

Alison L. Stevens, ATS; Shawn D. Felton, EdD, ATC, LAT; Jason C. Craddock, EdD, ATC, LAT, CSCS

Florida Gulf Coast University, College of Health Professions and Social Work, Fort Myers, FL 33965

Abstract

The athlete was a 74 year-old male recreational golfer. Athlete's prior medical history included a right total knee arthroplasty about nine months ago. Athlete reported suffering from a left eversion ankle sprain while walking on an uneven, rocky surface approximately 40 years ago. Pain and instability of the left ankle continued to increase during these 40 years. Approximately five months prior the pain became unbearable, leaving the athlete unable to stand, walk, perform activities of daily living or golf. Initial evaluation revealed bilateral genu valgum and a bilateral pes planovalgus deformity. The pes planovalgus deformity on the left was excessive and indicated an obvious dislocation. Athlete was referred for X-rays and an MRI. Diagnostic imaging illustrated dislocations of the left talonavicular joint and left subtalar joint, a left pes planovalgus deformity, a left Achilles contracture, left ankle arthritis and a left tibial exostosis. Due to the severity of these conditions, the athlete underwent surgery for his left foot and ankle. Procedures of the surgery included a left talonavicular arthrodesis, left subtalar arthrodesis, left talus osteotomy, left calcaneal osteotomy, left Achilles release, partial excision of the left tibia and lengthening of the left peroneal longus and brevis tendons. Following surgery, the athlete was placed in a NWB hard cast for eight weeks and then in a PWB Aircast AirSelect Standard Walker protective boot for the eight weeks following that. Pain, swelling, decreased ROM, decreased strength and PWB status persisted 10 weeks following the surgery. Athlete participated in physical therapy to decrease pain and swelling, and to increase ROM, strength, weight-bearing status, proprioception and function. The athlete has predisposing risks to chronic talonavicular and subtalar dislocations such as bilateral genu valgum and a bilateral pes planovalgus deformity. His body weight was also a predisposing risk due to the forces being placed on the deformities and dislocations.

Purpose

In this study, the athlete complained of left ankle pain that began approximately 40 years ago after an eversion ankle sprain. There was an obvious deformity that had become increasingly worse, especially over the last year. He was referred to an orthopedic surgeon who performed reconstructive ankle surgery, involving multiple fusions, to correct the deformity. He was then sent to physical therapy to work towards his functional goals.

Purpose

This case was important because it highly suggests the importance of evaluating posture and the resulting biomechanics, as well as the importance of trying to correct or lessen the severity of the conditions noted. Correcting these abnormalities when an athlete is young can help to prevent severe pathologies, such as the ones presented in this case.

Background

- 74 year-old male recreational golfer
- Right total knee replacement 9 months prior to evaluation
- Left eversion ankle sprain 40 years prior
- 5 months prior to evaluation pain in left ankle became unbearable & unable to stand, walk or perform ADLs
- Bilateral genu valgum
- Bilateral pes planovalgus deformity (excessive on left side)

Preoperative Photos



Differential Diagnoses

- Deltoid Ligament Sprain
- Calcaneonavicular Sprain
- Talonavicular Dislocation
- Subtalar Dislocation
- Arthritis

Diagnoses confirmed by diagnostic imaging included dislocations of the left talonavicular joint and left subtalar joint, a left pes planovalgus deformity, a left Achilles contracture, left ankle arthritis and a left tibial exostosis.

Surgical Treatment

- Left talonavicular and subtalar arthrodeses
- Left talus and calcaneus osteotomies
- Left Achilles release
- Partial excision of the tibia
- Lengthening of the peroneal longus & brevis tendons
- Surgeon reported this case was extremely complex compared to other similar cases

Postoperative Photos



Postoperative Evaluation

- Evaluation performed 9 weeks after surgery
- Pain 6/10
- 6° AROM Dorsiflexion & 1° AROM Plantar Flexion
- PWB in Aircast Standard Walker protective boot
- Increased girth by 1.1 cm of the left ankle
- 12/80 on Lower Extremity Functional Scale

Treatment and Rehabilitation

During the first two weeks of physical therapy, the athlete completed range of motion exercises and simple strengthening exercises such as ankle pumps, seated BAPS Board anterior and posterior taps and seated calf raises. Weight bearing exercises began during the third week and included exercises such as mini squats, standing hip abduction, standing hamstring curls, step-ups and marching in place. A balance progression was started during the fourth week of physical therapy and continued throughout. During these four weeks the athlete was instructed to increase his weight bearing in the protective boot by 25% each week. By the fifth week the athlete no longer needed the boot and was using a cane, so gait training was initiated. Throughout his time at physical therapy modalities were also utilized to control his pain and swelling including ice packs for 15 minutes and pre-modulated electrical stimulation. Soft tissue retrograde massage, forefoot and digit mobilizations and scar mobility were also used throughout. After seven weeks of physical therapy he was discharged and was walking without any assistive devices.

Results

- Pain 0/10
- 10° AROM Dorsiflexion & 10° AROM Plantar Flexion
- 4/5 Dorsiflexion strength & 4+/5 Plantar Flexion strength
- 50/80 on Lower Extremity Functional Scale
- Walking without assistive device
- Patient is very happy that he had surgery

Conclusion

The athlete suffered from a common ankle sprain 40 years ago that led to a severe condition. Along with his prior history of ankle injuries, his bilateral genu valgum, bilateral pes planovalgus deformities and increased body weight altered the biomechanics of his lower extremities. As a result, he was eventually unable to perform his ADLs. This case suggested why proper biomechanics are very important.

References

- Cashman, G. (2012). The effect of weak hip abductors or external rotators on knee valgus kinematics in healthy subjects: A systematic review. *Journal of Sport Rehabilitation*, 21, 273-284. Retrieved from <http://journals.humankinetics.com/jsr>
- Cass, A.D. & Camasta C.A. (2010). A review of tarsal coalition and pes planovalgus: Clinical examination, diagnostic imaging and surgical planning. *The Journal of Foot and Ankle Surgery*, 49, 274-293. doi:10.1053/j.jfas.2010.02.003