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Effect of Visual-Deprivation Body-Weight-Support Treadmilled Training on-Ground Walking Ability of Stroke Patients

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The body-weight-supported treadmill (BWST) is commonly used for gait rehabilitation, but other forms of BWSTs are in development, such as the visual-deprivation BWST (VDBWST). In this study, we compared the effect of VDBWST and conventional BWST training on spatiotemporal gait parameters for three individuals who had hemiparesis after stroke. The study was a single-subject experimental design with alternating multiple baselines across individuals. We recruited three individuals with hemiparesis from stroke-two on the left side and one on the right. We assessed spatiotemporal gait parameters using GAITRite, including gait velocity, cadence, step time of the affected side (STA), step time of the non-affected side (STN), step length of the affected side (SLA), step length of the non-affected side (SLN), step-time asymmetry (ST asymmetry), and step-length asymmetry (SL asymmetry), as the main outcome measures. Gait velocity, cadence, SLA, and SLN increased from baseline after both interventions, but STA, ST asymmetry, and SL asymmetry decreased from the baseline after the interventions. The VDBWST was significantly more effective than the BWST for increasing gait velocity and cadence and decreasing ST asymmetry. The VDBWST was more effective than the BWST for improving gait performance during rehabilitation for walking on the ground.

Key words: Gait; Stroke; Treadmill; Vision.