

Effects of whole-body vibration in patients with multiple sclerosis: a pilot study.

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Abstract

OBJECTIVE: To examine whether a whole-body vibration (mechanical oscillations) in comparison to a placebo administration leads to better postural control, mobility and balance in patients with multiple sclerosis.

DESIGN: Double-blind, randomized controlled trial.

SETTING: Outpatient clinic of a university department of physical medicine and rehabilitation.

SUBJECTS: Twelve multiple sclerosis patients with moderate disability (Kurtzke's Expanded Disability Status Scale 2.5-5) were allocated either to the intervention group or to the placebo group.

INTERVENTIONS: In the intervention group a whole-body vibration at low frequency (2.0-4.4 Hz oscillations at 3-mm amplitude) in five series of 1 min each with a 1-min break between the series was applied. In the placebo group a Burst-transcutaneous electrical nerve stimulation (TENS) application on the nondominant forearm in five series of 1 min each with a 1-min break between the series was applied as well.

MAIN OUTCOME MEASURES: Posturographic assessment using the Sensory Organization Test, the Timed Get Up and Go Test and the Functional Reach Test immediately preceding the application, 15 min, one week and two weeks after the application. The statistical analysis was applied to the change score from preapplication values to values 15 min, one week and two weeks post intervention.

RESULTS: Compared with the placebo group the intervention group showed advantages in terms of the Sensory Organization Test and the Timed Get Up and Go Test at each time point of measurement after the application. The effects were strongest one week after the intervention, where significant differences for the change score ($p = 0.041$) were found for the Timed Get Up and Go Test with the mean score reducing from 9.2 s (preapplication) to 8.2 s one week after whole-body vibration and increasing from 9.5 s (preapplication) to 10.2 s one week after placebo application. The mean values of the posturographic assessment increased from 70.5 points (preapplication) to 77.5 points one week after whole body vibration and increased only from 67.2 points (preapplication) to 67.5 points one week after the placebo application. No differences were found for the Functional Reach Test.

CONCLUSION: The results of this pilot study indicated that whole-body vibration may positively influence the postural control and mobility in multiple sclerosis patients.

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