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ORIGINAL RESEARCH

DYNAMIC OSCILLATORY STRETCHING EFFICACY ON HAMSTRING EXTENSIBILITY AND STRETCH TOLERANCE: A RANDOMIZED CONTROLLED TRIAL

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ABSTRACT

Background: While static stretch (SS), proprioceptive neuromuscular facilitation (PNF) and oscillatory physiological mobilization techniques are documented to have positive effects on a range of motion (ROM), there are no reports on the effect of dynamic oscillatory stretching (DOS), a technique that combines these three techniques, on hamstring extensibility.

Purpose: To determine whether DOS improves hamstring extensibility and stretch tolerance to a greater degree than SS in asymptomatic young participants.

Study Design: Randomized Controlled Trial.

Methods: Sixty participants (47 females, 13 males, mean age 22 ± 1 years, height 166 ± 6 centimeters, body mass 67.6 ± 9.7 kg) completed a passive straight leg (SLR) to establish hamstring extensibility and stretch tolerance as perceived by participants, using a visual analogue scale (VAS). Participants were randomly assigned to one of two treatment groups (SS or DOS) or a placebo control (20 per group). Tests were repeated immediately following and one hour after each intervention. Data were assessed using a two-way repeated measure analysis of variance (ANOVA) and *Tukey's post hoc* test.

Results: Immediately post-intervention, there was a significant improvement in the hamstring extensibility as measured by the SLR in both the SS and DOS groups, with the DOS group exhibiting a significantly greater increase than the SS group (Control 73 ± 12°, SS 86 ± 8°, DOS 94 ± 11°, $p < 0.001$). One hour post-intervention, hamstring extensibility in the DOS group remained elevated, while the SS group no longer differed from the control group (Control 73 ± 12°, SS 80 ± 8°, DOS 89 ± 12°, $p = 0.001$). Furthermore, the stretch tolerance remained significantly elevated for the SS group, but there was no difference between the control and DOS groups, (Control 4.6 ± 1.3, SS 5.9 ± 0.8, DOS 4.3 ± 1.0 AU, $p < 0.001$).

Conclusion: DOS was more effective than SS at achieving an immediate increase in hamstring extensibility, and DOS demonstrated an increased stretch tolerance one-hour post-intervention.

Level of evidence: 2C

Keywords: Dynamic oscillatory stretching, hamstring extensibility, stretch tolerance.

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