

“Measurement of muscle morphology of the lateral abdominal wall during sagittal tilt in young healthy individuals”

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SUMMARY

Numerous analyzes conducted by scientists from around the world have proven that the muscles of the lateral abdominal wall (oblique external, internal and transverse abdominal muscle) play a very important role in the human body. They are both part of the human musculoskeletal system and its well-known stabilizers. Their architecture may differ between individuals. Their function changes depending on the working conditions. The volitional and reflexive activation of these muscles is a constant subject of interest in numerous scientific experiments.

The conducted research was to verify whether passive forward tilting in the sagittal plane can be a reflexive activator for the muscle tone of the lateral abdominal wall and whether this activation may differ depending on gender and anthropometric parameters (BMI, WHR, pelvic inclination).

179 young, healthy people aged 18-30 were subjected to the study. 96 women and 83 men. The qualification was upon the prerequisites and the full tilt process completion. The subjects were inclined in the sagittal plane by steps of one angular degree, in the range of 0-7 degrees. During the tilting, muscles of the lateral abdominal wall were measured by ultrasound. Anthropometric parameters were also estimated. On their basis qualification for individual research groups was done.

In this study, no characteristic pattern of muscle activity was observed during the passive forward inclination of the body in the sagittal plane. The changes occurring at individual angular degrees seem to be of a random nature. None of the groups and sexes presented specific and clear muscle activity pattern.

The results of the present experiment have not shown the benefit of installing a passive 7-degree tilting device on the Disc4Spine, or any other device, if the goal is to achieve reflexive activation of the abdominal muscles.