

**Functional Outcome of Intra-Articular Tibial Plateau Fractures:  
The Impact of Posterior Column Fractures**

*Juriaan Van Den Berg; Maïke Reul, MD; Menno Nunes Cardozo; Anastasiya Starovoyt;  
Eric Geusens; Stefaan Nijs, MD, PhD; Harm Hoekstra, MD, PhD  
University Hospitals Leuven, Leuven, BELGIUM*

**Purpose:** Addressing posterior tibial plateau fractures is increasingly recognized as an important prognostic factor. The goal of this study was to assess the incidence of posterior column fractures and its impact on functional outcome and general health status. We aimed to identify all clinical variables that influence the outcome and provide insights in the treatment strategies.

**Methods:** A retrospective cohort study was conducted, including 218 intra-articular tibial plateau fractures that were treated both operatively and nonoperatively. All fractures were reclassified and applied treatment was assessed according to the updated 3-column concept. Relevant demographic and clinical variables were studied. The patient-reported outcome was assessed using the Knee injury and Osteoarthritis Outcome Score (KOOS).

**Results:** Median follow-up was 45.5 (interquartile range, 24.9-66.2) months. Significant outcome differences between operatively and nonoperatively treated patients were found for all KOOS subscales. The incidence of posterior column fractures was 61.9%. Posterior column fractures, sagittal malalignment, and an increased complication rate were associated with poor outcome. Patients treated according to the updated 3-column concept showed significantly better outcome scores compared to those patients who were not. We could not demonstrate the advantage of posterior column fracture fixation, due to the limited patient size (n = 14, 10.4%) and response (n = 9, 8.8%).

**Conclusion:** Our data indicate that implementation of the updated 3-column classification concept may improve the surgical outcome of tibial plateau fractures. Failure to recognize posterior column fractures may lead to inappropriate utilization of treatment techniques. The current concept allows us to further substantiate the importance of reduction and fixation of posterior column fractures with restoration of the sagittal alignment.