Medial Foot Pain in a Collegiate Track and Field Athlete
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**Background:** A 19-year-old male pole vaulter presented with severe bilateral medial and lateral pain and swelling secondary to a fall three weeks earlier. He reported a history of ankle sprains in both ankles, none of which required extensive time loss or rehabilitation. The patient was diagnosed with Grade II bilateral ankle sprains and was treated conservatively. He was instructed to ice 20 minutes every hour, maintain compression wraps on both ankles, and elevate both extremities. He was placed on crutches utilizing a four-point, PWB crutch gait. The follow-up physical examination revealed swelling superior, lateral, and anterior to both lateral and medial malleoli with ecchymosis extending distally into all phalanges. A moderate amount of palpable, diffuse tenderness over the medial and lateral structures of both ankles was elicited. Active ROM goniometric measurements were: plantarflexion (R 43° and L 39°), dorsiflexion (R 8° and L 8°), inversion (R 16° and L 14°), and eversion (R 13° and L 14°). Manual muscle testing revealed the following findings: plantarflexion (R 3/5 and L 3/5), dorsiflexion (R 4/5 and L 4/5), inversion (R 2/5 and L 2/5), and eversion (R 3/5 and L 2/5). Wedge and compression tests were both positive for radiating pain. Also, anterior drawer (firm end-feel), talar tilt in neutral (firm end-feel) and in plantarflexion (soft end-feel), and the Kleiger tests (firm end-feel) were positive for pain. He was removed from participation, referred to the team orthopedic physician, diagnosed with bilateral ankle sprains with pronated feet, and prescribed rehabilitation. The rehabilitation program included physical agents, manual therapy, and strengthening and proprioceptive therapeutic exercises specifically addressing bilateral foot pronation and functional instabilities of the talocrural joints. The patient was progressing well until two weeks into rehabilitation when he developed a sharp right medial foot pain. Rehabilitation was discontinued and he was referred back to the physician. **Differential Diagnosis:** calcaneonavicular ligament sprain, tibialis posterior tendinopathy, tibialis anterior tendinopathy, flexor hallucis/digitorium tendinopathy, pes planus, and os navicularum. **Treatment:** Diagnostic testing was not ordered; however, physician examination revealed mild swelling and tenderness over the prominence of the right navicular at the posterior tibial attachment. The team physician diagnosed him with Type II right accessory navicular with pronated feet, and prescribed additional activity restriction and rehabilitation, semi-rigid foot orthotics, motion control footwear, and arch taping during rehabilitation. After addressing the foot pronation, the patient continued to demonstrate improvement with strength, proprioception, and functional activities. Eight weeks s/p, the patient returned to participation. 10 weeks s/p, all signs and symptoms resolved, and he was discharged from rehabilitation. **Uniqueness:** An accessory navicular is typically discovered following trauma to medial foot structures. This case is unique because the accessory navicular was discovered following a lateral ankle sprain. It is not known whether the navicular pain was masked by symptoms associated with the bilateral ankle sprains, or whether the intense foot-intrinsic strengthening protocol to address the foot pronation evoked the symptomatic onset of the accessory navicular. **Conclusion:** Despite the patient functioning normally, foot pronation
increased the patient’s risk of developing a repetitive stress injury secondary to performing a rapid increase in frequency, intensity, and duration of therapeutic exercises to strengthen and improve proprioception of the foot and ankle. Trauma, biomechanical changes, or congenital posture can cause foot pronation; the onset of the patient’s symptomatic accessory navicular can be traced back to any one of these mechanisms. The symptomatic accessory navicular led to the correction of the foot pronation. As a result, the athletic trainer was able to limit the predisposition to a variety of musculoskeletal injuries, including stress fractures, ACL tears, and low back pain.

**Word Count:** 596