SWACSM Abstract

Effects of Percussive Massage Treatments on Symptoms Associated With Eccentric Exercise-Induced Muscle Damage

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ABSTRACT

Percussive massage (PM) is an emerging recovery treatment, but the research on its effects post-eccentric exercise (post-EE) is limited. **PURPOSE**: To investigate the effects of PM on maximal isometric torque (MIT), range of motion (ROM), and an 11-point numerical rating scale (NRS) of soreness from 24-72 h post-EE. **METHODS**: Seventeen untrained, college-aged subjects (14 women and 3 men) performed 60 eccentric elbow flexion actions with their nondominant arms. Nine subjects received 1 minute of PM on their nondominant arm's biceps brachii immediately, 24, 48, and 72 h post-EE, versus eight rested quietly (control [CON]). In order, the NRS, ROM, and MIT were collected pre-eccentric exercise (pre-EE) and after treatment (AT) at 24, 48, and 72 h post-EE. The NRS was also collected before treatment (BT). Electromyographic (EMG) amplitude was collected during the MIT and normalized to pre-EE. MIT was made relative to body mass. All measures were analyzed via separate two-way (group × time) mixed factorial ANOVAs. **RESULTS**: There was no interaction ($p = 0.22$) for MIT but a main effect for time ($p < 0.001$), indicating an approximately (approx.) 12% decrease ($p = 0.02$) from pre-EE to 24 h post-EE. Values returned to pre-EE by 48 h ($p = 0.47$). There was no interaction ($p = 0.55$) or main effect of time ($p = 0.47$) for EMG. An interaction ($p < 0.001$) for ROM showed that the PM group had higher values than the CON at 24 ($p = 0.01$), 48 ($p = 0.01$), and 72 h ($p = 0.04$) by approx. 8, 6, and 6°, respectively. The PM group returned to pre-EE ($p > 0.05$) faster than the CON (PM: 48 h, CON: 72 h) and exceeded ($p < 0.001$) their pre-EE at 72 h by approx. 4°. An interaction ($p = 0.01$) for NRS revealed that the groups did not differ BT at 24 ($p = 0.11$), 48 ($p = 0.052$), and 72 h ($p = 0.10$). However, the PM group's NRS lowered from BT to AT within the 24 ($p < 0.001$), 48 ($p < 0.001$), and 72 h ($p = 0.01$) visits by approx. 1 point per visit. As a result, the PM group had lower values ($p < 0.001$) than the CON AT at 24, 48, and 72 h by approx. 3, 2, and 2 points, respectively. Lastly, the PM group returned their NRS to pre-EE ($p > 0.05$) faster than the CON (PM: BT 72 h, CON: never). **CONCLUSION**: The PM treatments improved ROM without affecting MIT or muscle activation 24-72 h post-EE. Although the PM did not enhance the recovery from soreness until 72 h, it consistently provided immediate, temporary relief when used 24-72 h post-EE.