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## Trends in PROMIS Scores in the Early Post-operative Period following Various Lateral Ankle Ligament Reconstructive Techniques

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**Introduction/Purpose:** Lateral ankle ligament injuries are common conditions accounting for 25% of musculoskeletal injuries. When conservative management fails and chronic instability ensues, operative treatment is often sought. Though surgical outcomes are generally good following lateral ankle ligament reconstruction, literature suggests current scoring systems for evaluating outcomes and monitoring progression have deficiencies. Patient Reported Outcomes Measurement Information (PROMIS) scores have recently been established as a method of monitoring patient outcomes. The purpose of this study was to evaluate the trends in post-operative PROMIS physical function (PF), pain interference (PI), and depression scores in patients undergoing lateral ankle ligament reconstruction.

**Methods:** PROMIS scores were prospectively obtained from all patients evaluated in our foot and ankle clinic between February 2015 and October 2016. Using ICD-9/10 and CPT codes, a total of 111 patients who underwent lateral ankle ligament reconstruction were identified. After meeting exclusion criteria (less than three-month follow-up, incomplete PROMIS scores or multiple surgeries), 55 patients were included. PROMIS PF, PI, and depression were evaluated at each post-operative visit. Changes in scores were calculated as compared to baseline pre-operative scores and compared at each follow-up time point using two-way ANOVA. Differences in reconstruction type in patients undergoing allograft (A), modified Broström-Gould (BG), or modified Broström-Gould augmented with fibertape (BG+FT) were also evaluated.

**Results:** The average follow-up was 27.05 weeks (range 12-60.1 weeks). 11 patients had > 9 months follow-up. Changes in PF were significantly different from baseline at all time-points except for 8-12 week follow-up. PF was significantly worse at 2 and 4-6 week follow-up, and significantly better at >12 weeks follow-up ( $p<0.01$ ). PI significantly improved from baseline beginning at 8-12 week follow-up ( $p=0.02$ ). Depression was unchanged from baseline at 2 weeks and 4-6 week follow-up, then significantly improved thereafter ( $p<0.01$ ). Though not significant, when comparing reconstruction types, there was a trend towards slower improvement in PF in those with BG+FT ( $n=15$ ), compared to A ( $n=17$ ,  $p=0.07$ ) and BG ( $n=21$ ,  $p=0.051$ ) at 8-12 weeks. Two patients had other types of reconstruction and were not included in this analysis.

**Conclusion:** Patients undergoing lateral ankle ligament reconstruction demonstrate significant improvements in PF, PI, and depression PROMIS scores compared to baseline. Patients reached baseline PF at 8-12 weeks follow-up, and significantly improved beyond >12 weeks. PI scores were significantly improved from baseline beginning at 4 weeks follow-up. Depression scores also significantly improved at 8-12 weeks follow-up. BG+FT showed a trend of slower improvement in PF, though not significant. Though longer follow-up is needed, the significant improvements in PF, PI, and depression following lateral ankle ligament reconstruction in our study provides data that can be used for pre-operative counseling and monitoring progression post-operatively.

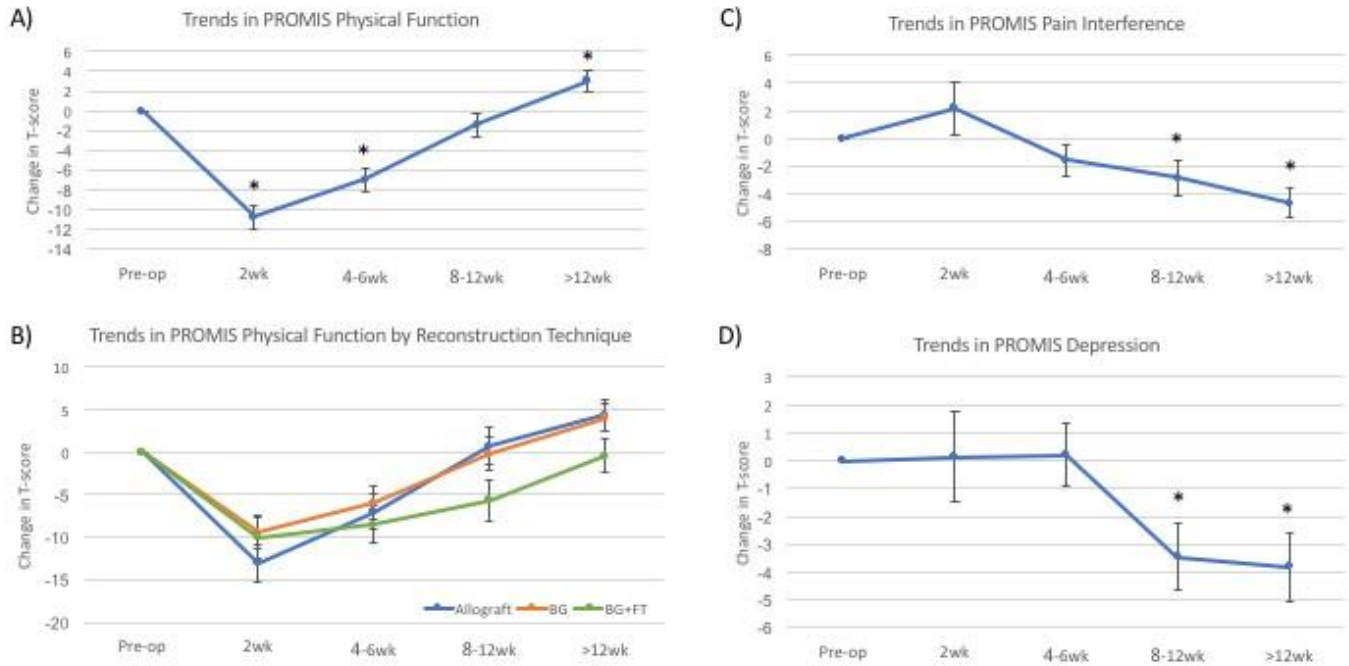


Figure 1: A) Overall trends in PF demonstrate a return to baseline at 8-12wk follow-up and significant improvement beyond 12 week followup. B) Trends in PROMIS PF based on reconstruction type demonstrate nearly significant slower improvement in PF with BG+FT compared to allograft and BG. C and D) Overall trends in PI and D at 2, 4-6, 8-12, and > 12 wk follow-up. \*p < 0.05