Background: The objective of this case study was to examine an unusual occurrence of Reflex Sympathetic Dystrophy (RSD) in a nineteen year old female collegiate volleyball player. RSD, also known as Chronic Regional Pain Syndrome, is an uncommon neurological condition characterized by an intense burning pain that does not correlate to the injury sustained. RSD causes damage to the nociceptors, which are nerves specialized for pain. This damage causes severe pain because the nerve fibers fire at an excessive rate. With this particular RSD case, the injury was secondary to an acute ankle sprain, stress fractures of the third and fourth metatarsals, and a Cuboid fracture, which was overlooked in the original x-ray. The athlete experienced intense, constant pain throughout the entire foot, which inhibited mobility and negatively impacted her mental and emotional state. RSD caused the athlete’s toes to be red; however, icing to treat the other acute injuries brought about cyanosis in the entire foot. Additionally, cold temperatures intensified the athlete’s pain.

Differential Diagnosis: Initial signs and symptoms were similar to an ankle sprain, metatarsal fracture, Lisfranc injury and神经praxia. Treatment: Initially, the athlete was treated for an acute ankle sprain. After the athlete’s condition did not improve, the athlete was referred to a podiatrist for evaluation. The athlete was diagnosed with stress fractures of the third and fourth metatarsals, and was immobilized in a walking boot. After five weeks of no improvement, the athlete was referred to a vascular physician and diagnosed with Raynaud’s Phenomenon and RSD. The athlete was prescribed nitroglycerin patches to enhance vasodilation, and was instructed to discontinue use of the walking boot. Upon further testing, a magnetic resonance image revealed a Cuboid fracture and the athlete was again immobilized. The athlete was instructed to continue use of both the walking boot and the nitroglycerin patches. The athlete continued this regimen for approximately two months, after which the athlete was still unable to participate in athletics and was limited to activities of daily functional living because of pain. RSD prevented any ankle rehabilitation plans from being implemented. Once pain subsided, the athlete began a general ankle strengthening program; however, no rehabilitation was performed for the symptoms of RSD. The athlete was directed to return to play upon pain free activity, which did not occur until seven months after diagnosis of RSD.

Uniqueness: RSD is more prevalent in women, but this case is unique because the athlete does not fit within the median age range of the disorder, which is 42-46 years of age. Additionally, there is a higher incidence of RSD in the upper extremities than the lower extremities, yet in this case the injury occurred in the lower extremity. The athlete’s situation was also unique because fractures are typically treated with immobilization; however, immobilization is contraindicated for those suffering from RSD.

Conclusions: An exact cause of RSD has not been determined; however, it typically results from an acute injury that does not follow the normal healing pathway. With this atypical response to injury, the diagnosis of RSD relies heavily on the signs and symptoms presented by the individual. Early diagnosis is critical for a full recovery from RSD; therefore, it is crucial that Certified Athletic Trainers be knowledgeable of the signs and symptoms of RSD.