

Citation: Digiovanni BF, Nawoczenski DA, Malay DP, Graci PA, Williams TT, Wilding GE, Baumhauer JF. Plantar fascia-specific stretching exercise improves outcomes in patients with chronic plantar fasciitis. A prospective clinical trial with two-year follow-up. *J Bone Joint Surg Am.* 2006;88:1775-81.

Clinical Question: In patients with chronic proximal plantar fasciitis, are plantar fascia stretching exercises more effective at relieving pain and producing better outcomes scores than using an Achilles tendon-stretching protocol?

The purpose of this research was to determine if using plantar fascia stretching resulted in improved outcomes scores in patients experiencing symptoms of chronic plantar fasciitis.

One hundred and one patients were originally enrolled in the study and were separated into two groups: plantar fascia tissue-stretching and Achilles tendon-stretching. Each patient was educated about their condition, received insoles, and were placed on celecoxib for three-weeks. The plantar fascia stretch essentially consisted of a reproduction of the Windlass mechanism. Each stretch was performed before weightbearing and at least three times a day. Then patients filled out a pain scale at the beginning and end of eight weeks of performing this stretching protocol. Eighty-two patients finished the study and two years later an outcomes scale was administered by mail. Sixty-six patients responded to this inquiry.

The results showed that 80% of the patients at the end of the eight week period responded two years later. 94% of patients felt that they had little or no pain when compared to before they were treated. The authors reported that 77% felt no limitation in recreational activities and 92% were said to be satisfied. It should be noted that 18% of these patients sought treatment from a physician or physical therapist within the two years following the study. No statistically significant differences were found between either group after two years.

The level of evidence according to the AAOS scale for a therapeutic study is a level 2 due to the less than 80% follow-up from the original number of patients recruited and lack of clarity about blinding procedures.

The bottom line is that it would appear that the plantar fascia stretching protocol was more effective than the Achilles-tendon stretching protocol the way that the authors present the results. Unfortunately, I don't think that there is much stock in this due to the lack of statistical significance.

These results are clinically relevant to athletic training practice in that I think it could give the clinician an additional option for treatment of plantar fasciitis. I'm not sure that you can conclude what the authors did and only use this stretching protocol alone, but it may be a good addition to the treatment already being administered. Another problem with this study was that insoles and medication were also given to relieve symptoms and this could have skewed the results because the stretching protocol wasn't an isolated treatment.

This study did do a good job educating the patient about plantar fasciitis. The patient must be educated about the condition that he/she is experiencing, therefore, when the exercises are explained, it is easier to understand why the treatment is being given. The Windlass mechanism should be explained to the patient if they are doing the plantar fascia stretch due to that being the theory behind why the exercise is being performed.