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Improving balance with wobble board exercises in stroke patients: single blind, randomized clinical trial

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Background: Postural balance is often affected by stroke. A primary objective in stroke rehabilitation is to restore functional balance, which is a combination of dynamic and static balance.

Objectives: To identify the efficacy and safety of wobble board exercises when combined with conventional physiotherapy, in improving balance in hemiplegic patients following ischemic strokes.

Methods: A block-randomized, controlled, observer blinded, superiority trial was conducted in Stroke Rehabilitation Unit of the National Hospital of Sri Lanka. Participants were ambulatory hemiplegic patients following ischemic strokes of middle cerebral artery territory. Subjects in the control group received a conventional physiotherapy regime. Subjects in the intervention group received training on a wobble board combined with conventional physiotherapy. Main outcome measures were improvement of dynamic balance [Four-Square Step Test score (FSST)] and functional balance [Berg Balance Scale (BBS)] at the end of six weeks. The study was approved by the institutional Ethics Review Committees (UCP/LE/13/187; AA/ETH/COM/2018).

Results: During recruitment, 30 patients were randomly assigned for intervention (n=15) and control (n=15) groups. One patient dropped out from the study, leaving 29 eligible for the analysis. Intervention and control groups were comparable in sociodemographic characteristics and pre-test scores of balance. A repeated-measures MANOVA showed a statistically significant difference in improvement of balance between the two study groups after six weeks [F (1,28)=32.6,p=.000; Wilk's lambda=.46]. The improvement of mean scores of balances in interventional group were greater than in the control group (BBS: 9.5>5.5; FSST: 3.9>1.7). There were no injuries or accidents in both groups.

Conclusions: Wobble board exercises, when combined with the conventional physiotherapy, are safe and effective in restoring dynamic and functional balance in patients with hemiplegia following ischemic strokes.