



Extreme oscillation (vibratory) movement is found in research to be an effective mode of exercise.

*Cardinale and Wakeling (8) after reviewing 23 studies (9 acute effects and 14 chronic effects) concluded, "The current evidence indicates that WBV may be an effective exercise intervention for **reducing the results of the aging process in musculoskeletal structures.**" In 2007, Rehn et al. (36) stated in a systematic review of 19 studies (14 chronic effects and 5 acute effects), "There is strong to moderate evidence that long-term WBV exercise can have **positive effects on muscular performance among untrained and elderly women.** There is no clear evidence for effects on muscular performance after short-term vibration stimuli."*

*The large treatment effect for populations over the age of 50 is significant as research has also shown vibration exercise to be an **effective tool for enhancing bone mineral density (45,49) and balance in this population (6).** The combination of strength improvements and enhanced bone mineral density and balance would be expected to decrease the risk of falls and enhance overall quality of life in older populations. Differences in mode of contraction are also noteworthy. The use of solely isometric contractions or a combination of isometric and dynamic movements is of great practical importance. **The data demonstrate that a combination of such contractions results in nearly twice the strength adaptation compared with solely isometric contractions.** I*

***Maximum gains were measured with volumes around 12–15 minutes** of vibration stimulus per training session. More research is needed with Volumes greater than this to examine the point at which excessive volume begins to result in a diminished return. Also, the relationship between total training volume and the number of sets performed is unclear. Most treatment sessions consisted of short bouts (30–90 seconds) with ;60-second rest between sets.*

PRACTICAL APPLICATIONS

Applications of the information contained in this analysis are important to translating research into practice. Of greatest importance is the fact that vibration exercise was shown to compare with traditional resistance training in terms of overall strength adaptations. Vibration exercise requires less technical abilities compared with the performance of free weight resistance training, less space compared with traditional resistance training machines, and less time generally needed to perform workouts on vibration platforms. The use of vibration exercise in an overall strength training routine can result in strength development, and this tool should be viewed as a potential mode of training in appropriate exercise settings.

Research articles

The feasibility of whole-body vibration in institutionalized elderly persons and its influence on muscle performance, balance and mobility: a randomized controlled trial [ISRCTN62535013]

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The effect of whole-body vibration on lower extremity skin blood flow in normal subjects

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Effect of Long-Term Whole Body Vibration Training on Visceral Adipose Tissue: A Preliminary Report

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Conclusions: Combining aerobic exercise or WBV training with caloric restriction can help to achieve a sustained long-term weight loss of 5–10%. These preliminary data show that WBV training may have the potential to reduce VAT more than aerobic exercise in obese adults, possibly making it a meaningful addition to future weight loss programs.

Effects of whole body vibration training on cardiorespiratory fitness and muscle strength in older individuals (A 1-year randomised controlled trial)

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Conclusion: WBV training in community-dwelling elderly appears to be efficient to improve cardiorespiratory fitness and muscle strength.

High-Frequency Whole-Body Vibration Improves Balancing Ability in Elderly Women

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Conclusions: WBV was effective in improving the balancing ability in elderly women. This also provides evidence to support our user-friendly WBV treatment protocol of 3 minutes a day for the elderly to maintain their balancing ability and reduce risks of fall.

**Impact of Whole-Body Vibration Training Versus
Fitness Training on Muscle Strength and Muscle Mass
in Older Men: A 1-Year Randomized Controlled Trial**

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Conclusion. WBV training is as efficient as a fitness program to increase isometric and explosive knee extension strength and muscle mass of the upper leg in community-dwelling older men. These findings suggest that WBV training has potential to prevent or reverse the age-related loss in skeletal muscle mass, referred to as sarcopenia.