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Medial Tibial Stress Syndrome
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Introduction
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 periosteum 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 peroneals is an important part of treatment, as are exercises that focus on improving the strength and endurance of the muscles which produce dorsiflexion, plantar 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.

Exercise Methods

Ice Massage:
An ice massage of the affected area is a great way to relieve pain symptoms. Ice can be used for 20 minutes for maximum effectiveness.

Orchids:
The use of orchids can be helpful in correcting biomechanical abnormalities. For example, the addition of support helps correct excessive pronation.

Cell Stretches:
Stretches an important part of rehabilitation for MTSS. In the way to stretch the “cell” is to press against the muscle being stretched and the leg forward. The knee is 60 degrees. The leg is then pulled forward and held in place, pulling the ankle of the leg to be stretched up and over the calf. The leg is then pulled forward, and the knee of the leg to be stretched is pulled forward. This stretches the tibialis anterior.

Personal Stretch:
1. To stretch the personal muscle, sit on a chair with the ankle of the leg to be stretched placed on the opposite knee. The leg is then pulled forward, and the ankle of the leg to be stretched is pulled forward.

Overhead Extension:
This image demonstrates how to perform exercises with a rubber resistance band (Theraband). The movements include plantar flexion, dorsiflexion, inversion, and eversion. Resistance bands allow for flexibility, strength, and balance.

Eccentric Calf Raises:
Eccentric calf raises strengthen the gastrocnemius. This exercise helps to correct the dorsiflexor imbalance during loading activities. Eccentric calf raises are an effective way to resist all motions of the ankle, as well as strengthen the involved muscles.

References

Conclusion
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 peroneus.

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 evortor muscles, which can cause excessive pronation. This 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.