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WBV- Does whole body vibrations training in horizontal direction have effects on motor function and balance of chronic stroke survivors? A preliminary study

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Impaired balance after strokes is strongly associated with future functional recovery. It was suggested that WBV training could improve physical functions like balance and gait abilities. Recently, a system for delivering Whole Body Vibration (WBV) in the horizontal direction was developed. A WBV device including a footplate that could move perpendicularly was developed as a training device. However, no study has investigated the effect of WBV provided in the horizontal direction. Thus, this study was to investigate the effects of WBV in the horizontal direction on the motor function and balance of chronic stroke survivors. This randomized controlled trial was conducted over a 6-week period with measurements of motor function and balance performed before and after intervention. Twenty-one individuals with chronic stroke were recruited from a rehabilitation center. Motor function was measured by using the Fugl-Meyer assessment, and balance was measured by using the Berg balance scale and the Timed Up and Go test before and after intervention. The WBV training group ($n = 12$) received whole-body vibration delivered in the horizontal direction (15 min/day, 3 times/week, 6wks) followed by conventional rehabilitation (30 min/day, 5 times/week, 6wks); the control group ($n = 9$) received conventional rehabilitation only (30 min/day, 5 times/week, 6wks). All measurements improved significantly compared with the baseline values in the WBV training group ($p < 0.05$). In the control group, no significant improvements in any parameter were noted. However, BBS score of the WBV training group increased significantly compared to those of the control group only ($p < 0.05$). WBV training in the horizontal direction may a potential intervention to improve motor function and balance in patients who previously experienced a stroke. A further study on the effect of WBV delivered in the horizontal direction with larger, more diverse patient groups as well as an investigation of the adverse effects of vibration delivered in the horizontal direction is needed.

Biography

GyuChang Lee has completed his Ph.D at the age of 35 years from Sahmyook University in South Korea. He is an assistant professor of physical therapy at Kyungnam University. He has published more than 30 papers in reputed journals.

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