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Medial Tibial Stress Syndrome
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Medial Tibial Stress Syndrome (MTSS) is an injury of the lower extremity, and the most common leg pain in athletes. A common name for MTSS is "shin splints." MTSS is an inflammation of the peristium or muscle from overuse. The cause of this condition is due to many factors including training errors and biomechanical abnormalities. Muscle imbalance and tightness over the gastrocnemius, soleus, and plantar muscles are associated with MTSS. New research shows that a spectrum of tibial stress injuries is likely involved in MTSS. The percentage of MTSS is between 4 and 35% in athletic and military populations.

Conservative treatment options include rest and ice in the acute phase, and therapy such as whirlpool baths. After the acute phase, stretching of the gastrocnemius, soleus, and plantar muscles is an important part of treatment, as are exercises that focus on improving the strength and endurance of the muscles which produce dorsiflexion, planter flexion, inversion, and eversion at the ankle. Treatment should focus on restoring proper biomechanics, as well as developing lower extremity strength and proper muscle balance to improve shock attenuation for the lower extremity. Proper diagnosis and management of MTSS are key for helping athletes return to full activity. It is important to learn more about this condition because it is a common injury, and athletes do not know how to treat it properly.

Purpose
The purpose of this project is to examine an exercise-based approach to rehabilitating an athlete with medial tibial stress syndrome. It presents specific exercises that can be used, and focuses on resolving the core of the problem instead of just addressing the symptom. This review attempts to provide a long-term solution rather than providing a quick fix.

Introduction

In rehabilitating a subject who suffers from medial tibial stress syndrome, it is essential to address not only the symptoms, but also the underlying problems that are causing the condition.

Cryotherapy, such as ice massage, can be used to relieve symptoms in the acute phase. Rest is also essential for this point of the injury. Some sources have mentioned the use of a graded running system, where the athlete begins with participation in light exercise and gradually increases the intensity. However, it has not been proven whether this is more beneficial than complete rest.

Lack of flexibility of the muscles of the leg is a likely contributor for MTSS. Therefore, flexibility exercises should be performed after the acute phase of the injury. This includes daily stretches for the gastrocnemius, soleus, and plantar muscles.

Muscles of the lower extremity that lack endurance or strength are probable culprits of MTSS. It is also important to identify and correct any biomechanical abnormality in the lower extremity during the rehabilitation of this condition. This includes improper alignment due to muscle imbalances, and particularly an imbalance in strength between the inverter and evertor muscles, which can cause excessive pronation. It is important to put into action a strengthening program to correct this imbalance. Therefore, after a stretching regimen has been adhered to, the patient should add a strengthening program to their rehabilitation process.

The strengthening program should focus on all motions of the ankle joint and the muscles that produce these motions. This includes plantar flexion, dorsiflexion, inversion, and eversion. The use of a rubber tubing or rubber band is an effective way to resist all motions of the ankle, and therefore strengthen the involved muscles. Eccentric calf raises are a way to strengthen the plantar flexors specifically.

The final step of rehabilitation for MTSS includes a progressive return to running or activity. The patient must resume running by gradually increasing the distance and frequency. The patient should be encouraged to avoid running on hills, or on uneven or very hard surfaces.

Exercise Methods

Ice Massage:
The ice massage of the affected area is a great way to relieve pain symptoms. An ice cap is used for the ice massage should last for 20 minutes for maximal effectiveness.

Orthotics:
The use of orthotics can be helpful in correcting biomechanical abnormalities. For example, the additional with support helps correct excessive pronations.

Calf Stretches:
Stretching is an important part of rehabilitation for MTSS. One way to stretch the "calf" is to lie on your back with your knees bent and the leg being stretched and the other leg forward and out of the way. Keeping the back heel on the floor, lean into that wall until a stretch is felt. To stretch the soleus, use performs essentially the same exercise, but this time with standing on your toes.

Personal Stress:
To stretch the personal muscle, sit on a chair with the ankle of the leg to be stretched resting on top of the knee. The bandage should be placed on the foot forward (invert) and move to the side of the foot upward (evert). Hold for 30 seconds. Perform 3 times a day.

Overhead Exercise:
This image demonstrates how to perform exercises with a rubber resistance band (Threshold). The movements include plantar flexion, dorsiflexion, inversion, and eversion. Resistant ankle flexion strength strengthens the gastrocnemius and the soleus muscles. Resistant ankle inversion strength primarily the tibialis anterior, while evertor strength strengthens both the tibialis anterior and fibular peroneus. Resistant ankle eversion strengthens the peroneus longus, brevis, and tendo. Perform 3 sets of 10 repetitions.

Squats Calf Rises:
Squats can also strengthen the dorsal foot. The dorsal foot/ankle surrounds when you raise on your toes, with this exercise, eccentrically by controlling the rate at which you descend (from standing on your toes). This exercise demonstrates how to perform a movement that is similar to the movements essentially perform squats to perform 3 sets of 10 repetitions.

References