Background: Myofascial self-release (SMR) has been investigated for its benefits such as increased range of motion, reduced myofascial pain, decreased post-exercise muscle fatigue pain, and improved physical performance. However, changes in neuromuscular activity, muscle strength, and range of motion after SMR remain poorly explored.

Objectives: To investigate the immediate effects of SMR compared to static stretching on the neuromuscular and functional responses of lower limbs in physically active adults.

Methods: Two-period randomized crossover clinical trial with a sample of 29 participants [mean (SD)] [42.8 (6.2) years, 21:4 female: male]. Participants performed one session of SMR or static stretching on the vastus medialis and biceps femoris, each lasting 60 s, depending on the randomization sequence of the study phase (washout period of 1 week). Participants were assessed before and after each intervention regarding myoelectric activity (surface electromyography), maximal isometric muscle strength (load cell), and range of motion (Wells’ test).

Results: We observed statistical evidence of a difference in myoelectric activity (pre-post) between SMR and static stretching of vastus medialis (difference [95%CI]: -0.076 [-0.143; -0.009]) and biceps femoris (-0.109 [-0.191; -0.027]). We observed statistical evidence of a difference in isometric strength between SMR and static stretching of the biceps femoris (5.284 [2.970; 7.598]) but not vastus medialis (0.247 [-5.639; 6.132]). We observed no statistical evidence of a difference in the mean differences between static stretching and SMR for a range of motion (-0.112 [-1.000; 0.776]).

Conclusion: Both SMR and static stretching immediately increase the range of motion of the lower limbs. Simultaneously, static stretching seems to increase the myoelectric activity whereas SMR decreases it. Further studies are required to verify the effects on isometric muscle strength.

Implications: In resistance training centers, the implementation of static stretching and/or SMR can be reviewed in the pre-training of these exercises, as they are associated with muscle myoelectric improvement.

Keywords: Muscle strength, Flexibility, Surface electromyography

Conflict of interest: The authors declare no conflict of interest.

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IMMEDIATE EFFECTS OF SELF-MYOFASCIAL RELEASE ON NEUROMUSCULAR AND FUNCTIONAL PERFORMANCE OF PHYSICALLY ACTIVE HEALTHY ADULTS: A CROSSOVER STUDY

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