

ORIGINAL RESEARCH

MAXIMUM REPETITION PERFORMANCE AFTER
DIFFERENT ANTAGONIST FOAM ROLLING VOLUMES IN
THE INTER-SET REST PERIODEstêvão Rios Monteiro, BSc¹Jakob Škarabot, MSc²Andrew D. Vigotsky, BSc³Amanda Fernandes Brown, MSc¹Thiago Matassoli Gomes, MSc^{1,4}Jefferson da Silva Novaes, PhD¹

ABSTRACT

Background: Foam rollers, or other similar devices, are a method for acutely increasing range of motion, but in contrast to static stretching, do not appear to have detrimental effects on neuromuscular performance.

Purpose: The purpose of this study was to investigate the effects of different volumes (60 and 120 seconds) of foam rolling of the hamstrings during the inter-set rest period on repetition performance of the knee extension exercise.

Methods: Twenty-five recreationally active females were recruited for the study (27.8 ± 3.6 years, 168.4 ± 7.2 cm, 69.1 ± 10.2 kg, 27.2 ± 2.1 m²/kg). Initially, subjects underwent a ten-repetition maximum testing and retesting, respectively. Thereafter, the experiment involved three sets of knee extensions with a pre-determined 10 RM load to concentric failure with the goal of completing the maximum number of repetitions. During the inter-set rest period, either passive rest or foam rolling of different durations (60 and 120 seconds) in a randomized order was employed.

Results: Ninety-five percent confidence intervals revealed dose-dependent, detrimental effects, with more time spent foam rolling resulting in fewer repetitions (Cohen's d of 2.0 and 1.2 for 120 and 60 seconds, respectively, in comparison with passive rest).

Conclusion: The results of the present study suggest that more inter-set foam rolling applied to the antagonist muscle group is detrimental to the ability to continually produce force. The finding that inter-set foam rolling of the antagonist muscle group decreases maximum repetition performance has implications for foam rolling prescription and implementation, in both rehabilitation and athletic populations.

Level of evidence: 2b

Keywords: Fatigue; performance; self-manual therapy; self-myofascial release

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