

Evidence in focus

Study summary

Grieco TF, Sharma A, Dessinger GM, Cates HE, Komistek RD. *J Arthroplasty* (2017)*

JOURNEY[◇] II BCS exhibits normal-like knee kinematic patterns

Dual cam-post design effectively compensates for bicruciate ligament function



Clinical study

Study design

A retrospective, comparative, single-surgeon analysing the in vivo kinematics of 50 knees through a full weight-bearing range of motion:

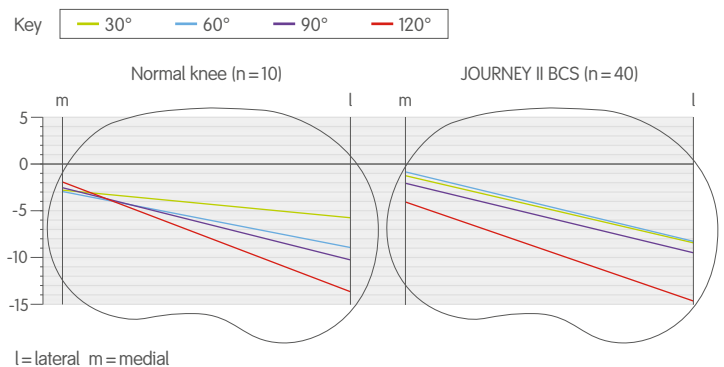
- 40 implanted with JOURNEY II BCS (mean age, 69.8 years ± 8.3 years)
- 10 normal asymptomatic knees (mean age, 57.4 years ± 7.2 years)



Key results

- **0-30°:** JOURNEY II BCS subjects exhibited similar patterns of femoral rollback and axial rotation compared with normal knee subjects
- **30-60°:** JOURNEY II BCS subjects experienced minimal anterior-posterior motions and axial rotation, whereas normal knees continued to rollback and externally rotate
- **60-90°:** JOURNEY II BCS resumed posterior motion
- **After 90°:** axial rotation increased in a normal-like fashion

Figure. Medial and lateral anterior-posterior positions exhibited in JOURNEY II BCS and normal knee subjects during a deep knee bend (mm) [+Anterior, -Posterior]



Conclusion

- JOURNEY II BCS exhibits normal-like kinematic patterns and moves as designed under in vivo observation
- Similarities in early and late kinematic patterns between the two groups suggest the dual cam-post design and asymmetric articular geometries of the JOURNEY II BCS adequately replicate ACL and PCL function
- Cruciate ligament function cannot be truly replicated during mid-flexion, because neither cam-post is engaged



*Grieco TF, Sharma A, Dessinger GM, Cates HE, Komistek RD. In vivo kinematic comparison of a bicruciate stabilized total knee arthroplasty and the normal knee using fluoroscopy. *J Arthroplasty*. 2017 Sep 25. [Epub ahead of print]