

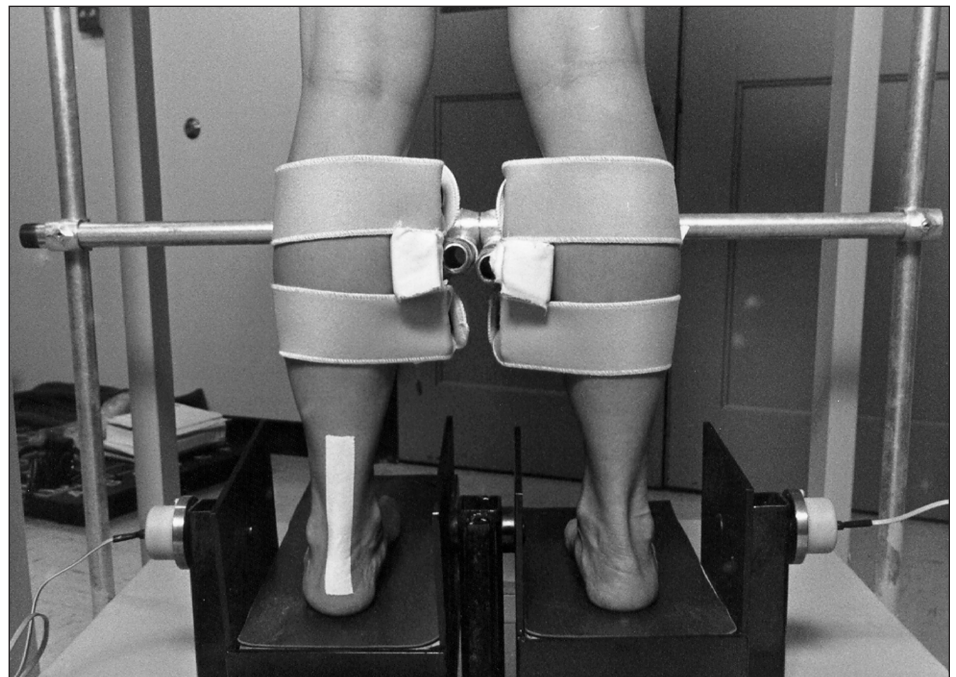


Research Results:

Ankle Joint Proprioception on Normal and Sprained Ankles

Practical Recommendations

The results of the study suggest that athletic tape could work prophylactically to prevent ankle sprains by improving ankle joint proprioception.



Overview

Acute and recurrent ankle sprains are common in sport. Certified athletic trainers are challenged to provide prophylactic strategies to the ankle joint to reduce the incidence rate. Athletic tape application is a commonly used technique to support this vulnerable joint. There is evidence that athletic tape increases joint proprioception through the stimulation of the mechanoreceptors of the cutaneous tissues over which it is applied, and in turn, may provide protection through a kinesthetic awareness. This study examined the effectiveness of tape application on ankle joint proprioception.

Results

The results of this investigation concluded that increased sensory feedback provided by strips of athletic tape applied across the ankle joint improved ankle joint position perception in a non-weight bearing position. Thus, taping added proprioceptive feedback that may assist in positioning of the foot and ankle prior to foot contact during running or just prior to landing when coming down from a jump.

In-Depth Analysis

Fifteen healthy male subjects with no previous injury to the ankle joint



participated in the study. Two variables were measured: 1) ankle joint movement perception threshold, and 2) ankle joint position perception. The investigators designed an apparatus consisting of two independently movable foot platforms (one platform for each foot) to evaluate ankle joint proprioception (see figure above). The ankle joint angular position was measured by an inclinometer which was mounted to the front of each platform. Ankle joint movement perception threshold was measured by recording the difference in the platform position between when platform movement was initiated by the investigator and when the subject stopped the platform and correctly stated its direction of movement (either dorsiflexion or plantarflexion). Ankle joint position perception was evaluated by measuring the ability of the subject to reproduce a predetermined ankle joint position (either 10 degrees of plantarflexion or 5 degrees of dorsiflexion). All testing was performed with the subject seated (relatively

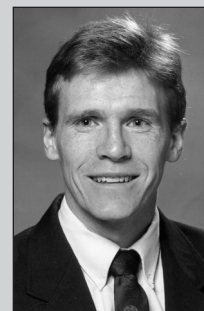
non-weightbearing) and repeated with the subject standing (weight-bearing). Each testing procedure was performed without tape and repeated with tape. The taped condition consisted of two five-inch strips applied directly to the skin in front and behind the ankle joint (as seen in the figure on the previous page). A similar strip of tape was applied to the anterior aspect of the ankle. The order of testing was randomized. Analysis of the data was performed using ANOVA models for repeated measures

The results indicated that under the non-weightbearing condition, taping significantly improved the ability of the subjects to perceive ankle position, especially in the 10 degrees plantarflexed position. In the weightbearing condition, the use of tape did not significantly alter the ability of subjects to perceive ankle position. Similarly, taping did not alter ankle movement perception in either the weightbearing or non-weightbearing conditions. ■

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Changes in Ankle Joint Proprioception
Resulting from Strips of Athletic Tape
Applied over the Skin; Simoneau,
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