ABSTRACT

**Background:** In addition to established interventions, dry needling may reduce impairments leading to greater functional abilities for individuals following ankle sprain.

**Hypothesis/Purpose:** The purpose of this study was to compare effects of spinal and peripheral dry needling (DN) with peripheral DN alone on impairments and functional performance among individuals with a history of lateral ankle sprain.

**Study Design:** Randomized controlled trial.

**Methods:** Twenty individuals with a history of lateral ankle sprain (18 bilateral, 2 unilateral) participated in this study (4 males, 16 females; mean age 28.9 +/- 9.2 years). During the first of two sessions, participants completed the Foot and Ankle Disability Index (FADI) and the Cumberland Ankle Instability Tool (CAIT) and their strength, unilateral balance, and unilateral hop test performance was assessed. Participants were randomly assigned to a spinal and peripheral DN group (SPDN), or a peripheral only DN group (PDN). Participants in the SPDN site group received DN to bilateral L5 multifidi and fibularis longus and brevis muscles on the involved lower extremity. Participants in the PDN group received DN to the fibularis muscles alone. Participants' strength, balance and hop test performance were reassessed immediately following the intervention, and at follow-up 6-7 days later, all outcome measures were reassessed. Three-way mixed model ANOVAs and Mann-Whitney U tests assessed between group differences for outcome variables with normal distributions and non-normal distributions, respectively.

**Results:** ANOVAs showed significant group by time interaction (p<0.05) for invertor strength, significant side by group and time by group interactions (p<0.05) for plantarflexor-evertor strength, no significant findings for dorsiflexor-invertor strength, significant side by time interaction (p<0.05) for unilateral balance, significant main effect of time (p<0.05) for triple hop for distance test, and significant main effect of side (p<0.05) for the CAIT. Mann-Whitney U tests showed no significance (p>0.05) for the side hop test or FADI.

**Conclusion:** The results suggest that DN of the multifidi in addition to fibularis muscles does not result in improvements in strength, unilateral balance or unilateral hop test performance, compared to DN the fibularis muscles alone among individuals with a history of ankle sprain.

**Key Words:** Dry needling, functional performance tests, lateral ankle sprain

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