The influence of an instrument-assisted, myofascial treatment on structural and functional properties of the lower back in female soccer players: study design of a placebo-controlled RCT

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Background: In terms of myofascial treatment there is an increasing use of instruments to reach myofascial tissue in a deeper, larger and more targeted manner. Previous goals of such instrument-assisted treatments are increasing blood flow and generating shear forces, relying on the increased accumulation of growth factors and inflammatory mediators for regeneration and stimulating wound healing [1-2], but scientific data of the benefits are sparse. Besides the known evidence of reducing pain, increasing blood flow, strength and functionality [1-2], the aim of this study is to investigate the effects of a single instrument-assisted myofascial treatment of the lower back on its structural and functional properties of the myofascial structures and the adjacent movement segments.

Methods: 15- to 35-year-old sport-healthy and competitive female soccer players who practice at least three times a week for 90 minutes will be integrated in this randomised, placebo-controlled study approved by the German Sport University Cologne. The intervention group will receive a standardised, instrument-assisted treatment (Fazer 2, ARTZT vitality) at the lumbar area, compared with two control groups. The placebo-controlled group will receive an inactive, therapeutic ultrasound treatment whereas the other control group will get a hot pack (Fig.1). Treatments will be applied on the right side for eight minutes. Every participant will undergo an electromyography, segmental bio-impedance, temperature, indentometry and algometry measurement. Furthermore, thickness, stiffness and shear motion of the myofascial tissue layers will be measured by diagnostic ultrasound and the mobility of the hip, lumbar and thoracic spine will be tested. The measurements will be identical for all groups and recorded immediately before, after and 45 minutes after the intervention on both sides (Fig.1).

Results: Statistical analysis will be performed by evaluating variance, correlation and regression.

Discussion: In addition to the verified effects [1-2] expected results from generated pressure and shear forces are greater mobility of the myofascial tissue layers by dissolution of adhesions and fibroses and

Figure 1: Flowchart of the study design and hypothetical and expected outcomes resulting from each treatment.


