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# Training Volume and Myoelectric Responses of Lower Body Muscles with Differing Foam Rolling Periods

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**Abstract :** Foam rolling is a practice that has increased in popularity before and after strength training. The purpose of this study was to compare the acute effects of different foam rolling periods for the lower body muscles on subsequent performance (total repetitions and training volume), myoelectric activity and rating of perceived exertion in trained men. Fourteen trained men (26.2 ± 3.2 years, 178 ± 0.04 cm height, 82.2 ± 10 kg weight and body mass index 25.9 ± 3.3kg/m2) volunteered for this study. Four repetition maximum (4-RM) loads were determined for hexagonal bar deadlift and 45º angled leg press during test and retest sessions over two nonconsecutive days. Five experimental protocols were applied in a randomized design, which included: a traditional protocol (control)—a resistance training session without prior foam rolling; or resistance training sessions performed following one (P1), two (P2), three (P3), or four (P4) sets of 30 sec. foam rolling for the lower extremity musculature. Subjects were asked to roll over the medial and lateral aspects of each muscle group with as much pressure as possible. All foam rolling was completed at a cadence of 50 bpm. These procedures were performed on both sides unilaterally as described below. Quadriceps: between the apex of the patella and the ASIS; Hamstring: between the gluteal fold and popliteal fossa; Triceps surae: between popliteal fossa and calcaneus tendon. The resistance training consisted of five sets with 4-RM loads and two-minute rest intervals between sets, and a four-minute rest interval between the hexagonal bar deadlift and the 45º angled leg press. The number of repetitions completed, the myoelectric activity of vastus lateralis (VL), vastus medialis oblique (VMO), semitendinosus (SM) and medial gastrocnemius (GM) were recorded, as well as the rating of perceived exertion for each protocol. There were no differences between the protocols in the total repetitions for the hexagonal bar deadlift (Control - 16.2 ± 5.9; P1 - 16.9 ± 5.5; P2 - 19.2 ± 5.7; P3 - 19.4 ± 5.2; P4 - 17.2 ± 8.2) ($p > 0.05$) and 45º angled leg press (Control - 23.3 ± 9.7; P1 - 25.9 ± 9.5; P2 - 29.1 ± 13.8; P3 - 28.0 ± 11.7; P4 - 30.2 ± 11.2) exercises. Similar results between protocols were also noted for myoelectric activity ($p > 0.05$) and rating of perceived exertion ($p > 0.05$). Therefore, the results of the present study indicated no deleterious effects on performance, myoelectric activity and rating of perceived exertion responses during lower body resistance training.

**Keywords :** self myofascial release, foam rolling, electromyography, resistance training
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