Effects of whole-body vibration exercises on parameters related to the sleep quality in metabolic syndrome individuals: a clinical trial study.

C.F. Azeredo, P. de Castro de Paiva, L. Azeredo, A.R. da Silva, A. Francisca-Santos, L.L. Paineiras-Domingos, A.L.P. da Silva, C.L. Bernardes-Oliveira, J. Pessanha-Freitas, M.C. Moura-Fernandes, R.G. Mendonça, J.A. Bachur, Y. Teixeira-Silva, E. Moreira-Marconi, E. de Oliveira Guedes-Aguiar, B.B.M. de Oliveira, M.F. Neves, L.F. Ferreira-Souza, V.L. Xavier, D. L. Borges, A.C. Lacerda, V.A. Mendonça, A. Sonza, R. Taiar, A. Sartorio, M. Bernardo-Filho, D. da Cunha de Sá-Caputo

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Metabolic syndrome (MetS) is an undesirable clinical condition with physiological, biochemical, clinical, and metabolic factors that contribute to increased cardiovascular risks (CR). A poor sleep quality might be found in obese and MetS individuals. Whole-body vibration (WBV) exercise has been used on the management of MetS individuals. This clinical trial investigated the effect of WBV exercise on parameters related to the sleep quality in MetS individuals. After randomization, nine individuals (seven women and two men) were exposed to a fixed frequency (FF) and ten individuals (eight women and two men) were exposed to a variable frequency (VF). Both groups performed the protocol twice a week, for 6 weeks. All of the evaluations were performed before the first and after the last sessions. Anthropometric and cardiovascular parameters were measured before and after the 6-week intervention. Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS), and Berlin Questionnaire were also used to evaluate the quality of the sleep. A significant ($p \leq 0.05$) reduction of the waist circumference in the VFG and an increase of the heart rate were found in the FFG and VFG group. The score of the PSQI of the both groups decreased significantly ($p = 0.01$). The score of the ESS decreased ($p = 0.04$) only in the VF group. The scores of the Berlin Questionnaire were not altered in both groups. In conclusion, WBV intervention was capable in interfering with physiological mechanisms with effects on the WC and HR, leading to the improvement of the quality of sleep in MetS individuals. WBV exercise might be an important clinical intervention to the management of some factors associated with poor quality of sleep (FFG and VFG) and in the daytime sleepiness in MetS individuals with variable frequencies (5-16 Hz) (VFG).