



# Chronic Ankle Instability in a Female Collegiate Softball Player

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## Abstract

An 18-year-old collegiate softball player with a past medical history of bilateral reoccurring lateral ankle sprains presented in the athletic training room with bilateral ankle pain and mild swelling after the second day of team conditioning. The athlete was diagnosed with having bilateral chronic ankle instability. Chronic ankle instability (CAI) is described as altered mechanical joint stability due to repeated disruptions to ankle integrity with resultant perceived and observed deficits in neuromuscular control. The cause of CAI has been defined as either mechanical ankle instability (MAI) or functional ankle instability (FAI). MAI is, by definition, caused by ligament laxity, whereas FAI is caused by other factors, including proprioceptive deficits, neuromuscular deficits, postural control deficits, and muscle weakness.

## Introduction

In this case, the athlete presented into the athletic training room complaining of bilateral lateral ankle pain. Her past medical history revealed that she had suffered multiple lateral ankle sprains throughout her athletic career, with the most current being 6 months prior to her initial evaluation. Further evaluation revealed increased ligamentous laxity with decreased neuromuscular control. Associated peroneal tendonitis was also noted. Conservative treatment was deemed most appropriate for this athlete, thus, referral was not needed.

## Purpose

One of the most important aspects of an athletic trainer's job is prevention of injuries. This case demonstrates how the proper rehabilitation and management of the acute lateral ankle sprain can reduce the reoccurrence of sprains, and the incidence of chronic ankle instability.

## Background Information

- 18 year old female
- Freshman collegiate softball catcher/ infielder
- Past medical history of numerous bilateral lateral ankle sprains
- Athlete wears prophylactic ankle braces bilaterally for all sport-related activities

## Clinical Presentation

- Point tenderness over the sinus tarsi
- Mild swelling over the sinus tarsi
- Pain with active eversion, end-range inversion, and plantarflexion of the ankle.
- Pain with passive eversion and end-range inversion
- 4- MMT of eversion; 4- MMT of plantarflexion with eversion
- Increased laxity of the anterior talofibular ligament and calcaneofibular ligament.
- Positive anterior drawer
- Positive talar tilt test

## Treatment

Initial treatment included premodulated electrical stimulation with ice, and acetaminophen. Athlete was allowed to continue activities and was instructed to continue to wear her braces for all activities for the following two weeks in order to facilitate proprioceptive feedback. The athlete had rehabilitative therapy for two months with three sessions a week. Exercises were focused on strengthening the muscles surrounding the ankle complex as well as the intrinsic muscles of the foot. Exercises were also highly focused on increasing neuromuscular control and decreasing proprioceptive deficits. The athlete received ice after all conditioning sessions, practices, and competitions. The athlete was allowed to discontinue wearing the braces after two weeks, but opted to keep wearing them.

## Differential Diagnosis

- Peroneal tendon subluxations
- Lateral ankle sprain
- High ankle sprain

## Implications

Lateral ankle sprains are one of the most common injuries in competitive and recreational sports, accounting for 80% of all ankle sprains. The rate of reoccurring lateral ankle sprains may be as high as 80% among active individuals. Between 19% and 72% of individuals who sustain a lateral ankle sprain have been reported to experience residual symptoms and/or develop chronic ankle instability. Proper management of the acute lateral ankle sprain with rehabilitation focused on increasing the strength of the surrounding musculature of the ankle and increasing neuromuscular facilitation can significantly reduce the incidence of chronic ankle instability.

## Conclusion

This case demonstrates how years of reoccurring lateral ankle sprains without proper rehabilitation can compromise the proper function of the ankle complex. While the damage and associated laxity to the ligamentous structures is irreversible, strengthening the muscles around the ankle and in the foot can help combat the loss of support. Furthermore, incorporating proprioception exercises will help increase not only observed, but also perceived deficits in neuromuscular control.