

# JOURNEY<sup>◇</sup> II XR<sup>◇</sup> total knee arthroplasty (TKA) patients exhibit normal-like kinematics during high-flexion activities

**+ Plus points**

JOURNEY II XR kinematics were similar to the normal knee

Kinematics with JOURNEY II XR differed depending on high-flexion activity

**Overview**

- Evaluation of in vivo kinematics of JOURNEY II XR TKA patients during high-flexion activities
- 15 patients (17 TKAs; mean age, 72 years; mean follow-up, 7.6 months)
- Patients were examined under fluoroscopy during squatting and cross-legged sitting motions, starting with legs fully extended

**Results**

- Rotation angle
  - During squatting: steep femoral external rotation from extension to early flexion (Figure), which may be indicative of a screw-home mechanism<sup>‡</sup>
  - During cross-legged sitting: slight femoral internal rotation from early flexion to mid-flexion, followed by femoral external rotation beyond mid-flexion (Figure)
  - Significantly larger external rotation from 80 to 110° of flexion during squatting compared to cross-legged sitting (p<0.05; Figure)
- Varus-valgus angle
  - During squatting: no significant movement
  - During cross-legged sitting: varus movement (6.1°) beyond 110° of flexion
- Anteroposterior translation
  - No significant differences in anterior movement during squatting or cross-legged sitting
    - Paradoxical motion was not observed<sup>‡</sup>
  - During squatting: medial and lateral contact points moved posteriorly from extension to mid-flexion
  - During cross-legged sitting: some posterior movement of the medial contact point, but no significant movement of the lateral contact point until movements beyond mid-flexion
- Kinematic pathway
  - During squatting: medial pivot pattern in early flexion up to 10°
  - During cross-legged sitting: medial pivot pattern from 60° of flexion



**Conclusions**  
 This is the first study to evaluate the in vivo kinematics of JOURNEY II XR patients during high-flexion activities of daily living. JOURNEY II XR patients exhibited kinematics which were consistent with those reported in the literature for normal knees and which differed depending on activity.

**Citation**

\*Kono K, Inui H, Tomita T, Yamazaki T, Taketomi S, Tanaka S. In vivo kinematics of bicruciate-retaining total knee arthroplasty with anatomical articular surface under high-flexion conditions. *J Knee Surg*. 2019. [Epub ahead of print] Available at: [The Journal of Knee Surgery](https://doi.org/10.1177/1098314619854444)

<sup>‡</sup> Normal knee kinematics were not assessed in this study, comparison are drawn from existing literature