

TIBIAL-FIBULAR FIXATION SYNDROME

The main articulations between the tibia and the fibula (at least those that concern us here) are the tibiofibular articulation and the tibiofibular syndesmosis. The tibiofibular articulation occurs proximally. It is a gliding joint between the lateral condyle of the tibia and the proximal head of the fibula. They are connected via an articular capsule and the anterior and posterior ligaments. Distally, the rough, convex surface of the medial aspect of the distal head of the fibula, and a rough concave surface on the lateral side of the tibia form the tibiofibular syndesmosis. The anterior, posterior, inferior transverse, and interosseus ligaments hold the joint together. The distal head of the fibula is called the lateral malleolus of the ankle. Coincidentally, the tendons of the peroneus longus and peroneus brevis run just behind the lateral malleolus, to insert distally at their respective metatarsal insertion sites.

During knee flexion and extension, the proximal head of the fibula is designed to slide back and forth in its articulation with the tibia. Should one of the elements of the proximal articulation of the tibia and fibula become inflamed, prolonged exposure to the inflammatory chemical, prostaglandin, causes the formation of collagenous adhesions to form, which apparently fixes the fibula in place, halting fibular glide. Should this occur, at least some of the mechanics of both the knee and ankle may be adversely affected, even leading to osteoarthritic “flare-ups” in one or both joints. In such a case, probing palpation of the tibiofibular articulation will demonstrate adhesions to be present around the joint. Additionally, if mobilization of the proximal fibular head is attempted, little or no appropriate gliding motion of the joint will be present. Adhesions will also be present posterior to, and under and behind, the lateral malleolus and along the posterior ascending fibula, for some five to eight centimeters.

The cause of this syndrome remains unknown, and no tangible theories have been put forward. The patient may complain of a feeling of “stiffness”, in the involved knee and lower leg, but no movement patterns have been shown to cause this condition. No overt swelling is generally associated with this syndrome.

Treatment

Treatment is directed at relieving any inflammation that is present and reducing the fixation.

Application:

- Have the patient keep the involved foot flat on the floor, to prevent calf cramping. Place a negative electrode over the tibiofibular articulation and a positive electrode over the distal peroneus longus and brevis distal tendons. Preset an electrical stimulation unit to deliver a visible contraction, at 7 Hz. Stimulate for 10 minutes.

- Preset the electrical stimulation unit to deliver a medium frequency current, with a duty cycle of 10 seconds on and 10 seconds off, sufficient to produce a near tetanic contraction of the involved muscles. Stimulate for 10 minutes.
- Manipulate the soft tissues over both the tibiofibular articulation, and along the posterior of the lateral malleolus and the distal five to eight centimeters of the distal posterior fibula, to eliminate any adhesions that are present (refer to Soft Tissue Manipulation in Tight Areas).
- Perform joint mobilization of the proximal fibular head within its glide range.
- Preset an ultrasound unit to deliver a 1 MHz pulsed waveform, at 1.5 W/cm^2 . Ultrasound each of the inflamed zones, utilizing an effective non-steroidal anti-inflammatory as a coupling agent, for 6 minutes each.



The high skin resistance patterns commonly associated with the Tibial-Fibular Fixation Syndrome

The following treatment form has also been effective.

Variation:

- Preset an ultrasound unit to deliver a 3 (or 3.3) MHz pulsed waveform, at 1.8 W/cm^2 . Ultrasound each of the inflamed zones, utilizing an effective non-steroidal anti-inflammatory as a coupling agent, for 6 minutes. This procedure is also designed to soften the adhesions that may be present.
- Manipulate the tissues in and around the inflamed zones to eliminate any adhesions that may be present.
- Cold laser each of the inflamed zones, for 2 to 5 minutes. This is performed to denature or destroy **all** the remaining inflammatories.
- Mechanically vibrate the plantar surface of the foot, for 2 minutes (preferably with a foot vibrator). This will further increase capillary circulation and desensitize the involved tissues.

Successful treatment may take place in one or two sessions. A failure to produce early relief should prompt a more proximal survey of potential sites of undiscovered problems. Since the cause of this condition is unknown, no recommendations can be made as to how to prevent future occurrences.

Trigger Points

The following trigger point formations may, singly or in combination, imitate or contribute to the pain associated with the *Tibial-fibular Fixation Syndrome*: Gluteus minimus, Vastus medialis, Anterior tibialis, Long toe extensors, Peroneus longus, and Short toe extensors.