Effect of shoulder girdle strengthening on trunk alignment in patients with stroke/ Amina Mohammad Abd AL- Hammed Awad; Supervisors: **Prof. Dr. Husein Shaker,** Professor of Physical Therapy Department for Neuromuscular Disorder and its surgery**,** Faculty of Physical Therapy**,** Cairo University, **Prof. Dr. Manal Fahmy,** Professor of Neurology Department of Neurology, Faculty of Medicine, Cairo University, **Dr. Wael Shendy**, Lecturer of Physical Therapy, Department of, Neuromuscular Disorder and its surgery, Faculty of Physical Therapy, Cairo University. Master Thesis, 2012.

ABRTRACT

Background: postural malalignment is a common problem in patients with stroke. Although it is known that trunk control is an integral part of shoulder stability, shoulder girdle contribution in spinal malalignment is poorly studied post-stroke. **Purpose**: to investigate the effect of shoulder girdle strengthening on the trunk alignment in both static position and functional activities post- stroke. **Subjects:** 23 hemiparetic patients, with a mean age of (52.22±5.19) were divided into two groups; the control (G1; 10) group and the study (G2; 13) group. Both groups received preparatory stretching for shoulder muscles, active resisted exercises for shoulder abductors and external rotator groups, and trunk control exercises. The G2 group received additional strengthening exercises for the scapular muscles; supraspinatus, upper trapezius, and serratus anterior muscles. **Methods:** the muscle peak torque and peak force were measured using the isokinetic dynamometer and Lafayette manual muscle tester, respectively. The spinal lateral deviation angle was measured using the 2D photogrammetry in conjunction with the Corel Draw software. The motor functional performance was also measured using the Motor Assessment Scale (MAS) before and after the successive six weeks of treatment program. **Results:** All tested muscles showed significant improvement in both groups, however, G2 showed higher improvement

comparing to G1. In addition, the lateral spinal deviation angle showed a significant improvement in G1 (25.13%) and G2 (50.76 %) groups with higher improvement in G2 ($t= 2.29$, $p=0.03$). The MAS scoring showed a highly significant improvement regarding the transfer activity and sitting balance for G1 and G2 (generally, $p= 0.005$, $p<0.0001$, respectively). However, only group G2 showed a significant improvement in the upper limb functions and the hand movements, respectively ($p<0.0001$, 0.0002). **Conclusion**: the shoulder girdle muscles strength, particularly the scapular muscles, is of great contribution in improving the postural alignment of the trunk in patients with stroke.

Key words: Shoulder girdle, Muscles strength, Trunk alignment, Stroke.