ABSTRACT

Background: With the increased popularity of foam rolling as a recovery tool, it is important to explore possible mechanisms of action toward mitigating soreness and restoring athletic performance.

Purpose: The purpose of the present experiment was to assess the influence of foam rolling on gross measures of physical performance and indices of autonomic function following exercise-induced muscle damage (EIMD).

Method: In a between-group design, 40 participants performed a session of 40x15 meter sprints, inducing muscle damage. Immediately following sprinting and in the four days following, heart rate variability and pulse wave velocity were recorded, in addition to perceived muscle soreness, vertical jump, and agility. Nineteen subjects (mean ± sd; age 23.1 ± 5.0 yrs; BMI 25.6 ± 3.3 kg.m-2) foam rolled their quadricep, gluteal, and gastrocnemius areas prior to testing each day, while 21 (mean ± sd; age 24.2 ± 3.4 yrs; BMI 26.3 ± 4.0 kg.m-2) served as a control. Mean values from three days of baseline testing were compared to the area under the curve during five days of recovery after the performance of the repeated sprint protocol. The area under the curve was calculated by summing all five values recorded the recovery days, then these data were compared by condition using a two-tailed Mann-Whitney U test (alpha level = 0.05).

Results: Following EIMD, neither heart rate variability, pulse wave velocity, agility, nor vertical jumping performance versus previously measured baseline differed significantly between groups (p > 0.05). Perceived muscle soreness was significantly diminished in the foam rolling condition (p < 0.05). Mean Day 1 to Day 5 values for perceived muscle soreness in controls were 16.52, 30.24, 17.19, and 11.10. Mean Day 1 to Day 5 values in foam rolling subjects were 12.63, 24.63, 21.79, 15.05, and 10.16.

Conclusion: Foam rolling may be useful for reducing soreness following damaging exercise, but according to the outcomes measured in the present experiment, the effect does not appear to be mediated by the autonomic nervous system.

Level of evidence: 2c

Key words: Foam rolling, heart rate variability, induced muscular soreness, movement system, pulse wave velocity, sprinting