

Impact of two whole-body vibration exercise protocols on body composition of patients with metabolic syndrome: a randomized controlled trial.

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Background: this study investigated the effects of two 6-week whole-body vibration exercise (WBVE) protocols on body composition in patients with metabolic syndrome (MSy). Thirtythree patients were allocated to either the Fixed Frequency WBVE Group (FFG-WBVE) or the Variable Frequency WBVE Group (VFG-WBVE).

Methods: a side-alternating vibration platform was used and the patients remained in the semi-squat position on this platform. In the FFG-WBVE (n = 12; median age = 50.50 years) and (body mass index BMI = 31.95 kg/m²), patients were exposed to 10 s of mechanical vibration at a fixed frequency of 5 Hz, followed by 50 s without vibration. In the VFG-WBVE (n = 10; median age = 57.50 years) and (BMI = 32.50 kg/m²), the patients performed 60 s of mechanical vibration at different frequencies from 5 to 16 Hz). Body composition evaluated through (bioelectrical impedance analysis and anthropometric measurements) were was evaluated before and after the all the interventions in each group.

Results: the VFG-WBVE decreased waist circumference, $p = 0.01$ and segmental fat mass [left arm, $p = 0.01$; right arm, $p = 0.02$ and trunk, $p = 0.03$]. Bone content increased, $p = 0.01$. No significant changes were observed in the FFG- WBVE.

Conclusions: in conclusion, this study demonstrated that 6 weeks of WBVE with a protocol with variable frequency can positively modify the body composition of MSY patients. These findings might contribute to improvements in the metabolic health of these patients.

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