

Power-Plate training builds bone

Research study shows that exercising on the Power-Plate may be the answer to osteoporosis: Power-Plate increases bone mineral density, improves strength, power and encourages fat loss in postmenopausal women.

This is a summary of a study published in **Journal of Bone and Mineral Research** (Vol. 19 (3), 2004) **Effect of 6-Month Whole Body Vibration Training on Hip Density, Muscle Strength and Postural Control in Postmenopausal Women: A Randomized Controlled Pilot Study**

By Sabine Verscheuren, Machteld Roelants, Christophe Delecluse, Stephan Swinnen, Dirk Vanderscheuren & Steven Boonen, Katholieke Universiteit Leuven, Belgium.

Study Conclusions:

Power-Plate training leads to a significant (1.5%) increase in hip area bone density, also muscle strength and postural control increases in postmenopausal women.

These research findings present an exciting solution for an ever-worsening problem in our aging population: osteoporosis, loss of postural control and balance, bone fractures from falls, and difficult and incomplete recovery from traumatic falls.

As the average age of the world's population increases, we are faced with the increasing epidemic of osteoporosis. Each year in the U.S. more than 1.5 million people suffer from fractures due to early bone loss. One in three women and one in eight men will suffer from osteoporosis this year. In the U.S., 2.8 million men and women suffer from bone loss, 1 million have been diagnosed, while 1.8 million aren't even aware that they are losing integrity in the remodeling of their bones.

Initial studies on Power-Plate training showed increases in strength in test subjects. The Power-Plate causes the body's muscles to contract subconsciously at 30x to 50x per second, which can stimulate a power training effect while simply standing on the plate.

Three groups were studied:

The 90 participants - postmenopausal women ranging in age from 58 to 70 - were divided in three research groups.

1. The Power-Plate group trained 3 times per week, maximum 30 minutes per session, containing static and dynamic exercises for the upper leg and hip area, such as squats (the movement that allows you to sit down in a chair) and lunges.
2. The conventional weight training group trained 3 times per week, about one hour per session, including a separate warm-up and cool-down.
3. The control group did no training.

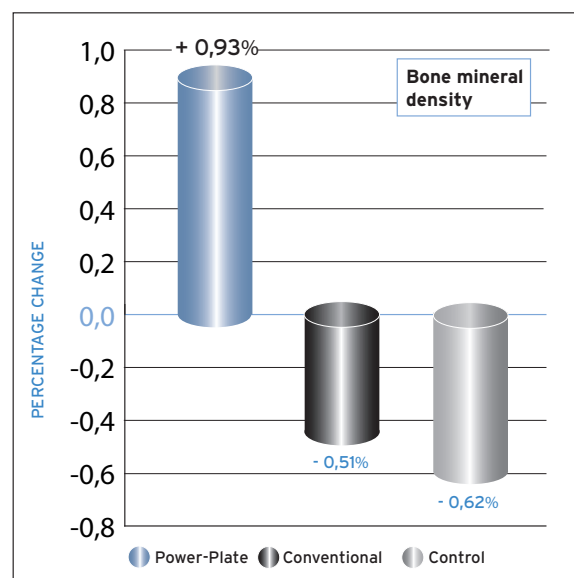


Fig. 1. Change in bone mineral density in the hip after 24 weeks of Power-Plate training compared to conventional strength training and the untrained control group.

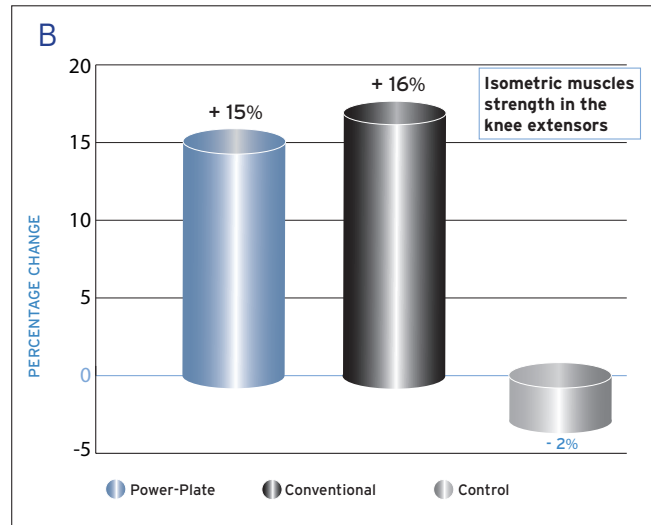
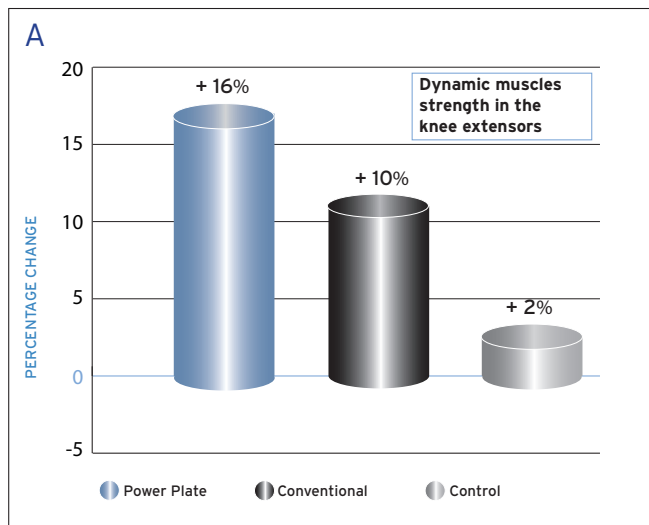


Fig. 2. Change in dynamic (fig. 2a) and isometric (fig. 2b) strength in upper leg muscles for the Power-Plate group, the conventional training group, and the control group.

The Results:

The Power-Plate group got positive results: strength increased as much as 16% in upper leg muscles, while bone density at the hip increased 1.5%. And, as a bonus, the Power-Plate group showed an improvement in postural control and balance, they increased their muscle strength and lean mass while they lost body fat and fat mass.

The conventionally trained subjects were able to slow bone loss, which is consistent with published studies on weight training and bone loss.

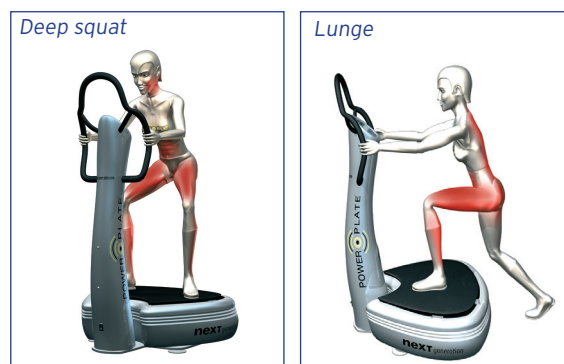
The control group subjects continued to lose bone mineral density at the average rate.

How the Power-Plate was used:

The Power-Plate group performed workouts in 30 minutes or less, including static (still) and dynamic (moving) exercises for the upper leg and hip area. The Power-Plate training variables started at the lowest (easiest) levels, and progressed with:

- * increased duration (exercise time)
- * increased number of exercises performed
- * shortened rest periods between exercises
- * increased frequency from 35Hz to 40Hz
- * increased amplitude from low to high

The Power-Plate'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, patients and exercisers can achieve strength, fat loss, better balance and reflexes, improved bone density and ultimately, greater health.



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

Conclusion:

The Power-Plate 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
- * allows fat loss
- * improves health