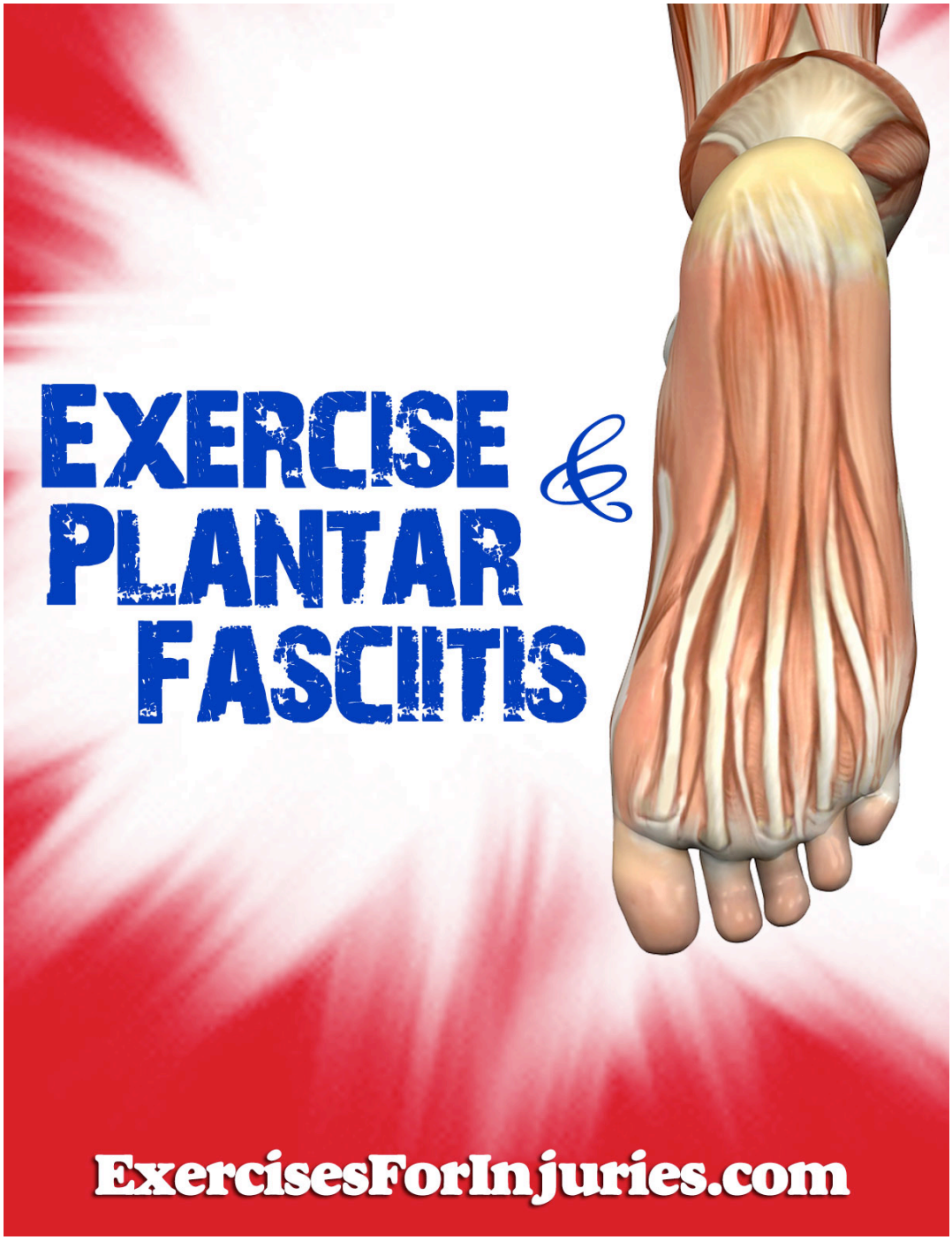
Best Sources on the Web for Plantar Fasciitis & Exercise



Research

Cleland JA, Abbott JH, Kidd MO, Stockwell S, Cheney S, Gerrard DF, Flynn TW. (2009). Manual physical therapy and exercise versus electrophysical agents and exercise in the management of plantar heel pain: a multicenter randomized clinical trial. J Orthop Sports Phys Ther. 2009 Aug;39(8):573-85.

http://www.ncbi.nlm.nih.gov/pubmed/19687575

- The results of this study provide evidence that MTEX (manual physical therapy and exercise) is a superior management approach over an EPAX (electrophysical agents and exercise) approach in the management of individuals with plantar heel pain at both the short- and long-term follow-ups.

Crawford F, Thomson C. (2003). Interventions for treating plantar heel pain. Cochrane Database Syst Rev. 2003;(3):CD000416.

http://www.ncbi.nlm.nih.gov/pubmed/12917892

- Extensive review of different types of treatment options for heel pain.

DiGiovanni BF, Nawoczenski DA, Lintal ME, Moore EA, Murray JC, Wilding GE, Baumhauer JF. (2003). Tissue-specific plantar fascia-stretching exercise enhances outcomes in patients with chronic heel pain. A prospective, randomized study. J Bone Joint Surg Am. 2003 Jul;85-A(7):1270-7. (Must Read)

http://www.ncbi.nlm.nih.gov/pubmed/12851352

- 10% of patients with plantar fasciitis have development persistent and often disabling symptoms.
- Poor response to plantar fasciitis treatment may be due to inappropriate and nonspecific stretching techniques.
- Structure-specific plantar fascia-stretching program for eight weeks have a better functional outcome than do patients managed with a standard Achilles tendon-stretching protocol.
- All patients received prefabricated soft insoles and a three-week course of celecoxib, and they also viewed an educational video on plantar fasciitis. The patients received instructions for either a plantar fascia tissue-stretching program (Group A) or an Achilles tendon-stretching program (Group B).

Digiovanni BF, Nawoczenski DA, Malay DP, Graci PA, Williams TT, Wilding GE, Baumhauer JF. (2006). 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 Aug;88(8):1775-81. (Must Read)

http://www.ncbi.nlm.nih.gov/pubmed/16882901

- Patients with plantar fasciitis lasting more than 10 months got better results from an 8 week plantar fascia-stretching protocol compared to an 8 week Achilles tendon-stretching program. Even at 2 year follow up, patients that implemented the plant fascia-stretching exercises marked decrease in pain and functional limitations and a high rate of satisfaction.

Flanigan RM, Nawoczenski DA, Chen L, Wu H, DiGiovanni BF. (2007). The influence of foot position on stretching of the plantar fascia. Foot Ankle Int. 2007 Jul;28(7):815-22.

http://www.ncbi.nlm.nih.gov/pubmed/17666175

- Ankle and MTP joint (metatarsophalangeal joint) dorsiflexion produced a significant increase (14.91%) in stretch in the plantar fascia.
- Ankle dorsiflexion alone created a 9.31% increase in stretch on the plantar fascia.
- MTP dorsiflexion alone created a 7.33% increase in the plantar fascia
no significant increase in stretch with positions of abduction or varus (2.49%,).

Greve JM, Grecco MV, Santos-Silva PR. (2009). Comparison of radial shockwaves and conventional physiotherapy for treating plantar fasciitis. Clinics (Sao Paulo). 2009;64(2):97-103.

http://www.ncbi.nlm.nih.gov/pubmed/19219314

- Shockwave treatment (radial shockwaves done once a week and received instruction for stretching exercises at home) was no more effective than conventional physiotherapy treatment (10 physiotherapy sessions each, consisting of ultrasound, kinesiotherapy and instruction for stretching exercises at home) when evaluated three months after the end of treatment.

Hyland MR, Webber-Gaffney A, Cohen L, Lichtman PT. (2006). Randomized controlled trial of calcaneal taping, sham taping, and plantar fascia stretching for the short-term management of plantar heel pain. J Orthop Sports Phys Ther. 2006 Jun;36(6):364-71.

http://www.ncbi.nlm.nih.gov/pubmed/16776486

- Calcaneal taping was shown to be a more effective tool for the relief of plantar heel pain than stretching, sham taping, or no treatment after one week post treatement.

Johnson E, Bradley B, Witkowski K, McKee R, Telesmanic C, Chavez A, Kennedy K, Zimmerman G. (2007). Effect of a static calf muscle-tendon unit stretching program on ankle dorsiflexion range of motion of older women. J Geriatr Phys Ther. 2007;30(2):49-52.

http://www.ncbi.nlm.nih.gov/pubmed/18171487

- A 6-week stretching program (performed 5 days a week) is capable of provoking a significant increase in ankle dorsiflexion ROM for elderly women.

Pascual Huerta J, García JM, Matamoros EC, Matamoros JC, Martínez TD. (2008). Relationship of body mass index, ankle dorsiflexion, and foot pronation on plantar fascia thickness in healthy, asymptomatic subjects. J Am Podiatr Med Assoc. 2008 Sep-Oct;98(5):379-85.

http://www.ncbi.nlm.nih.gov/pubmed/18820041

- Body mass index and foot supination at the subtalar joint are related to increased thickness at the plantar fascia in healthy, asymptomatic subjects. Although the changes in thickness were small compared with those in patients with symptomatic plantar fasciitis, they could play a role in the mechanical properties of plantar fascia and in the development of plantar.

Pohl MB, Hamill J, Davis IS. (2009). Biomechanical and anatomic factors associated with a history of plantar fasciitis in female runners. Clin J Sport Med. 2009 Sep;19(5):372-6.

http://www.ncbi.nlm.nih.gov/pubmed/19741308

- Structural and biomechanical factors between female runners with a history of plantar fasciitis and healthy control subjects associated with greater vertical ground reaction force load rates and a lower medial longitudinal arch of the foot.

Radford JA, Burns J, Buchbinder R, Landorf KB, Cook C. (2006). Does stretching increase ankle dorsiflexion range of motion? A systematic review. Br J Sports Med. 2006 Oct;40(10):870-5; discussion 875. Epub 2006 Aug 22.

http://www.ncbi.nlm.nih.gov/pubmed/16926259

- Static calf muscle stretching provides a small and statistically significant increase in ankle dorsiflexion.

Radford JA, Landorf KB, Buchbinder R, Cook C. (2006). Effectiveness of low-Dye taping for the short-term treatment of plantar heel pain: a randomised trial. BMC Musculoskelet Disord. 2006 Aug 9;7:64.

http://www.ncbi.nlm.nih.gov/pubmed/16895612

- When used for the short-term treatment of plantar heel pain, low-Dye taping and sham ultrasound provides a small improvement in 'first-step' pain compared with a sham intervention after a one-week period.

Radford JA, Landorf KB, Buchbinder R, Cook C. (2007). Effectiveness of calf muscle stretching for the short-term treatment of plantar heel pain: a randomised trial. BMC Musculoskelet Disord. 2007 Apr 19;8:36.

http://www.ncbi.nlm.nih.gov/pubmed/17442119

- Both treatment groups improved over the two week period of follow-up but there were no statistically significant differences in improvement between groups for any of the measured outcomes.
- When used for the short-term treatment of plantar heel pain, a two-week stretching program (calf muscle stretches and sham ultrasound) compared to no stretching program (sham ultrasound only) provides no statistically significant benefit in 'first-step' pain, foot pain, foot function or general foot health compared to not stretching.

Riddle DL, Pulisic M, Pidcoe P, Johnson RE. (2003). Risk factors for Plantar fasciitis: a matched case-control study. J Bone Joint Surg Am. 2003 May;85-A(5):872-7.

http://www.ncbi.nlm.nih.gov/pubmed/12728038

- Limited ankle dorsiflexion with the knee extended, obesity, and time spent weight-bearing are all risk factors for plantar fasciitis.
- Reduced ankle dorsiflexion appears to be the most important risk factor for plantar fasciitis.

Ryan M, Fraser S, McDonald K, Taunton J. (2009). Examining the degree of pain reduction using a multielement exercise model with a conventional training shoe versus an ultraflexible training shoe for treating plantar fasciitis. Phys Sportsmed. 2009 Dec;37(4):68-74.

http://www.ncbi.nlm.nih.gov/pubmed/20048543

- Exercise program reduce pain due to chronic plantar fasciitis plus wearing the Nike 5.0 shoe may result in reductions in pain earlier than conventional running shoes.

Stratton M, McPoil TG, Cornwall MW, Patrick K. (2009). Use of low-frequency electrical stimulation for the treatment of plantar fasciitis. J Am Podiatr Med Assoc. 2009 Nov-Dec;99(6):481-8.

http://www.ncbi.nlm.nih.gov/pubmed/19917733

- Regardless of whether low-frequency electrical stimulation was used as an intervention, the use of plantar fascia-specific stretching and prefabricated foot orthoses provided short-term (3-month) pain relief and improvement in functional activity levels.

Szabó G, Marcsik A, Farkas C. (2010) [Patient information and results of training program in the treatment of plantar fasciitis.][Article in Hungarian].Orv Hetil. 2010 Apr 25;151(17):698-701.

http://www.ncbi.nlm.nih.gov/pubmed/20388613

- A home exercise program was given to clients which contained Achilles and plantar fascia stretching, self massage, ice directions and footwear tips. After 6 weeks there was an improvement in ankle and foot range of motion plus a pain levels decreased.

Wearing SC, Smeathers JE, Urry SR, Hennig EM, Hills AP. (2006). The pathomechanics of plantar fasciitis. Sports Med. 2006;36(7):585-611.

http://www.ncbi.nlm.nih.gov/pubmed/16796396

- Plantar fasciitis is a musculoskeletal disorder primarily affecting the fascial enthesis.
- Histological evidence does not support this concept, with inflammation rarely observed in chronic plantar fasciitis.
- Vascular and metabolic disturbances, the formation of free radicals, hyperthermia and genetic factors have also been linked to degenerative change in connective tissues like plantar fasciitis.

Werner RA, Gell N, Hartigan A, Wiggerman N, Keyserling WM. (2010). Risk factors for plantar fasciitis among assembly plant workers. PM R. 2010 Feb;2(2):110-6; quiz 1 p following 167.

http://www.ncbi.nlm.nih.gov/pubmed/20193937

- In an automobile engine assembly plant the study looked at factors that increased the risk of presenting with plantar fasciitis: forefoot pronation on physical examination, high metatarsal pressure on the gait assessment, increasing time spent standing on hard surfaces, increased time spent walking, medium tenure at the plant, and an increased number of times getting in and out of the vehicle (for the truck/forklift drivers).
- Factors that decrease the risk of getting plantar fasciitis were: rotation of shoes during the work week and increased supervisor support, use of shoe orthoses with a medial longitudinal arch and metatarsal pad may, work stations that decrease the percentage of time walking or standing on hard surfaces (eg, allowing workers to alternate between sitting and standing postures or providing cushioning mats for concrete surfaces).

Wilk BR, Fisher KL, Gutierrez W. (2000). Defective running shoes as a contributing factor in plantar fasciitis in a triathlete. J Orthop Sports Phys Ther. 2000 Jan;30(1):21-8; discussion 29-31.

http://www.ncbi.nlm.nih.gov/pubmed/10705593

- A running shoe manufacturing defect was found that possibly contributed to the development of plantar fasciitis. Assessing athletic shoe construction may prevent lower extremity overuse injuries.

Websites

Young CC, Rutherford, D S, and Neidfeldt, M W. (2001). Treatment of Plantar Fasciitis. Am Fam Physician. 2001 Feb 1;63(3):467-475.

http://www.aafp.org/afp/2001/0201/p467.html

- Very good overview of plantar fasciitis from the medical doctor point of view.