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Effect of core stability exercises on trunk muscles' endurance and dynamic balance in healthy adults

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Core stability exercises are nowadays used to improve torso muscles' performance in a way that protects the spine from damage. Abdominal muscle endurance, torso balance and dynamic balance are important for trunk stability, appropriate posture, and proper body movement. The purposes of this study were to examine the effect of core stability exercises on trunk muscles' endurance and dynamic balance in healthy adult individuals.Thirty five male and female college students participated in the study. The participants were randomly assigned to two groups; experimental (group A) and control (group B). Isokinetic endurance parameters (total work and work fatigue) and dynamic balance parameters (antero-posterior (AP), medio-lateral (ML) and overall (O) stability indices (SI)) were collected using the Biodex Isokinetic and Biodex Balance systems respectively before and after a 6-week period during which group A performed a core stability exercise program.Considering the endurance parameters, the findings revealed significant differences between both groups for the total extension and flexion works only in the "post" test ($p<0.01$), with no significant differences inbetween for all the tested variables in the "pre" test ($p>0.01$). Moreover, they revealed significant increases in the total extension and flexion works in the "post" test in group A and the total flexion work only in group B ($p<0.01$) with no significant improvement in the work fatigue at either of the tested groups ($p>0.01$).Regarding the balance parameters, there were significant differences between both groups for the APSI, MLSI and OSI in the "post" test ($p<0.01$), with no significant differences inbetween for all the tested variables in the "pre" test ($p>0.01$). In addition, there were significant decreases in the APSI, MLSI and OSI in the "post" test in group A and the MLSI and OSI only in group B ($P<0.01$).Core stability exercises are effective in improving trunk muscles' endurance and dynamic balance.

Biography

Neama H Neamat Allah is Assistant Lecturer in Department of Biomechanics, Faculty of physical therapy, Cairo University, Giza, Egypt. She had her BScin physical therapy (2006) from Faculty of physical therapy, Cairo University with final Grade "Excellent with Honor". She has passed successfully the postgraduate courses as a partial fulfillment of the requirement of the Master and the PhD degree. She has awarded an MSc degree in Biomechanics in May 2012 and is now a PhD candidate.

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