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Electroacupuncture for Plantar Fasciitis

Treatment Reduces Pain, Improves Function in Heel Pain Patients

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Plantar fasciitis is one of the most common causes of heel pain. Most often seen in athletes, obese people, and persons whose jobs require a considerable amount of walking or standing (especially on hard surfaces), the condition results from inflammation of the plantar fascia, a broad, ligament-like structure that extends from the calcaneus to the base of the toes.
Excess weight or repetitive stress can cause small tears in the fascia, leading to sometimes severe pain that can take several months to resolve.

Traditional therapies for plantar fasciitis vary depending on the degree of the condition and the person being treated. The most common forms of treatment include rest, ice, orthotics and anti-inflammatory drugs. More severe cases can require injections or even surgery. However, none of these modalities is considered more effective than another, and occasionally, patients will develop chronic, disabling symptoms despite the best efforts.

Recent studies have shown that acupuncture - with or without electrical stimulation - can be an effective form of pain relief for a variety of musculoskeletal conditions, but research regarding its use for plantar fasciitis is scant. In an article in a recent issue of *Medical Acupuncture*, researchers from Walter Reed Army Medical Center in Washington, D.C. examined the role of electroacupuncture in the management of this condition. The results of their study suggest that electroacupuncture is an effective form of care for plantar fasciitis, producing marked reductions in foot pain and improved function in a relatively short amount of time.

A total of 11 patients (73% female, average age 40) participated in the trial. All of the patients had been suffering from plantar fasciitis for a minimum of two months and were referred for acupuncture after other conservative methods of treatment had failed. Acupuncture treatment was carried out on the effected side at the rate of one treatment per week for a maximum of six sessions, or until a maximum favorable response was attained.

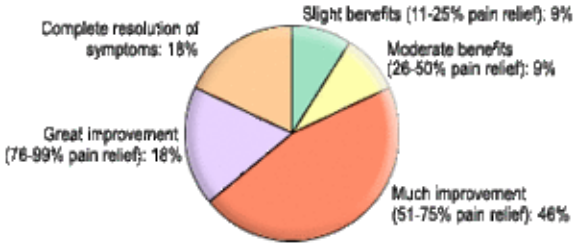
Point selection consisted of traditional acupuncture points KI 1, 3 and 6; BL 60 and 67; GB 44; and local *a-shi* or trigger points on the plantar region of the foot. Once the needles were in place, an electrostimulator was connected between KI 1 to a local trigger point near the insertion of the plantar fascia to the calcaneus, and to two other points in the medial arch area. Electrostimulation was applied for 20-30 minutes per session.

Two surveys were used by the scientists to measure the level and severity of heel pain. In the first, patients were asked to assess their level of heel pain before the start of treatment and at the completion of the program using a 10-point visual analog scale (VAS), with 10 representing severe pain.

The researchers also used an 11-question foot function index questionnaire that addressed how the pain affected different functions and activities. Pain severity for the questionnaire was measured using a similar scale as the patient assessment, with 10 representing severe pain or inability to function.

Results

Of the 11 patients included in the study, nine reported an improvement in pain reduction of greater than 50%; two patients reported a complete resolution of heel pain. Only one patient stated that the heel pain had been reduced by less than 25%. VAS pain scores fell an average of 46% per patient, from 5.7 at the start of the study to 3.0 at the end of the program.



Post-treatment foot function scores closely followed those of the pain reduction scores. Foot function scores improved an average of 3.5 points per category, with the greatest improvement seen in the areas of walking, walking inside the house, pain severity at the end of the day, and greatest level of pain.

Table I: Pre-treatment and post-treatment foot function index scores.*		
Foot Pain Questions	**Pre-Treatment**	**Post-Treatment**
A. How severe is your foot pain:		
In the morning upon taking your first step?	6.3	3.1
When walking?	5.9	2.4
When standing?	5.3	2.7
At the end of the day?	6.5	3.0
At its worst?	8.3	4.6
B. Describe how much difficulty you have:		
When walking in the house?	5.6	2.1
When walking outside?	5.8	2.5
When walking four blocks?	5.7	2.5
When climbing stairs?	5.5	2.6
When descending stairs?	5.3	2.5
When standing tiptoe?	5.5	2.6
When getting up from a chair?	5.7	2.5
* Index scored on a visual analog scale of 1-10, 10 being worst.		

Several theories were proposed to explain electroacupuncture’s effects. In addition to the inflammation brought about by plantar fasciitis, the condition causes myofascial pain due to the development of trigger points in the foot muscles. The researchers suggested that these points could be deactivated by acupuncture, with electrical stimulation providing an "additive" effect. Deactivation of trigger points could also "relieve the noxious stimulation leading to central sensitization in the spinal cord and central nervous system."

Since there is scientific evidence supporting a link between electrical stimulation of acupoints and the release of endorphins, natural substances that relieve pain, they also theorized that electroacupuncture could activate the body’s pain relief systems, increasing the concentration of endorphins in the central nervous system and decreasing the amount of pain signals that arrive at the spinal cord level.

One of the problems most trials of acupuncture and Oriental medicine face is the relatively small number of participants. This study was no different, as only 11 patients were treated with electroacupuncture. The researchers admitted that their program was conducted using "a relatively small case series." Nevertheless, based on the positive results achieved in such a short amount of time (the treatment sessions lasted a maximum of six weeks per patient), they judged the findings to be "statistically significant."

"The combination of electroacupuncture and traditional acupuncture algorithms to the affected intrinsic foot musculature produced a marked reduction in pain and a concomitant improvement in function with a limited number of treatments," the scientists concluded. "We advocate the use of electroacupuncture to symptomatic trigger points in selected intrinsic foot muscles in combination with traditional acupuncture treatment algorithms · Longer follow-up, optimization of technique, and additional objective prospective data are warranted to further develop and standardize the technique in clinical practice and establish the roles of various treatment approaches."

Reference

1. Perez-Millan R, Foster L. Low-frequency electroacupuncture in the management of refractory plantar fasciitis: a case series. *Medical Acupuncture* 2001;13(1):47-49.