

## Abstract

Title: The Use of Vibration in Sports and Health Care

Objectives: The aim of this study is to confirm or refute established hypotheses.

Hypotheses: 1. The use of vibration loading improves muscle strength.  
2. The use of vibration loading improves bone mineral density.  
3. The use of vibration loading can influence balance.

Methods: This diploma thesis is elaborated as search form. It is based on exploration of available literary sources, clinical trials accessible through electronic databases of medical and sports, and library catalogs. The resources from sport, physiology, biomechanics, and various medical disciplines (osteology, physiotherapy, kinesiology) were used also.

Results: Due to retrieval process of whole body vibration training it was found out that this method can improve muscle strength, bone mineral density, balance and mobility. The effect depends on chosen parameters of whole-body vibrations. Under certain conditions whole-body vibration training could represent an alternative or a supplement to conventional training in order to increase muscle strength and bone mineral density or improve balance and mobility of elderly. The selection of right vibration parameters could support ordinary physical therapy of some neurological disorders.

Keywords: vibration, whole-body vibration training, muscle strength, balance, bone mineral density, neurological disorders, physical therapy