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Effects of Exercise Protocol for Facilitation of Trunk Control and Improve Balance in Stroke Patients

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Abstract

Aim: To find out effect of pelvic Proprioceptive Neuromuscular Facilitation along-with Star Excursion Balance Test grid on trunk control and balance in stroke patients. **Material and Method**: A two group, pre-test, post-test structured, experimental study design. A total of 38 patients amongst the sub-acute and chronic hemi paretic stroke patients, age group between 40 to 60 yrs; both male & female; duration of 3 to 12 months; ambulatory patients only with or without walking aids; scoring less than or equal to 21 out of 23 on Trunk Impairment Scale; without any fixed hip, knee and ankle deformity; could able to stand independently for 90 seconds on a stable surface were recruited randomly. Group 1 (Experimental group) – 19 subjects, group 2 (Conventional group) – 19 subjects. Group – 1 (Experimental group) – 19 subjects with a mean age of 47.21±8.20 (yr) and mean duration of 0.68±0.42 (yr) performed SEBT training and Pelvic PNF for 20 minutes a day, along with conventional trunk exercises performed on plinth. Group – 2 (Conventional group) – 19 subjects with a mean age of 52.47 ±7.96 (yr) and mean duration of 0.78±0.38 (yr) performed conventional trunk exercises on plinth. Duration of exercise session is 30 minutes/ day, five times a week, for four weeks duration. Measurements were taken for Trunk Impairment Scale (TIA) and Tinetti Balance Assessment (TBA) to document gait parameters and balance prior to the beginning of treatment and were repeated finally after the completion of 4 weeks of treatment protocol. The dependent variables were analyzed using a 2X2 ANOVA, repeated measures on second factor. There was one between factor (group) with two levels (groups: Experimental and Conventional) and one within factor (time) with two levels (time: Pre and Post). All pair-wise post – hoc comparisons were analyzed using a 0.05 level of significance. Data was analyzed also using non parametric, Mann-Whitney U Test to test difference between pre to post change scores of conventional group with that of the experimental group. **Results**: The overall result of the study suggests that the experimental group (pelvic PNF; SEBT training & conventional exercises) and conventional group (conventional exercises) both had a significant improvement in step height, step length & stride length at the end of 4-weeks. However experimental group showed significantly more improvement in step length, stride length, step height of affected side, multidirectional step length in SEBT grid (anterolateral, anterior, anteromedial & medial) and in trunk control & balance measured by TIS & TBA. **Conclusion**: The study demonstrates that Conventional trunk exercises therapy combined with Pelvic PNF and SEBT grid stepping in multiple directions is superior to conventional trunk exercises alone in improving the gait parameters (step length and stride length), step height, step lengths in multi directions in SEBT grid, trunk control and functional balance in post stroke hemiplegic persons.