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Original Research

Prophylactic Ankle Braces and Star Excursion Balance Measures in Healthy Volunteers

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Abstract

Context: The effects of prophylactic ankle braces on lower extremity functional performance in healthy participants have not been studied extensively.

Objective: To determine if prophylactic ankle braces affected multidirectional reach distances during a test of dynamic balance.

Design: Crossover.

Setting: Laboratory.

Patients or Other Participants: Thirty-six healthy, physically active volunteers (18 men, 18 women; age = 23.6 ± 2.7 years, height = 173.8 ± 9.3 cm, mass = 74.4 ± 12.7 kg, reach-leg length = 91.9 ± 5.1 cm).

Intervention(s): Volunteers performed balance testing in 3 conditions: unbraced, while wearing a semirigid ankle brace, and while wearing a lace-up ankle brace.

Main Outcome Measure(s): We used the Star Excursion Balance Test, calculating the mean of 3 attempts in 8 directions (anterior, anterior-medial, medial, posterior-medial, posterior, posterior-lateral, lateral, and anterior-lateral), normalized by the participant's reach-leg length. Data were collected after 6 practice attempts for each of the conditions according to a balanced Latin square.

Results: Bracing condition had no effect ($P > .05$) on any of the Star Excursion Balance Test directional measures. The largest mean difference due to bracing was 2.5% between the lace-up brace condition and the control in the posterior reach direction. This indicates that the actual reach differences due to bracing were less than 5.08 cm (2 inches) in length.

Volume 43, Issue 4 (July/August 2008)

< Previous Next >

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Conclusions: Clinicians can be confident that the prophylactic use of ankle braces does not disrupt lower extremity dynamic balance during a reaching task in healthy participants.

Keywords: single-limb stance, dynamic balance, postural stability

Lisa Hardy, MS, ATC, contributed to conception and design; acquisition and analysis and interpretation of the data; and drafting, critical revision, and final approval of the article. Kellie Huxel, PhD, LAT, ATC, contributed to conception and design and drafting, critical revision, and final approval of the article. Jody Brucker, PhD, LAT, ATC, contributed to conception and design, analysis and interpretation of the data, and drafting, critical revision, and final approval of the article. Thomas Nesser, PhD, CSCS, HFI, contributed to conception and design and drafting, critical revision, and final approval of the article.

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top