

WHOLE BODY VIBRATION TRAINING BUILDS BONE

Research shows that whole body vibration training may be the answer to osteoporosis: it increases bone mineral density, improves muscles strength and power, and encourages fat loss in postmenopausal women.

This is a summary of a study published in the Journal of Bone and Mineral Research (Vol. 19 (3), 2004) □ By Sabine Verschueren, Machteld Roelants, Christophe Delecluse, Stephan Swinnen, Dirk Vanderschueren & Steven Boonen, Katholieke Universiteit Leuven, Belgium.

Effect of 6-Month Whole Body Vibration Training on Hip Density, Muscle Strength and Postural Control in Postmenopausal Women: A Randomized Controlled Pilot Study

Study conclusions: □ Whole body vibration training - performed on a "classic" Power Plate® machine - leads to a significant increase in hip area bone density (1.5‰), as well as an increase in muscle strength and postural control in postmenopausal women.

Three groups were studied: □ The 90 participants - postmenopausal women ranging in age from 58 to 70 – were divided into three research groups.

1. The whole body vibration group trained 3 times per week on a Power Plate® machine, for no more than 30 minutes per session. They performed static and dynamic exercises for the upper leg and hip area, such as squats (one of the movements that allows you to sit down in a chair) and lunges.
2. The conventional weight training group trained 3 times per week, for about one hour per session, including a separate warm-up and cool-down.
3. The control group did no train at all.

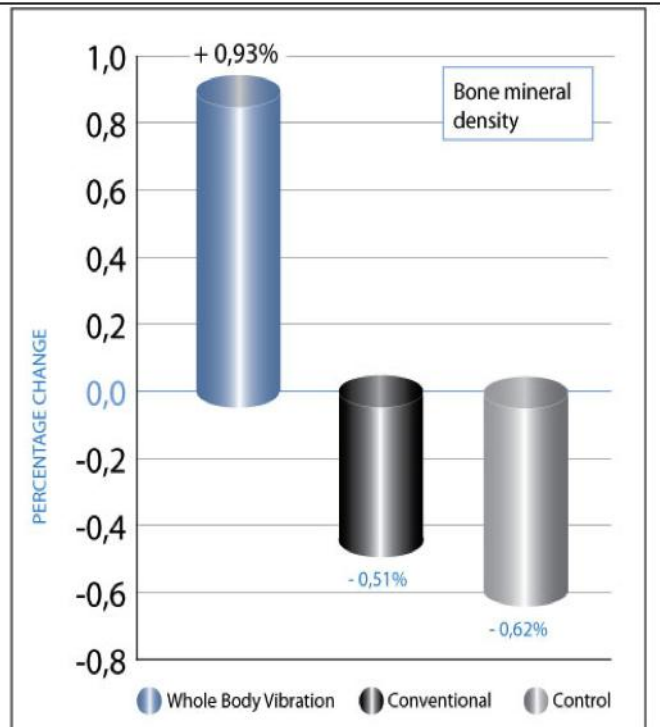


Fig. 1. Change in bone mineral density in the hip after 24 weeks of whole body vibration training compared to conventional strength training and an untrained control group.

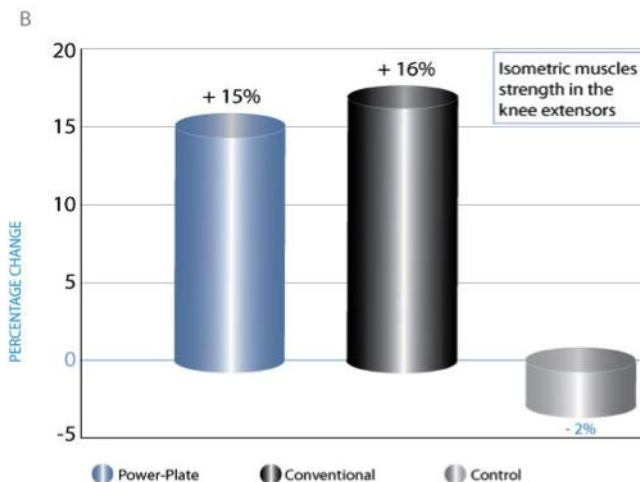


Fig. 2b. Change in isometric strength in upper leg muscles for the whole body vibration group, the conventional training group, and the control group.

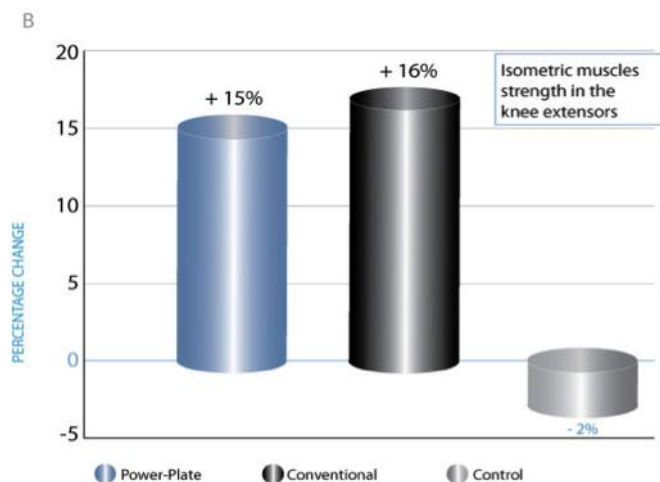


Fig. 2b. Change in isometric strength in upper leg muscles for the whole body vibration group, the conventional training group, and the control group.

The results: The whole body vibration group got positive results: strength increased as much as 16% in upper leg muscles, while bone density at the hip increased by 1.5%. In addition, the whole body vibration group showed an improvement in postural control and balance, increased muscle strength and lean mass while losing body fat and fat mass. The conventionally trained subjects were able to slow the rate of bone loss, which is consistent with previous published studies on weight training and bone loss. The control group subjects continued to lose bone mineral density at the average rate.

How the Power Plate® machine was used: The whole body vibration group performed workouts of 30 minutes or less, including static and dynamic exercises for the upper leg and hip area.

The whole body vibration training variables started at a low level, which was gradually intensified by:

- Increasing duration
(Exercise time)
- Increasing the number of exercises performed
- Shortening the rest periods between exercises
- Increasing frequency from 35Hz to 40Hz
- Increasing amplitude from low to high

The weight training group performed conventional weight training exercises for a total of one hour per session, including a separate warm-up and cool-down.

Conclusion: Whole body vibration training:

- Increases bone mineral density
- is a viable solution to reverse bone loss and to eliminate osteoporosis
- is an accessible training tool to help many populations prevent falls and fractures
- Increases strength
- Improves balance and equilibrium
- Improves posture
- Stimulates fat loss
- Improves health

The whole body vibration's low-strain, comfortable, safe, short-duration protocols may allow all populations to achieve strength and power training effects by just standing on the vibrating plate. In less than 30 minutes, three times per week, users can achieve more strength, fat loss, better balance and reflexes, improved bone density and, ultimately, greater health.