

Case

Judy 40F Teacher Running for losing weight

- first-step pain
- redness, feelings of heat in the heel area
- more than a month

- No high arches or flat feet
- No percussion pain
- Ankle dorsal flexion restriction

- X-Ray
- MR

**Plantar
Fasciitis**



A photograph of a runner from behind, wearing a teal tank top, black shorts, and a black armband. The runner is on a track during sunset, with a blurred background of trees and a fence. The title text is overlaid on the right side of the image.

Stretching for Plantar Fasciitis

Presenters:

Guo Yuxiao 14364010

Lin Yuwei 14364011

Chen Yijing 14354017

CONTENTS

01

BASIC KNOWLEDGE

Anatomy & Definition

Pathology & Mechanism

Risks & Symptoms

02

TREATMENTS

Stretching exercise

Other treatments



01

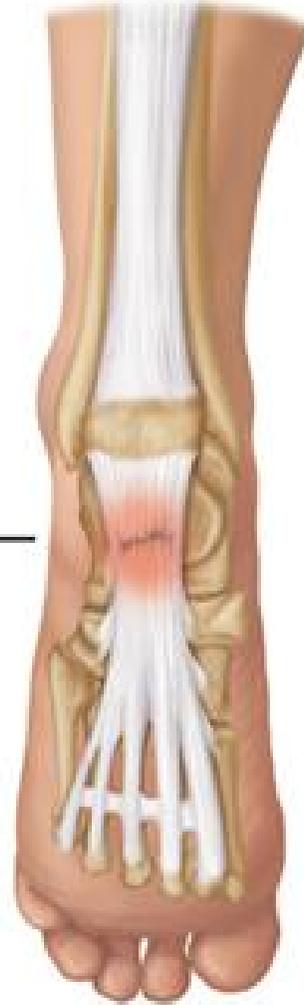
BASIC KNOWLEDGE

Anatomy Review



Plantar Fasciitis
(pronounced: plantar-fa-shee-eye-tis)

Inflammation and
ruptures are ———
painful



- It is a broad band of connective tissue that supports the arch of the foot.
- It attaches proximally to the medial tubercle of the calcaneus.
- It divides into five digital bands that insert to the base of the periosteum of the proximal phalanx of each toe and the metatarsal heads.

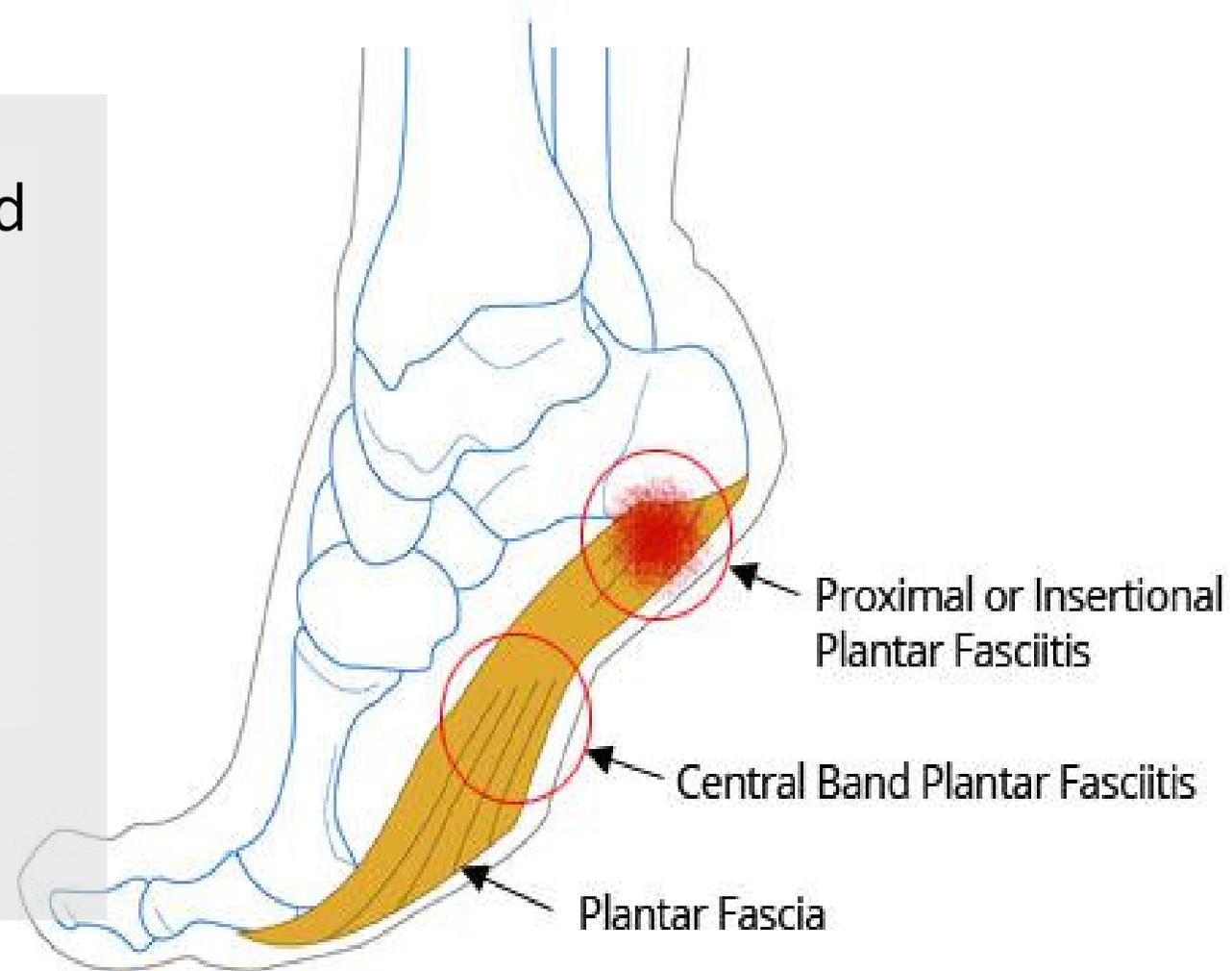
From: <https://heelthatpain.com/plantar-fasciitis/>
Ref: S Cutts, 2012

Definition

Plantar fasciitis is more correctly termed **fasciosis**

because of

- the **chronicity** of the disease
- the evidence of **degeneration** rather than inflammation

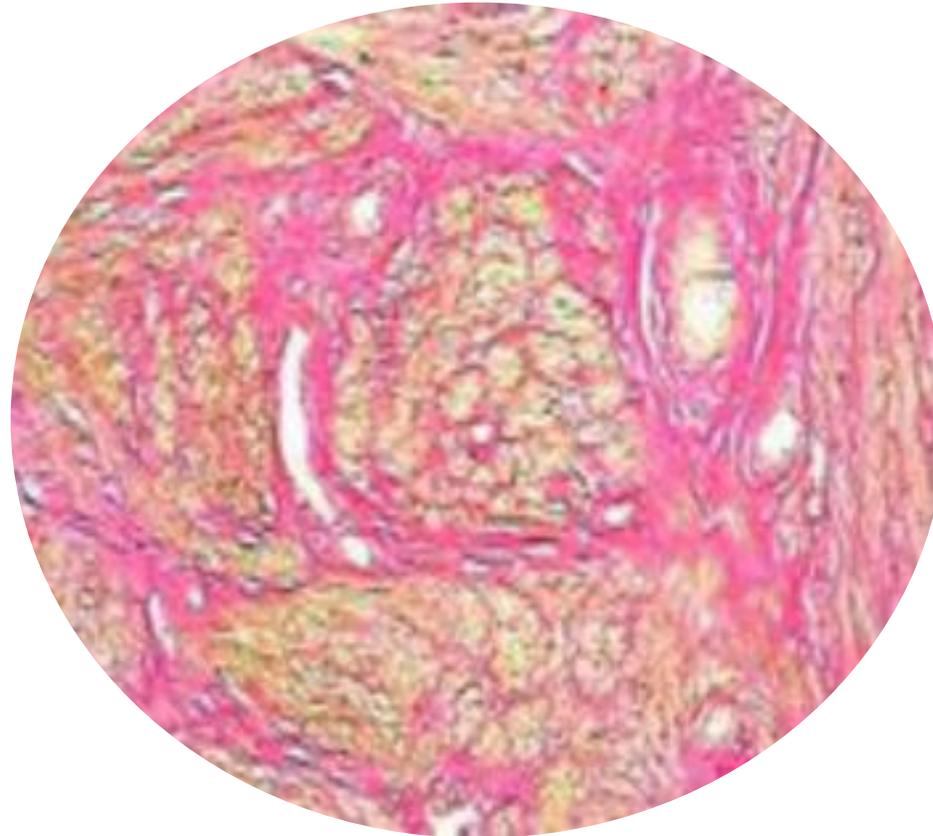


From: <http://www.spencochina.com/view.php?id=2>

ref: Plantar Fasciitis: A Concise Review, 2014

Pathological Phenomena

Collagen degeneration



Disorganized of fibers

Excessive proliferation and calcification of vascular fibroblasts

Increase of myxoid stroma

Risk Factors

Risk factors for plantar fasciitis

Intrinsic risk factors

Anatomic

Obesity

Flat feet

High-arched feet

Shortened Achilles tendon

Biomechanic

Overpronation

Limited ankle dorsiflexion

Weak intrinsic muscles

Weak plantar flexor muscles

Extrinsic risk factors

Environmental

Poor biomechanics or alignment

Deconditioning

Hard surface

Walking barefoot

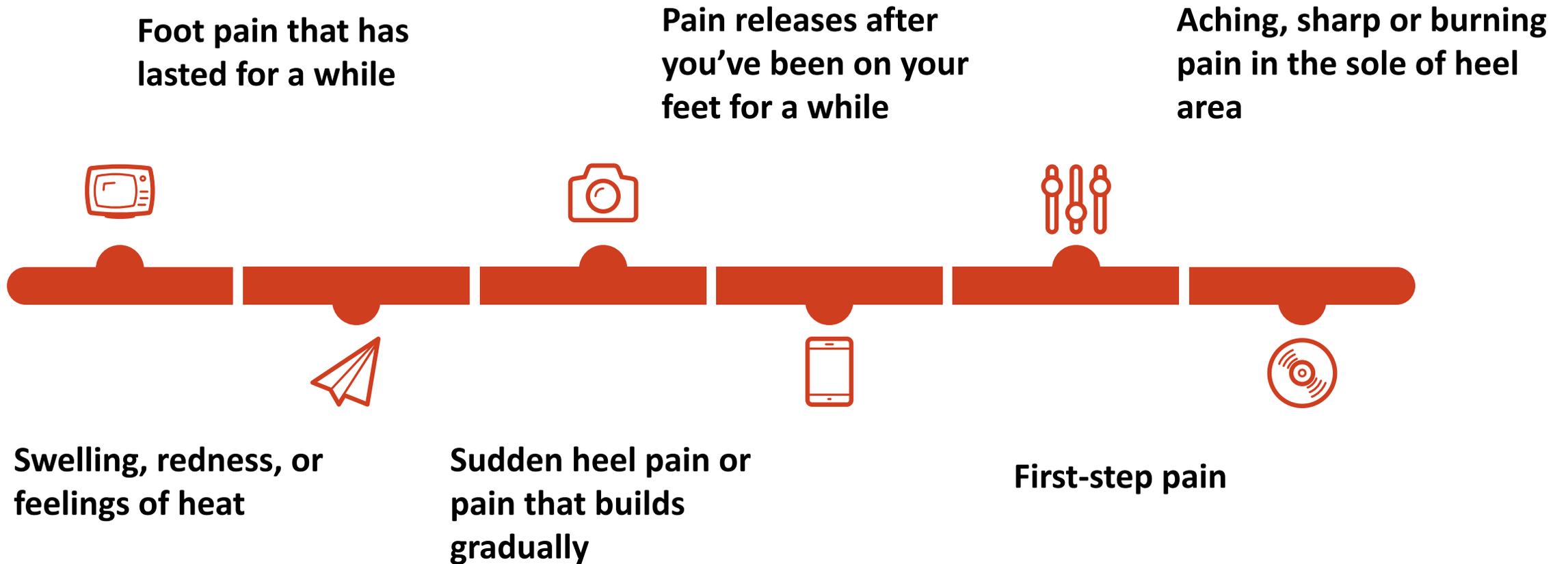


From://blog.sina.com.cn/s/blog_e39b1dc30101q44m.html

Ref:[1]Young C,Ann Intern Med ,2012

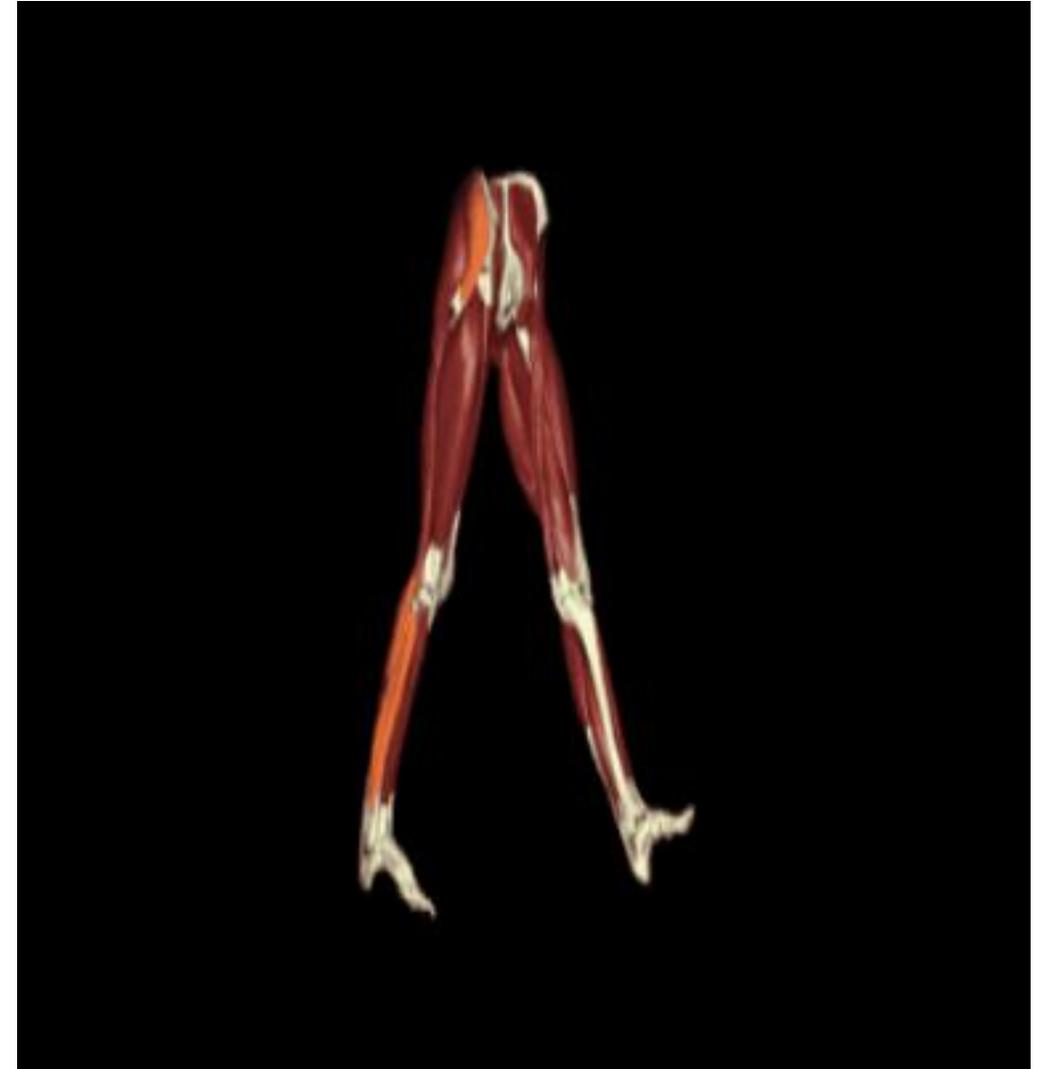
[2]Dyck DD Jr. Clin J Sport Med 2004

Clinical Symptoms



Mechanism

- Ankle dorsiflexion about 10-15°
reduce the tension of the plantar fascia
- If ankle was limited ,the cushion will be compensated by MP joints dorsiflexion
- Plantar fascia stretch increased
- Long-term, sustained force under the action of the foot bottom, fascia are highly susceptible to damage





02

TREATMENT

Patient-directed Treatment



Rest
Activity modification



Ice Massage



Orthotics

Patient-directed Treatment



Stretching Technique

Exercise therapy

Stretching techniques
Strength training

- neuromuscular control training

Weight loss

Benefits of Stretching

Restore and maintain the proper length of muscles, muscle tendons and ligaments



Abrupt the adhesions

Decrease the muscle tension

Maintain or increase ROM

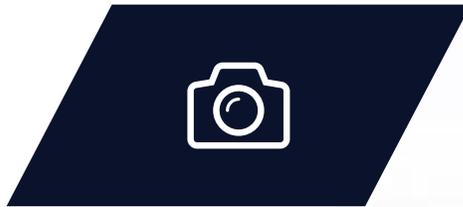
Contraindication

- **Severe pain**
- **Severe osteoporosis**
- **Fresh fracture**
- **Acute inflammation、infection、
hematoma、Tissue trauma around joint**
- **Within a month after the nerve
anastomosis**



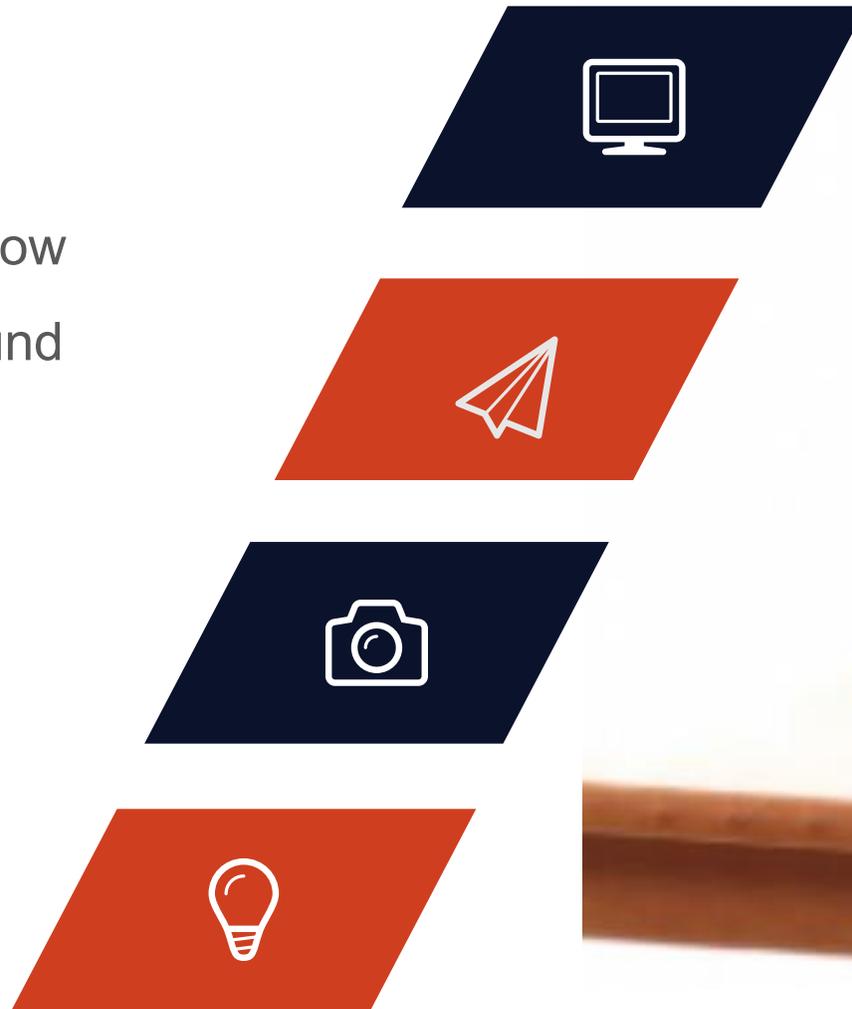
Towel stretching training

- Long-sitting position, use the towel to surround the forefoot.
- Hold the end of the towel, pull it cephalad to dorsiflex the foot.
- Hold it for 15s, then rest for 10s, do it 3 times per day



Step stretching training

- Standing on a step with armrests assisted.
- Use your body weight to allow the heel down onto the ground slowly.
- Maintain it for 15s, and then slowly return to the starting position.
- repeat it 3-5 per day



Gastrocnemius muscle stretching

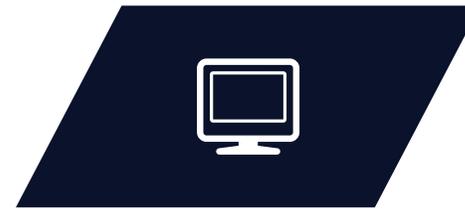
- Placing your arms in front of you and against the wall
- Affected leg backwards
- Squat, do not allow your heel leave the ground
- Hold for 15s, then relax for 10s
- Repeat 3-5 times per day



Ref:CAI Aifang.Hubei sports science.2015
Pic: <http://cn.bing.com>

Soleus stretching training

- Placing your arm in front of you and against the wall
- Affected leg backwards. Bend knees to squat position
- Squat until you can feel the stretch
- Hold for 15s, then relax
- Repeat 3-5 times per day



Reference:

- [1] Young C. In the clinic: plantar fasciitis. *Ann Intern Med* 2012 Jan 3; 156(1 Pt 1)
- [2] Dyck DD Jr, Boyajian-O'Neill LA. Plantar fasciitis. *Clin J Sport Med* 2004 Sept;14(5):305-9.
- [3] Thomas JL, Christensen JC, Kravitz SR, et al; American College of Foot and Ankle Surgeons heel pain committee. The diagnosis and treatment of heel pain: a clinical practice guideline-revision 2010
- [4] MacAuley D, Best T, editors. *Evidence-based sports medicine, Second Edition*. London, England: BMJ Books; 2007
- [5] Danilo H. Kamonseki, Geiseane A. Gonçalves, Liu C. Yi, Imperio Lombardi Júnior. Effect of stretching with and without muscle strengthening exercises for the foot and hip in patients with plantar fasciitis: A randomized controlled single-blind clinical trial [J]. *Manual Therapy* 23 (2016):76-82
- [6] Aifang Cai. Plantar Fasciitis Re-Recognition and Rehabilitation Training [J]. *Hubei Sport Science* 34 (2015):416-418.
- [7] Lance D. Barry, DPM, Anna N. Barry, MS, and Yinpu Chen, PhD. A Retrospective Study of Standing Gastrocnemius-Soleus Stretching versus Night Splinting in the Treatment of Plantar Fasciitis [J]. *The Journal of Foot & Ankle Surgery* 41(4):221 - 227, 2002
- [8] Dean Huffer, Wayne Hing, Richard Newton, Mike Clair. Strength training for plantar fasciitis and the intrinsic foot musculature: A systematic review [J]. *Physical Therapy in Sport* (2016)1-9
- [9] JAMES D. GOFF, DO, and ROBERT CRAWFORD, MD, Summa Health System, Akron, Ohio. Diagnosis and Treatment of Plantar Fasciitis. *American Family Physician*, 2011. 84(6):676-682
- [10] 刘瑞莲, 屈红林. 中老年足底筋膜炎及其康复训练研究进展. *中国老年学杂志*. 2015. 35:4410-4413
- [11] S Cutts, N Obi, C Pasapula, W Chan. Plantar fasciitis Review. *Ann R Coll Surg Engl* 2012; 94: 539–542

A person is running on a track during sunset. The person is wearing a teal tank top, black shorts, and a black armband. The background is a blurred track with a fence and trees under a warm, golden sky.

THANK YOU

Presenters:

Guo Yuxiao 14364010

Lin Yuwei 14364011

Chen Yijing 14354017