Acute and cumulative effects with whole-body vibration exercises using 2 biomechanical conditions on the flexibility and rating of perceived exertion in individuals with metabolic syndrome: a randomized clinical trial pilot study.

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This study evaluated the effects of 6 weeks of whole-body vibration (WBV) exercise on flexibility and the rating of perceived exertion (RPE) in metabolic syndrome (MetS) individuals using 2 biomechanical conditions (fixed frequency [FF] and variable frequency [VF]). Nineteen MetS individuals were randomly allocated in FF-WBV (n = 9, 7 women and 2 men) and VF-WBV(n = 10, 8 women and 2 men) groups. Anterior trunk flexion (ATF) and RPE were determined before and after each session. The acute cumulative exposure effects were analyzed. The FF-WBV group was exposed to 5 Hz on a side alternating vibrating platform (SAVP), exposed to 10 and 50 seconds with the SAVP turned off. The VF-WBV group individuals were intermittently exposed (1 minute WBV exercise/1 minute rest) to 5 to 16 Hz, increased by 1 Hz per session and the peak-to-peak displacement (PPD) were 2.5, 5.0, and 7.5 mm. Regarding to ATF, significant improvements ($P < .05$) were observed in the in the acute (VF group) and cumulative intervention (FF and VF-WBV groups). The RPE significantly ($P < .05$) improved only in VF-WBV (cumulative intervention). In conclusion, WBV exercise improved the flexibility and decreased the RPE in MetS individuals. These findings suggest that WBV exercise can be incorporated into physical activities for MetS individuals.