2018

Subtle Cavus Deformities: Is Isolated Lateral Ankle Ligament Reconstruction Enough for Improved Patient-reported Outcomes?

Ashlee MacDonald

Meghan Kelly

Jeff Houck

Judith Baumhauer

Irvin Oh

See next page for additional authors

Authors

Ashlee MacDonald, Meghan Kelly, Jeff Houck, Judith Baumhauer, Irvin Oh, Adolph Flemister, and John Ketz

Subtle Cavus Deformities: Is Isolated Lateral Ankle Ligament Reconstruction Enough for Improved Patient-reported Outcomes?

Ashlee MacDonald, MD, Meghan Kelly, MD, PhD, Jeff Houck, PhD, Judith Baumhauer, MD, MS, MPH, Irvin Oh, MD, Adolph Flemister, MD, John Ketz, MD

Category: Sports

Keywords: Chronic lateral ankle instability, ankle sprain, ligament reconstruction, subtle cavus, outcomes, patient-reported outcomes

Introduction/Purpose: Lateral ankle ligament injuries are common conditions accounting for 25% of musculoskeletal injuries. Prior reports have found increased risk of failed lateral ankle reconstruction in those with a subtle cavus deformity, and therefore, correcting the deformity is often advocated. However, other studies have been unable to identify subtle cavus deformity as a clear risk factor for recurrent injury. The purpose of this study was to 1) compare PROMIS physical function (PF), pain interference (PI), and depression scores in patients with subtle cavus deformities to those without deformity who underwent lateral ankle ligament reconstruction, 2) compare PROMIS scores in allograft and modified Brostrom-Gould (BG) reconstructions in those with subtle cavus, and 3) to evaluate for any post-operative complications in those with subtle cavus.

Methods: PROMIS CAT scores were prospectively obtained from patients evaluated in a specialty foot and ankle clinic between February 2015 and December 2017. Using CPT codes, 145 patients who underwent lateral ankle ligament reconstruction were identified. Exclusion criteria consisted of less than three-month follow-up, incomplete PROMIS scores, or multiple surgeries unrelated to the reconstruction during the follow-up period. A total of 78 patients were included in the study. Pre- and post-operative PROMIS PF, PI, and depression were collected. Patients were then divided into two groups: subtle cavus foot (n=23) and non-cavus foot (n=55). A foot was considered cavus based on physical exam and previously published radiographic parameters. The cavus group was further subdivided into allograft reconstruction and BG reconstruction. Post-operative complications were also recorded. Student t-tests were used to evaluate for differences in PF, PI, and depression t-scores in cavus vs. non-cavus groups as well as allograft vs. BG.

Results: The average follow-up was 28.59+/-13.27 weeks in the cavus and 29.77+/-16.15 weeks in the non-cavus group (p=0.76). There were no differences in pre-operative PF, PI, or depression t-scores between the two groups (p>0.05). The cavus group had significantly better post-operative PF compared to the non-cavus group (49.24+/-8.14 vs. 43.17+/-6.64, p=0.001). PI was also better in the cavus group (51.12+/-8.33) compared to the non-cavus group (55.09+/-9.45), however not statistically significant (p=0.08). There were no differences in post-operative depression (p=0.58). When subdividing the cavus group, allograft reconstruction (49.49+/-7.48) had better post-operative PI t-scores compared to BG (57.17+/-8.16, p=0.04). In the cavus group, there were no instances of recurrent instability; one patient required a repeat ankle arthroscopy for debridement. One patient in the non-cavus group developed recurrent instability.

Conclusion: Patients with subtle cavus deformity undergoing lateral ankle ligament reconstruction had significantly higher post-operative PROMIS PF t-scores compared to those without deformity and a trend towards improved pain post-operatively. When subdividing the subtle cavus group, allograft reconstruction demonstrated better PI scores post-operatively, and thus may be a more favorable technique in patients who have a subtle cavus deformity. Though longer follow-up is needed, our study suggests that patients with subtle cavus deformities may not require a more complex reconstruction with osteotomies to correct their deformity in order to achieve clinically meaningful improved outcomes.

Foot & Ankle Orthopaedics, 3(3)
DOI: 10.1177/2473011418S00081