

P35 PROMIS recovery trajectories, MCID achievement, and predictors following ankle arthrodesis

Ahmet Toygun Yildirim, Marissa Pazik, Jennifer Hagen, MaryBeth Horodyski, Rull James Toussaint

Department of Orthopaedic Surgery and Sports Medicine, College of Medicine, University of Florida, Gainesville, USA

Objective: Assessing patient-reported outcomes following ankle arthrodesis is crucial for evaluating recovery. PROMIS Pain Interference (PI), Physical Function (PF), and Depression (Dep) offer valuable insights, but their longitudinal trajectories, clinical significance, and predictors require characterization in this population. This study aimed to: (1) define 1-year PROMIS recovery trajectories; (2) determine Minimal Clinically Important Difference (MCID) achievement rates (PI/PF); (3) evaluate pre-operative depression as a predictor of 1-year PROMIS outcomes.

Methods: This retrospective cohort study included 43 ankle arthrodesis patients with PROMIS PI, PF, and Dep T-scores collected pre-operatively through 1 year (1y) post-op. Wilcoxon signed-rank tests were used for pre-post comparisons. Linear Mixed Models (LMMs) with appropriate covariance structures analyzed trajectories; estimated marginal means (EMMs) were compared using Bonferroni adjustment. MCID achievements (PI decrease ≥ 8.9 ; PF increase ≥ 11.3 ; Hung et al., 2019) were calculated. Multiple linear regression assessed pre-op Dep predicting 1y outcomes (controlling for baseline, age and sex). Significance was set at $p < 0.05$.

Results: LMMs showed significant change over time for PI, PF, and Dep (all $p < .001$). PI improved rapidly, reaching significance versus pre-op by 2w ($p = .006$, pre-op EMM 66.7); scores plateaued after 6w. PF initially declined (2w EMM 29.3), recovered to baseline (EMM 34.4) by 3m, improved significantly versus pre-op by 1y (EMM 41.1, $p = .002$), and plateaued after 6m. Dep improved gradually (1y EMM 42.8), reaching significance vs pre-op by 6m ($p = .005$). At 1y ($n = 14$), MCID achievement was 64.3% for PI and 14.3% for PF. Higher pre-op Dep significantly predicted worse 1y PI ($p = .009$) but did not significantly predict 1y PF ($p = .785$).

Conclusions: Following ankle arthrodesis, patients demonstrated significant PROMIS score improvements with different trajectories: PI improved early then plateaued after 6w; PF initially declined, recovered to baseline by 3m, then improved significantly until plateauing after 6m; Dep improved gradually, reaching significance vs baseline by 6m. Pre-op Dep predicted worse 1y PI but not PF. MCID achievement was common for PI (~64% at 1y) but infrequent for PF (~14% at 1y). These findings suggest managing expectations for functional recovery after ankle arthrodesis is key, and pre-operative depression may identify patients at risk for poorer pain outcomes.