OBJECTIVE: To determine the role of symmetrical body-weight distribution training in preventing falls among patients with hemiplegic stroke.

DESIGN: A prospective study using a standing biofeedback trainer.

SETTING: Hospital-based rehabilitation units.

PATIENTS: Fifty-four patients with hemiplegic stroke (30 in the training group, 24 in the control group).

INTERVENTIONS: Conventional stroke rehabilitation program, plus symmetrical standing training and repetitive sit-to-stand training, with a standing biofeedback trainer. Training effect was evaluated by assessing the sit-to-stand performance and comparing the occurrence of falls in the 2 groups at a 6-month follow-up.

MAIN OUTCOME MEASURES: Occurrence of falls, sit-to-stand performance, including body-weight distribution, rate of rise in force, and sway in center of pressure (COP).

RESULTS: Significant improvement in sit-to-stand performance was found in patients in the training group. Body weight was distributed more symmetrically in both legs, with less mediolateral sway in the COP when rising and sitting down. The mean difference in body-weight distribution between the left and right legs while subjects were rising from a chair significantly decreased, from 49.5% +/- 18.9% to 38.6% +/- 15.8% of body weight (BW) (p < .005). The rate of rise in force while rising from a chair significantly increased, from 28.3% +/- 13.5%BW/s to 53.6% +/- 20.5%BW/s (p < .001). At the 6-month follow-up, 10 of 24 patients (41.7%) in the control group had fallen, compared with only 5 of 30 patients (16.7%) in the training group (p < .05).

CONCLUSIONS: Symmetrical body-weight distribution training may improve sit-to-stand performance and, consequently, decrease the number of falls by stroke patients.

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