

RESEARCH UPDATE: ANKLE TAPING

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Two recent articles in the American Journal of Sports Medicine on ankle taping are relevant to the sports physical therapist. In a study by Refshauge et al¹, researchers sought to determine if ankle taping improved detection of inversion/eversion movements in individuals with recurrent ankle sprain. In 16 subjects with recurrent ankle sprain were tested in a taped and untaped condition. The threshold for movement detection was tested at three velocities. Researchers found that the application of tape actually *decreased* the ability to detect movements at the ankle. They concluded that the efficacy of taping is unlikely to be explained by an enhanced ability to detect inversion or eversion movements. Two theories exist as to the mechanism of proprioceptive acuity that is believed to improve with the application of tape. One theory is that the close contact between tape and skin increases afferent traffic arising from the cutaneous receptors. The other is that the tape may increase cutaneous input that converges on muscle afferents, thereby increasing excitability of the motorneuron pool.

In another study, Purcell et al³ examined the differences in ankle range of motion before and after exercise in two tape conditions: traditional cloth tape and self-adherent tape (PowerTape). In both groups, the skin was clean, dry, and unshaven. For the white cloth tape condition, skin was sprayed with tape adherent and prewrap was used. The cloth tape job involved 3 stirrups, two heel locks (one medial and one lateral), and a figure-of-8 strip. In the self-adherent group, self-adherent prewrap was applied midcalf to midfoot, incorporating two heel locks. Following this, the wrap was compressed with direct hand pressure. The self-adherent tape was applied in a similar fashion as the cloth tape, except that heel-lock and figure-of-8 strips were alternated. ROM was measured before, after application of tape, and after 30 minutes of exercise using an electrogoniometer. Researchers found that white cloth and self-adherent tape both restricted inversion to eversion ROM immediately after application, but with 30 minutes of exercise, only the self-adherent tape maintained the decreased ROM. For plantar and dorsiflexion, both tape groups decreased ROM immediately after application and after 30 minutes of exercise. Researchers concluded that self-adherent tape better restricts frontal plane ankle motion compared to cloth tape, although both do a satisfactory job decreasing sagittal plane motion.

1. Refshauge KM, et al. The effect of ankle taping on detection of inversion-eversion movements in participants with recurrent ankle sprain. *Am J Sports Med.* 2009; 37: 371-375.
2. Feuerbach JW, et al. Effect of an ankle orthosis and ankle ligament anesthesia on ankle joint proprioception. *Am J Sports Med.* 1994; 22: 223-229.
3. Purcell SB, et al. Differences in ankle range of motion before and after exercise in 2 tape conditions. *Am J Sports Med.* 2009; 37: 383-389.