THE EFFECTS OF FOAM ROLLING ON MUSCLE CROSS SECTIONAL AREA AND ECHOGENICITY

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INTRODUCTION

Prior to an athletic performance or exercise, it is common for people to perform foam rolling as a form of myofascial release. As this has become common practice, many report discomfort and pain during foam rolling. It is believed that this pain and discomfort is the releasing of trigger points. However, if pain is present, it could be a sign of muscle damage and swelling. If this is the case, foam rolling would only be exacerbating the problem, increasing muscle damage, and possibly increase swelling as foam rolling is claimed to increase muscle blood flow.

PURPOSE

To determine if acute foam rolling changes muscle cross-section area (CSA) and echogenicity as a result of edema.

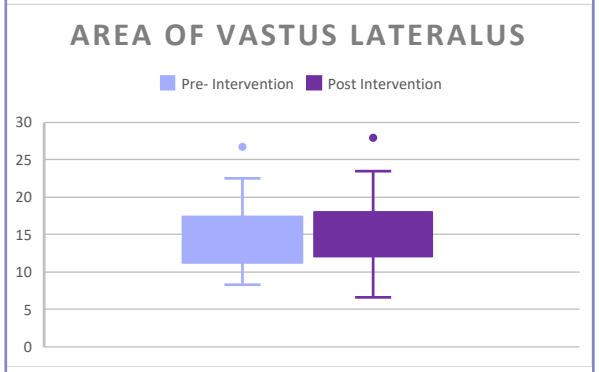
METHODS

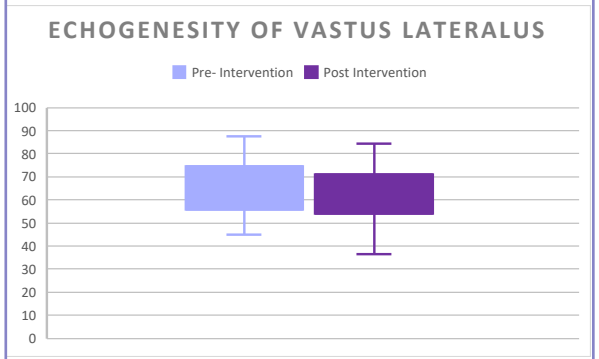
Thirty participants (68.1 ± 3.8 cm, 73.7 ± 16.9 kg, Age 23.5 ± 9.8 years) had three panoramic ultrasound images taken of the largest circumference of the vastus lateralis before and after foam rolling. The foam rolling protocol consisted of 5 minutes of foam rolling performed in a forward and back motion over the quadricep (5 sets of 60 second of rolling with 30 sec rest in-between). Images were analyzed and cross-sectional area and echogenicity values were averaged across all three images and compared using a paired t-tests.

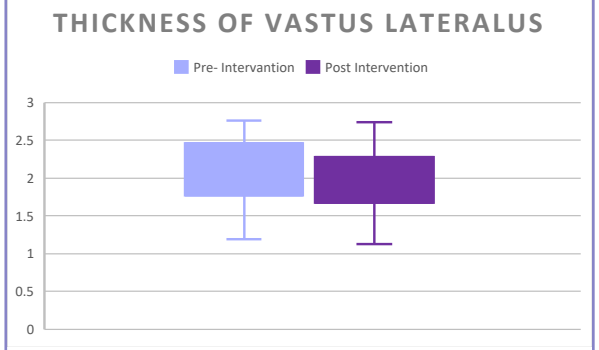
RESULTS

There was no significant difference between CSA measurements (P=0.34) and echogenicity (P=0.06) of vastus lateralis pre- and post-foam rolling. Values for CSA (mean± SD) were pre 15.1±4.5 vs post 15.3±4.6 cm^2. Values for echogenicity (mean± SD) were pre 64.7±12.2 vs post 62.1±11.5 au.

RESULTS





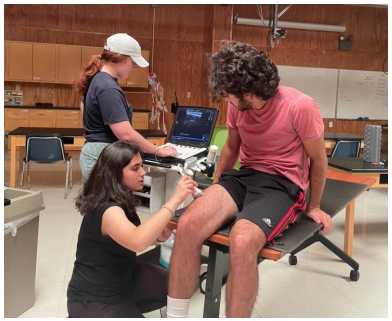


CONCLUSION

There are no significant differences between the CSA and the echogenicity following foam rolling. Claims that that foam rolling may increases blood flow to muscles were not validated in this study, as there was no indication that an increase in blood flow happened as a result of foam rolling. It appears foam rolling does not change muscle properties that are measured via ultrasound.

PRACTICAL APPLICATIONS

If athletes are implementing foam rolling into their schedules, then there is no evidence that they should not use them, it would just be a matter of preference like psychological or social benefits.



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