

Evidence of use of whole-body vibration in individuals with metabolic syndrome: a systematic review and meta-analysis.

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Background: Metabolic syndrome (MSy) is defined by a constellation of interconnected physiological, biochemical, clinical, and metabolic factors that directly increase the risk of cardiovascular disease. This systematic review with meta-analysis was conducted to assess the effects of whole-body vibration exercise (WBVE) in metabolic syndrome (MSy) individuals. Methods: An electronic search in Pubmed, Embase, Scopus, Web of Science, ScienceDirect, PEDro, and CINAHL databases in December 2022 was performed. Data regarding the included studies were extracted. The level of evidence, the methodological quality, and the risk of bias of each selected publication were individually evaluated.

Results: Eight studies were included in the systematic review and four studies in the meta-analysis, with a mean methodological quality score on the Physiotherapy Evidence Database (PEDro scale) of 5.6, considered “fair” quality. The qualitative results suggested positive effects of the systemic vibration therapy in relevant outcomes, such as quality of life, functionality, pain level, trunk flexibility, cardiovascular responses (blood pressure and heart rate), neuromuscular activation, range of motion of the knees, rating of perceived exertion, and body composition. The quantitative results, with weighted mean differences, standard mean differences, and 95% confidence intervals (CIs), were calculated.

Conclusions: WBVE may be an alternative capable of interfering with physical-mainly for flexibility with weighted mean differences (1.70; 95% CI 0.15, 3.25; n = 39)-functional, psychosocial, neuromuscular, emotional parameters, and consequently contribute to improvements in metabolic health and reduce the cardiovascular risk factor in MSy individuals. Nevertheless, further additional studies are required to understand the long-term effects of WBVE on MSy and its complications in a better way. Protocol study registration was as follows: PROSPERO (CRD 42020187319).

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