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Chelsey Clark  
*University of North Dakota*

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# Alternative Treatment Modalities for Plantar Fasciitis

Chelsey Clark, PA-S

Department of Physician Assistant Studies, University of North Dakota School of Medicine & Health Sciences

Grand Forks, ND 58202-9037



## Abstract

**Introduction:** Plantar Fasciitis is a common condition in adult patients. The purpose of this literature review is to determine if there is any evidence for alternative treatments in the regimen of plantar fasciitis that has not been resolved with the standard treatment.

**Methods:** The review was done using Pubmed, CINAHL and SportDiscus. Research was included on the following alternative treatments of PF: corticosteroid(CS) injections, extracorporeal shockwave(ESWT), dry needling, platelet-rich plasma (PRP), autologous blood injection (ABI), cupping, custom insoles, and ultrasound therapy (US). Twelve research articles are included.

**Results:** The alternative treatments within this literature review had some promising statistically significant results that will require further investigation. This included positive results in ultrasounds, extracorporeal shockwave, PRP and steroid injections, insole use, dry needling, and ABI. Nothing definitive can be drawn from the results of the studies done. Some of the studies did not have blinding which makes results further questionable. Further research in all areas needs to be done to help draw definitive conclusions.

**Conclusion:** Currently there is no one definitive alternative approach to add to a patient's traditional regimen in treatment of PF. Keep in mind that some treatments are more affordable and less invasive than others. Educate patients on the risks, both financial and physical, associated with the alternative treatment.

**Keywords:** *plantar fasciitis, alternative treatments, plantar fasciitis therapy/treatment*

## Introduction

- Plantar Fasciitis (PF) is a common complaint.
- Peak age of onset is between 40-60 years but can occur earlier in athletes, specifically runners
- Conservative treatment of PF includes the use of rest, compression, elevation, ice, nonsteroidal anti-inflammatory drugs (NSAIDs) like ibuprofen, physical therapy and night splints.

### Risk Factors for PF

- **Pregnancy and obesity**
- **Atrophy of fat pad in heel**
- **Poor shoe support and over pronation**
- **Sedentary lifestyle**
- **Prolonged standing**
- **Excessive running**

## Statement of the Problem

In adult patients with plantar fasciitis how effective are alternative treatments like ultrasound shockwave, dry needling, corticosteroid shots, and others compared to traditional manual therapy by physical therapy on recovery outcomes and pain management?

## Research Question

Do alternative treatments aid in reduction of pain in plantar fasciitis?  
Do alternative treatments increase functionality in patients with PF?

## Literature Review

**Ultrasound:** Akinoglu et al. (2017) showed US did better in foot function index pain, disability and activity limitations compared to traditional stretches and the ESWT ( $p=0.021$ ,  $p=0.026$ ,  $p=0.013$ ). Katzap et al. (2018) compared US to a sham US treatment. No statistical difference between the sham US vs true US group ( $p<0.001$ ) with pain or function.

**ESWT:** Akinoglu et al. (2017) US and ESWT were statistically better treatments with regards to the AOFAS hind foot score( $p=0.005$ ). ESWT was statistically better with ankle proprioception compared to the other groups( $p=0.023$ ).

Gollwitzer et al. (2015) studied ESWT compared to placebo. ESWT was superior in VAS pain scale  $p=.0027$ , and the Roles and Maudsley score was 0.4 in favor of shock wave therapy with a  $p=0.0006$ .

**Injections:** Breton et al. (2022) compared PRP and CS injection. 15/21(PR) and 11/21(CS) participants in the groups with good clinical responses ( $p=0.20$ ). Both groups statistically improved but one did not improve more over the other.

Jimenez- Perez et al. (2019) compared PRP and steroid injection. Both groups had a significant decrease in VAS pain score ( $p<.0001$ ) but the PRP group had a significant reduction compared to the corticoid group ( $p<.0001$ ).

**Alternative Treatment:** Dunning et al. (2018) studied dry needling with first step pain in the morning with a statistically larger improvement in the dry needling group at 4 weeks ( $\Delta-1.6$   $p<0.001$ ) and 3 months ( $\Delta-2.2$   $p<0.001$ ) compared to a standard therapy group.

Wheeler et al. (2022) showed that both groups (ABI vs dry needling) improved from baseline to follow-up in the rating of average pain ( $p<0.001$ ). One group did not improve more over the other.

Sweety et al. (2020) aims to evaluate dry cupping effectiveness vs standard therapy. Results for numeric pain rating scale (NPRS) included both groups having significant improvement, but the experimental group had an even larger improvement ( $p<0.001$ ).

**Insole Use:** Seligman et al. (2021) compared soft vs hard insoles. Neither group showed a significant difference from the other group in relation to pain intensity( $p=.458$ ), pain interference( $p=.846$ ), or function( $p=.366$ ).

Cohena-Jimenez et al. (2020) compared customized orthosis vs placebo flat cushioned insoles. Results showed a VAS scores at the 1 month and 6-month follow-up as statistically significant in favor of the custom orthotic  $p<0.001$ .

Rasenberg et al. (2021) compared custom-made insoles to sham insoles compared to general practice (GP) led usual care. All groups improved, with the GP group improving statistically more in pain with activity and first step pain ( $p=0.01$ ).

## Applicability to Clinical Practice

- It is important to start with the conservative, standard therapy and inform patients that most people get better in a timely manner, averaging at 12 months. This should include physical therapy referral for stretches, NSAIDs, rest, icing.
- None of the alternative treatments have definitive results and therefore recommendations for patients should be proceeded for those who have "failed" the standard treatments and will not cause harm. Potential benefit outweighing the risks of the procedure.
- Consider the cost of all the alternative treatment, not all will be covered by insurance services.
- Not all services will be available in every community, practitioners should get to know services that are available in the community they live in.

## Discussion

**Ultrasound:** Conclusive results of ultrasound use in PF have not been reached much like other research around therapeutic ultrasound use. Akinoglu et al. (2017) showed some positive results in a small study ( $n=54$ ) with only female participants. Katzap et al. (2018) did not show any significant results in favor of US as a treatment.

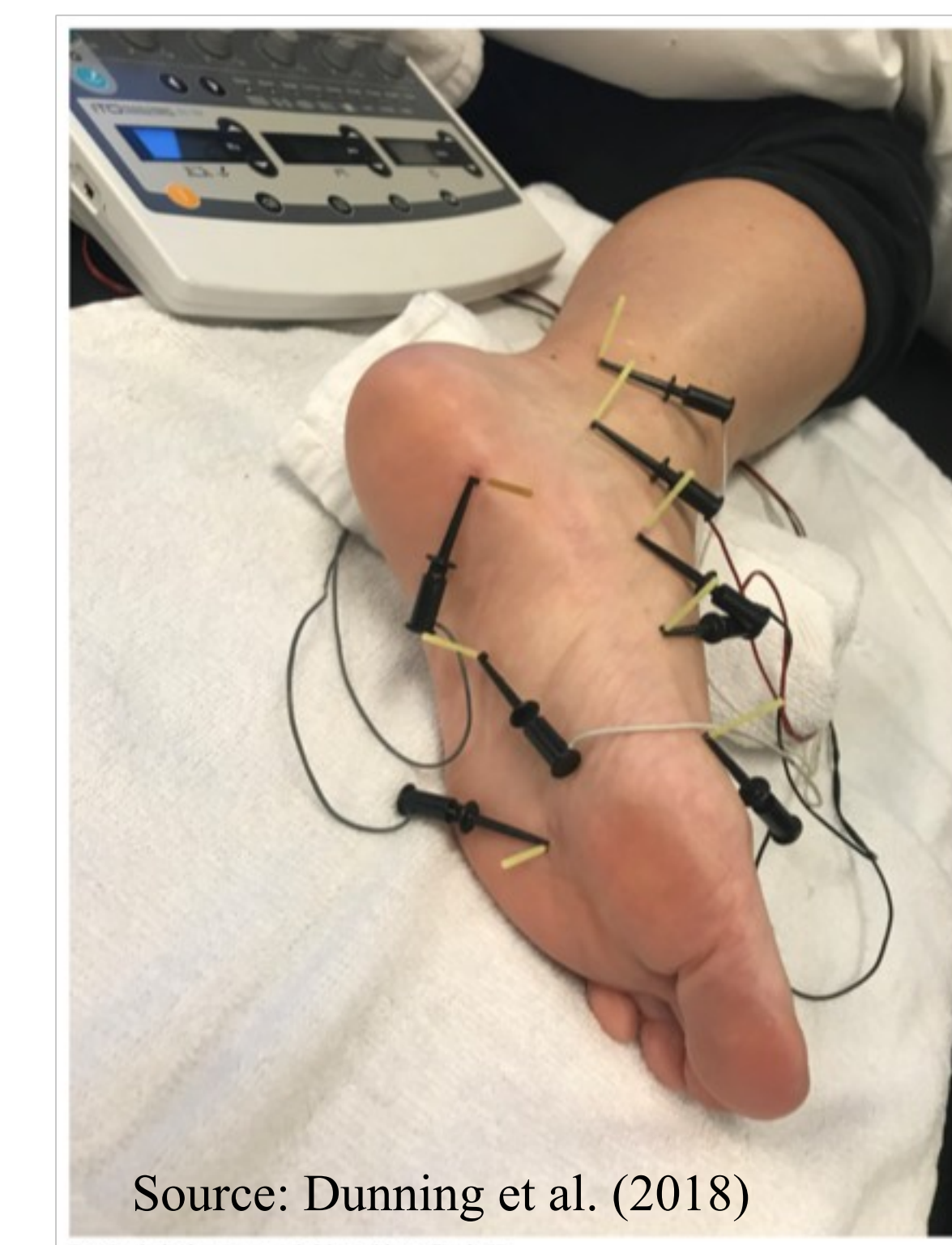
**ESWT:** Some promising positive results in the studies. Further research needs to be done to determine the intensity of ESWT that may be the most beneficial as suggested in the Gezginslan et al. (2021) study. Adverse events were reported in some of the ESWT studies including pain that resulted in cessation of the treatment.

**Injections:** PRP and steroid injections seem to improve outcomes for patients although it is not clear if one is a better option than the other. There are risks associated with the injections although small. Blinding was a challenge in Jimenez- Perez et al. (2019). Thickness of fascia may play a role in which one will be a better treatment option.

**Alternative Treatment:** Dry needling showed some promising positive research suggesting it may be a beneficial treatment. The Wheeler et al. (2022) comparing it to the ABI suggests that the therapy may be from the needle since both groups improved. Further research comparing dry needling to other injections like PRP and steroid injections should be done in relation to PF. Sweety et al. (2020) shows promise with the addition of dry cupping therapy in plantar fasciitis in female athletes aged 18-26. Further research should be done to determine if dry cupping improves symptoms in a larger, diverse study of adults with PF.

**Insoles:** While insoles are a common recommendation for PF, the research is not conclusive. In fact, the GP led group in Rasenberg et al. (2021) did statistically better.

There is no one size fits all approach for alternative treatment of chronic PF in adult patients. Further blinded research in all areas needs to be completed to further define the best alternative, second line therapies for PF.



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