

TACSM Abstract - Clinical Teaching

Calf Strain

JENNIFER CABRERA, CHUCK RUOT, AND LINDSAY SPINDLER

Human Performance Laboratory; Department of Kinesiology, Health, and Recreation;
Hardin Simmons University, Abilene, TX

Category: Undergraduate

Advisor / Mentor: Ruot, Chuck (cruot@hsutx.edu), Spindler, Lindsay (Lindsay.Spindler@hsutx.edu)

ABSTRACT

CLINICAL PRESENTATION & EXAM: Patients can experience a calf strain due to overstretching, exposure to increased volumes of running load, accelerations, decelerations, and during extreme fatigue. The strain exhibits a feeling of a sharp pain or tearing sensation at the back of the lower leg. The pain can last a few days or up to weeks depending on the severity of the strain. Palpation, stretching and strength testing are used for physical examination to identify swelling and tenderness. **ANATOMY & PATHOLOGY:** The calf refers to the gastrocnemius, soleus, and plantaris muscles. These three muscles together form the Achilles tendon and make insertion into the calcaneus. The gastrocnemius is a plantar flexor of the foot at the talocrural joint and a flexor at the knee. The soleus is situated under the gastrocnemius and functions as a plantar flexor. The plantaris is located in the superficial compartment of the calf and assists the gastrocnemius as a flexor of the knee and plantar flexor of the talocrural joint. There are different types of calf strains, namely I, II, and III. A grade I injury is a mild muscle strain or a pull of the muscle. A grade II injury is a partial muscle tear in one of the calf muscles, and a grade III injury is a complete tear of the muscle. **DIAGNOSTIC TESTING & CONSIDERATIONS:** An initial subjective assessment of the injury incident is taken. A physical exam will include palpation, range of motion and strength testing of the talocrural joint and knee joint. Diagnostic imaging such as ultrasound and MRI can be used to determine the severity of the strain, inflammation and any other underlying pathologies. **TREATMENT & RETURN TO ACTIVITY:** Calf strains rarely require a surgical intervention, unless in the case of a complete tear. Conservative management approaches can include rest, ice, anti-inflammatory medications and physical therapy sessions to regain flexibility and strength. Specifically, passive/active stretching combined with isometric, concentric, and eccentric resistance loading of the muscle is used. Other treatments may include massage and electrotherapy. Exercise of increasing intensity that facilitates the stretch-shortening cycle in the calf muscles can be incorporated progressively as the strain heals. It is important that the patient commit to full treatment until pain free so as to reduce the risk of reoccurrence of the calf strain.