

## Patients Undergoing Total Knee Arthroplasty After Tibial Plateau Fracture Show Similar Improvement in Function as Primary Arthroplasty Patients: A Propensity Score Matched Study

*Jacob S. Wolf Borgida, BS; Perry L. Lim, BS; Robert Wagner, MD; Karim Sorour; Hany S. Bedair, MD; Christopher M. Melnic, MD; Thuan V. Ly, MD; John Esposito, MD*

**Purpose:** Patients with a previous tibial plateau fracture (post-TPF) may be susceptible to worse outcomes after total knee arthroplasty (TKA) than patients undergoing primary TKA (pTKA). However, there is limited comparative evidence on patient-reported outcomes (PROs) of these cohorts, which limits informed decision-making processes. This study aimed to compare PROs and rate of achieving minimal clinically important difference for improvement (MCID-I) and worsening (MCID-W) between post-TPF TKA and pTKA patients.

**Methods:** 33 post-TPF TKAs were identified from an institutional database between January 2016 and April 2023 and 1:3 propensity score matched to 97 pTKA patients based on age, sex, body mass index, and Charlson Comorbidity Index treated in the same period. The post-TPF TKA cohort included 9 bicondylar, 17 lateral, and 7 medial tibial plateau fractures, of which 18 were initially treated operatively, and 15 nonoperatively. Outcomes included Patient-Reported Outcomes Measurement Information System (PROMIS) Global Health Mental and Physical, PROMIS Physical Function short form 10a (PF SF 10a), and Knee injury and Osteoarthritis Outcome Score-Physical Function Short-form (KOOS-PS) scores. Comparisons of preoperative and postoperative scores were categorized as exceeding limits of MCID-I, MCID-W, or demonstrating no change.

**Results:** Post-TPF TKA patients had significantly lower preoperative scores on PROMIS Global Health Mental (47.8 vs 51.4,  $P = 0.046$ ) and PF SF 10a (35.5 vs 37.4,  $P = 0.046$ ) compared to pTKA patients. The absolute increase across all PROs between the cohorts was similar; however, post-TPF TKA patients had a higher rate of achieving MCID-I for PROMIS Global Health Mental and PF SF 10a. Post-TPF TKA patients had a higher rate of 90-day complications (21 vs 4%,  $P = 0.002$ ).

**Conclusion:** Post-TPF TKA patients reached higher MCID-I rates in 2 outcome measures, but had significantly higher complication rates compared to pTKA. Despite the risks, post-TPF TKA patients can achieve similar or better improvements, urging further research into long-term outcomes for effective patient counseling and shared decision-making.