SWACSM Abstract

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

TREVOR D. ROBERTS, PABLO B. COSTA, SCOTT K. LYNN, & JARED W. COBURN, FACSM

Exercise Physiology Laboratory; Department of Kinesiology; California State University, Fullerton; Fullerton, CA

Category: Masters

Advisor / Mentor: Coburn, Jared (jcoburn@fullerton.edu)

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 a 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.