

Effect of Core Stability Exercises on Trunk proprioception in Healthy Adult individuals/ Omaima Ezz-eldeen Saleh Mohammed: Cairo University, Faculty of Physical Therapy. Department of Biomechanics. Supervisors: Prof. Dr. Ghada Mohamed El-Hafez, Dr. Amira Abdallah Abd El Megeid, and Dr. Amal Abd El Rahman El Borady. Thesis: MSc.; Biomechanics, 2013.

Abstract

Background: Core stability training has recently attracted attention for improving muscle performance. The purpose of this study was to investigate the effect of beginners' core stability exercises on trunk active repositioning error at 30 and 60 degrees trunk flexion. **Methods:** Forty healthy males, randomly assigned into two groups; experimental (group I) and control (group II), participated in the study. Group I involved 20 participants with mean±SD age, weight and height of 19.35±1.11 years, 70.15±6.44 kg and 174.7±7.02 cm respectively. Group II involved 20 participants with mean±SD age, weight and height of 20.45±1.64 years, 72.45±6.91 kg and 176.3±7.24 cm respectively. Data were collected using the Biodex Isokinetic system at an angular velocity of 60°/s. The participants were tested twice; before and after a 6-week period during which the experimental group performed a core stability training program. **Findings:** The Mixed 3-way ANOVA revealed that there were significant increases ($p<0.05$) in the absolute error (AE) at 30° compared with that at 60° flexion in the pre-test conditions of the experimental and control groups and the post-test condition of the control group. However, there was no significant difference ($p>0.05$) in the AE between both tested ranges of motion in the post-test condition for the experimental group. Moreover, there were significant decreases ($p<0.05$) in the AE at both 30° and 60° flexion in the experimental group. However, there were no significant differences ($p>0.05$) in the AE between the pre- and post- tests' conditions in the control group tested at 30° and 60° flexion. Finally, there were no significant differences ($p>0.05$) in AE between the tested groups in the pre-test condition at 30° and 60° flexion. While, there were significant decreases ($p<0.05$) in the AE in the experimental group compared with the control group in the post-test conditions at 30° and 60° flexion. **Interpretation:** The improvement in trunk proprioception indicated by the decrease in the active repositioning error in the experimental group recommends including core stability training in the exercise programs that aim to improve trunk proprioception.

Keywords: Core stability, Isokinetic, Trunk proprioception.