

**Ryan M, Hartwell J, et al. Comparison of a physiotherapy program versus dexamethasone injections for plantar fasciopathy in prolonged standing workers: a randomized clinical trial. Clin J Sport Med. 2014;24(3):211-7.**

Design: randomized clinical trial

Purpose of study: to compare the effectiveness of a single dexamethasone injection with that of an active physical therapy (PT) program in workers with plantar fasciopathy whose jobs entail prolonged standing

Population/sample size/setting:

- 56 patients (32 women, 24 men, mean age 48) treated for plantar fasciopathy at a sports medicine center in British Columbia
- Eligibility criteria were a history of inferior heel pain for at least 12 months with a minimum of 20 mm of heel pain on a 100 mm scale, with pain on direct palpation of the medial calcaneal tubercle or proximal plantar fascia
  - o Diagnosis was confirmed with ultrasound but minimum thickness not clear
- Exclusion criteria were a steroid injection in the past 6 months, hypersensitivity to lidocaine or steroids, current skin or soft tissue infection near the heel, inflammatory disease, diabetes, previous local surgery, a history of local trauma, or other musculoskeletal conditions that might impair function of foot and ankle
  - o Litigation and workers compensation patients were also excluded

Interventions:

- Randomization was to a PT program (n=28) or to dexamethasone injection (n=28)
- PT program included a consultation at the start of the study to review workplace conditions and to get an overview of the exercise program, which consisted of 7 exercises to be done for 12 weeks (illustrations in Figure 1 of the article)
  - o Lateral side step movement crossing one foot over the other for 5 sets of 15 crossovers in each direction
  - o Balance walking along a straight line
  - o Forefoot extension exercise which maximally extended the M-P joints with the patient standing
  - o A balance exercise standing on one foot
  - o Ankle inversion/eversion exercise with the foot placed sideways at the edge of a step
  - o Gastrocnemius and soleus stretching in a neutral position with the knee extended as the foot is placed on top of a ramp
  - o Tissue-specific plantar fascia stretch in a sitting position with the hand applying light to moderate pressure along the length of the medial longitudinal arch

- Dexamethasone injection was done by an experienced physician with 1 ml of dexamethasone mixed with 0.5 ml of 1% lidocaine near the calcaneal tuberosity close to the most tender area

#### Outcomes:

- The Foot and Ankle Disability Index (FADI) at baseline, week 6, and week 12 was the primary outcome
- Secondary outcomes included VAS for pain at work and during daily activity; sonograms were also done at the same time intervals as the other outcome measures
- At followup during week 6, FADI had improved in both groups
  - o PT had FADI at baseline of 65.2 points and 6 week FADI was 72.6
  - o Dexamethasone had FADI at baseline of 66 points and FADI at 6 weeks was 79.4
  - o The difference between PT and dexamethasone at 6 weeks was not statistically significant
- At followup during week 12, FADI had further improved in both groups
  - o PT had 12 week FADI of 78.7
  - o Dexamethasone had 12 week FADI of 84 points
  - o The difference between PT and dexamethasone at 12 weeks was also not statistically significant
- Both groups also had substantial and equal improvements in pain scores at work and with activity of daily living
- Both groups also had decrease in plantar fascia thickness and anechoic areas, with no differences between groups

#### Authors' conclusions:

- Positive clinical and structural improvements were seen with both PT and steroid injection, and PT was as effective as dexamethasone at 6 and 12 weeks
- There could have been some bias due to lack of blinding of study personnel
- Workers should have a pragmatic option for treating plantar heel pain, using exercises which are relatively simple to perform and do not require special equipment without exposing the worker to a steroid injection procedure

#### Comments:

- The dose of dexamethasone is given as 1 ml but not in terms of mg; presumably the injection was 4 mg of dexamethasone
- The groups were not balanced at baseline; the PT group mean age was 52.4 and the steroid injection group mean age was 46.2; this would not bias the results in favor of the PT group

- Part of the PT program included a discussion of working conditions in addition to the instruction in the exercises to be performed, and this could be an important element of the PT program
- The study was apparently designed to recruit workers who spend much time on their feet during the course of a working day; however, the requirements for job activities were not specified in the eligibility criteria
  - o The mean daily time on the feet for both groups was 5.8 hours, which was probably derived from self-report

Assessment: adequate for some evidence that in workers who spend the majority of working hours on their feet and who have developed plantar fasciopathy, a physical therapy program consisting of exercises which combine gastrocnemius stretching, plantar fascia stretching, balance exercises, and ankle inversion/eversion exercises produce functional and symptomatic benefits equal to those of a single injection of 4 mg of dexamethasone at 6 and at 12 weeks