The Effects of Dry Cupping Therapy on Muscle Thickness and Elasticity of Upper Back Muscles

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Introduction/Background: Cupping is an ancient method used for various diseases in different cultures. In recent years, the use of cupping therapy grows up. Mechanically, cupping increases local blood flow[1] and stimulates mechanosensitive receptors, and provides pain-relief[2]. Although the receiver of cupping therapy feels relaxed, it is not studied in detail how the therapy affects elastic properties of the muscles beneath. We aimed in this study to evaluate how 10-minutes of cupping affects the thickness and stiffness of the upper-back muscles (middle trapezius and paraspinals) of healthy volunteers. Ultrasound imaging (B-mode and shear wave elastography [SWE]) is used in order to obtain physical properties[3].

Methods: Twenty healthy volunteers participated in the study. The procedures of the study conformed the Declaration of Helsinki. The cupping was applied to one side (suctioned) and the other side served as a control (no-suction). The thickness and the stiffness of middle trapezius and the paraspinals were measured before(PRE), right after(POST) and 30 minutes after(POST30) the application by the same examiner [Figure 1]. Intraclass Correlation Coefficient (ICC), Mann Whitney and ANOVA tests were used as appropriate. Significance was set to p<0.05.

Results: The groups were not different significantly in terms of thickness and stiffness (p>0.05). Intra-session reliability of measurements was very high(r=0.985). There was a significant time main effect F(2,37)=10.31, p<0.0001, η²=0.36 and group interaction effect F(2,37)=4.38, p<0.05, η²=0.19 for trapezius muscle. For paraspinals, there was significant time main effect, F(2,37)=4.661, p<0.05, η²=0.20 but no interaction effect and no group main effect. POST stiffness values (12.84±3.01) were significantly lower than PRE (16.11±3.72) and POST30 values (14.27±3.03) in trapezius. No metrics changed significantly in control sides. Muscle thickness significantly increased after cupping in trapezius muscle (4.22±1.21 vs 4.51±1.32) but not in paraspinal muscles (14.77±2.43 vs 15.24±2.76).

Conclusion: The stiffness of the upper-back muscles decreased after 10 minutes of a single cupping session, significantly in superficial muscles. Thickness increase was prominent also in the superficial muscles. Although the general application necessitates more than one cup, application of even a single cup effects the elastic properties of tissues underneath. Further studies may show the effects of multiple cups with different pressures on different body parts.
Figure 1. An example of the ultrasound shear-wave elastography image of the upper back (trapezius and paraspinal) muscles, longitudinal view. ROI boxes used for measurement are visible on both the color (left) and propagation-mapped (right) images.

References: