

Effect of Core Stability Exercises on Trunk Muscle Balance in Healthy Adult Individuals

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Abstract : Background: Core stability training has recently attracted attention for improving muscle balance and optimizing performance in healthy and unhealthy individuals. Purpose: This study investigated the effect of beginner's core stability exercises on trunk flexors'/extensors' peak torque ratio and trunk flexors' and extensors' peak torques. Methods: Thirty five healthy individuals participated in the study. They were randomly assigned to two groups; experimental "group I, n=20" and control "group II, n=15". Their mean age, weight and height were 20.7 ± 2.4 vs. 20.3 ± 0.61 years, 66.5 ± 12.1 vs. 68.57 ± 12.2 kg and 166.7 ± 7.8 vs. 164.28 ± 7.59 cm. for group I vs. group II. Data were collected using the Biodex Isokinetic system. The participants were tested twice; before and after a 6-week period during which group I performed a core stability training program. Results: The 2x2 Mixed Design ANOVA revealed that there were no significant differences ($p > 0.025$) in the trunk flexors'/extensors' peak torque ratio between the pre-test and post-test conditions for either group. Moreover, there were no significant differences ($p > 0.025$) in the trunk flexion/extension ratios between both groups at either condition. However, the 2x2 Mixed Design MANOVA revealed significant increases ($p < 0.025$) in the trunk flexors' and extensors' peak torques in the post-test condition compared with the pre-test in group I with no significant differences ($p > 0.025$) in group II. Moreover, there was a significant increase ($p < 0.025$) in the trunk flexors' peak torque only in group I compared with group II in the post-test condition with no significant differences in the other conditions. Interpretation/Conclusion: The improvement in muscle performance indicated by the increase in the trunk flexors' and extensors' peak torques in the experimental group recommends including core stability training in the exercise programs that aim to improve muscle performance.

Keywords : core stability, isokinetic, trunk muscles, muscle balance

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