Inducing Body-Weight Supported Postural Perturbations during Gait and Balance Exercises to Improve Balance after Stroke - A Pilot Study

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Purpose

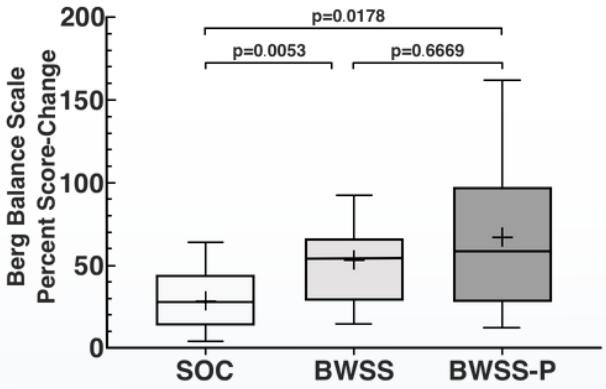
This pilot study was conducted to evaluate the impact of TRiP (Training Responses in Postural Rehabilitation) on patients' balance after acute stroke. After sustaining a stroke, balance regulation is impaired putting both patients and therapists at risk for injury during rehabilitation. ZeroG is a body-weight-support system (BWSS) which reduces risk and allows patients to safely complete balance activities during therapy.

Design

An unblinded quasi-randomized controlled pilot study was conducted in a long-term acute care rehabilitation hospital. Acute stroke patients with admission Berg Balance Scale (BBS) assessment scores >21/56 were enrolled into the study. BWSS and BWSS with perturbation (BWSS-P) training was incorporated into the participants' regular treatment. While both groups conducted the same balance and gait activities during their treatment sessions, the BWSS-P sessions included lateral and anterior/posterior resistive or assistive balance perturbations. Changes in BBS scores for the BWSS and BWSS-P trained patients were compared to patients who receive standard-of-care (SOC) inpatient physical therapy without BWSS.

Results

The BBS percent change experienced by the BWSS-P group (66.95%) and the BWSS group (53.3%) were both significantly greater than the BBS improvements experienced by the standard-of-care (SOC) group (28.3%).



Conclusion

Acute stroke patients that utilize ZeroG during inpatient physical therapy experience significantly higher gains in balance outcomes than patients who receive conventional physical therapy without BWSS. For patients who use ZeroG with TRiP, their improvements in balance were slightly higher than the ZeroG intervention alone. Incorporating BWSS and balance perturbations with ZeroG TRiP significantly improves balance in patients with acute stroke.

Reference

https://www.medrxiv.org/content/10.1101/2021.06.11.21257723v1.full.pdf