J Strength Cond Res. 2013 Mar;27(3):812-21. doi: 10.1519/JSC.0b013e31825c2bc1.

An acute bout of self-myofascial release increases range of motion without a subsequent decrease in muscle activation or force.

MacDonald GZ[1], Penney MD, Mullaley ME, Cuconato AL, Drake CD, Behm DG, Button DC.

Author information

Abstract

Foam rolling is thought to improve muscular function, performance, overuse, and joint range of motion (ROM); however, there is no empirical evidence demonstrating this. Thus, the objective of the study was to determine the effect of self-myofascial release (SMR) via foam roller application on knee extensor force and activation and knee joint ROM. Eleven healthy male (height 178.9 ± 3.5 cm, mass 86.3 ± 7.4 kg, age 22.3 ± 3.8 years) subjects who were physically active participated. Subjects' quadriceps maximum voluntary contraction force, evoked force and activation, and knee joint ROM were measured before, 2 minutes, and 10 minutes after 2 conditions: (a) 2, 1-minute trials of SMR of the quadriceps via a foam roller and (b) no SMR (Control). A 2-way analysis of variance (condition × time) with repeated measures was performed on all dependent variables recorded in the precondition and postcondition tests. There were no significant differences between conditions for any of the neuromuscular dependent variables. However, after foam rolling, subjects' ROM significantly ($p < 0.001$) increased by 10° and 8° at 2 and 10 minutes, respectively. There was a significant ($p < 0.01$) negative correlation between subjects' force and ROM before foam rolling, which no longer existed after foam rolling. In conclusion, an acute bout of SMR of the quadriceps was an effective treatment to acutely enhance knee joint ROM without a concomitant deficit in muscle performance.

PMID: 22580977 DOI: 10.1519/JSC.0b013e31825c2bc1

[Indexed for MEDLINE]