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SPORTS ACUPUNCTURE

Posterior Tibial Tendon Disorder

Posterior Tibial Tendon Disorder (PTTD), also called posterior tibial tendon dysfunction or adult-acquired flatfoot, is a condition that affects the posterior tibial tendon, which plays a critical role in supporting the arch of your foot and helping with walking. The posterior tibial tendon runs along the inside of your lower leg and ankle and connects the calf muscle to bones on the inside of the foot. It helps maintain the foot's arch and enables foot inversion (turning the sole inward).

What Happens in PTTD

In PTTD, the tendon becomes inflamed, stretched or torn causing the tendon to no longer support the arch effectively. Over time, this can lead to a progressive flattening of the foot. It is most frequently reported in sports that involve repetitive loading, pivoting, and high impact on the foot and ankle, especially on uneven surfaces. It's more common in endurance and stop-start sports where the tendon is overworked. But overuse in prolonged standing or walking, a fall or ankle sprain, obesity, degeneration due to aging or inflammatory arthritis (like rheumatoid arthritis) can be the cause of PTTD, as well. Symptoms include pain and swelling along the inside of the ankle or foot, flattening of the arch, difficulty standing on tiptoe, rolling in of the ankle (pronation) or weakness or fatigue in the foot.

Top Sports Associated with PTTD and Prevention Tips

Running (especially long-distance or trail running), basketball, soccer, tennis/pickleball, dance (especially ballet), hiking (especially with heavy loads or steep inclines) and, gymnastics. Some prevention tips for PTTD include wearing arch-supported shoes tailored to your sport, replace worn-out shoes, use orthotics if you have flat feet or overpronation. You can strengthen foot and ankle muscles, incorporate eccentric calf and arch control exercises, and include core and glute training (hip instability often contributes to foot misalignment). Scheduling regular rest days and cross-training with low-impact activities like swimming or biking can help prevent PTTD, as well. Note: Do not ignore medical ankle pain or arch fatigue but seek a medical professional early to prevent tendon degeneration.

Athletes Known to Have Had PTTD or Related Injuries

Kobe Bryant, who had chronic medial ankle pain and tendon issues in his career due to high-impact landings and cutting movement. Paula Radcliffe, a marathon world record holder suffered from PTTD, causing her medial arch pain and delayed many of her marathon runs. Steve Smith, Sr., an NFL wide receiver was plagued with PTTD due to sudden pivots and forceful cuts. His rehab included needling, taping, and extensive balance work. Misty Copeland, the ballerina, developed PTTD due to repeated en pointe stress (balancing on the tips of the toes while wearing pointe shoes).

Treatments for PTTD

There are two types of treatments: non-surgical, a preferred treatment which involves rest, ice, anti-inflammatory meds along with custom orthotics or braces, and physical therapy (strengthening the tibialis posterior and supporting muscles). The other option would be surgical, generally reserved for advanced stages or when conservative treatments fail. This treatment may involve tendon repair, osteotomy (bone cutting), or joint fusion.

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Acupuncture as a Treatment

Acupuncture, cupping, and dry needling are all non-surgical treatments that can support the treatment of PTTD or as adjunct therapy alongside physical therapy, bracing, and proper footwear. Here's how each modality may help:

Acupuncture and dry needling helps to reduce pain and inflammation along the medial ankle and tendon, stimulate blood flow to affected tendon, address muscle imbalances, target trigger points, release tight or overcompensating muscles that might be straining the tendon and improves neuromuscular control by resetting dysfunctional muscle firing pattern. Dry needling targets myofascial trigger points and tight muscles around the posterior tibialis and calf complex, improving neuromuscular control (Gattie, 2017). Studies show dry needling combined with exercise accelerates pain relief and functional recovery in tendinopathy compared to exercise alone (Tang, 2022). The technique complements acupuncture by addressing muscle imbalances contributing to tendon overload.

A systematic review of 22 case reports/series found that acupuncture (manual, electrical, laser) applied to athletes with various musculoskeletal injuries, including tendinopathy, often provided short-term pain relief and improved function, acting as a valuable adjunct in RTP (return-to-play) strategies (Lee, 2020). Another review noted that acupuncture facilitated early pain reduction, allowing initiation of eccentric loading exercises, which are central to tendon rehab but often delayed due to pain (Shokinbi,2014). A sports medicine report highlights dry needling combined with multimodal treatment (manual therapy, physiotherapy) led to significant improvement in athletes with patellar tendinopathy, with similar trigger-point approaches viable for tibialis posterior-related conditions (Tang, 2022).

Cupping is used to improve local circulation, reduce fascial adhesions, and promote lymphatic drainage in the medial ankle and arch. Cupping on the medial calf and arch can help relieve soft tissue congestion that may limit healing or cause stiffness. A randomized controlled trial showed cupping combined with acupuncture improved pain and function more than acupuncture alone in musculoskeletal conditions (Kim, 2020).

Conclusion

Acupuncture, cupping, and dry needling can be helpful additions to a treatment plan for PTTD.
These therapies may reduce pain, improve blood flow, and ease tight muscles that often develop with this condition. While they don't replace medical treatments like physical therapy or surgery, when necessary, they can support healing and improve comfort.

Little-Known Insights Worth Noting

PTTD is sometimes called the "silent arch killer" because it gradually causes the foot's arch to collapse over time—often without obvious pain at first—leading to flatfoot in adults.

Your posterior tibial tendon is a "superhero tendon" — it can support forces up to 4–5 times your body weight when you walk or run, making it one of the hardest-working tendons in your body.

The posterior tibial tendon acts like a natural "foot suspension bridge" — it holds up the arch much like cables support a bridge, distributing your body weight evenly and keeping you balanced.

Athletes can generate forces through the posterior tibial tendon equivalent to several hundred pounds with each step or jump. That's like repeatedly lifting a heavy weight while running.

PTTD is more common in women than men, possibly due to anatomical differences in foot structure and hormone effects on ligaments and tendons.

Curated, compiled and written by Dr. Nathan J. Heide, DAOM, MBA, LAc and Rebecca Carsten to offer an insightful overview of sports acupuncture, dry needling, and medical topics in Eugene, Oregon.

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