



UIPA

United International Partner Academy

Controversies round TKAs...



United[®]
Orthopedic Corporation



**TKAs:
CR or
PS ???**



U2™ Knee System

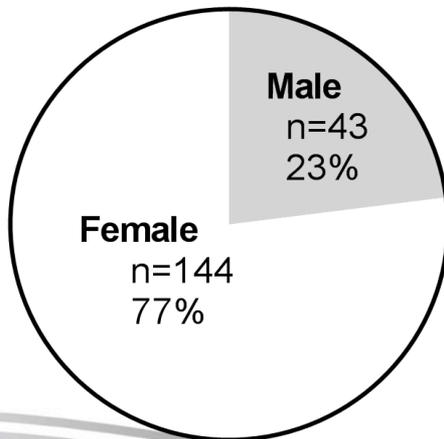
U2 Knee- CR

Subject Demographics

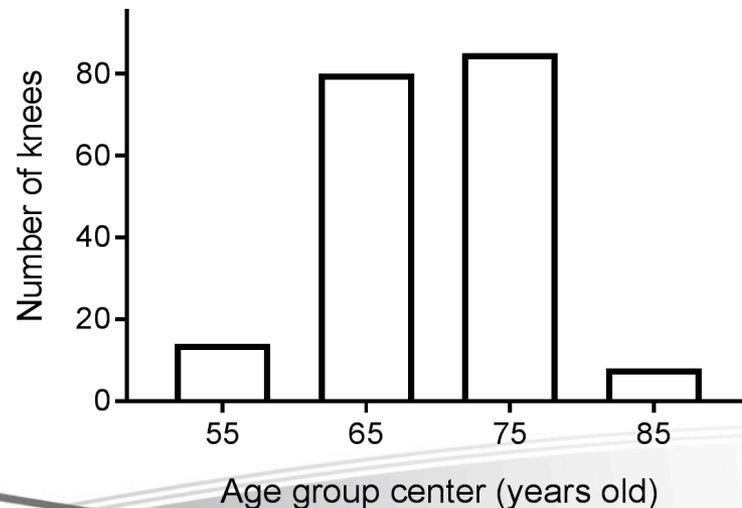
Characteristics of the patients included in the follow-up study

Number of knees (patients)	187 (150)
Male/Female, n(%)	34 (23) /116 (77)
Age (years) *	69.2 ± 6.4 (51-89)
Height (cm) *	153.9 ± 6.9 (139 -180)
Weight (kg) *	66.9 ±10.4 (44-94)
BMI (kg/m ²) *	28.2 ± 3.8 (19.6-39.7)
Follow-up period (year) *	9.8 ± 0.7 (8.6-11.3)

* mean ± standard deviation (range). BMI, body mass index

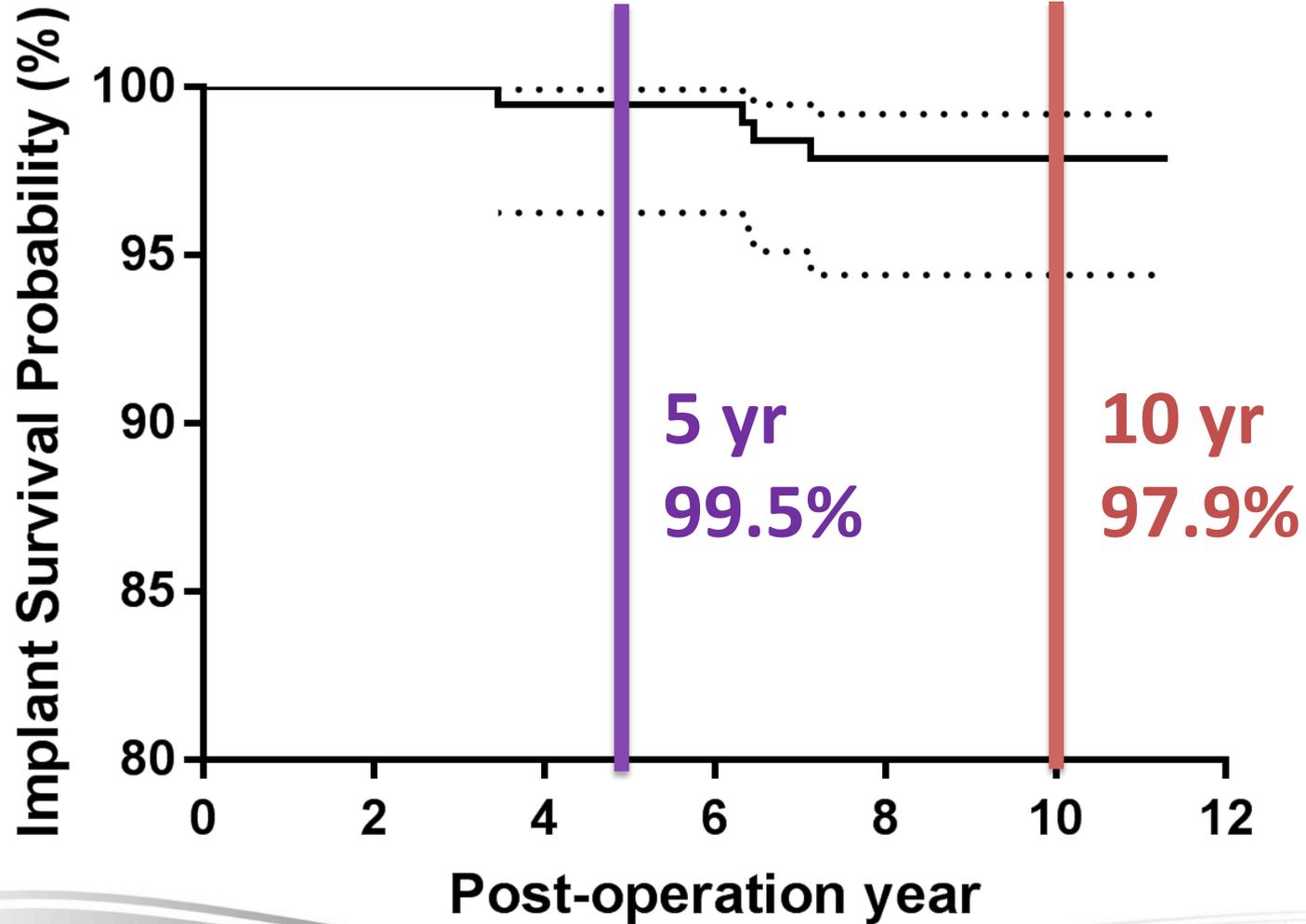


Total=187



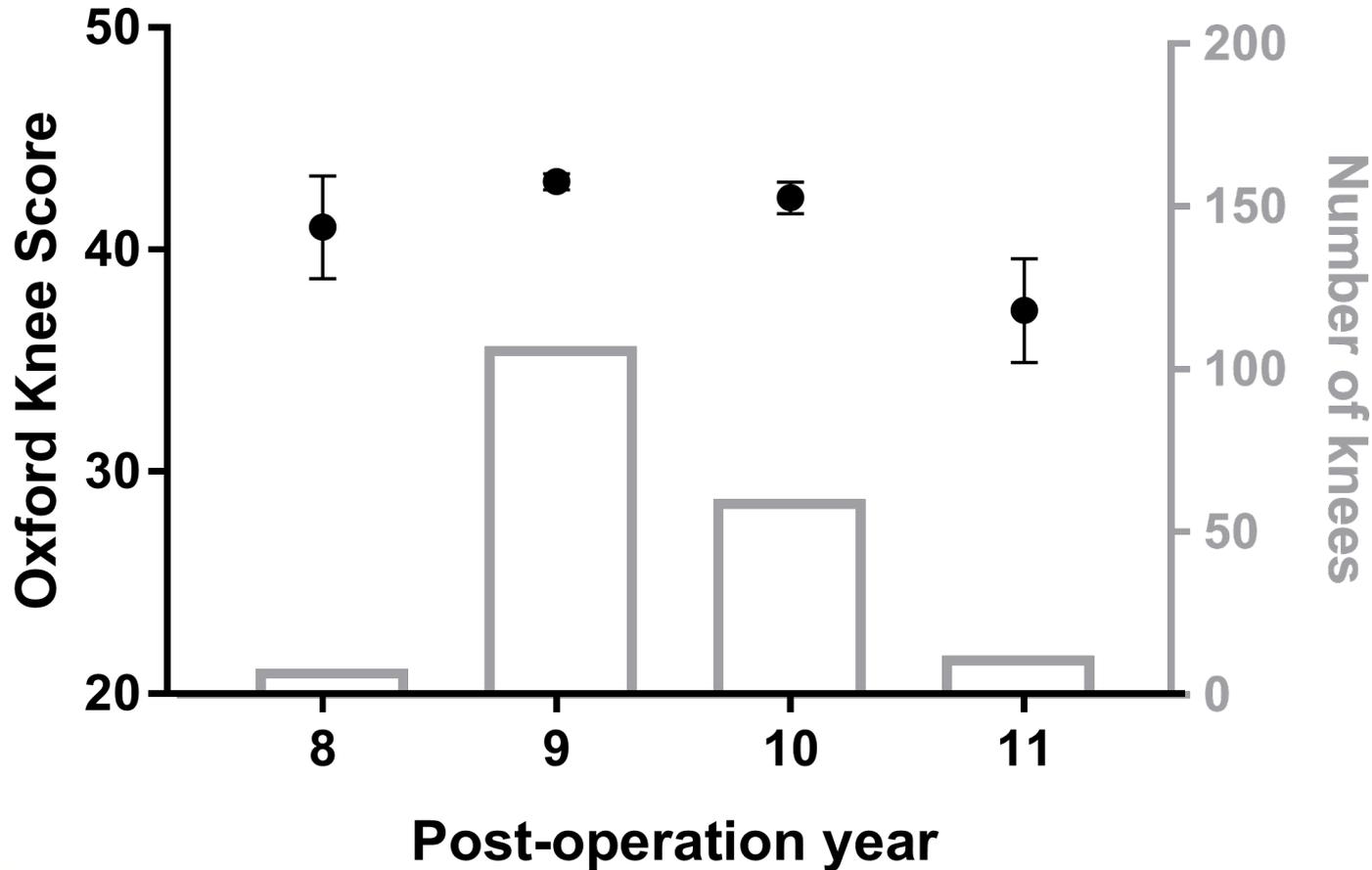
U2 Knee- CR

Implant Survivorship



U2 Knee- CR

Mean OKS = 44.3 pts (max 48)



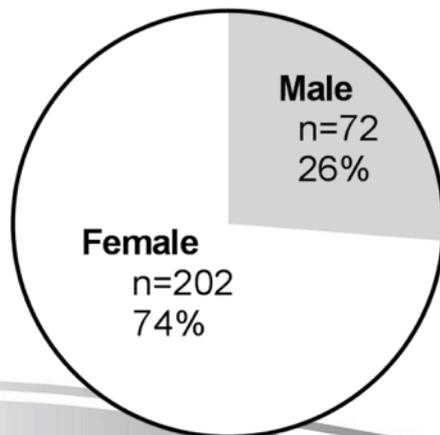
U2 Knee- PS

Subject Demographics

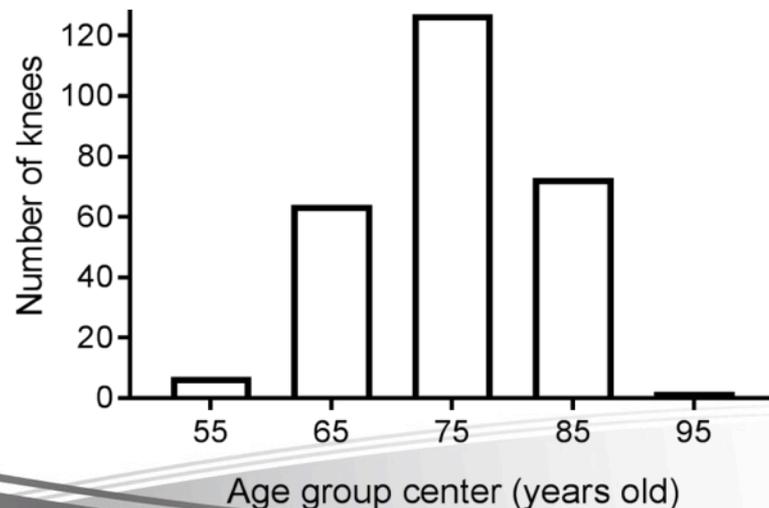
Characteristics of the patients included in the follow-up study

Number of knees (patients)	274 (240)
Male/Female, n(%)	59 (25) / 181 (75)
Age (years) *	74.4 ± 7.5 (54-91)
Height (cm) *	155.2 ± 8.0 (135-185)
Weight (kg) *	66.0 ± 11.5 (42-106)
BMI (kg/m ²) *	27.4 ± 4.6 (18.7-47.0)
Follow-up period (year) *	7.4 ± 1.1 (5.0-10.9)

* mean ± standard deviation (range). BMI, body mass index

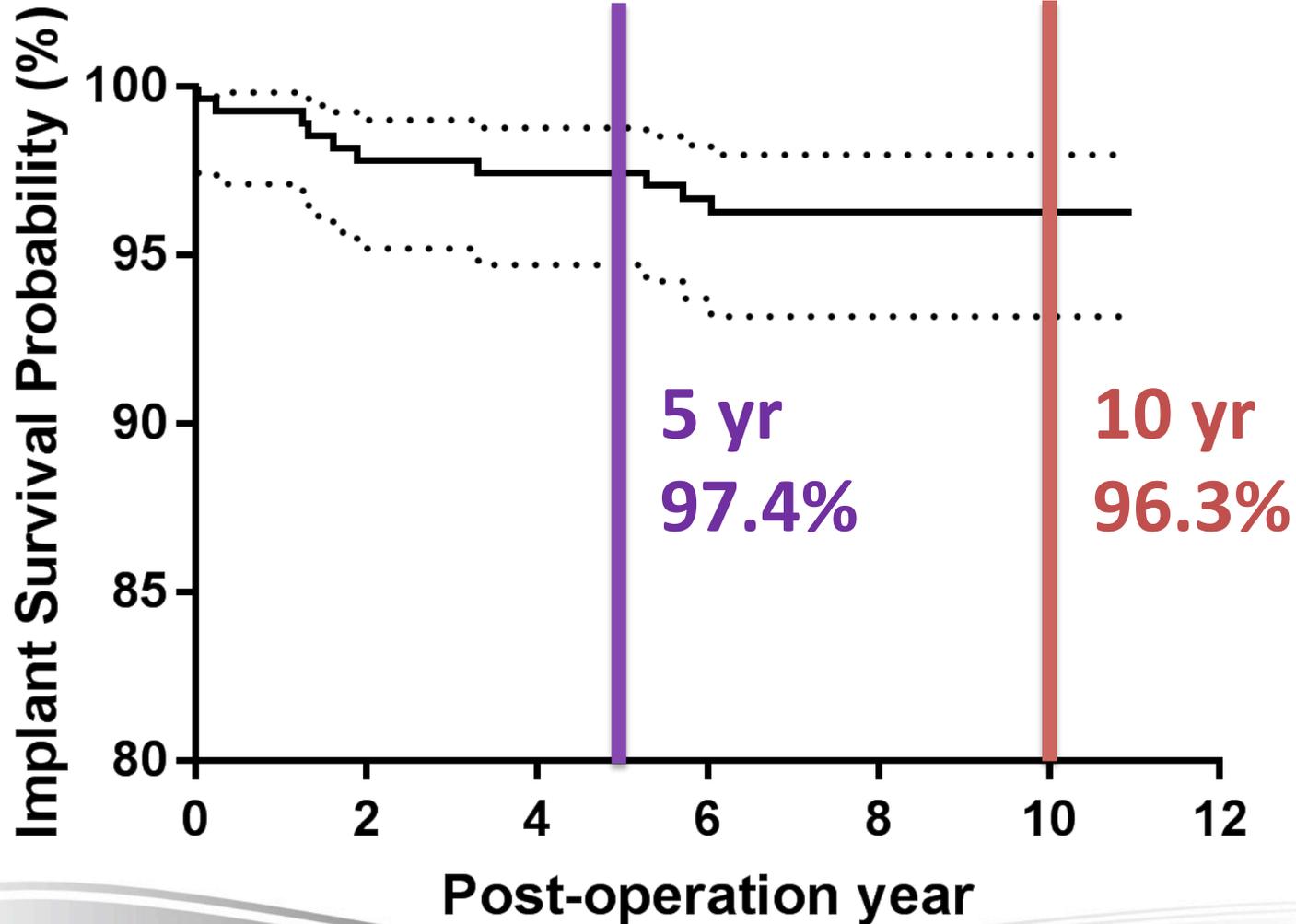


Total 274 knees



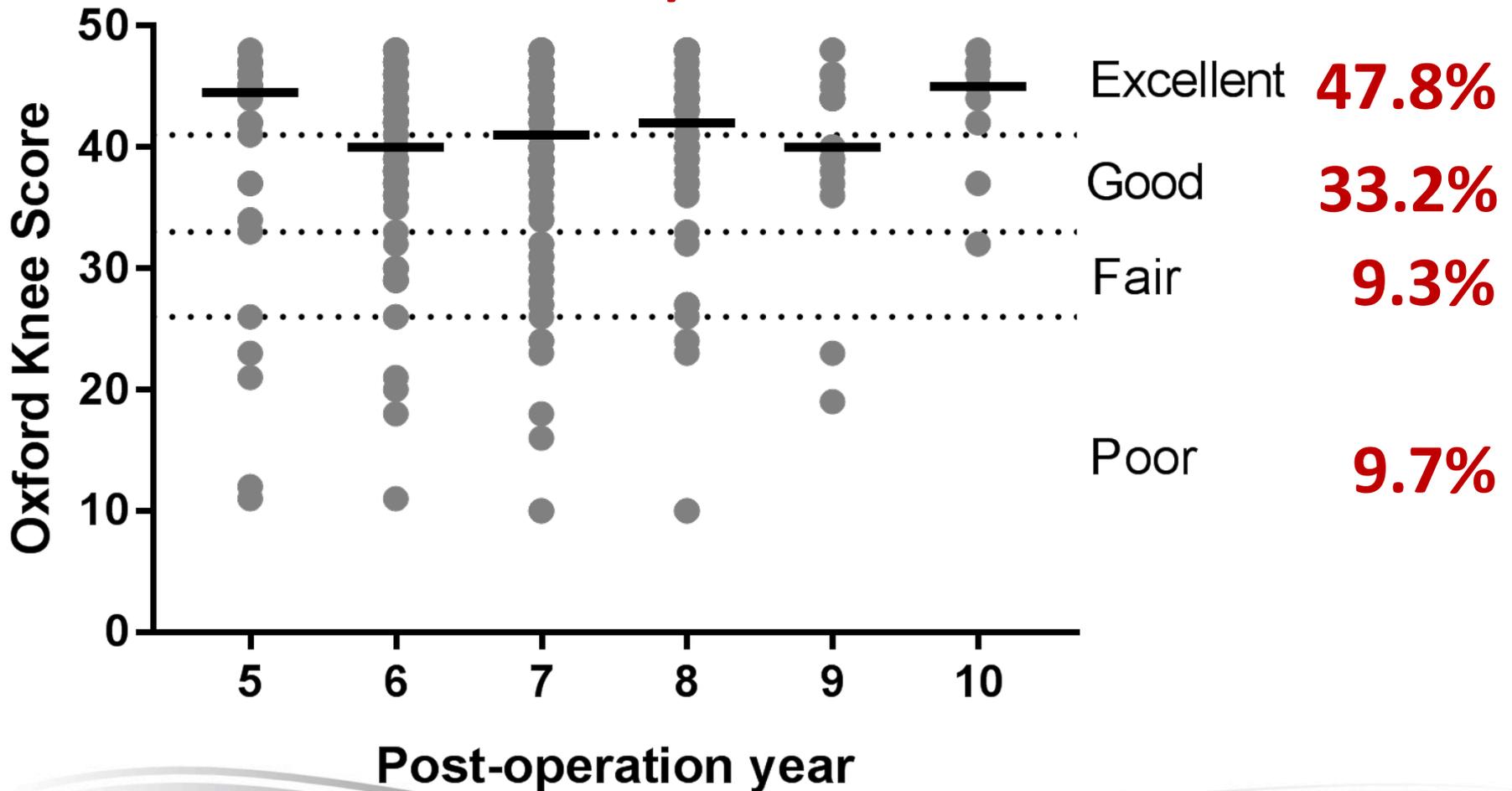
U2 Knee- PS

Implant Survivorship



U2 Knee- PS

Mean OKS = 39.0 pts (max 48)



Summary of the PMCF Results

U2 Knee- CR

99.5% at 5 yrs
97.9% at 10 yrs

Averaged Oxford
Knee Score 44.3

U2 Knee- PS

97.4% at 5 yrs
96.3% at 10 yrs

Averaged Oxford
Knee Score 39.0



Cruciate Retaining (CR) vs. Substitution (PS)

Of the Post Cruciate Ligament
(PCL) in TKAs



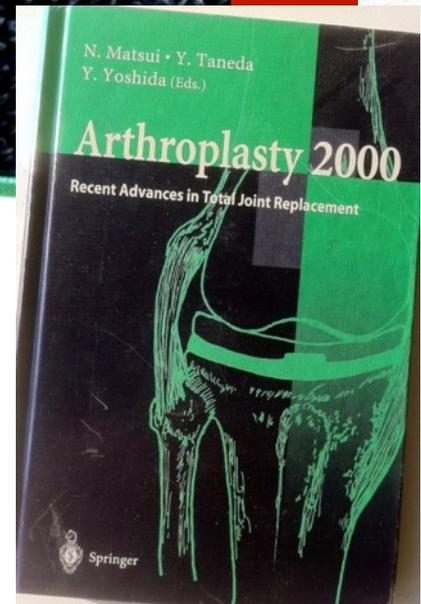
Controversies

*“Why do I systematically choose the
PCL substituting...”*

Choice of PCL Substituting in HA Knee Arthroplasty

JEAN-ALAIN EPINETTE¹, MARK A. KESTER², and AVRAM A. EDIDIN³

Summary. “The issue of retention versus sacrifice of the Posterior Cruciate Ligament [PCL] remains an enigma for the Orthopaedic Surgeon.” While reviewing the literature, it is difficult to anticipate some sound benefit afforded by one of these two options. Biomechanical studies have demonstrated that the theoretical benefit of retention of the PCL unfortunately does not

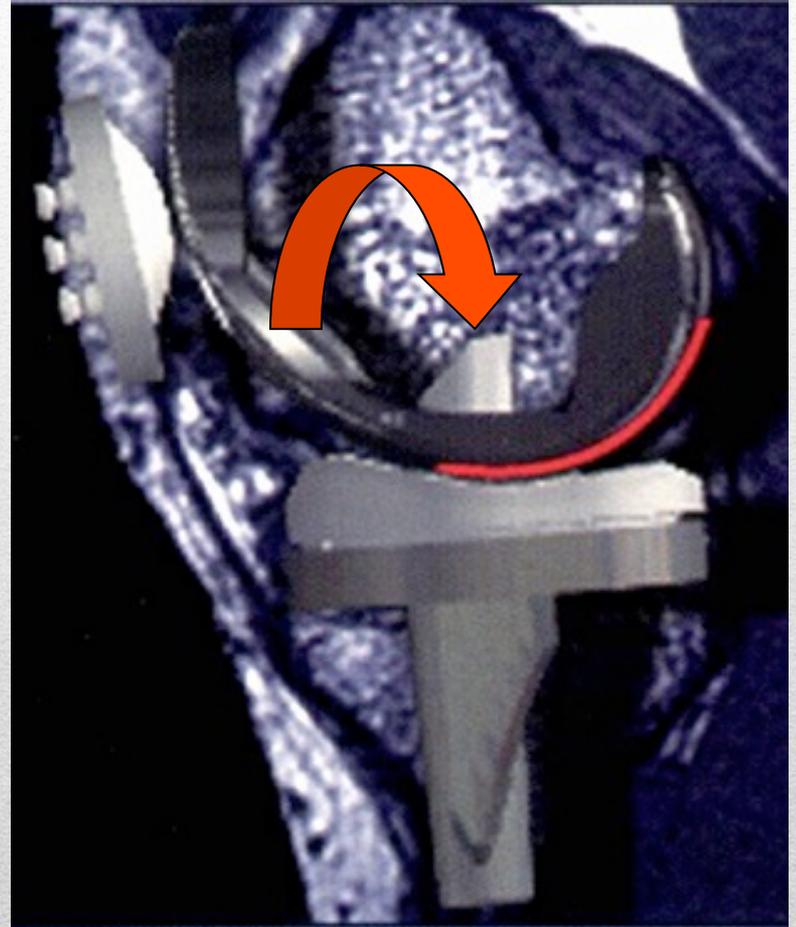


**Round Table – Orthopaedic Japanese Society – Tokyo 1999
Cross Fire against Leo Whiteside 😊 !**

Foreword

1 – "Substitution" is NOT "Sacrifice"

- The **cam system** allows for an efficient stabilization upon the sagittal plane
- Alternately, the **deep-dish design** also provides such a stabilization



Foreword

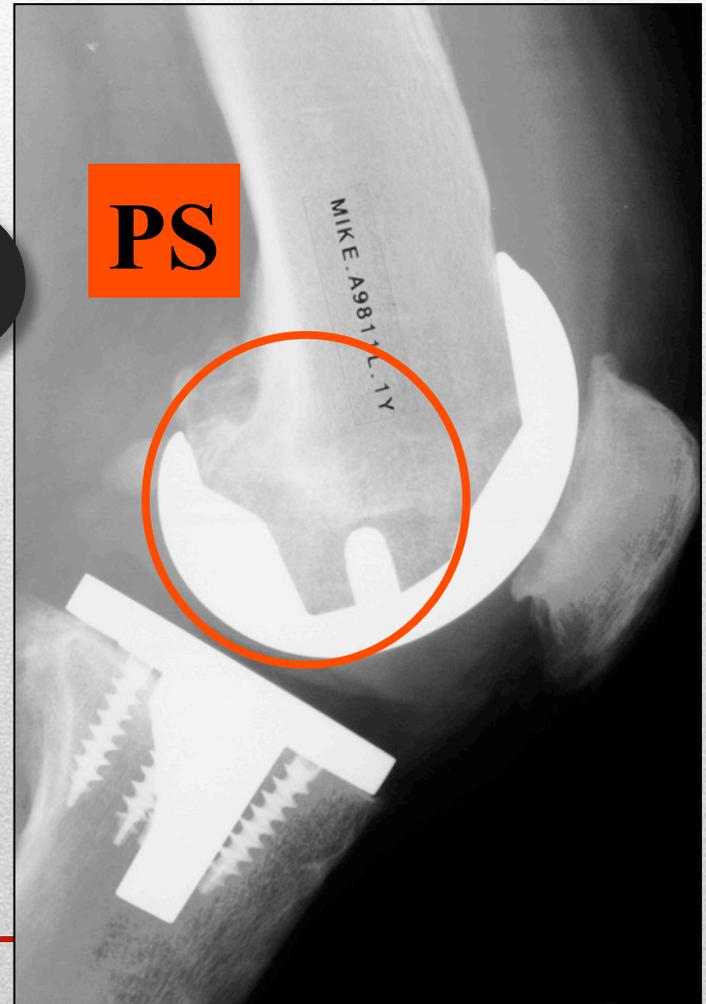
2 – “I am NOT a ligament reaper!...”

- **75% of my Knee Replacements are UKAs, saving the TWO ligaments! And sometimes I perform a dual Uni knee on the same side!**
- **During more than 20 years, ALL my TKAs have been CR knees !!!**



Question

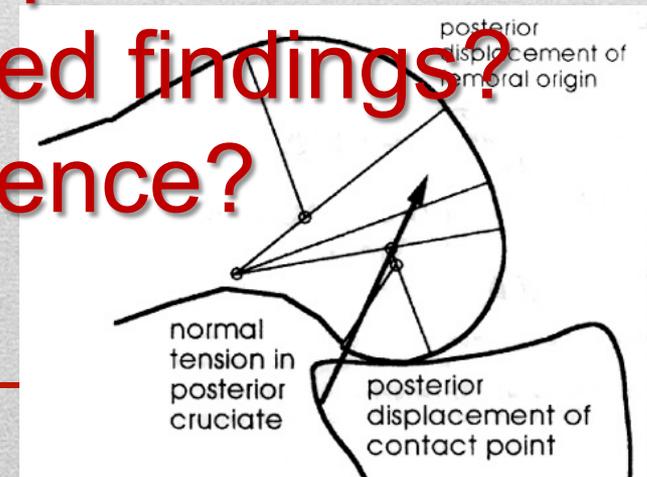
Why did I move from CR to PS knees ???



4 bullet points to answer



1. The Specific Knee Kinematics?
2. The surgical technique?
3. The Literature-based findings?
4. My personal experience?

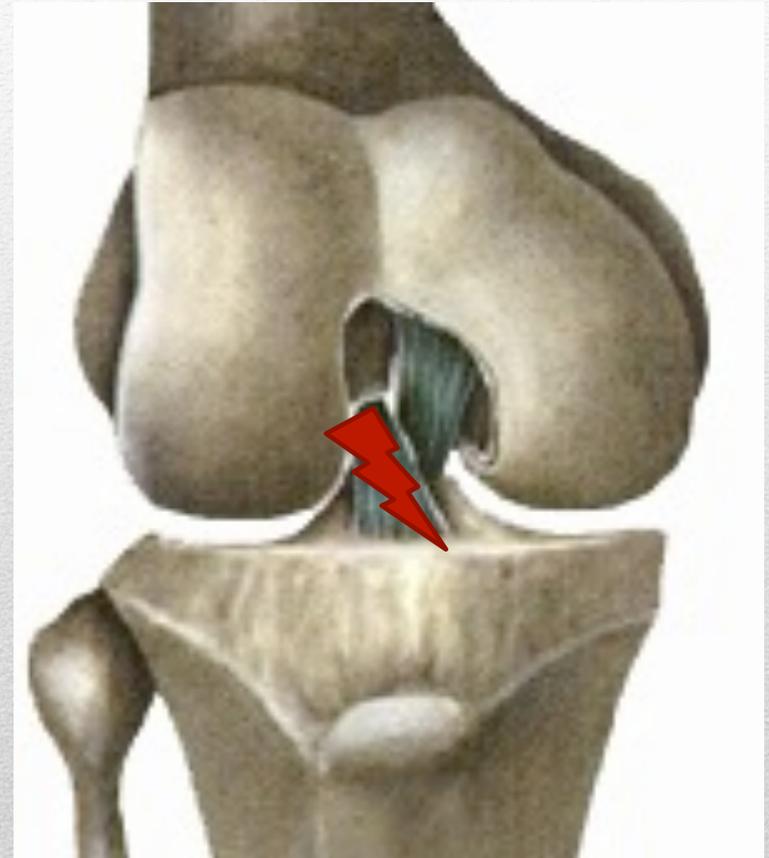


1 – The Knee Kinematics

98% of Anterior
Cruciate Ligaments
(ACL) are still in place
at surgical approach

However ...

Sacrificing the ACL is
systematically
performed in 100% of
cases !!!

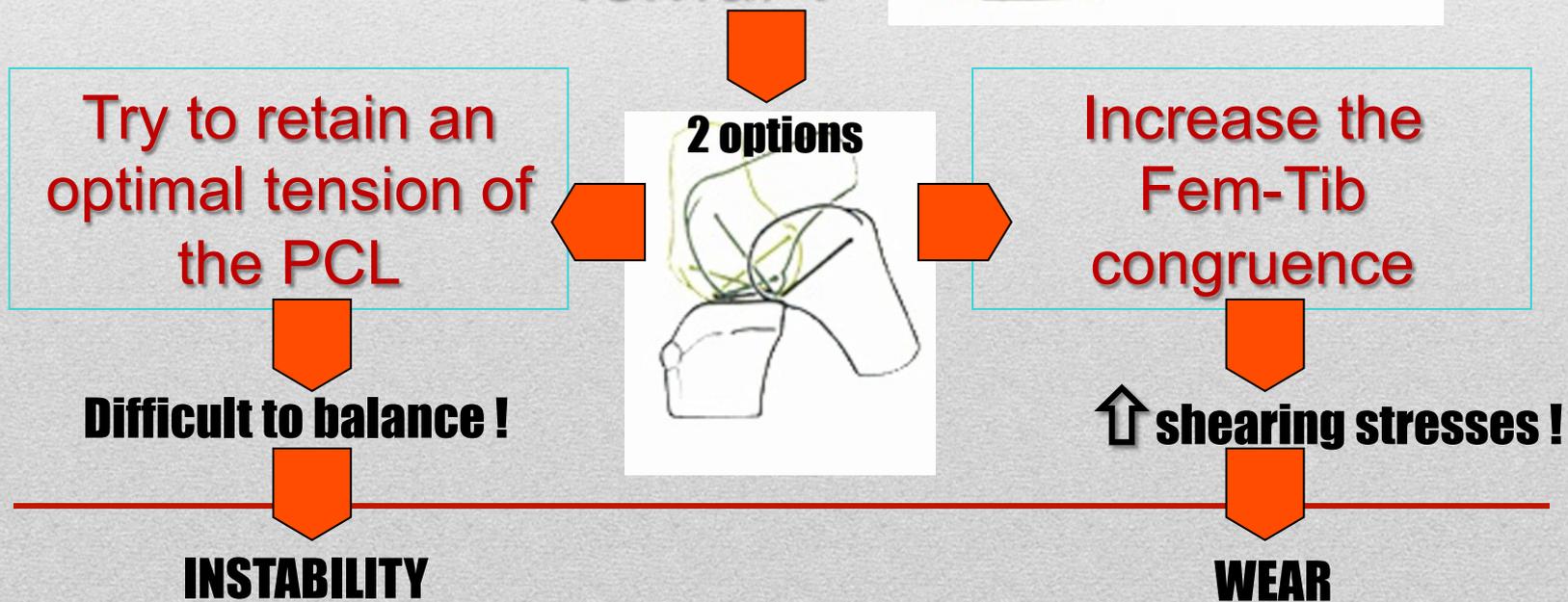


HENCE a knee without ACL will NEVER be again a knee with normal kinematics !



What happens after the ACL sacrifice =

Posterior swing of the femur !



Normal kinematics will never be reproduced in TKAs BECAUSE a knee without ACL will ever be a deficient knee !!!

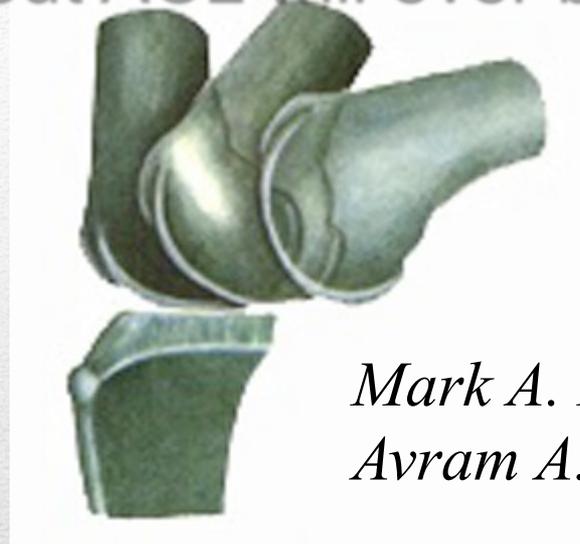
Proven consequences of ACL sacrifice =

1 – Fluoroscopy:

→ Posterior swing systematically proven...

2 – Retrievals:

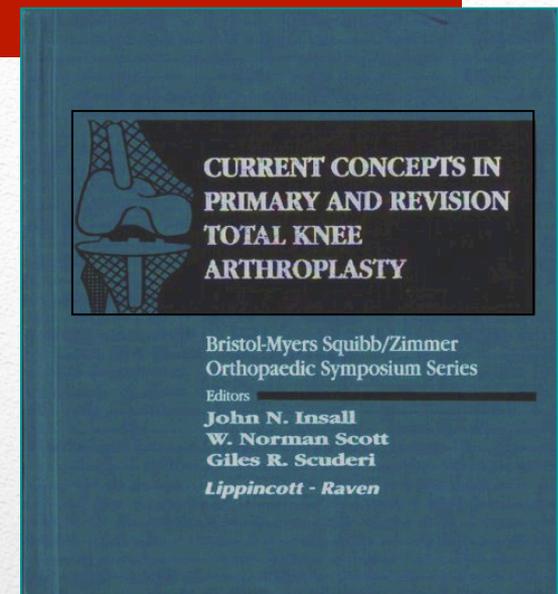
→ Accelerated wear of the PE insert at rear ...



*Mark A. Kester
Avram A. Edidin*

So... What can be the real behavior or PCL after TKA-CR when no longer ACL ?...

Clifford W. Colwell, Jr

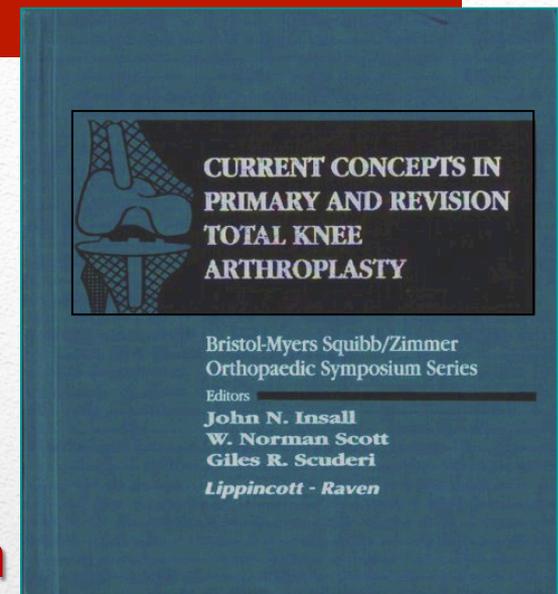


1. Keeping intact the PCL is more a theoretical benefit rather a practical one ...
 2. Based upon studies analyzing articular contact areas, trying to preserve an absolute isometry in PCL can be beneficial when unloaded, however with no real advantage at full weight-bearing
-

So... What can be the real behavior or PCL after TKA-CR when no longer ACL ?...

Clifford W. Colwell, Jr

3. Strain gauges confirm that keeping an exact isometry of the PCL after TKA-CR is a very unpredictable task ...
 4. Wether an ideal and stringent positioning of the joint line cannot be maintained, then the PCL action becomes harmful !
 5. Kinetic studies at walking tests confirm similar findings for CR vs. PS knees
-



2 – Surgical Tips

1. keeping an appropriate tightness of the PCL during TKA is always very challenging : too tight ?? too loose ?? ...



2. The exposure of the tibial plateau needed to properly insert the tibial base plate is always easier with PCL removed !



3 – What about Literature ?



- PCL-sparing versus PCL-sacrificing arthroplasty.
Functional results using the same prosthesis

Pereira DS, Jaffe FF, Ortiguera C J.Arthroplasty 13:2,1998

“The data revealed no difference in clinical or early radiographic outcome between PS and CR knees...”



- Comparison of muscle strength of PCL retained versus cruciate-sacrificed TKA

Huang CH et al - J.Arthroplasty 13:7,1998

“The results showed that in all testing conditions, the hamstring to quadriceps ratios did not significantly differ among the tested prostheses, even after long term functional adaptation...”



- Results of TKR with or without preservation of the PCL
Vinciguerra B et al - RCO 80:7,1994

“The functional outcome seems to be the same wether a PS or a CR knee was used...”



- Cruciate retained and excised TKA. A comparative study in patients with bilateral TKA

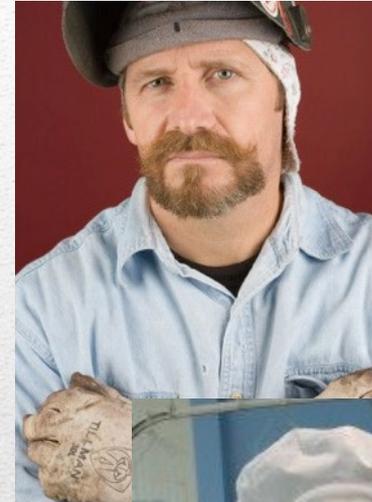
Shoji H, Wolf A, Packard S, Yoshino S - Clin Orthop 1994 Aug;(305)

“There was no significant difference between the retained or excised PCL in term of HSS score...”

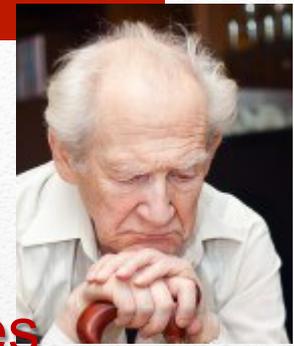
4 – Personal Experience



What from
our patients'
feed back,
be they old
or young &
active ?



337 CR vs. 332 PS @ 15-yrs of FUp



2 homogeneous cohorts :

- Age, Aetiology, BMI, Activity scores
- HA-coated similar implants (Fem + Tib)
- Same senior surgeon & surgical procedures



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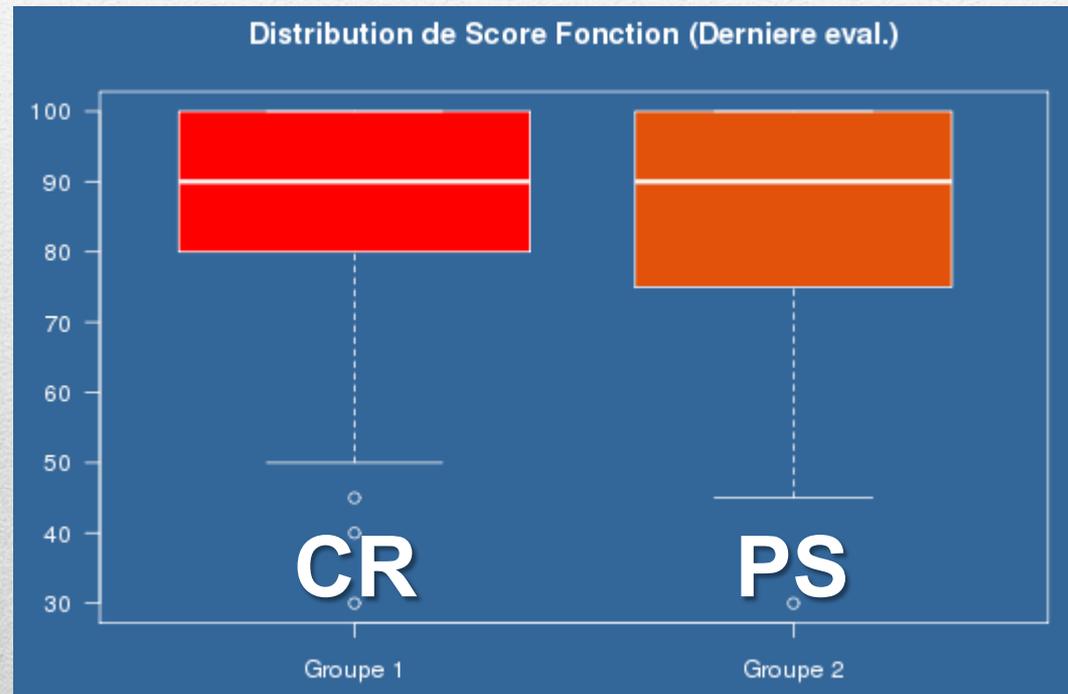
IKS Function Score

Latest Fup @ a minimum of 15 yrs

Type	CR	PS
N	214	174
Mean	88,1	85,7
SD	14,23	15,38

t-test:
p=0,1018 NS

Not significant CR vs. PS



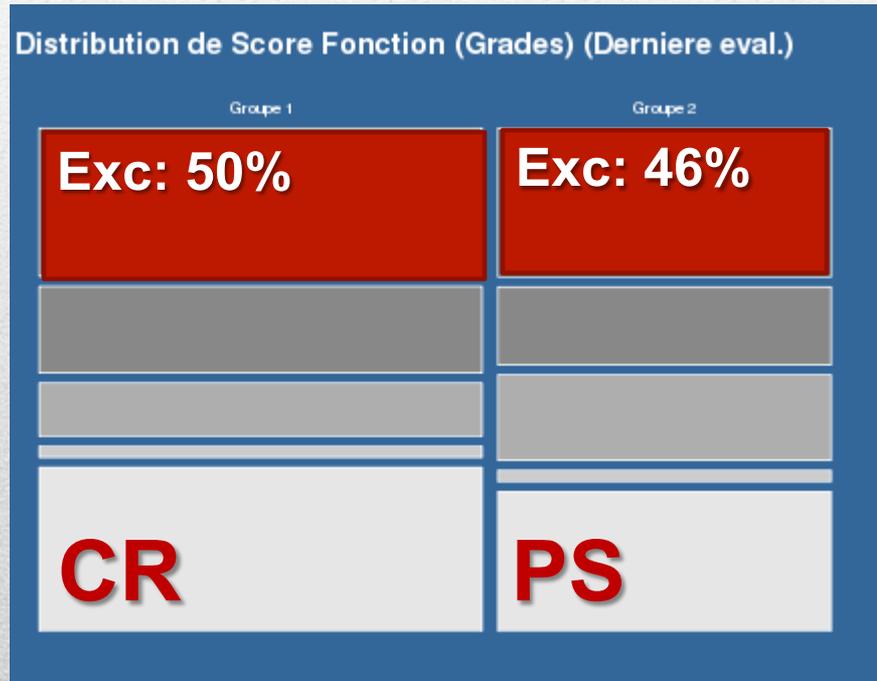


IKS Function Score

Latest Fup @ a minimum of 15 yrs

Type CR PS

Exc	50%	46%
Good	29%	24%
Fair	18%	26%
Poor	4%	3%



Khi2 :

P=0,1814 NS

Not significant CR vs. PS



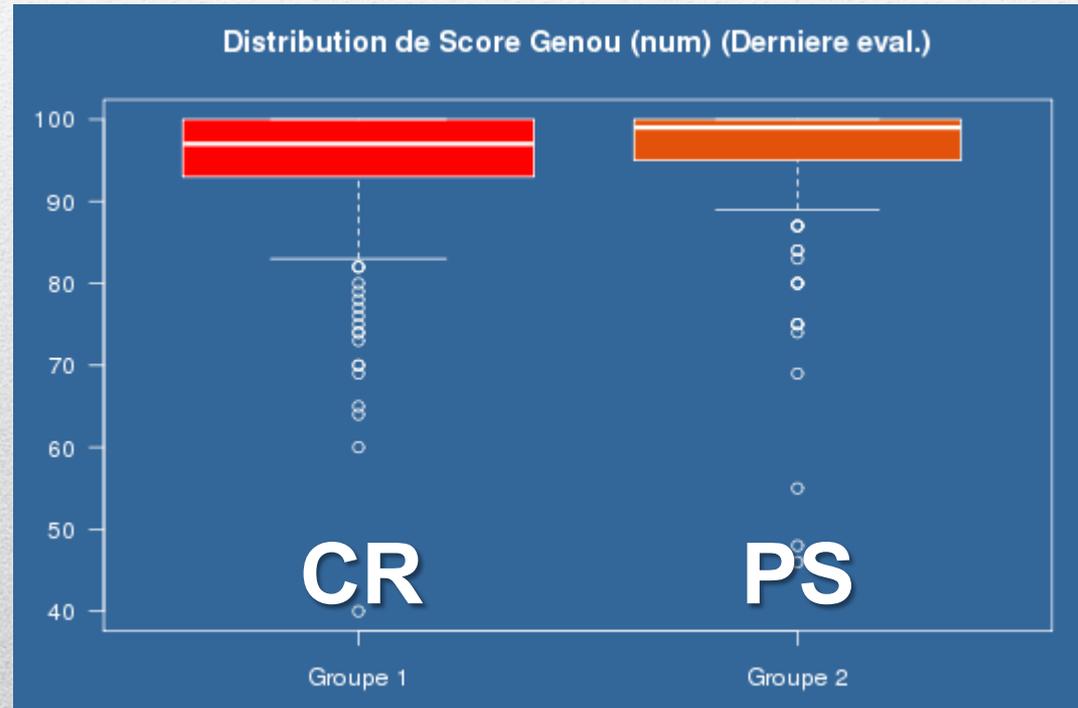
IKS Knee Score

Latest Fup @ a minimum of 15 yrs

Type	CR	PS
N	267	231
Mean	94,6	96,2
SD	7,97	7,57

t-test:
p=0,0205 S*

Significant difference PS > CR



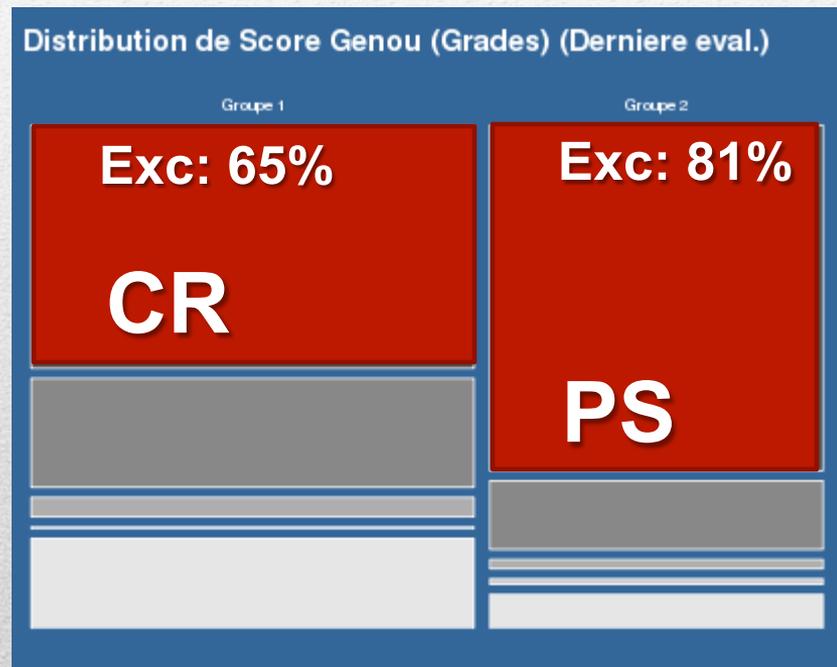


IKS Knee Score

Latest Fup @ a minimum of 15 yrs

Type	CR	PS
------	----	----

Exc	65%	81%
Good	29%	16%
Fair	5%	2%
Poor	0	1%



Khi2 :

P<0,001 S***

Very significant difference PS >>>CR



IKS Knee Score: findings of interest

Latest Fup @ a minimum of 15 yrs

Variables	CR	PS	
NO pain	95%	96%	NS
AP laxity <5mm	98%	100%	NS
ML laxity $\leq 5^\circ$	96%	100%	NS
Mean Flexion	113°	121%	p<0,001***
Alignmt (2°vr-3°vl)	83,1%	86,8%	p: 0,051 NS

Very significant difference PS >>>CR only for flexion !



Survivorship @ 15 yrs of FUp

Endpoint: Failures for any cause

Type	CR	PS
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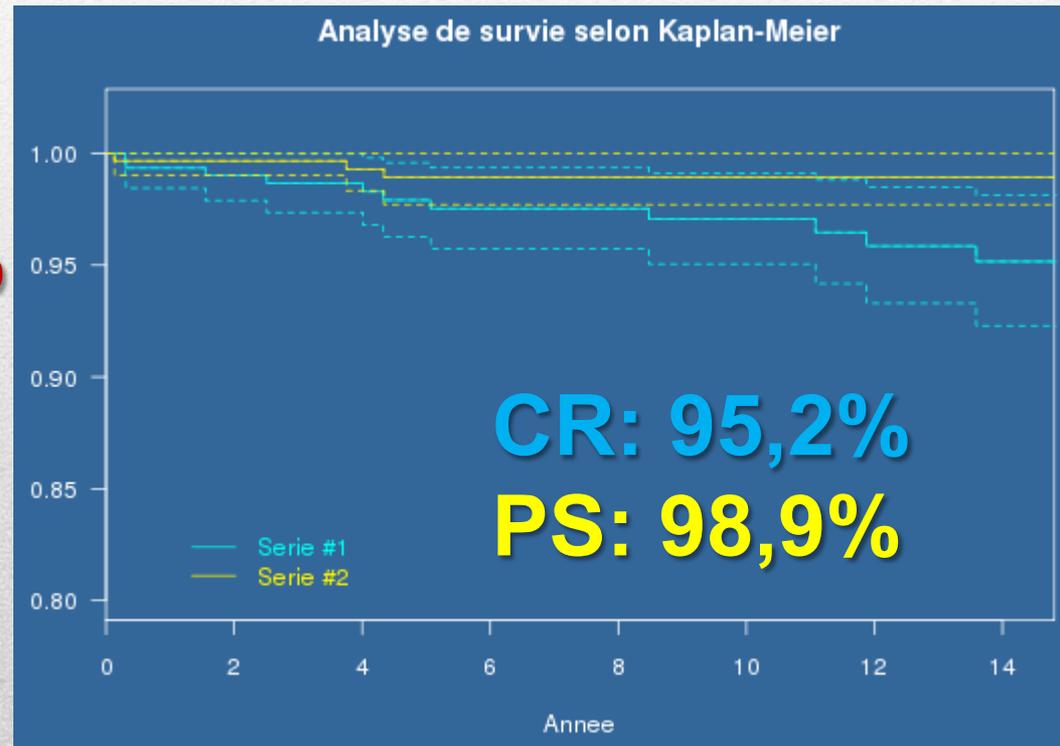
N	337	332
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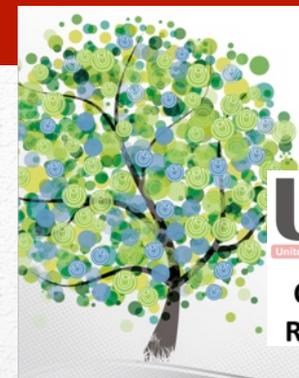
Surv 95,2% 98,9%

(0,923-0,981) (0,977-1)

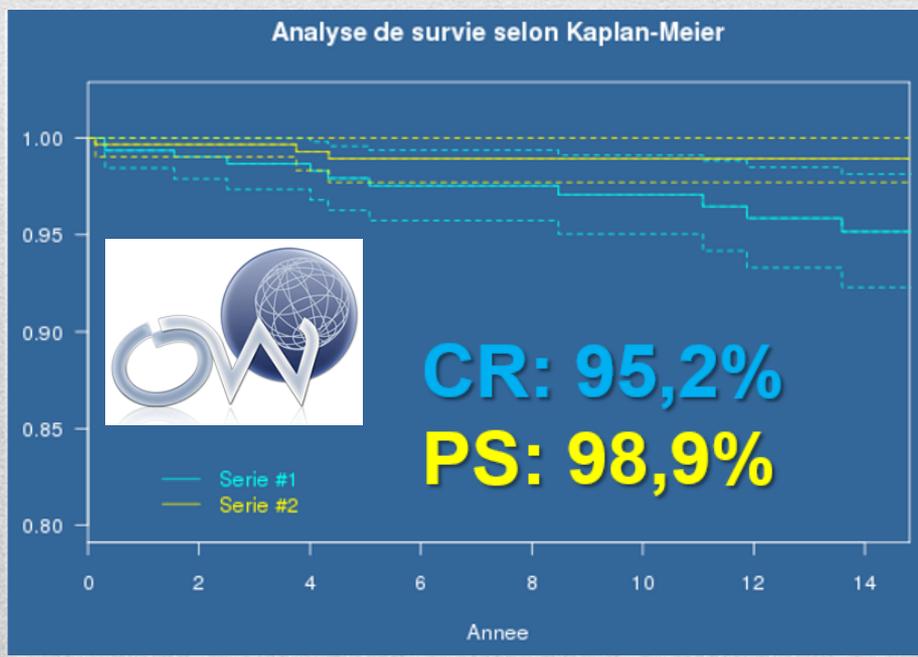
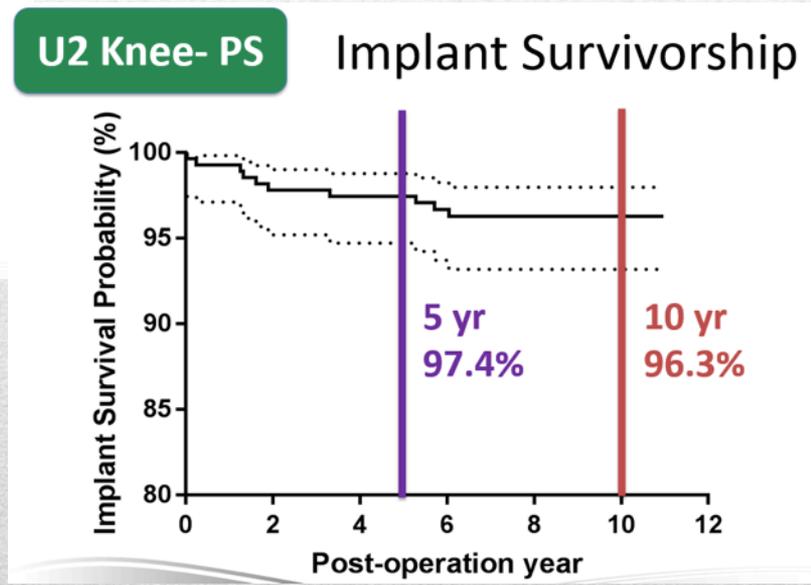
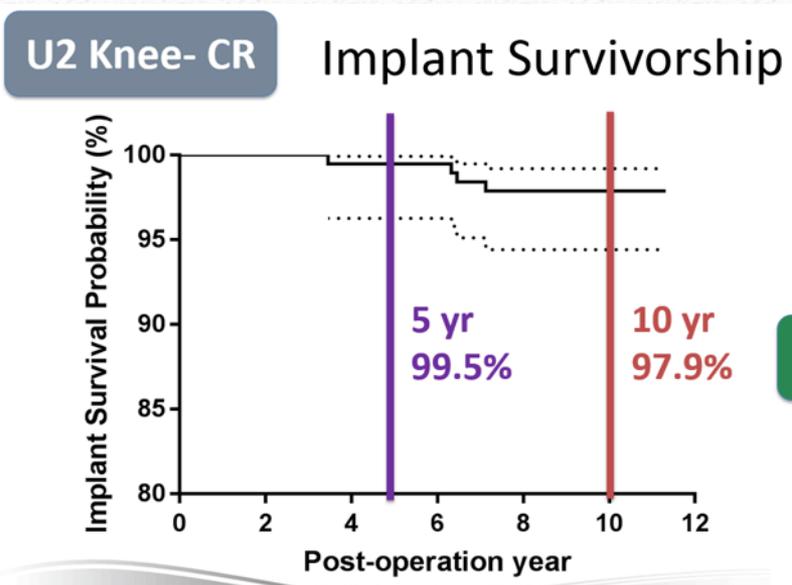
**Log-rank :
p=0,0644 NS**

Not significant difference : PS = CR





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 Clinical Study &
 Research Update



Similar results from the two different databases with Survival @ 95-99% !

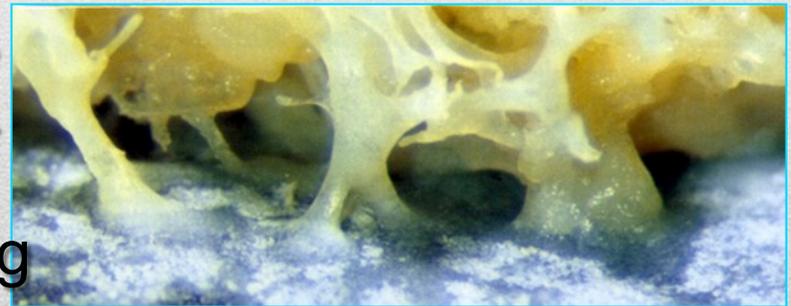
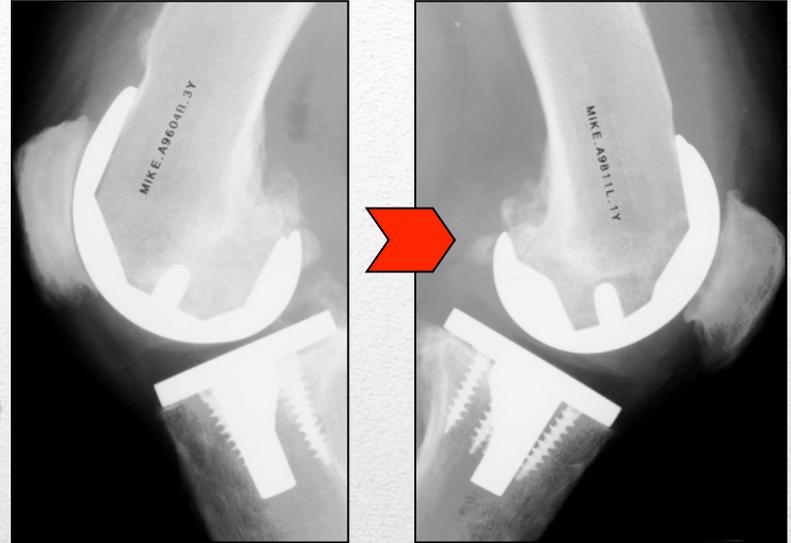


What about ?...

	CR	PS
1. Kinematics	?	✓
2. Surgical procedure	x	✓
3. Litterature	=	=
4. IKS Function score	ns	ns
5. IKS Knee score	x	✓
6. Survival rates	ns	ns

On the whole... PS!

- 1** Surgical procedure easier and safer (isometry & tib insert)
- 2** No ligament laxity later on due to extens inflamm diseases
- 3** No ligament laxity later on due to any trauma (or obesity!)
- 4** Better clinical results according to IKS Knee scores
- 5** No longer any fear regarding shearing forces at bone-metal tibial interface thanks to new designs (improved radius!)



A personal option ...

Why do not
systematically take the
option of a PS knee,
easier to fit, better
performing, and (maybe)
safer in the long run ???



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Controversies in TKAs !!!

- Total Knees : PS vs CR ?
- PS: Cam vs deep dish ?
- Cement vs Cementless ?
- Fixed bearings vs. Mobile ?
- ...
- ...



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United Academy for Clinical Study & Research Updates



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2

USA



4

Europe



3

Taiwan



1

Argentina



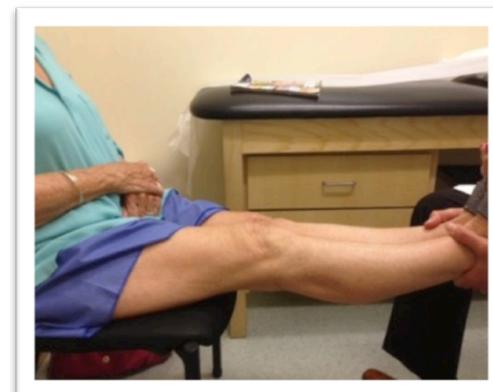
Featured
Publication
of the Year

Post Market
Clinical
Follow-up

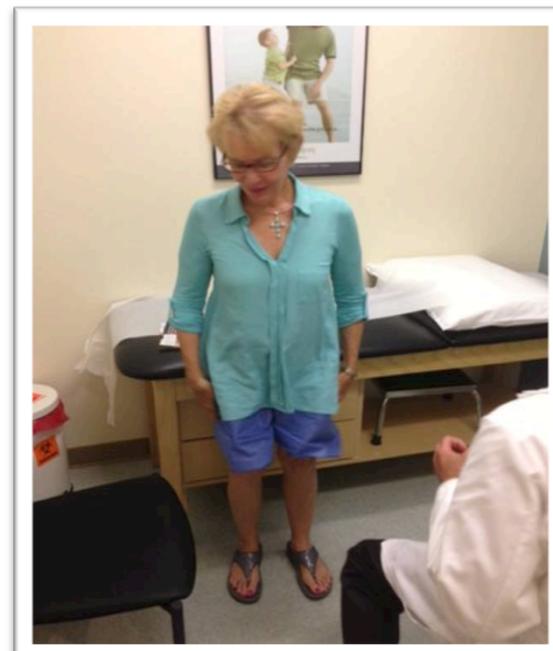
Ongoing
Project

Launching in
2018

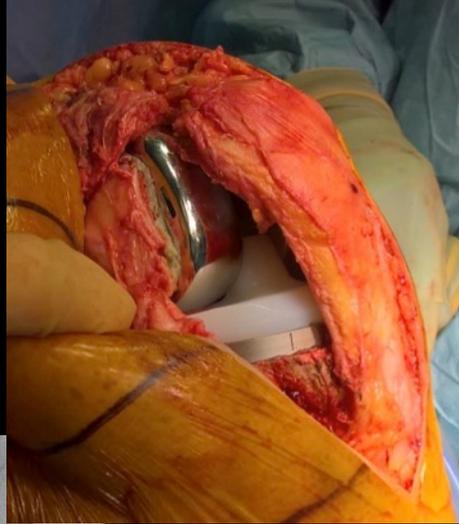
USA Experience with U2 Knee



Post-op ROM 135°



Mr. Karuppiyah Mahalingam (Cork-Ireland):
1st case of U2-PS (April 2017) – 82 cases to date...



A photograph of three surgeons in an operating room, wearing blue scrubs, masks, and hairnets, focused on a surgical procedure. The scene is dimly lit, with the primary light source being the surgical lamps. The surgeons are positioned around a patient who is lying on a table covered with a green drape. Various surgical instruments and equipment are visible in the background.

Thank You

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Orthopedics