Mechanism and Treatment of Tendinitis of the Flexor Hallucis Longus In Classical Ballet Dancers

KATHLEEN M.J. NACHAZEL, ATC • University of Pittsburgh, Pittsburgh Ballet Company

Flexor hallucis longus (FHL) tendinitis is one of the most common tendon injuries in ballet dancers and is often referred to as dancer’s tendinitis. Dancers who have it will usually complain of posteromedial ankle pain when on demi pointe. The pain is commonly located along the posterior medial ankle and radiates along the medial arch. Many ballet moves stress the FHL. The tendon is compressed in its groove inside a fibrous sheath over the posterior talar tubercle in full plantar flexion (pointe) and is stretched between the posterior talar tubercle and the sustentaculum tali in dorsiflexion (plié). Repetitive motion from plié to pointe causes inflammation of the tendon. The FHL tendon is the last to contract during takeoff and the first to engage during landings; therefore it sustains considerable eccentric load on landing.

Partial tearing of the FHL fibers in the fibrous tunnel behind the medial malleolus can lead to tenosynovitis and eventual nodule formation. Nodule thickening produces triggering that will become more severe over time.

Key Points

- Faulty technique, poor trunk alignment, and repetitive stress can predispose dancers to FHL-tendon injuries.
- Classic symptoms include crepitus and pain along the line of the FHL as far as the medial longitudinal arch.
- Testing for the FHL includes having the dancer plantar flex the ankle and flex and extend the great toe with the ankle in a neutral position. For a positive test, there will be triggering, or clicking, in the great toe and crepitus in the FHL posterior to the medial malleolus.

Key Words: dancer’s tendinitis, crepitus, clicking, triggering

Physical Assessment

History

Dancers with FHL tendinitis will usually complain of posteromedial ankle pain with or without clicking or crepitus. The dancer might have a history of the big toe locking during demi pointe and failing to release when going into plié. “Triggering,” or clicking, might be present when the great toe is flexed and extended.

Inspection

The dancer might have increased swelling in the posteromedial ankle dispersed along the medial arch. Decreased range of motion in the first metacarpophalangeal joint is also common, as illustrated in Figure 1.

Figure 1  Decreased motion in the great toe as a result of injury to the flexor hallucis longus.
Palpation
The dancer might have palpable tenderness, crepitus, and swelling along the line of the FHL to the medial longitudinal arch. The athletic trainer or therapist might also feel the FHL “thickening” posterior to the medial malleolus as the dancer flexes and points the toes.

Special Testing
The athletic trainer or therapist should have the dancer plantar flex the ankle and plantar flex and dorsiflex the great toe with the ankle in a neutral position. This will often reproduce triggering in the great toe. Physical assessment alone might not be sufficient. If symptoms persist, with pain and triggering, a physician can order X rays or an MRI (Figure 2).

Factors Contributing to Injury
To achieve a more aesthetically pleasing look in classical ballet, the dancer forces his or her hips into external rotation beyond the normal anatomical range. A dancer who is unable to adequately externally rotate the hips might compensate for this increased motion in the hips by pronating or “rolling in” the feet. The FHL is the primary stabilizer of the subtalar joint against pronation, so when this occurs the FHL becomes strained. The FHL is also a primary stabilizer of the ankle medially in relevé and pointe. Therefore, “sickling” (forefoot abduction with calcaneal valgus) or any repetitive movements resulting from bad technique, weakness, or instability will impair the tendon. In plié the tendon provides plantar-flexion stability to the great toe. The repetitive motion of rising from a flat foot onto the ball of the foot and then to the tips of the toes can strain the tendon, making it vulnerable to injury. The dancer’s technique should be observed to be sure that technical factors are not contributing to the condition. Faulty technique or physique that can contribute to injury of the FHL include the following:

• Forcing the pointe position
• Poor trunk alignment
• Rolling in and sickling out
• Soft-tissue impingement
• Os trigonum
• Prominent posterior process

Common Treatment
Treatment of FHL tendinitis is much the same as with any other athletic injury, but special concern must be given to proper dance technique and core stability. Treatment includes

• Pain relief, including NSAIDs and cryotherapy. This includes anti-inflammatory pain medication prescribed by a physician and either ice massage or cold whirlpools for the FHL.
• Avoidance of pointe work.
• Restoration of soft-tissue, muscle, and joint mobility in the ankle and great toe.
• Restoration of normal muscle strength and endurance in the ankle and great toe (i.e., towel curls performed with the heel elevated on a 2-in.-thick board, marble pick-ups, and four-way ankle Theraband™).
• Deep-tissue massage of the gastrocnemius, soleus, and hamstring emphasizing the release of trigger points.
• Proprioception exercises.
• Core control and stability exercises. Core stability can be achieved using stability balls. Core stability