

The Effects of a Home-Care Exercise Kit on Pain and Disability for the Treatment of Plantar Fasciitis

Tom Hyde, DC, DACBSP, FRCCSS Hon, CKTP, ICSSD*,
Jay Greenstein, DC, CCSP, CGFI-L1, CKTP*; Bart
Bishop, PT, DPT, CSCS, SCS, CGFI-L2, CKTP*; Robert
Topp, PhD ^

*Sport and Spine Rehab Clinical Research
Foundation, a 501-C3

^University of Louisville, Department of Nursing

Introduction: Plantar Fasciitis accounts for about 10% of runner-related injuries and 11-15% of all foot symptoms requiring professional care. This condition is thought to occur in 10% of the general population and may present bilaterally in a third of these cases. The plantar fascia originates on the medial tubercle of the calcaneus and fans out over the bottom of the foot to insert onto the proximal phalanges and the flexor tendon sheaths. It forms the longitudinal arch of the foot and functions as a shock-absorber as well an arch support. The term fasciitis may be somewhat of a misnomer because the disease is actually a degenerative process with or without inflammatory changes, which may include fibroblastic proliferation. This has been proven from biopsies of fascia from people undergoing surgery for plantar fascia release. It is commonly believed to be caused by repetitive microtrauma to the fascia. Therefore, the more correct terminology to describe this condition would be plantar fasciosis or fasciopathy. For the purpose of this paper, we will continue to use the term, fasciitis. In a study published by Tong et. al., the estimated annual costs in 2007 ranged from \$192 to \$376 million dollars¹

Purpose: The purpose of this study is to determine if a home-care exercise kit ,consisting of a Thera-band® Foot Roller, a red Thera-band® Resistance Band, Biofreeze® and an instruction guide, combined with usual care physical therapy, can reduce pain, disability and total cost of care, compared to usual care physical therapy alone.

Methods: Patients presenting with a diagnosis of plantar fasciitis to an outpatient physical therapy and chiropractic practice, who meet the inclusion and exclusion criteria, are randomized into two groups using a coin flip. The control group is being given usual physical therapy care. The intervention group will be given usual physical therapy care plus a Thera-band® First Step to Foot Relief® home-care kit.

Outcome Measures: The outcome measures used will be the Visual Analogue (VAS) Scale Foot and

Ankle, shown to be a reliable measure of pain in disability with patients who present with foot and ankle complaints², to be administered pre and post care. Further, disability is being measured using the Lower Extremity Functional Scale (LEFS). Further, cost data for each population group will be measured.

Data Analysis: Preliminary data analysis compares pain and disability within and between groups over the duration of the study using repeated measures ANOVA with post hoc analysis to detect significant differences between means. .

Hypothesis 1: Utilization of usual physical therapy care plus a Thera-band® First Step to Foot Relief® home-care kit will decrease pain and disability of plantar fascia patients compared to usual physical therapy care alone.

Hypothesis 2: Utilization of usual physical therapy care plus a Thera-band® First Step to Foot Relief® home-care kit will result in lower cost of care compared to usual physical therapy care alone.

Results: Ten subjects have thus far completed this pilot study including nine females and one male.

VAS Scores: Both the control group and the Home Kit group had statistically significant decreases in pain. While there was no statistically significant difference between groups at time 2, the Home Kit had reduced scores of 7.5% more than the control group.

LEFS Scores: The Home Kit group reported a significant increase in the LEFS score, while the usual care group did not change their LEFS over the duration of the study and were not different than the Home Kit group following the study.

Cost Data:

The average number of visits for the Funhab® only group was 13.8 visits. The average number of visits for the Funhab® plus Home Kit group was 12 visits. At an average cost of \$100 per visit, the cost was 15% lower for the Funhab® plus Home Kit group.

Conclusion:

With only 10 total subjects in the study, there appears to a trend that the Home Kit results in clinically important improvements in pain and disability among plantar fasciitis patients. A larger sample size is required to validate these findings.