

## **Abstract**

**Title:** Analysis of postural reactions of exercise with a load of upper limbs by centrifugal force.

**Summary:** The aim of the study is the kinematic analysis of selected body segments (C7, Th4, Th8, Th12, AC and SIPS) during performance with a special exercise tool Marrko Core®. Another goal is to confirm the existing knowledge in the field of kinesiology about the rotation of spinal segments. In addition, we aim to compare the selected exercises with each other and assess their suitability for application in the general population with back pain of various etiologies.

The experiment was performed as a biomechanical study, where specific biomechanical parameters in human body kinetics and muscle activity were measured during performance of specific exercises. All measurements have been undertaken in laboratory BEZ UK FTVS. Systems Qualisys, Kistler and EMG Noraxon were used for measurements of chosen parameters in human body kinetics and muscle activity.

**Participants:** Participants attended in this study (8 individuals- 4 women and 4 men) were all healthy individuals, 20-40 years old, without any limitation of mobility and pain free. They were all recreational athletes.

**Key words:** EMG, Kistler, Qualisys, postural stabilization