

Naturopathic Approaches to Plantar Fasciitis: Can Acupuncture Help?

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Practicing as a Naturopathic Doctor allows me to be exposed to a variety of different medical concerns and conditions. Of these concerns, a significant proportion of patients complain of foot pain from plantar fasciitis. Plantar fasciitis causes arch or heel pain due to inflammation and micro-tears of the fascia that cover the plantar surface of the foot. Pain is usually experienced after periods of rest such as sleeping or sitting, but may also be experienced with prolonged standing or during physical activity. Possible causes include prolonged standing, engaging in repetitive activities, limited ankle dorsiflexion, and inadequate footwear. Other contributing factors include uneven distributions of pressure over plantar surface of the foot from biomechanical defects of the foot, very low or very high arches (2). Plantar fasciitis affects about 10% of people in their lifetime and is responsible for approximately one million physician visits annually (4).

As a Naturopathic doctor, my approach for treating plantar fasciitis involves a holistic investigation to address the root cause. In other words, why is the inflammation there in the first place? When I see a patient suffering from Plantar Fasciitis and foot pain I will refer them to a pedorthist for custom orthotics and education about proper footwear for their foot type. Beyond shoes and orthotics, a Naturopathic Doctor can provide adjunctive treatments to reduce inflammation including natural supplementation, dietary improvements, elimination of food intolerances causing gut inflammation and lastly, acupuncture.

Acupuncture, a modality of Traditional Chinese Medicine (TCM) used by Naturopathic Doctors and other specialists, is a great option when treating plantar fasciitis. There are two main types used: Dry needling or electro-acupuncture. The former involves needling through the skin with a solid "dry" needle and the latter involves using a dry needle to attach an electromagnetic current to improve the effectiveness of the acupuncture point. Most studies investigate the effect of dry needling at myofascial trigger points (MTP) or at acupoints. MTP are tender spots or nodules within skeletal muscle that result in referred pain and often motor dysfunction. Acupoints are specific point locations throughout the body that are part of meridians based on TCM. Acupuncture is thought to exert its effect by many mechanisms. It can act by stimulating the release of endorphins, hormones released by the body that act on opioid receptors to have an analgesic effect (5). In TCM acupuncture helps to stimulate the movement of "Qi", an energy force that in health moves throughout

the body unrestricted. Pain is a sign of "stagnation" in the body or an area that the flow of Qi is blocked and contributes to pain. Acupuncture helps to encourage this flow of "Qi" to move through stagnate areas and thus reduce pain. When acupuncture is done in MTP, it has been shown to alter the biochemical environment surrounding the area and reduces spontaneous electrical activity within the region of the MTP (6). Acupuncture has been used as a treatment modality for heel pain for a long time. This can be seen by the couple thousand of articles in search engines that relate acupuncture to heel pain. I have chosen to discuss three articles that investigate different methods of acupuncture to reduce pain in people with plantar fasciitis.

The first study I will discuss investigated the effect of dry needling to MTP (1). This was a single blinded, randomized clinical trial with 20 participants; 10 received dry needling and 10 did not. Dry needling was done in four different trigger points in the gastrocnemius muscle.

The needle was manipulated to produce a "twitch" response where needle movements were repeated until response disappeared after which time the needle was left in situ for five minutes. Treatment frequency was one session weekly for four consecutive weeks. Adjunct therapy for all participants included calf massage, stretching to plantar muscles and 50 mg diclofenac sodium every 12 hours. The severity of heel pain was measured using a visual analog scale (VAS) that ranges from none to extreme pain. The patient indicates the extent of their pain by marking along this scale. Effects were measured at baseline, four weeks after intervention and four weeks after withdrawing from treatment. VAS scores in the acupuncture group were significantly lower than the control group after four weeks of intervention. There was no significant difference four weeks after withdrawing treatment. Results indicate that acupuncture at MTP have an analgesic affect with short-term benefits but lack long-term effects.

Another trial investigated the effect of dry needling at acupoints (7). This was a single blinded, randomized control trial with 53 participants; 28 in treatment group, 25 in control group. Both groups received acupuncture. The treatment group received needling at acupoint PC7 and the control group received needling at acupoint LI4. PC7 is located on the palmar side of the forearm at the midpoint of the wrist crease and LI4 is located between the 1st and 2nd metacarpal bones. Both points are thought to have analgesic effects on the body but this tested the specificity of PC7 to treat heel pain. Needling was performed on the contralateral side to the heel pain or bilaterally if heel pain was on both sides. Treatment was administered five times per week for two weeks. Slight thrusting and rotation of the needle was used until "Deqi" sensation was attained, which the participant would report as a dull ache. Participants had to indicate the extent of heel pain on a 100-point VAS scale (0-no pain, 100- extreme pain) for morning

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pain, pain during activity and overall perception of pain. These were measured after one, three, and six months post intervention. No other adjunct treatments were used in this trial. In the PC7 group results showed a significant improvement in morning pain, activity pain and overall pain at one, three and six months post treatment. The LI4 group showed no improvement in morning pain but did show significant improvements in activity pain and overall pain at six months post treatment. When comparing the PC7 group to the LI4 group, significant differences were detected at one month for morning pain and overall pain favoring the PC7 group. Significant improvements were also observed at six months for activity pain favoring the PC7 group. Overall these results suggest that both PC7 and LI4 can be used to reduce heel pain in people with plantar fasciitis but with PC7 alone the effect is more specific to heel pain. More interesting is that the effects lasted post treatment indicating the improvement of underlying inflammatory processes rather than immediate analgesic affect. The difficulty in transferring these results into practice is that most acupuncture treatments involve multiple acupoints which are thought to act synergistically for a desired outcome. It is difficult to design trials that incorporate multiple acupoints because it is impossible to isolate the therapeutic effect to a single acupoint in these circumstances. This study isolated PC7 as an acupoint specific for heel pain.

The last study I will discuss investigated the effect of electro-acupuncture and prefabricated insoles in plantar fasciitis (3). There were 23 participants divided into three groups. Group A received electro-acupuncture, Achilles tendon and plantar fascia stretching with prefabricated insole. Group B received Achilles tendon and plantar fascia stretching with prefabricated insole. Group C received only prefabricated insoles. Treatment occurred three times per week for eight weeks and treatment time was 20 minutes per session. Participants were asked to assess first-step morning pain on a 10-point VAS scale before the start of treatment and after completion of the eight-week program. Electro-acupuncture occurred on the affected side. No dry needling was used and instead electromagnetic current was applied to specific acupuncture points via a TENS machine. The following acupuncture points were used: KI 1,3,6, BL60, 67, GB44 and ashi (tender) points. These points were located in the plantar and dorsal surfaces of the foot and the medial and lateral ankle. No anti-inflammatory medications were used in this study. Significant differences were observed between Group A and B, as well as Group A and C, with no significant difference

between Group B and C. This study concluded that electro-acupuncture combined with stretching and prefabricated insoles are effective in treating plantar fasciitis and that prefabricated insoles alone were not effective in insolation.

These three studies investigate different key factors in treating plantar fasciitis. First there were different types of acupuncture used- MTP, single acupoint, multiple acupoint, dry needling or electro-acupuncture. It appears that dry needling at MTP in the gastrocnemius muscle of the affected side provides immediate, short-term relief to heel pain. Single acupoint at PC7 has more long-term effects in showing reductions in pain up to six months post treatment. Different frequencies in treatment were investigated in these studies. Acupuncture would need to be done a minimum of once per week for four consecutive weeks. There were also different adjunct therapies used. It appears that combination therapy with stretching exercises, prefabricated insoles and acupuncture resulted in the best outcome. Including acupuncture was significantly more effective than stretching exercises and insoles alone.

It would be wise to consider combination therapy in the treatment of plantar fasciitis. A Naturopathic Doctor would be able to provide acupuncture treatments for short and long-term relief and ultimately improve the quality of life in someone with plantar fasciitis.

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