The Effects of Four different Combinations of Spatting and Ankle Supports on Inversion and Eversion PROM before and after Exercise
Schwarcz AE, Audet A, Leclerc S, Pelletier S: Husson University, Bangor, ME

Context: Lateral ankle injuries are common athletic injuries. In football spatting, taping the outside of the shoe is sometimes used. Applying tape to both the ankle and the shoe appears to be a better support system than spatting or traditional ankle taping alone. Objective: To investigate the effects of four different combinations of spatting and support systems on inversion and eversion PROM before and after 20 minutes of exercise. The four combinations of under the shoe/over the shoe support were: Tape/Tape (TT), Brace/Tape (BT), Brace/X-Wrap (BX), and Tape/X-Wrap (TX). The Brace was Airsport (Aircast@ Inc.) and the X-Wrap was a reusable spatting device (X Wraps Designs LLC). Design: Pre-test/post-test, repeated measures design. Setting: Research lab and grass covered field. Patients or Other Participants: Fifteen male university soccer and baseball athletes volunteered (age, 20±2.5 years, height, 166±7.3 cm, mass 74±7.3 kg) with no history of ankle injury within the previous 6 months. Interventions: Participants were randomly assigned to the order of application of the 4 spatting techniques over the course of 4 consecutive days. Twenty minutes of exercise involved a 5-minute self paced continuous jog, 3-minute 5 x 10 m figure-of-eight run, 3 minutes of lateral carioca steps (10 m), and a 3-minute box drill (10 x 10 m) with 2 minutes of continuous walking between exercises. Main Outcome Measures: PROM of the participant’s dominant ankle during inversion and eversion was assessed at three time points; pre-spat application, post-spat application, and post 20-minutes of exercise. The PROM was measured with a Biodex dynamometer using 8 ft/lbs (4 N) of force. PROM was recorded in degrees and the averages of three trials were used in the subsequent analysis. A 4 x 3 x 2 ANOVA was employed to test for main effects of taping condition, time point, and inversion vs. eversion PROM, as well as all possible interactions (alpha set at p<.05). Results: The statistical analysis resulted in two significant interactions; movement and spatting technique, and condition and movement. All four techniques demonstrated the ability to significantly limit inversion PROM before and after exercise. Following exercise inversion PROM for BT was 25.07°, BX was 26.19°, TX was 30.22° and TT was 30.42° and for eversion BX was 17.42°, TT was 19.37°, TX was 21.81°, and BT was 22.41°. Conclusions: After 20 minutes of exercise BX, a combination of the Airsport and X-Wrap, was most effective at restricting ankle inversion and eversion PROM. The BT approach was the best in restricting inversion and the worst at limiting eversion whereas TX was least effective at limiting passive inversion ROM. Word Count: 426