

PubMed

U.S. National Library of Medicine
National Institutes of Health



Display Settings: Abstract

Med Sci Sports Exerc. 2003 Jun;35(6):1033-41.

Strength increase after whole-body vibration compared with resistance training.

Delecluse C, Roelants M, Verschueren S.

Exercise Physiology and Biomechanics Laboratory, Faculty of Physical Education and Physiotherapy, Department of Kinesiology, Katholieke Universiteit Leuven, Belgium. christophe.delecluse@flok.kuleuven.ac.be

Abstract

PURPOSE: The aim of this study was to investigate and to compare the effect of a 12-wk period of whole-body vibration training and resistance training on human knee-extensor strength. **METHODS:** Sixty-seven untrained females (21.4 +/- 1.8 yr) participated in the study. The whole-body vibration group (WBV, N = 18) and the placebo group (PL, N = 19) performed static and dynamic knee-extensor exercises on a vibration platform. The acceleration of the vibration platform was between 2.28 g and 5.09 g, whereas only 0.4 g for the PL condition. Vibration (35-40 Hz) resulted in increased EMG activity, but the EMG signal remained unchanged in the PL condition. The resistance-training group (RES, N = 18) trained knee extensors by dynamic leg-press and leg-extension exercises (10-20 RM). All training groups exercised 3x wk⁻¹. The control group (CO, N = 12) did not participate in any training. Pre- and postisometric, dynamic, and ballistic knee-extensor strength were measured by means of a motor-driven dynamometer. Explosive strength was determined by means of a counter-movement jump. **RESULTS:** Isometric and dynamic knee-extensor strength increased significantly (P < 0.001) in both the WBV group (16.6 +/- 10.8%; 9.0 +/- 3.2%) and the RES group (14.4 +/- 5.3%; 7.0 +/- 6.2%), respectively, whereas the PL and CO group showed no significant (P > 0.05) increase. Counter-movement jump height enhanced significantly (P < 0.001) in the WBV group (7.6 +/- 4.3%) only. There was no effect of any of the interventions on maximal speed of movement, as measured by means of ballistic tests. **CONCLUSIONS:** WBV, and the reflexive muscle contraction it provokes, has the potential to induce strength gain in knee extensors of previously untrained females to the same extent as resistance training at moderate intensity. It was clearly shown that strength increases after WBV training are not attributable to a placebo effect.

PMID: 12783053 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms

LinkOut - more resources

You are here: [NCBI](#) > [Literature](#) > [PubMed](#)

[Write to the Help Desk](#)