PLANTAR FASCIITIS:

WHAT IS IT AND HOW IS IT TREATED?

DYNAMIC

PHYSICAL THERAPY AND WELLNESS

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INTRODUCTION

The plantar fascia is a thick band of connective tissue that connects the heel to the base of the toes. The role of the plantar fascia is for shock absorption and to support the arch of the foot, especially during weight bearing activities. The fibers of the plantar fascia blend with the Achilles tendon and thus have a close relationship with the muscles of the lower leg.

Muscle function of the calf muscles, composed of the gastrocnemius, soleus and plantaris, are to plantarflex the foot, or point the toes/foot away from the leg. This is important for walking, running and general locomotion. It has been shown that different foot positions affect soleus muscle action and limited mobility in the calf muscle can affect foot mechanics. For example, approximately 50% of individuals who have a low foot arch have been observed to have increased activity in the soleus muscle. (Branthwaite et al, 2012). Also, those individuals who have tightness in their gastroc or soleus muscles tend to have less ankle mobility and thus more tension on the plantar fascia. When there is more tension on the plantar fascia, an individual could be at a higher risk for developing plantar fasciitis.

Hip and core stability are other factors that play a role in normal foot mechanics. Having a stable base is imperative to allowing for the foot to adapt to the ground forces during walking and running. Poor control of the arch during weight bearing through the leg is the most common side effect of hip and core weakness.

Poor foot mechanics caused by foot posture, limited flexibility and/or weakness at the foot or more proximally at core, hip and knees can lend to foot pain and injury. One of the most common foot ailments is plantar fasciitis and can be a very frustrating injury to deal with.

1.

WHAT IS PLANTAR FASCIITIS?

Plantar fasciitis is the most common foot ailment treated by healthcare professionals (Martin et al, 2014). “It has been estimated that plantar fasciitis occurs in approximately 2 million Americans each year and affects as much as 10% of the population over the course of a life-time (Martin, et al, 2014)”. In basic terms, plantar fasciitis is inflammation of the plantar fascia along the bottom of the foot.

Plantar fasciitis can affect one or both feet, and typically manifests as pain in the bottom arch of your foot. Pain is typically worse first thing in the morning and/or after taking your first few steps after prolonged sitting. This pain in the foot can put a real damper on your ability to walk, run and perform your daily activities.

2.

RISK FACTORS FOR PLANTAR FASCIITIS

There are a few risk factors that have been identified for developing plantar fasciitis, some of which we briefly mentioned in our introduction. Stiffness in the ankle, having a high foot arch, having a flat foot, higher body mass, and running were all found to predispose individuals to development of plantar fasciitis. Limitations in flexibility, including calf muscles and hamstring muscles, can also lend to foot pain due to altered foot mechanics.

Muscle weakness, or imbalance of strength and mobility of hips and core can also lend to the development of foot pain through impaired walking and running mechanics. When weakness is noted in the hips and core, joints below can be negatively affected. With lack of proximal control, the knee joint may take on more stress of weight bearing. Impaired tracking of the patella, or knee cap, can also be a result of poor strength in the hips and core. The foot mechanics also suffer from lack of control up the chain.

So now that we know a few things that can contribute to foot pain, the real question is how do I get rid of my pain!?

3.

EXERCISES FOR TREATMENT

As mentioned before there can be numerous reasons that an individual can develop plantar fasciitis. It has been observed that conservative treatments can improve pain in 90–95% of individuals experiencing plantar fasciitis. Conservative treatments can include rest, use of ice, specific exercises and stretching, anti- inflammatory medication, shoe inserts, and night splints, but they can take up to 6 months to a year to improve. (Stecco et al, 2013). Physical therapy can help jump start specific treatment to promote healing and decrease pain.

Foot posture issues can be caused by decreased flexibility, weaknesses at foot, ankle, knee, hip and/or core and even arch position and can all play a role in the development of plantar fasciitis. The following are several initial exercises to try to prevent or combat foot pain. These exercises address flexibility and strength in order to improve foot mechanics.

FLEXIBILITY EXERCISES

GASTROC STRETCH:
The gastrocnemius is a muscle that points the foot away from leg and aids in bending the knee. To stretch this muscle stagger the right leg behind the left, toes facing forward and heel firmly on the ground with the knee straight. Place hands on wall and shift weight forward until the stretch is felt in the lower right leg without lifting the heel off the ground. Repeat on left leg.

SOLEUS STRETCH:
The soleus is a muscle that also aids in pointing the foot away from the leg and helps provide control and stability for the lower leg during walking and running. To stretch this muscle ~~you have to~~ place the right leg staggered behind the left, toes facing forward and heel firmly on the ground with the knee slightly bent. Place hands on the wall and shift weight forward until the stretch is felt in the lower right leg toward the heel without lifting the heel off the ground. Repeat on left leg.

PLANTAR FASCIA STRETCH:
Sit in a chair with right leg crossed in figure 4 pattern. Grab all 5 toes with right hand and pull back until stretch if felt in the bottom of your foot. Repeat on left leg.

Other leg stretches:

HAMSTRING STRETCH:
Sit in a chair with right leg stretched out in front of you propped on foot stool. Keeping knee straight and back upright, lean chest forward without rounding your back until stretch is felt in the back of of your right leg. Then repeat on left leg.

GLUTEAL STRETCH:
Sit in chair and cross right leg over left in figure 4 pattern, back up tall. Press knee down gently (without pain) with right hand, while leaning chest forward until stretch is felt in right hip/buttock. Repeat on left leg.

STRENGTH EXERCISES

For foot and ankle:

TOE YOGA:
Sit or stand with foot in contact with the floor. Start by lifting big toe while other toes stay in contact with the ground. Then reverse the movement by pressing big toe into ground, lifting the other four toes. Keep sole of foot in contact with the ground at all times. Repeat on each foot.

HEEL RAISES:
Stand at wall with hands on wall for balance. Slowly raise up on toes so heels are off the ground. Slowly lower heels back to ground and repeat.

For hip and core:

PLANK:
Lying on your stomach, place forearms on ground with elbows lined up under shoulders, feet flexed with toes on the ground. Lift your body off the ground in a straight line without letting your hips pop up or your back sway. Try to hold at least 10 seconds.

SIDE LYING HIP ABDUCTION:
Lying on your left side, keep right leg straight and toes flexed forward. Squeeze your buttocks muscle and slowly lift your right leg up toward the ceiling, pause and lower back to right leg. Be sure not to let hips roll backwards or right leg to travel forward. Repeat on both sides.

PRONE HIP EXTENSION:
Lying on your stomach, legs straight, squeeze your right buttocks and lift your right leg up toward the ceiling while keeping your knee straight. Repeat on both legs.

4.

PHYSICAL THERAPY

Your physical therapist will provide you with an individualized assessment and analysis of walking/running techniques to prescribe targeted strengthening, soft tissue mobilization, joint mobilizations, taping techniques and education on footwear modification to combat foot pain. Your physical therapist can also provide valuable education regarding the use of arch support, and use of night splints for pain control. Dry needling is another treatment performed by a physical therapist that can be used in conjunction with the above tools to decrease pain from plantar fasciitis.

Treatments for plantar fasciitis may include, but are not limited to, manual therapy, dry needling, shoe inserts, change in footwear, and/or night splints.

MANUAL THERAPY

Manual therapy includes soft tissue mobilization, or massage, and specific joint mobilizations for foot and ankle mobility. Manual therapy in conjunction with therapeutic exercises can help improve foot mobility and decrease complaints of pain. A Physical Therapist can perform an individualized assessment and develop a treatment plan which may include soft tissue mobilization as well as joint mobilizations to help improve pain and function for individuals with plantar fasciitis or other foot pain.

DRY NEEDLING

Dry needling is another hands on technique that can be performed by your physical therapist to help combat foot pain. Dry needling is the use of a fine filament needle inserted through the skin and into deeper tissues that are considered trigger points to your pain. Targeting tight tissues in the calf muscle can help take pressure off of the plantar fascia for pain control and improved foot and ankle mobility.

SHOE INSERTS

Shoe inserts to help support the arch of the foot can be very beneficial for helping to diminish pain from plantar fasciitis. There are custom orthotics that can be individually fabricated for optimal fit. There are also over the counter arch supports (ex. Super feet, Power Step) that can be placed in shoes and provide arch stability during walking and running to help decrease foot pain. Your physical therapist can perform a taping technique to trial your response to arch support which can help determine if arch supports may be helpful for you.

FOOTWEAR

Supportive footwear is important for diminishing, as well as preventing, foot pain. Shoes that lace up, with a firm heel and supportive sole are important for walking and standing activities. Shoes that are more than 6 months old and have broken down may need to be replaced to ensure optimal support.

NIGHT SPLINTS

A night splint is a foot brace that keeps your ankle/foot at a 90 degree angle and keeps your calf/plantar fascia in a relatively stretched position throughout the night. This keeps the tissue from shortening and becoming painful. This can be helpful to improve tissue mobility and diminish pain in the foot, especially with the first few steps at night. (An example of a night splint can be found at https://www.ptunited.com/dynamicptoh/body-sport-plantar-fasciitis-night-splint-large-womens-shoe-size-11-mens-shoe-size-10-12-latex-free-p-3896.html)

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ABOUT DYNAMIC PHYSICAL THERAPY & WELLNESS

Dynamic Physical Therapy and Wellness is a physical therapist owned private practice dedicated to customizing programs to best meet the needs of each client.

We offer personalized physical therapy with an emphasis on wellness and performance to help you be your best.

We strive for greatness and stay up-to-date with the latest and most evidence based treatment techniques to ensure you can perform better, live better and get better.

CONTACT US

Have you tried some of these tips? Still having pain or discomfort?

Contact us today at **513.204.9071** or ask us a question at info@dynamicptw.com