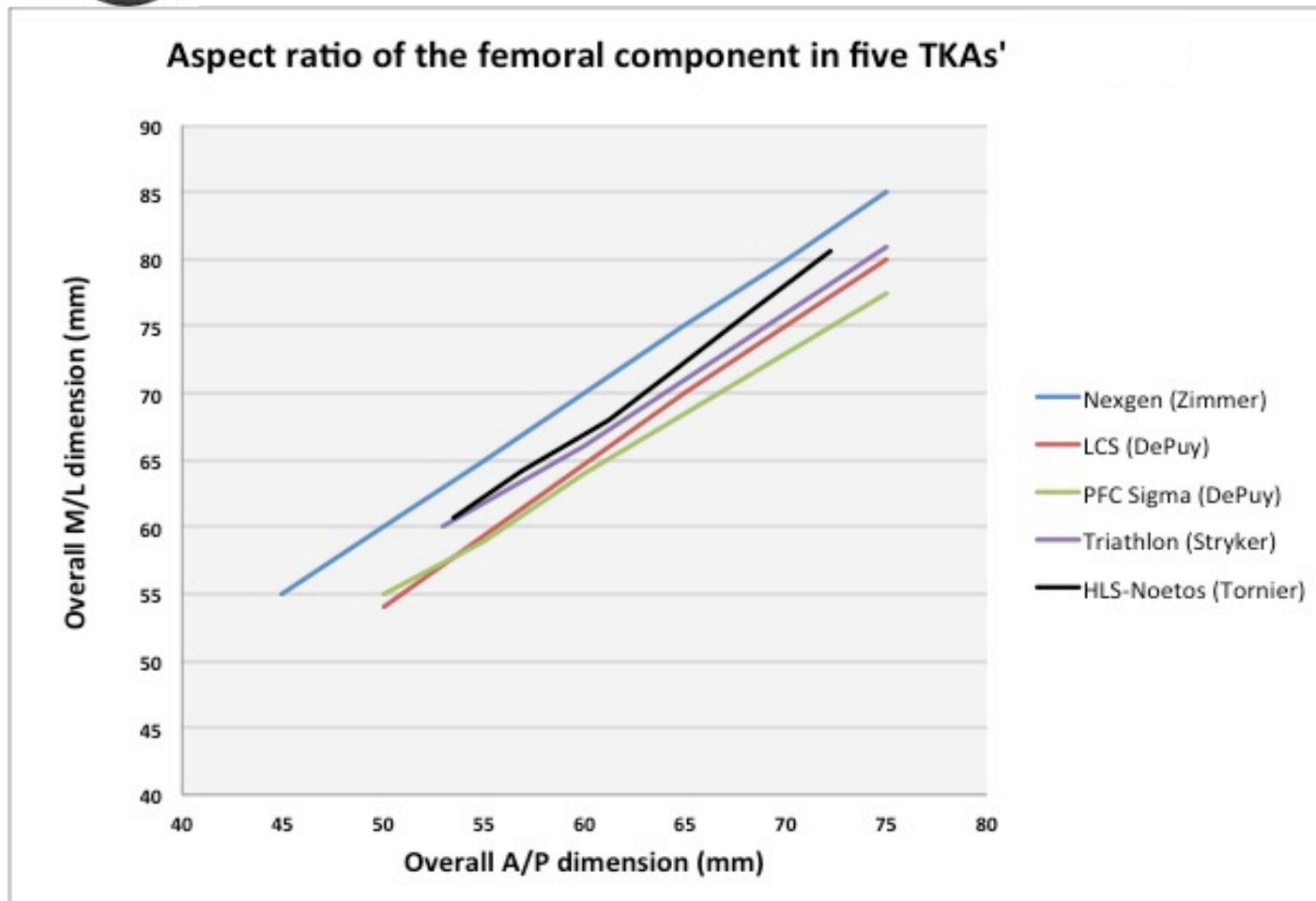
[Bonnin MP](#)¹, [Schmidt A](#), [Basiglini L](#), [Bossard N](#), [Dantony E](#)

Mediolateral oversizing influences pain, function, and flexion after TKA.

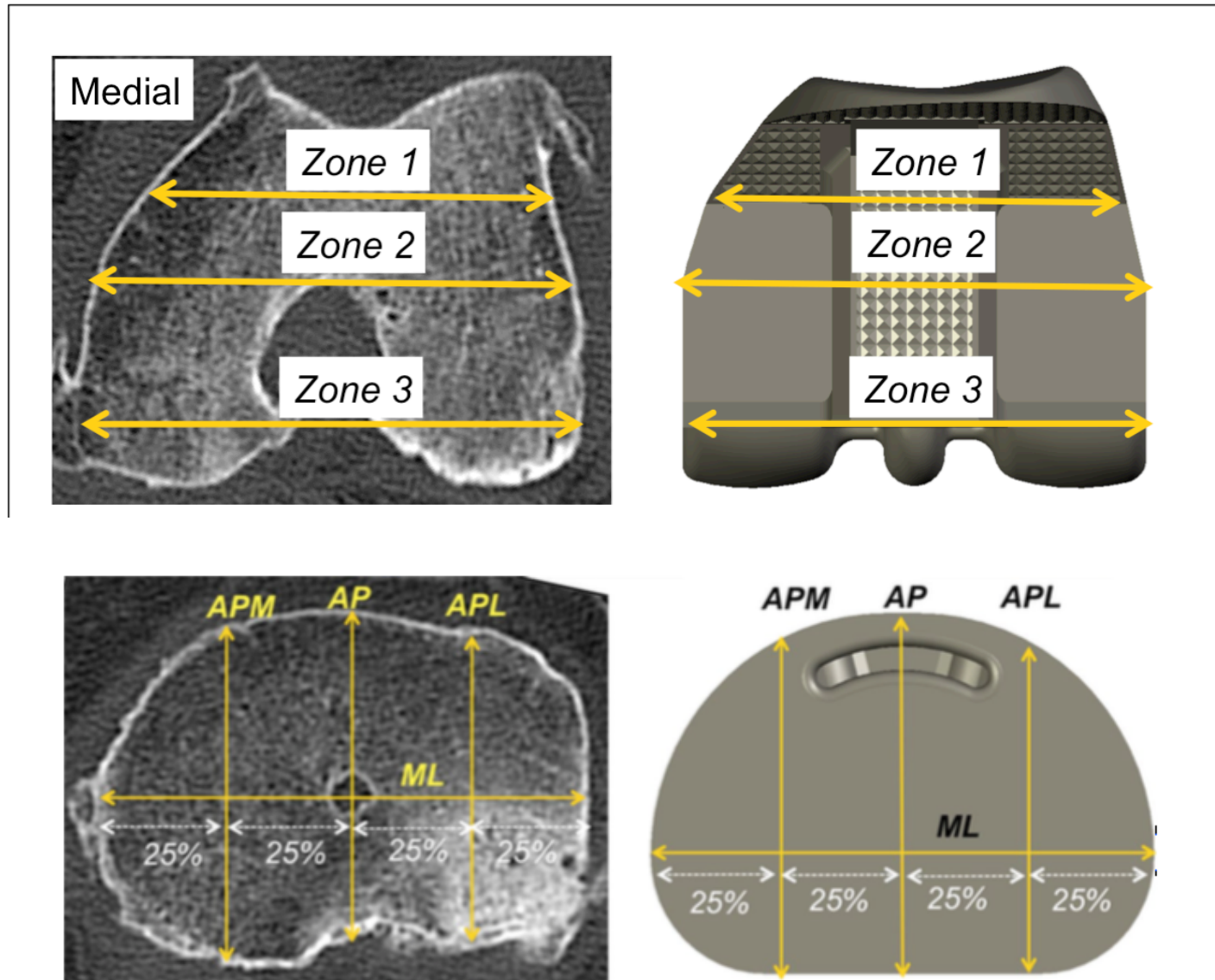
Knee Surg Sports Traumatol Arthrosc. 2013 Oct;21(10):2314-24. doi: 10.1007/s00167-013-2443-x. Epub 2013 Feb 12.



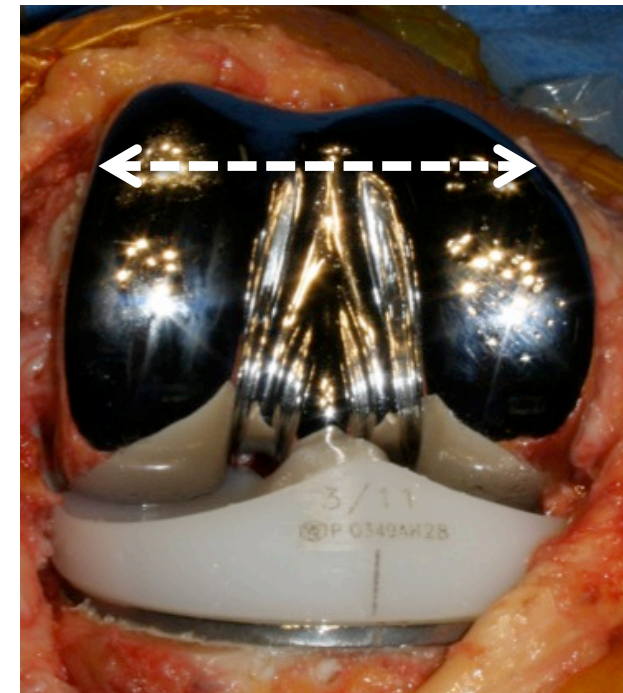
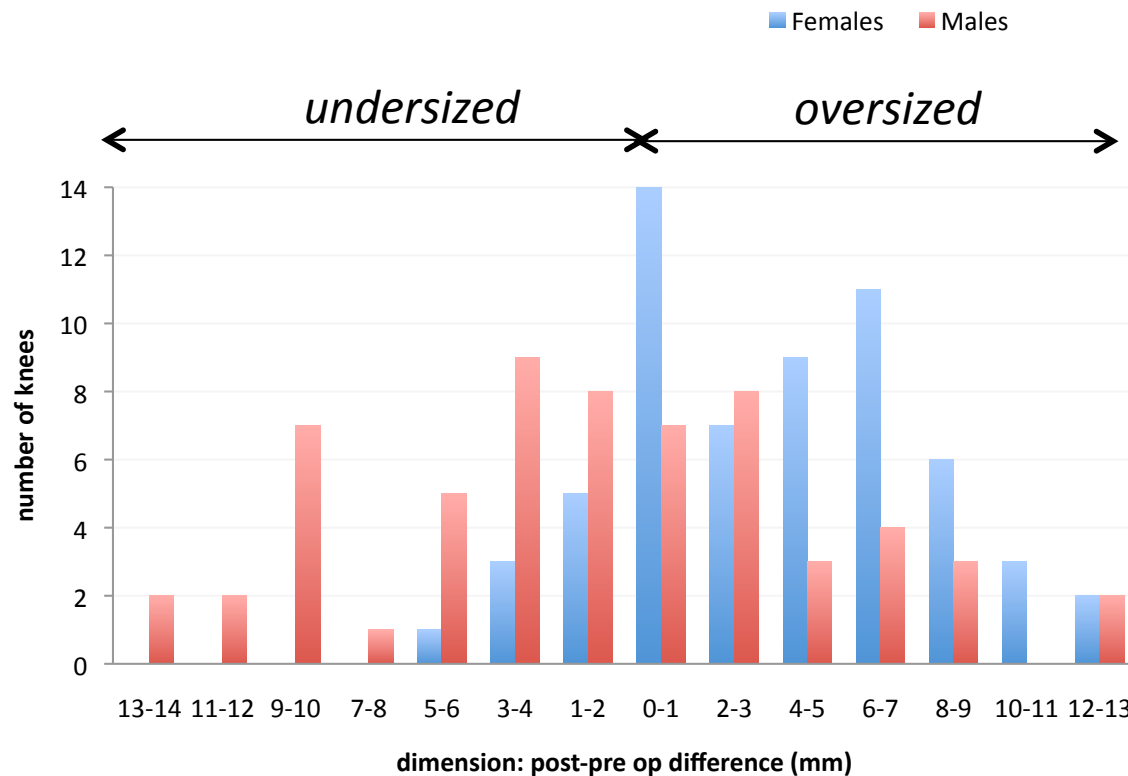
Michel Bonnin



Dimensions on preop CT-scan / implanted component

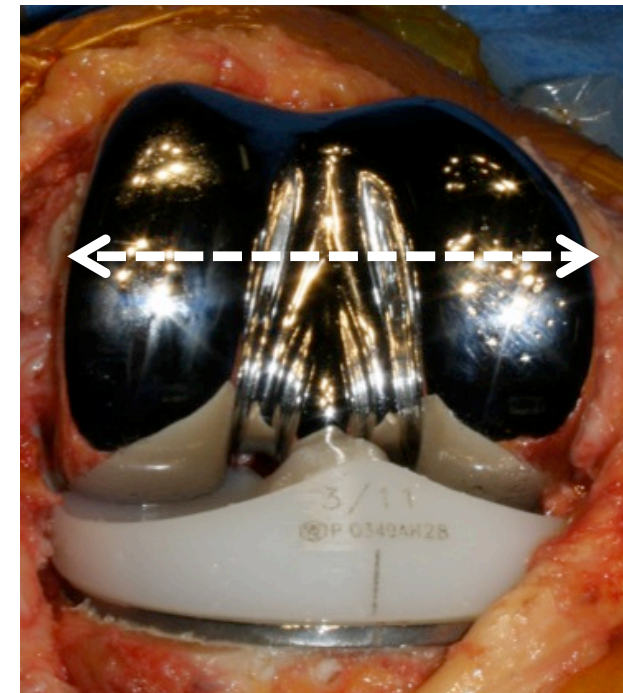
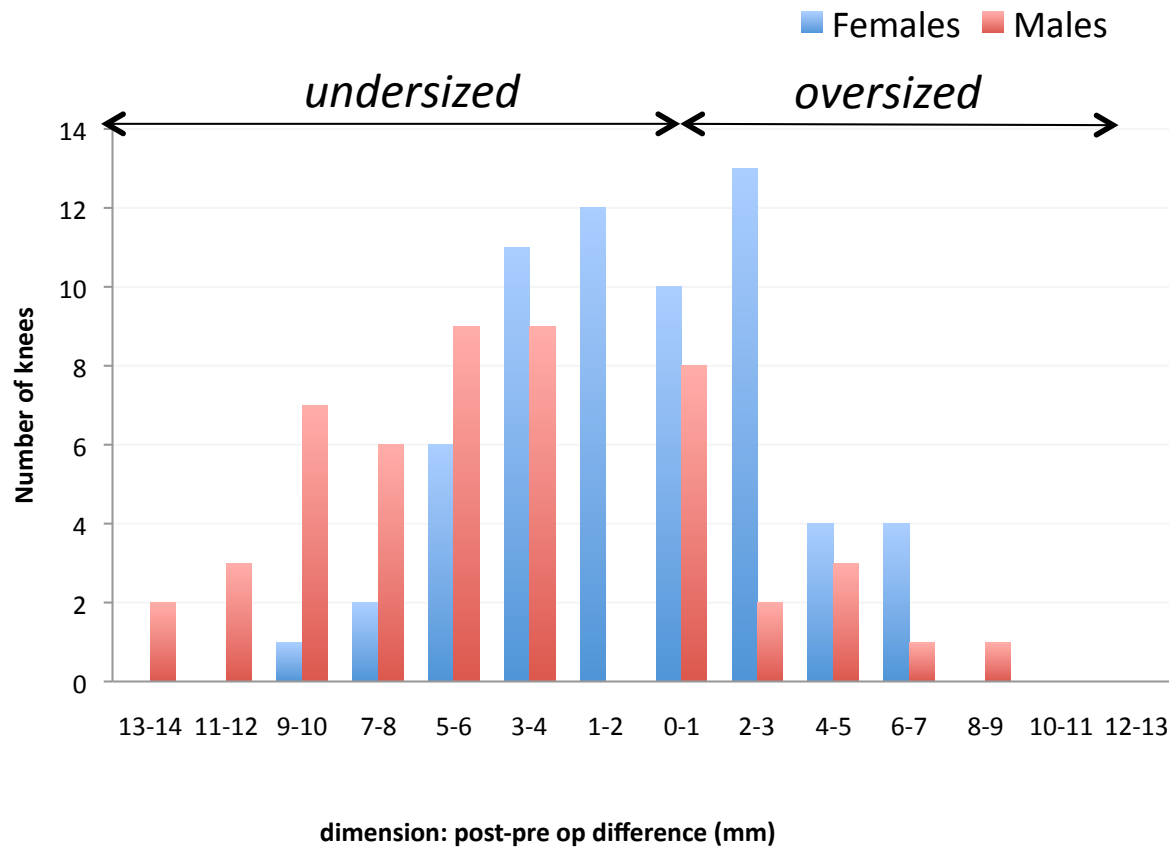


Anterior femur: oversized = 66%



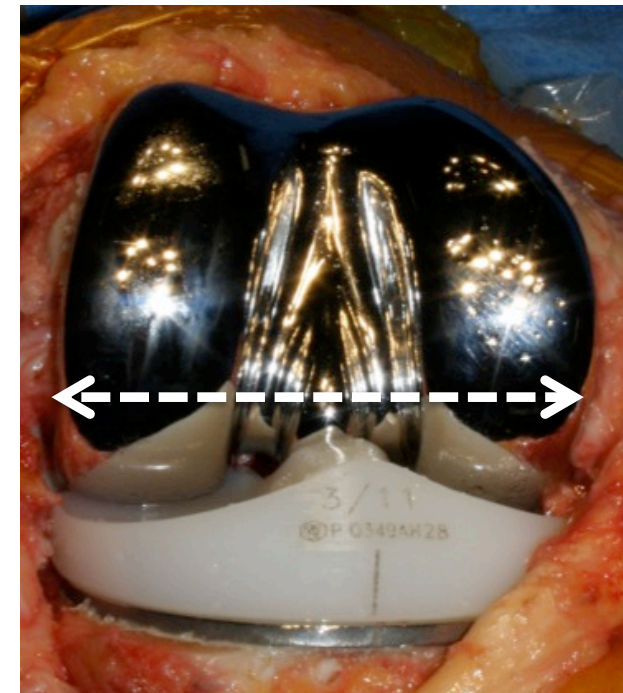
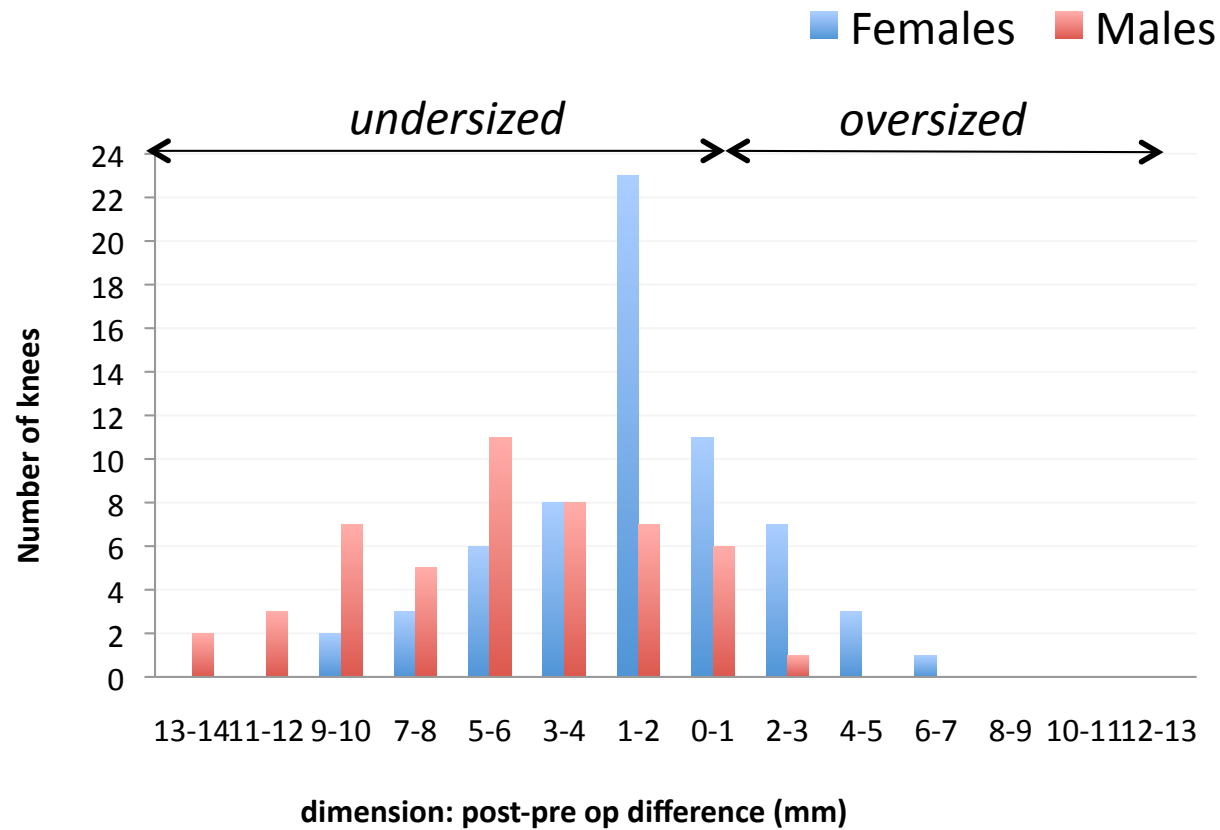
	Males	Females	P-value
Femur Ant ^{re} (mm)	0.7±5	3.3±4	0.0028

Distal femur: oversized = 30%



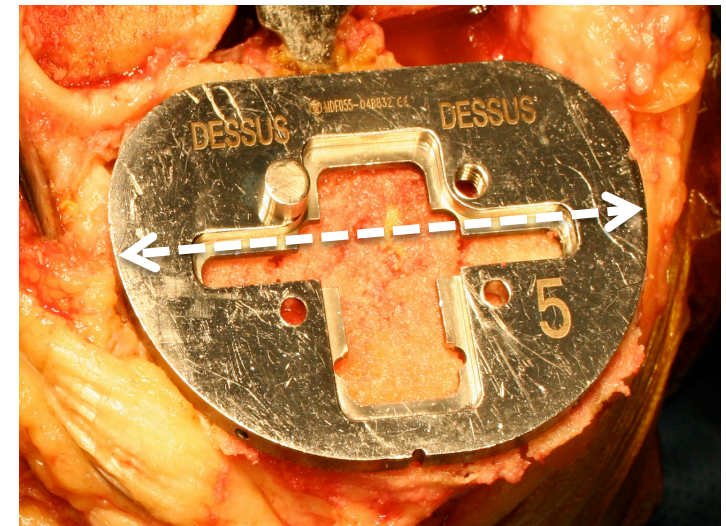
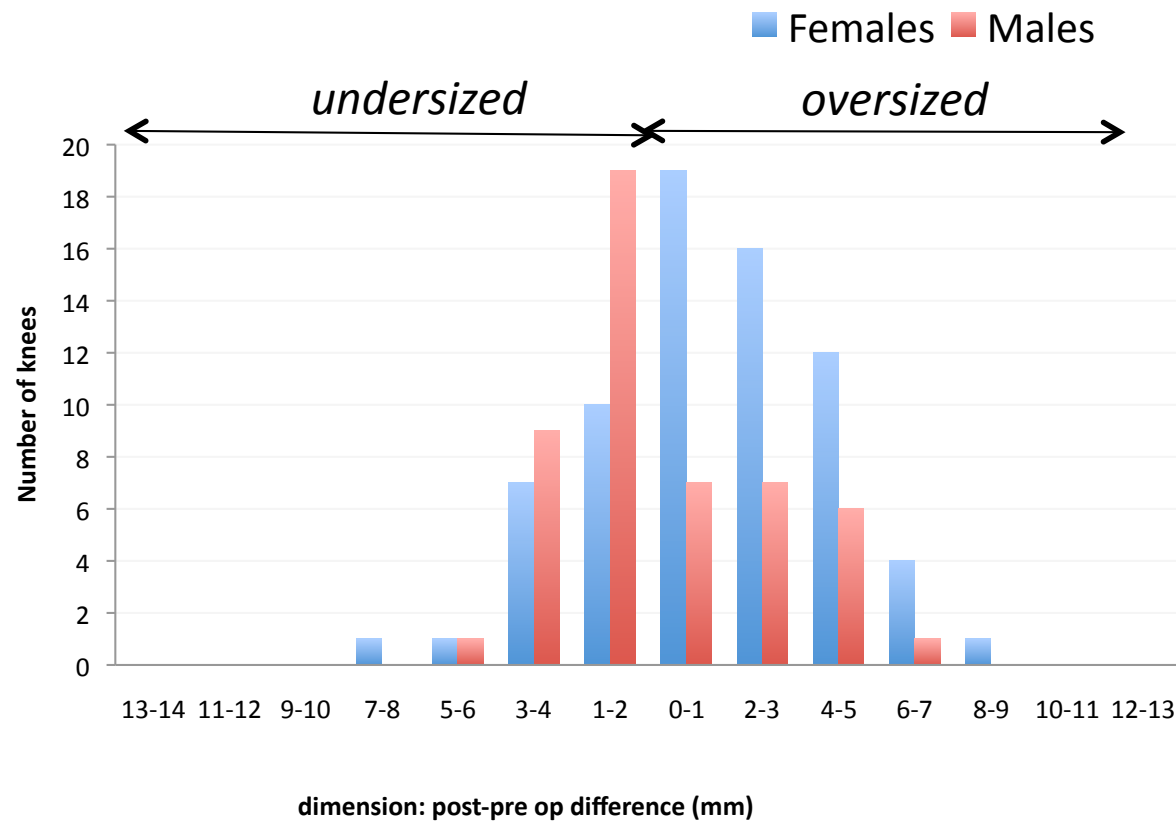
	Males	Females	P-value
Femur DISTAL	-4±5	-0.7±4	0.0001

Posterior femur: oversized = 23%



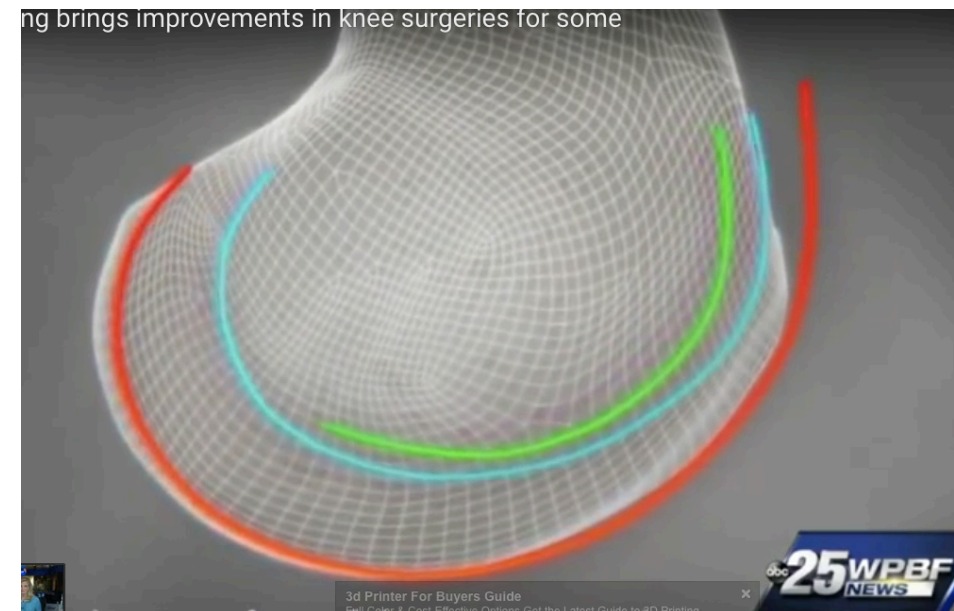
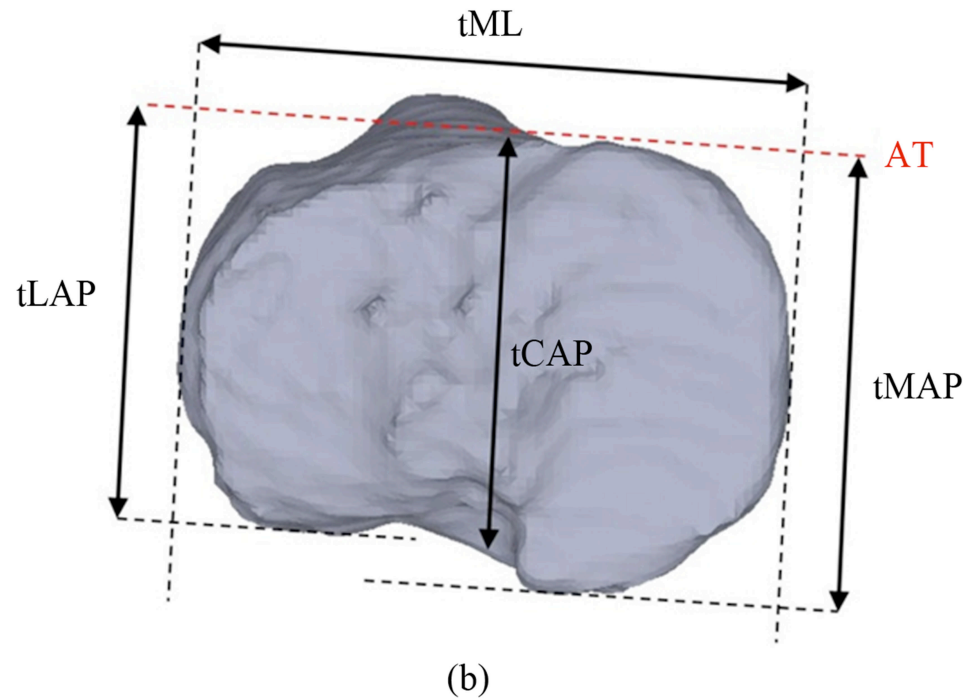
	Males	Females	P-value
Femur POST ^{re}	-5.4±4	-1.5±3	<0.0001

Medio-Lateral Tibia: oversized = 61%



	Males	Females	P-value
ML Tibia	-0.3 ± 3	1.9 ± 3	0.0006

Is it only bad anatomy restitution ?



Pain

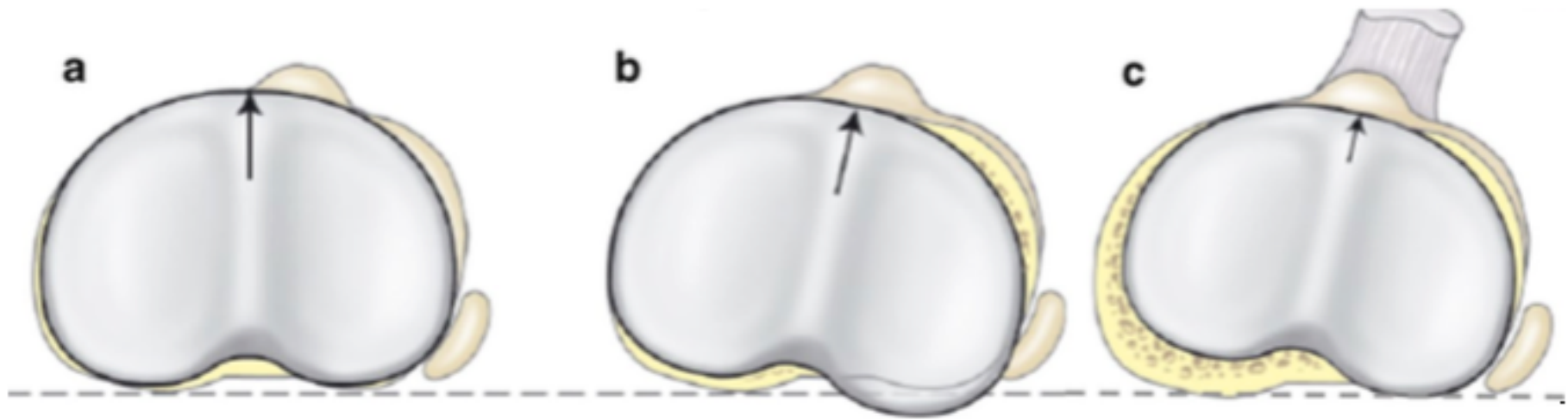
	Undersized	Oversized	P-value *
Femur ANT	40.1	30.2	0.000
Femur POST	34.8	29.1	0.05

* *Mann-Withney unilateral test following our hypothesis*

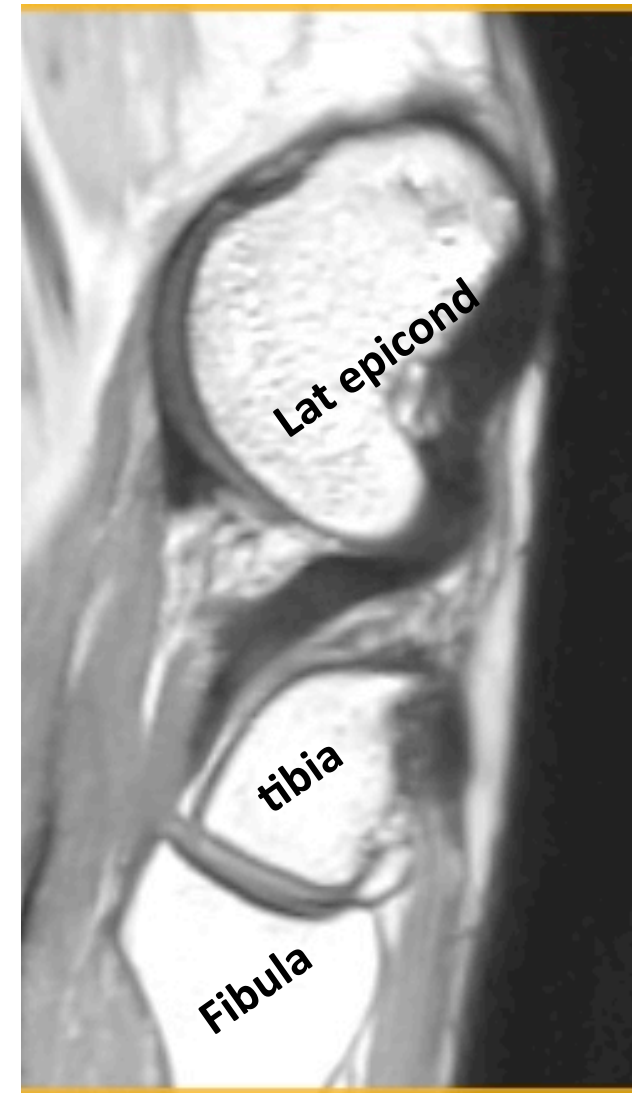
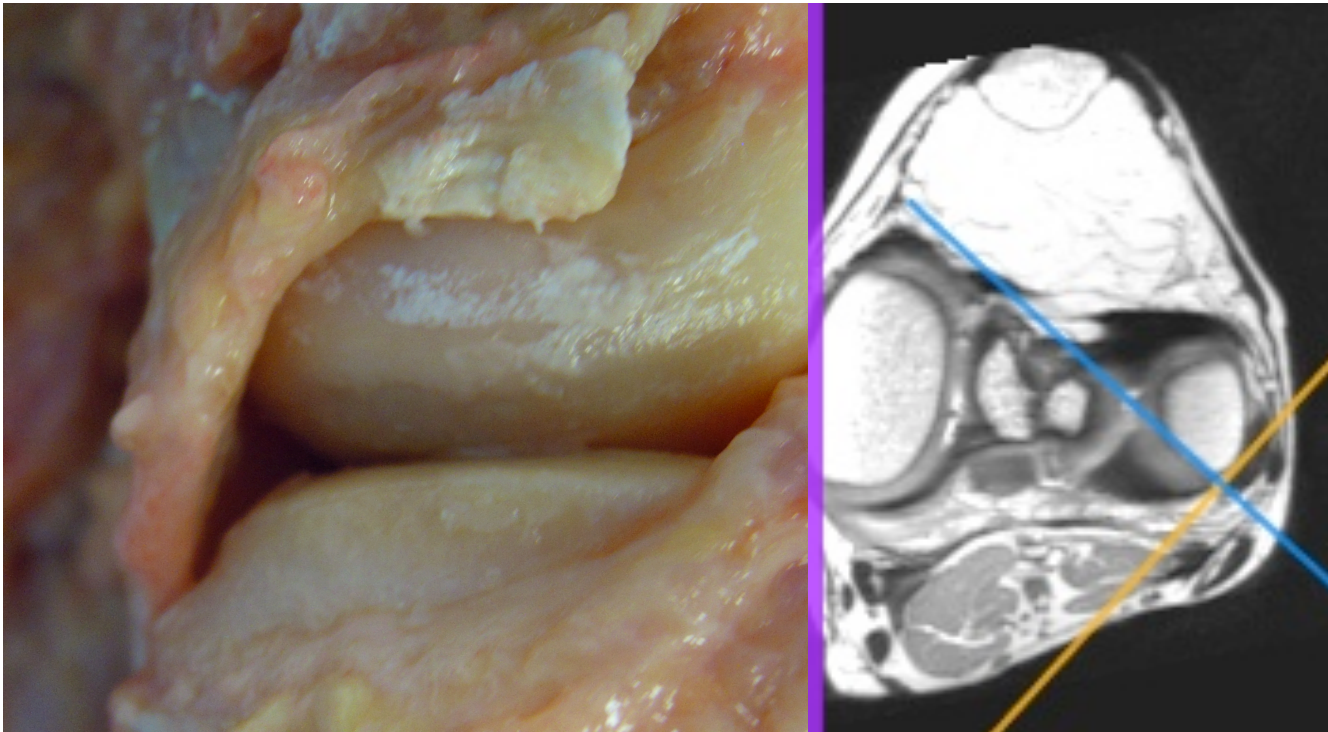
Flexion

	Undersized (<0mm)	Oversized (≥0mm)	P-value
Femur ANT	124°.6	121°.3	0.05
Femur POST	123°.4	119°.0	0.04
Tibia ML	124°.7	121°.0	0.03

Compromises

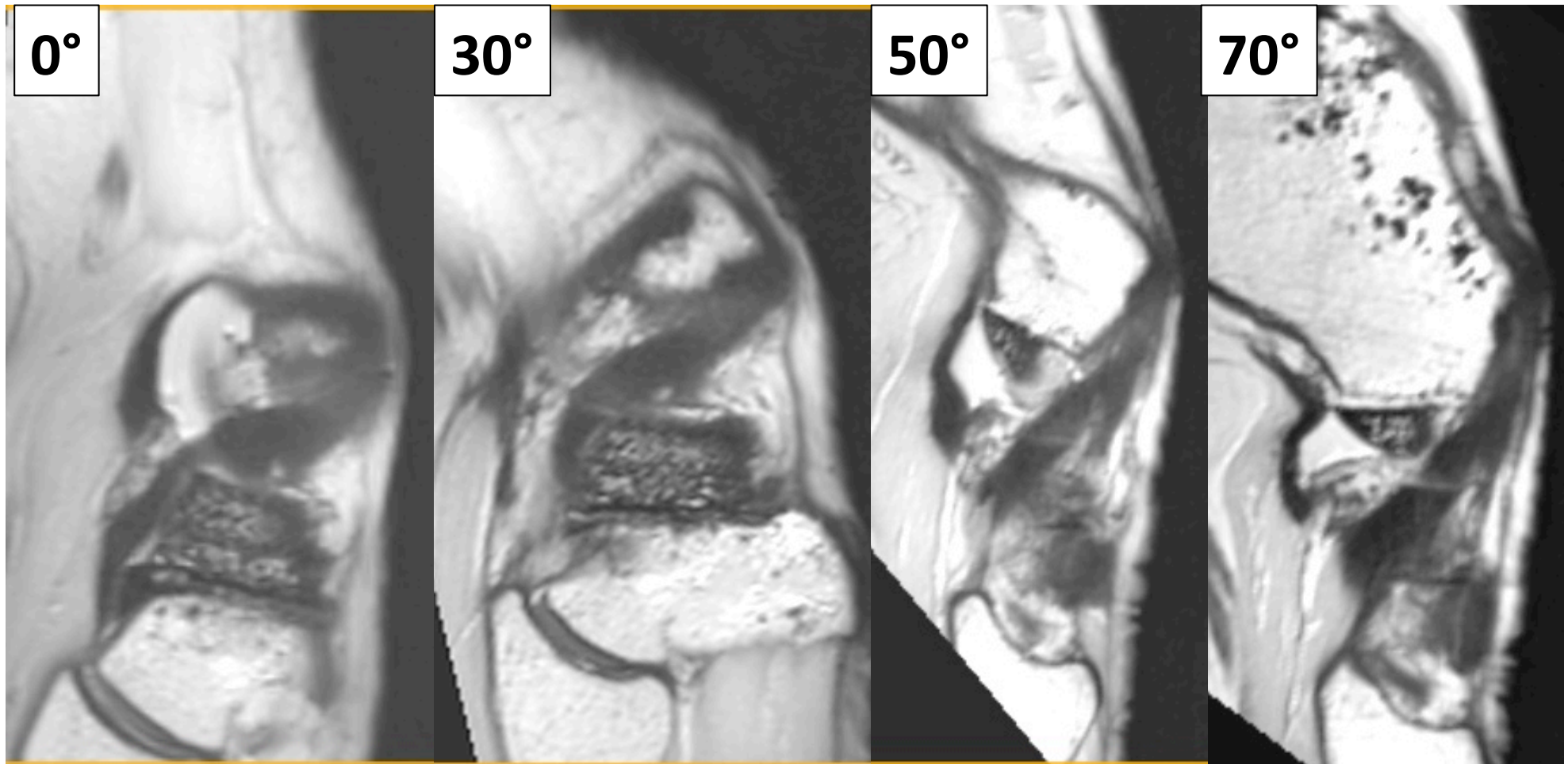


Why is oversizing painful? Soft tissue impingement



Why is oversizing painful? Soft tissue impingement

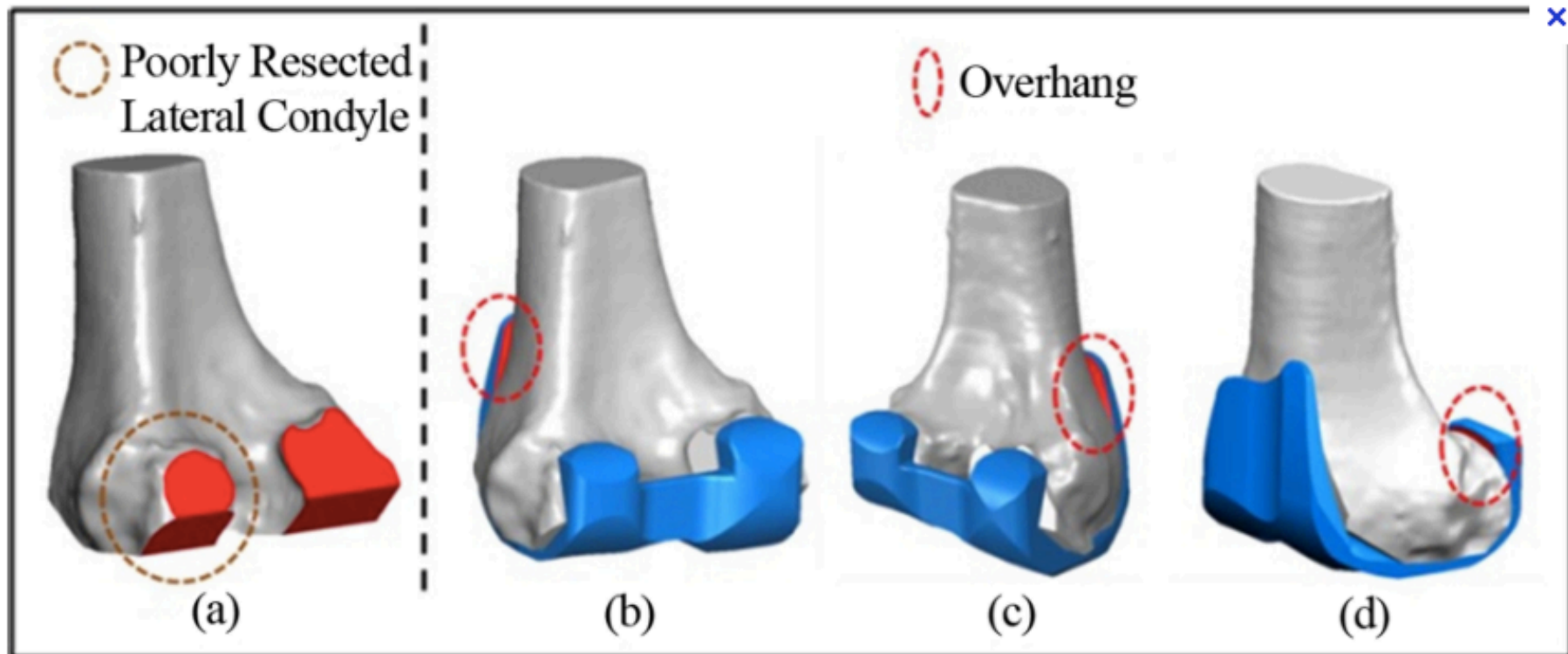
Standard normosized TKA

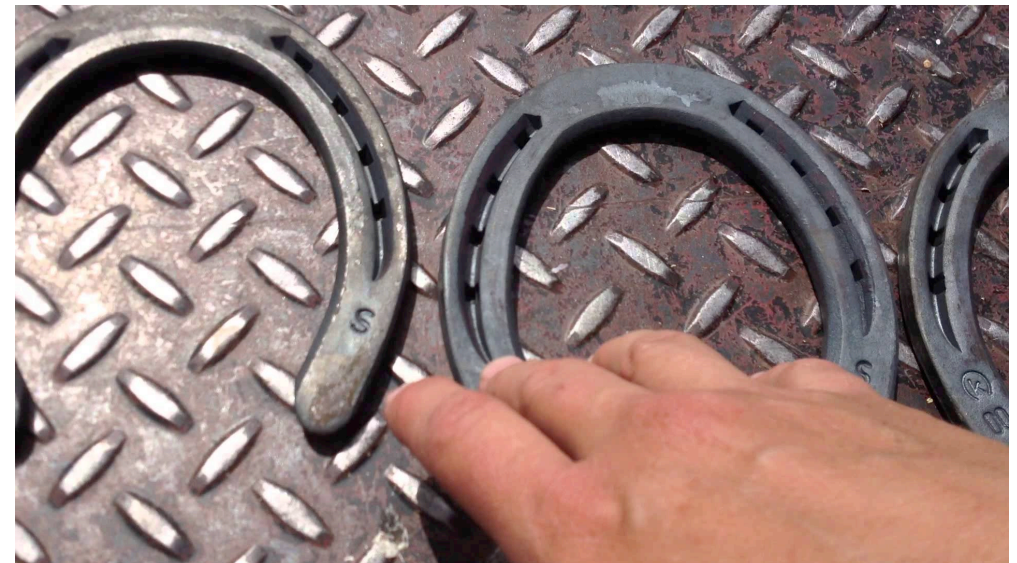
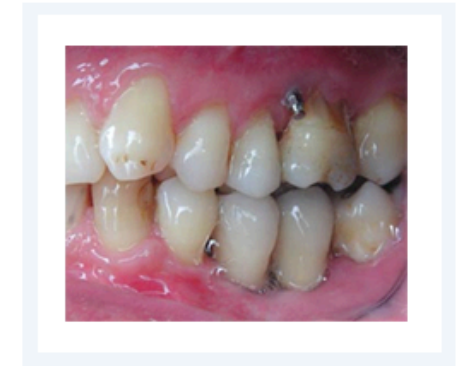
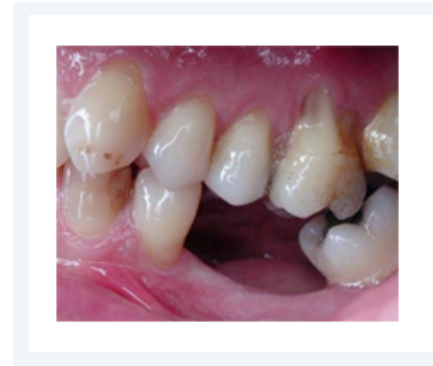
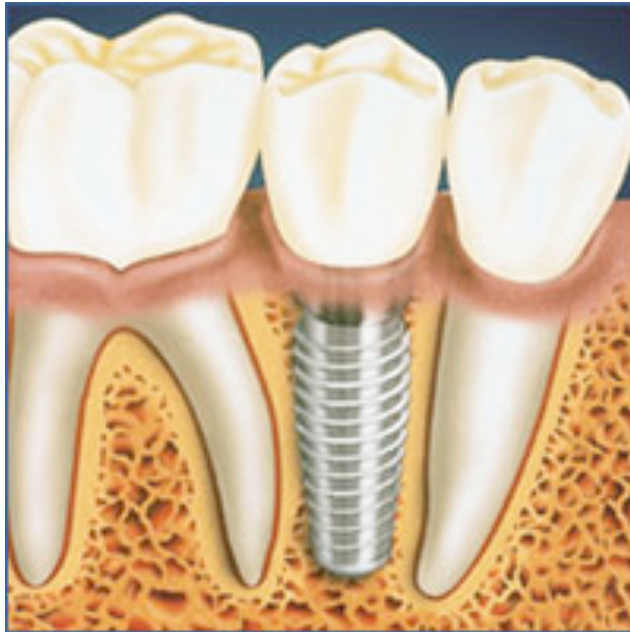


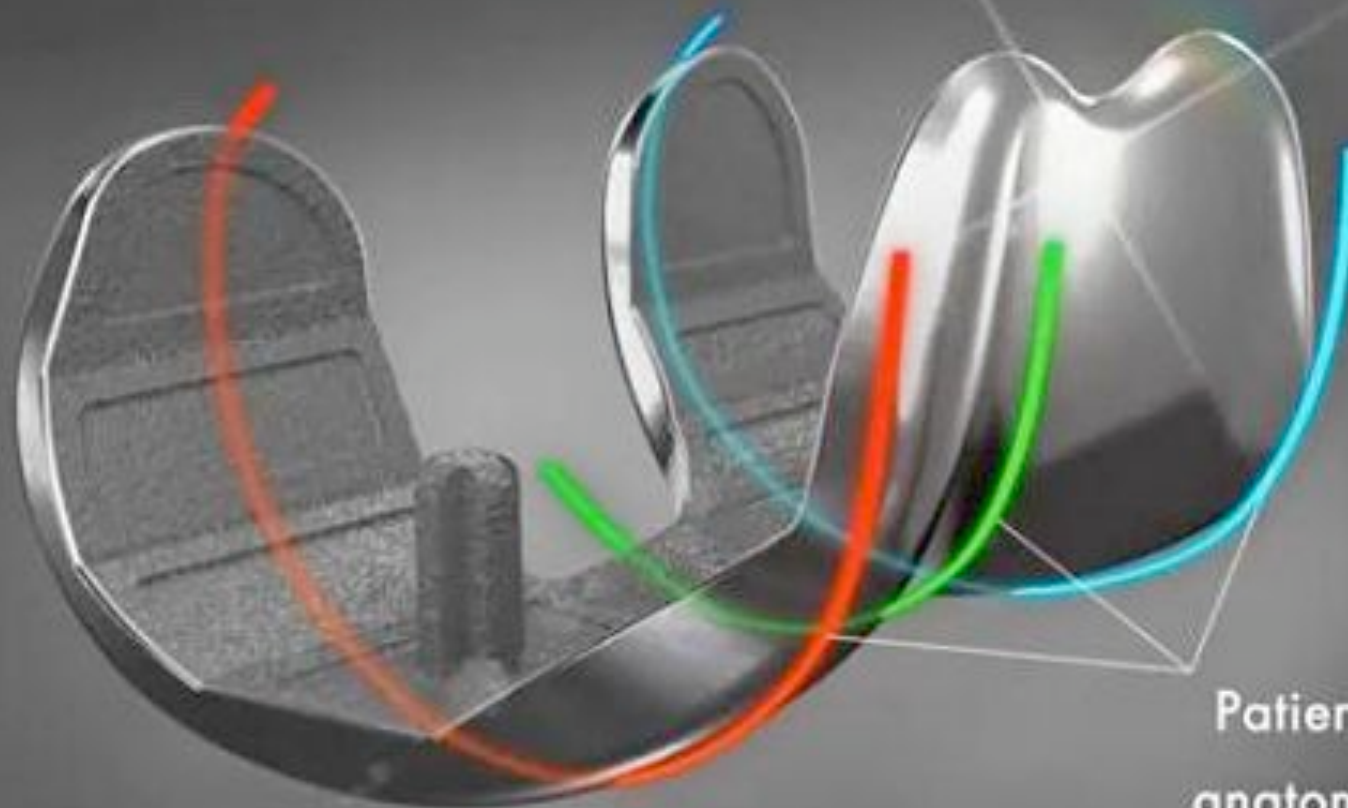
The future ?

- 3D printer ?
- Anatomic TKA /kinematic
- Better fonctions and results ?

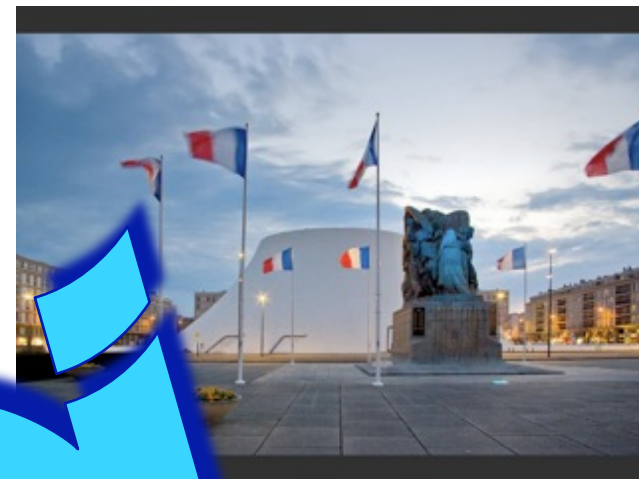
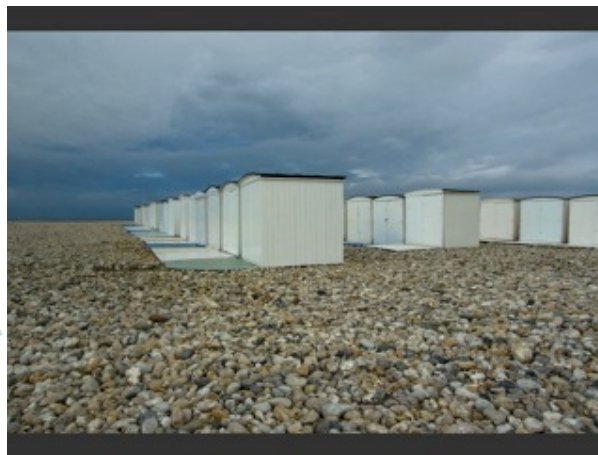








Patient-matched
anatomic J-curves



MED

