



New Paradigm of Management of Plantar Heel Pain

Plantar fasciitis is the common term used as diagnosis for pain on the bottom of the heel. All heel pain is not the tissue diagnosis of plantar fasciitis. In addition to the plantar fascia, there are many tissues on the bottom of the heel that can be injured and painful. Until I know which tissue is injured, I prefer to use the term plantar heel pain or pain on the bottom of the heel.

To stretch or no to stretch

A Dr. Google search using the term "plantar fasciitis" will reveal a multitude of pages suggesting stretching the calf muscles and specific exercises stretching the plantar fascia, as well as combined stretching exercise of posterior calf muscles and plantar fascia as the treatment of choice. It is not wise to depend solely on Dr. Google.

L.D. Barry from Thomas Jefferson Hospital in Philadelphia conducted a study comparing use of a night splint with no stretching exercises to use of stretching exercises. The group using stretching exercises experienced a significant delay in the time it took to resolve the heel pain. Calf stretching exercises delayed recovery.

David Sweeting and colleagues at the University of East Anglia, Norwich, England, did a systematic review of the literature and identified six studies which included 365 symptomatic plantar heel pain patients. The conclusion: stretching is no more effective than other interventions in relieving plantar heel pain.

Three of the six studies compared stretching to no intervention or sham treatment; two of the three studies reported improvements in pain with stretching; and one study found no difference in pain relief between stretching and not stretching. The main pain relieving benefits of stretching occur within the first two weeks to four months. The authors concluded there is no conclusive evidence that any particular type of stretching is better than another.

What I find of interest is that studies investigating the effect of stretching exercises for treatment of plantar heel pain use the subjective measure of the patient's report of pain, but do not use objective measures such as change in range of motion or thickness or size of the injured tissue. One would expect stretching exercises would result in a change in the flexibility or length of the tissue being stretched.

It is quite possible that not all individuals with plantar heel pain deserve or need stretching exercise. There may be different types of plantar heel pain. It is possible that the injured plantar tissue is relatively loose, long, or lax and in pain. It is possible the tissue is normal length and flexible and in pain. It is possible the tissue is short, stiff and in pain. It is a relatively easy measure to determine if the plantar tissue is loose, long and lax, has normal length flexibility or is short and stiff.

A healthcare professional can measure range of motion of dorsiflexion of the toes. A more logical approach than assuming all plantar heel pain should be subjected to stretching exercises is to perform an objective range of motion test in order to have a better differential diagnosis.

I suggest a new diagnostic classification for plantar heel pain, excessive dorsiflexion of toes, or insufficient dorsiflexion of toes. It is possible that at the onset of plantar heel pain the plantar tissue is short and stiff and should be stretched, but over time the tissue length and flexibility becomes normal and stretching exercises should be discontinued.

Strengthening exercises for muscles intrinsic to the foot:

It has long been assumed that pain on the bottom of the heel is inflammation of the plantar fascia tissue. Healthcare professionals now agree plantar heel pain is not always an inflammatory process but can be a degenerative process – plantar fasciosis. The inflammatory process is treated with anti-inflammatory medication and local application of ice. If there is a degenerative process but no inflammation, there is no indication that anti-inflammatory medication or local application of ice is needed.

Fascia tissue is a connective tissue providing support to the arch of the foot. It is not a muscle and cannot contract and generate active power. If there is a degenerative process of tendons of the intrinsic plantar muscles (tendinosis or tendinopathy), then it is appropriate to apply treatment concepts for tendinopathy. Unload the tendon to allow healing and progressively load the tendon with a strengthening program.

Bottom line:

- Diagnosis of plantar heel pain should include an objective measure beyond the patient's reports regarding pain. This objective measure can be range of motion of toe dorsiflexion and/or diagnostic ultrasound looking at the thickness of the plantar fascia tissue and the thickness of intrinsic plantar flexor muscles.
- Using stretching exercises beyond the first four months is **not** indicated for management of plantar heel pain. Some – if not all – individuals with plantar heel pain should **not** be treated with stretching exercises.
- All individuals with plantar heel pain should be treated with a tendinopathy strengthening protocol. Strengthening exercises should strive to isolate muscles intrinsic to the foot as opposed to extrinsic foot muscles.