A prophylactic effect of proprioceptive neuromuscular facilitation (PNF) stretching on symptoms of muscle damage induced by eccentric exercise of the wrist extensors

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Received 8 September 2009; received in revised form 23 June 2010; accepted 19 July 2010

KEYWORDS
Delayed onset muscle soreness; Range of motion; Strength; Pain threshold; Stretching; Prevention

Summary Stretching with proprioceptive neuromuscular facilitation (PNF) is frequently used before exercise. The prophylactic effect of PNF on symptoms of muscle damage induced by eccentric exercise of the wrist extensors was examined in this study. Twenty-eight healthy males were randomly divided into the PNF group (n = 14) and the control group (n = 14). PNF was used before eccentric exercise induction in the wrist extensors. All subjects were tested to examine muscle damage characteristics including sensory-motor functions at baseline, immediately, and from 1st to 8th days after the exercise-induced muscle damage (EIMD). The results demonstrated that the PNF group showed a lesser deficit in some sensory-motor functions (p < 0.05) than the control group. The prior PNF stretching application could be useful for attenuating the signs and symptoms of muscle damage after eccentric exercise. © 2010 Elsevier Ltd. All rights reserved.

Introduction

Muscle damage occurring after unaccustomed activities or high-intensity exercise is a common physiological occurrences in daily life. Exercise-induced muscle damage (EIMD) can cause several types of muscle pathologies such as muscle strain, cramp and soreness (Miles and Clarkson, 1994). Delayed-onset muscle soreness (DOMS) is a common neuromuscular condition that affects individuals the day after they perform vigorous or unaccustomed exercises. Eccentric muscle contraction has been reported to induce muscle damage (Miles and Clarkson, 1994; O’Connor and Hurley, 2003). The symptoms of DOMS usually decline within a week. However, when the symptoms of muscle damage happen in patients during