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The Joint Mobilisations in the Treatment of Lateral Ankle Sprains

By Christopher Holland

Lateral ankle sprains are amongst the most common lower extremity injuries within the physically active population. The mechanism of injury typically involves the ankle being forcefully plantarflexed and the foot inverted, leading to damage of the lateral ligaments and joint complex. Injuries to these structures can lead to a reduction in the mobility at the ankle. This reduced mobility stems from altered arthrokinematics of the joint which produce restrictions in the movement of joint surfaces. The most common deficit is a decrease in dorsiflexion. Restrictions in ankle dorsiflexion produce limitations in gait and other functional activities. Normal walking, descending stairs and kneeling requires at least 10° of dorsiflexion, with between 20 and 30° needed during running. It has been shown that individuals with dorsiflexion deficits walk more slowly and take smaller steps, whilst contralateral step length and single support time is also influenced. In addition, limited dorsiflexion has also been shown to increase the risk of future ankle sprains in both healthy and symptomatic populations.

Deficits in dorsiflexion ROM following lateral ligament injury are related to an anterior talar displacement and restricted talar glide of the talus. During normal dorsiflexion movements the convex talus should roll and glide posteriorly in the concave mortise. Restrictions and injury to the noncontractile tissues surrounding the ankle can inhibit the posterior talar glide thus decreasing ROM. Because these restrictions are arthrogenic, active and passive stretching techniques are not sufficient to address the arthrokinematic restrictions. To treat these deficits manual therapy practices are frequently used by Sports Therapists.

Manual therapy is a set of techniques designed to minimise pain and restore mobility and function through the application of passive motion to joints or soft tissue. Joint mobilisations are an integral part of these techniques and are commonly used to treat patients with joint hypomobility through the restoration of accessory or arthrokinematic movements that occur between joint surfaces. This treatment technique has been proposed by Maitland and consists of the application of passive, oscillatory, rhythmical forces. The foundation of this technique is a grading system that varies from I to IV. Grades I and II are primarily used to treat painful conditions and consist of oscillatory movements performed before resistance is felt. This refers to the point at which a significant resistance to deformation is imposed by the tissue. Grades III and IV mobilisation are performed after resistance is felt and may continue up to the point of maximal resistance that determines the end of range. This aims to restore joint range of motion (ROM) through the elongation of articular and periarticular tissue.

The core tenet of the Maitland technique is a conceptual framework of clinical reasoning, which forms the basis for the selection of the specific grade, oscillatory frequency, treatment duration and volume. Joint mobilisations such as this produce increases in ROM through the repeated stretching and deformation of tissues that increases the extensibility of joint structures. This alteration in ROM is well documented and is achieved through changes in the biomechanical integrity of the joint structures and associated tissue.