

PCL Retention vs Substitution



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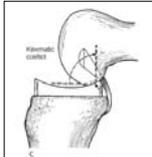
- The debate on CR vs PS is old and still unresolved
- There is no clear consensus that one is better than the other




Cruciate Retaining vs Posterior Stabilized

Conflicting Data on PS vs CR:

- Kinematics
- Postop Flexion
- Function
- Durability





Indications

In Most Practices Routine Use Of Either CR or PS Knee Leads To Good Functional Results And Durability





“Long-term Follow-up of Anatomic Graduated Components Posterior Cruciate-Retaining Total Knee Replacements”

15 years 98% survival

Merrill A. Ritter, MD; Michael E. Berend, MD; John B. Meding, MD; E. Michael Keating, MD; Philip M. Faris, MD and Brian M. Crites, MD
 CORR. JUL 2001; 388, 51-57.



Mayo Clinic Data TKA 1978-2000

10 Year Survivorship Significantly Better With:

- Age >70
- Females
- Inflammatory Arthritis
- No Prior Surgery
- All Poly Patella
- All Poly Or Nonmodular Tibia
- Cement Fixation
- **PCL Retaining, PCL Sacrificing >> PCL Substituting**

Years	Retaining (%)	Sacrificing (%)	Substituting (%)
0	100	100	100
5	95	81	78
10	95	81	78
15	95	81	78
20	95	81	78

Rand, Trousdale et al JBJS 2003

Advantages of PCL Retention

- Less constraint = less force to interface
- Roll-back allows greater ROM
- Preservation of joint line and collateral ligament kinematics / proprioception
- Preservation of intercondylar bone stock

Disadvantages of PCL substitution

- Greater force to modular insert-tray or bone-cement interface
- Patellar clunk syndrome
- Removal of intercondylar bone stock
- Subject to post wear from rotational mal-alignment between the tibia and femur

Technique Differences

The Presence or Absence of the PCL has important effects

- Not Intuitively Obvious
- Bone Cuts
- Ligament Balancing

PCL Removal Increases Flexion Gap !!

Balancing the PCL

PCL and Collateral Ligaments

- The effect of collateral ligament release on varus/valgus stress is LESS when the PCL is preserved
 - The PCL acts as lateral ligament of medial side of the knee
- The effect of collateral ligament release on varus/valgus stress is MORE when the PCL is removed



Cruciate Retaining TKA Conclusions

- Either PS or CR knee when done appropriately can be done with good long term clinical success.
- Excellent long term data to support use of both techniques
- Use a posterior stabilized implant whenever you doubt the structural integrity and function of the PCL



Cruciate Retaining TKA Conclusions

- Appropriate PCL balance is key to good outcome
- The problems of patellar clunk and post wear are issue unique to a PS knee
- Important to understand the surgical difference between PS and CR designs



Cruciate Retaining TKA Conclusions

- Classic scoring systems (knee society, Womac, SF36) do not show significant differences between both groups
- Functional activity evaluation (Dynaport) does not show significant differences between both groups



Cruciate Retaining TKA Conclusions

- In vivo fluoroscopic analysis shows similarities and differences between both groups
- No difference in flexion or deep-flexion



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October 10, 2011

Small vertical text on the left side of the poster:
"Dont HAS BEA..."
"WETD SEITE OF GENEVA"
"CHAMPION'S HUES ARE FOREVER"
"SECRET AND SUCCESSFUL... THE SAME AGE EIGHTH..."

