

THE EFFECT OF FORMAL PHYSICAL THERAPY ON EARLY POST OPERATIVE RECOVERY AFTER BUNION SURGERY

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Statement of Purpose

The purpose of this study was to explore the relationship between improvements after surgical correction of a hallux valgus deformity with a scarf osteotomy and formal post operative physical therapy utilizing a validated patient reported outcome measure.

Literature Review

- Approximately 23% of adults between the age of 18 and 65 and 35.7% of adults over the age of 65 have a mild to moderately symptomatic hallux valgus deformity (1).
- Approximately 209,000 patients undergo hallux valgus surgery every year, making it one of the most common orthopedic operations performed in the United States (2).
- While it is commonplace to receive formal physical therapy (PT) after hip, knee and ankle surgery, it is less common after surgery on the 1st metatarsophalangeal (MTP) joint.
- Physical therapy programs may be assistive after hallux valgus surgery by working to restore first ray function and improve gait (3,4); however, there is no literature that speaks to the added value of participating in physical therapy after bunion surgery. Furthermore, there is no current guidance regarding the most effective timing, length and/or frequency of attending physical therapy.

Methods

- A retrospective analysis of patients who underwent a scarf or scarf/akin osteotomy and that were referred to physical therapy within the first 2 weeks postoperatively was undertaken. Exempt determination and HIPAA waiver was obtained from our local Institutional Review Board.

Inclusion criteria

- Patients who underwent a scarf or scarf/akin osteotomy (5) with complete medical records, Foot and Ankle Outcome scores in the institutional database and complete physical therapy reports were included in this analysis. Patients without this information or who had undergone procedures other than a scarf/akin were excluded.

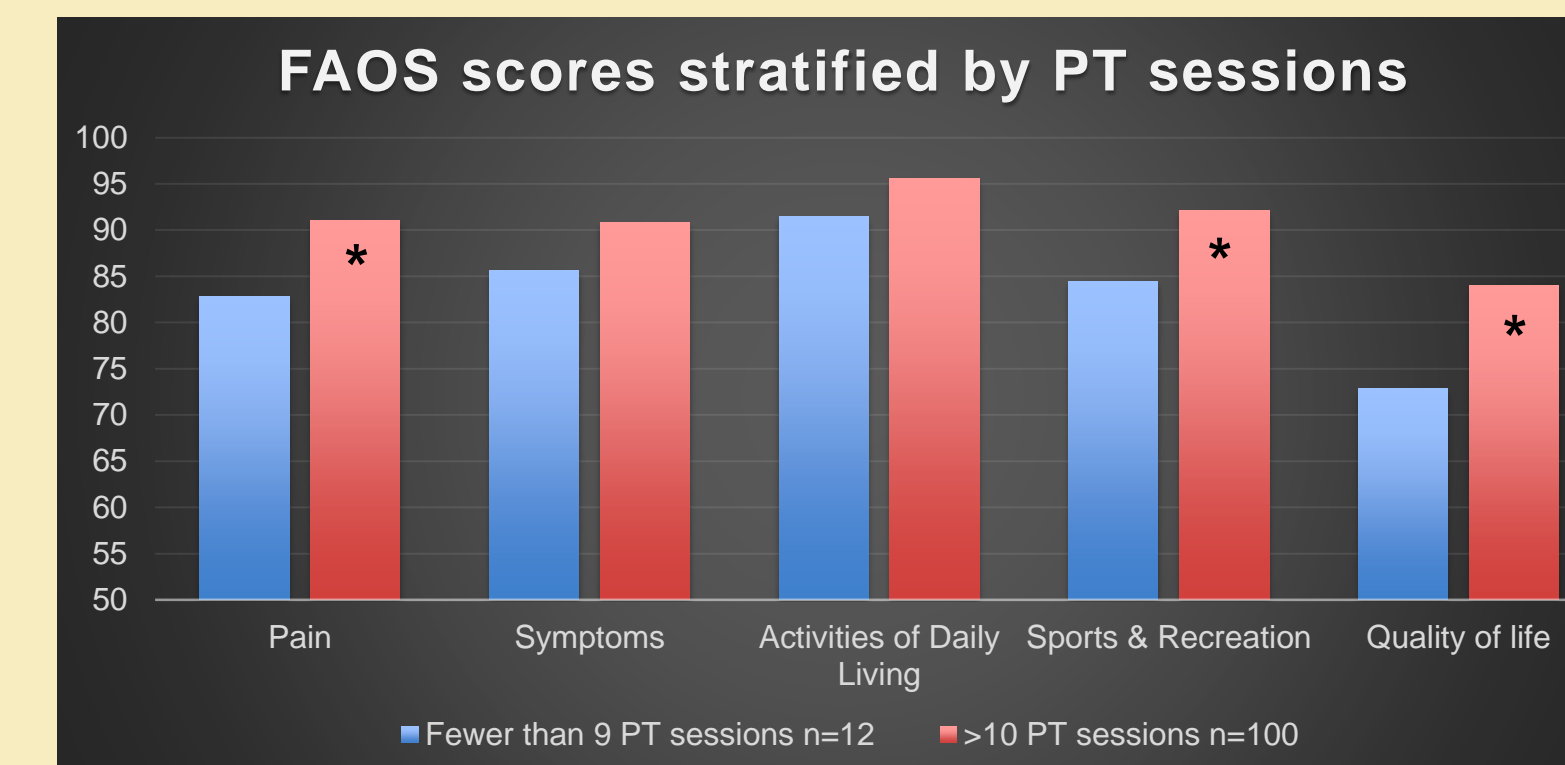
Physical Therapy Protocol

- Patients participated in formal physical therapy protocol.
- **Phase 1:** initiation of passive and active exercises to promote mobility through the 1st MTP joint; gentle joint mobilization and manual therapy; initiation of gait training.
- **Phase 2:** progression of active resisted exercises with the introduction of theraband resistance and a gradual application of closed chain loading to transfer loads back to the 1st metatarsal head. Weight bearing activities are gradually re-introduced and progressed over this time.
- **Phase 3:** continued progression of strengthening exercises to restore endurance to the intrinsic foot and ankle stabilizing musculature allowing return to all functional activities.

Results

- 112 patients (112 feet) with mean follow up of 20.2 ± 3.4 months (range 10.9 – 24.2).
- 89.2% had a scarf/akin osteotomy

Figure 1. Patients who attended formal physical therapy had higher FAOS scores at final follow up than those who did not.



* indicates statistical significance (p<0.05)

Table 1. Increased plantarflexion motion at the 1st MTP joint was associated with higher post-operative FAOS pain subscale scores. Dorsiflexion did not demonstrate this relationship.

	Average MTP AROM DF	Average MTP PROM DF	Average MTP AROM PF	Average MTP PROM PF
Lowest 1/3 rd of FAOS pain subscale scores	55.2	60.1	21.2	20.1
Highest 1/3 rd of FAOS pain subscale scores	48.9*	50.1*	26.6*	24.9*

MTP – metatarsophalangeal joint DF - dorsiflexion
 AROM – active range of motion PF – plantarflexion
 PROM – passive range of motion * statistical significance (p<0.05)

Discussion

- This work represents the first attempt to evaluate the effects of formal physical therapy on patient-centered outcomes after hallux valgus surgery. The number of PT sessions attended was related to patient reported outcomes in the pain, sports & recreation and quality of life subscales of the FAOS score.
- Plantarflexion range of motion at the 1st MTP joint appears to be more related to higher post operative FAOS scores than dorsiflexion.
- The causative mechanism of these associations are unclear.
- Larger, prospective studies need to be designed to further study this association.

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