

Effect of four-month vertical whole body vibration on performance and balance.

Torvinen S, Kannus P, Sievänen H, Järvinen TA, Pasanen M, Kontulainen S, Järvinen TL, Järvinen M, Oja P, Vuori I.

Bone Research Group, UKK Institute, Kaupinpuistonkatu 1, FIN-33500 Tampere, Finland.
losato@uta.fi

Abstract

PURPOSE: This randomized controlled study was designed to investigate the effects of a 4-month whole body vibration-intervention on muscle performance and body balance in young, healthy, nonathletic adults.

METHODS: Fifty-six volunteers (21 men and 35 women, aged 19-38 yr) were randomized to either the vibration group or control group. The vibration-intervention consisted of a 4-month whole body vibration training (4 min.d(-1), 3-5 times a week) employed by standing on a vertically vibrating platform. Five performance tests (vertical jump, isometric extension strength of the lower extremities, grip strength, shuttle run, and postural sway on a stability platform) were performed initially and at 2 and 4 months.

RESULTS: Four-month vibration intervention induced an 8.5% (95% CI, 3.7-13.5%, $P=0.001$) net improvement in the jump height. Lower-limb extension strength increased after the 2-month vibration-intervention resulting in a 3.7% (95% CI, 0.3-7.2%, $P=0.034$) net benefit for the vibration. This benefit, however, diminished by the end of the 4-month intervention. In the grip strength, shuttle run, or balance tests, the vibration-intervention showed no effect.

CONCLUSION: The 4-month whole body vibration-intervention enhanced jumping power in young adults, suggesting neuromuscular adaptation to the vibration stimulus. On the other hand, the vibration-intervention showed no effect on dynamic or static balance of the subjects. Future studies should focus on comparing the performance-enhancing effects of a whole body vibration to those of conventional resistance training and, as a broader objective, on investigating the possible effects of vibration on structure and strength of bones, and perhaps, incidence of falls of elderly people.