The Effects of Prophylactic Ankle Bracing on Functional Performance Measures in a Cadet Population: A Pilot Study

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Context: In 2008, the Department of Defense issued a recommendation for the use of ankle braces during all high-risk activities. This recommendation was supported largely by athletic based research and may not translate into military specific activities. **Objective:** The purpose of this research was to place inside-the-boot ankle braces on cadets from a Reserve Officers’ Training Corps (ROTC) program to determine possible negative outcomes on functional performance measures. Inside-the-boot ankle braces will have minor statistically significant negative effects on leap distance, jump height and reach distance but not on obstacle course completion time. Alpha set a prior at \( p < 0.05 \). **Design:** Randomized Cross-Over Study. **Setting:** Testing was conducted an indoor turf field. **Participants:** Twelve subjects were randomly recruited from the university’s ROTC program (10 male, 2 female, age 22.0 ± 3.2 years, height 176.8 ± 9.2 cm, weight 75.9 ± 8.9 kg). **Interventions:** Subjects were randomly placed in one of two bracing conditions and then cross-over to complete testing in the other condition. Conditions were bilateral inside-the-boot ankle braces (McDavid Ankle Brace w/ Straps 195) or an unbraced condition. All subjects wore regulation military boots, combat uniform and rucksack. **Main Outcome Measures:** Subjects completed four functional performance tasks in both bracing conditions and military equipment. Testing order was randomly assigned to and each subject completed the following tasks; a horizontal leap for distance, a vertical leap for jump height, a modified Star Excursion Balance Test (SEBT) in three reaching directions for total reach distance, and a miniature obstacle course with casualty drag for time. Subjects were given practice trials for each functional performance task and completed 3 recorded trials for each measure except for the obstacle course to prevent fatigue. **Results:** Statistically significant results were found in all functional performance brace condition comparisons. While wearing the bilateral inside-the-boot ankle brace condition, horizontal leap distances decreased 12.05 cm (\( p < 0.001 \)), vertical jump height decreased 1.33 cm (\( p < 0.001 \)), and obstacle course completion time increased 1.63 seconds. Statistically significant differences were also found for reach distances using the SEBT; anterior reach decreased 3.33 cm (\( p = 0.003 \)), posterior reach decreased 5.89 cm (\( p = 0.004 \)), and posterior-medial reach decreased 4.36 cm (\( p = 0.01 \)). **Conclusions:** These results indicate that when placing an inside-the-boot ankle brace in military combat boots while wearing a load, will detrimental effects to various functional performance measures. A larger scale study must be conducted to better understand these effects on functional performance. This line of research is important because military service members should not be placed at a disadvantage during military operations for risk of outcomes worse than minor musculoskeletal injuries. **Word Count:** 439