Abstract

Title: Foam Rolling and Tissue Flossing of m. triceps surae and it's effect on performance tests of lacrosse players: randomized experimental trial

Aim: The aim of this study is to compare the immediate effects of two self-myofascial release methods. Their effects were tested on performance tests of Countermovement Jump and 15 m sprint, and passive range of motion in the ankle joint using Weight Bearing Lunge Test over time.

Methods: This randomized experimental study involved 10 junior lacrosse players aged 15-20 years. After meeting the study's inclusion criteria, the players completed a medical history questionnaire and were randomly assigned to two groups based on self-myofascial release technique. Prior to any testing, a warm-up consisting of a 5-minute jog and dynamic stretching (10x jumping jacks and 10x bodyweight squats) was performed. The first testing session occurred before the application of methods, followed by subsequent tests in the following order: Countermovement Jump, 15 m sprint, and Weight Bearing Lunge Test on the right and left legs. This was followed by the application of Flossing or Rolling according to the respective group. Testing then occurred at 15 minutes, 30 minutes, 45 minutes, and 60 minutes after application for each player. The collected data were analyzed using statistical software R. A two-factor repeated measures ANOVA test was used. Statistical significance was assessed at the significance level.

Results: Using ANOVA testing, we found a significant effect of time on CMJ (Countermovement Jump) ($p = 0.0196$), indicating existing differences between certain 5 time points. During the investigation of CMJ performance test, a statistically significant result was found in the 0-15 minute interval (2.94 cm, $P = 0.00292$) and 15-30 minute interval (3.01 cm, $P = 0.0244$), with the strongest effect observed at the 30-minute mark post-intervention. The collected data indicate a relationship between time and changes in ankle joint range of motion using WBLT on the left extremity (Weight Bearing Lunge Test). No relationship with time, intervention, or their combination was observed for right extremity. There was no confirmed differential effect of both methods and their relationship to the tested parameters. No

statistically significant results were observed for all other hypotheses, making it impossible to confirm any of the alternative hypotheses.

Keywords: lacrosse, Tissue Flossing, Foam Rolling, myofascial release, performance tests