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Original Research

Subtalar Joint Position During Gastrocnemius Stretching and Ankle Dorsiflexion Range of Motion

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Abstract

Context: Gastrocnemius stretching exercises often are prescribed as part of the treatment program for patients with overuse injuries associated with limited ankle dorsiflexion. However, little is known about how the position of the subtalar joint during gastrocnemius stretching affects ankle dorsiflexion range of motion (ROM).

Objective: To determine the effect of subtalar joint position during gastrocnemius stretching on ankle dorsiflexion ROM.

Design: This study was a 3-way mixed-model design. The 3 factors were subtalar joint position (supinated, pronated), lower extremity (experimental, control), and time (pretest, posttest). Lower extremity and time were the repeated measures.

Setting: University research laboratory.

Patients or Other Participants: Thirty-three healthy volunteers (29 women, 4 men).

Intervention(s): Participants performed a gastrocnemius stretching exercise 2 times daily for 3 weeks with the subtalar joint of the randomly assigned experimental side (dominant or nondominant) in the randomly assigned position (supination or pronation). The contralateral lower extremity served as the control.

Main Outcome Measure(s): Before and after the 3-week gastrocnemius stretching program, we used goniometers to measure ankle dorsiflexion ROM in weight-bearing and non-weight-bearing positions with the subtalar joint positioned in anatomic 0°.

Results: Ankle dorsiflexion ROM measured in weight-bearing and non-weight-bearing positions increased after the gastrocnemius stretching program ($P = .034$ and $.003$, respectively), but the increase in ROM did not differ based on subtalar joint position ($P = .775$ and $.831$, respectively).

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Conclusions: Subtalar joint position did not appear to influence gains in ankle dorsiflexion ROM after a gastrocnemius stretching program in healthy volunteers.

Keywords: [subtalar joint pronation](#), [subtalar joint supination](#)

Marie Johanson, PhD, PT, OCS, contributed to conception and design; analysis and interpretation of the data; and drafting, critical revision, and final approval of the article. Jennifer Baer, MPT; Holley Hovermale, DPT; and Phouvy Phouthavong, MPT, contributed to conception and design; acquisition and analysis and interpretation of the data; and drafting, critical revision, and final approval of the article.

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