

# Strength Gains and Higher Jumps with Power-Plate

Research study shows Power-Plate brings strength gains and improved vertical jump height in 12 weeks compared to conventional strength training and to placebo.

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## Strength Increase after Whole Body Vibration Training Compared with Resistance Training

By Christophe Delecluse, Machteld Roelantts & Sabine Verscheure, Katholieke University of Leuven, Leuven, Belgium.

### Study Conclusions:

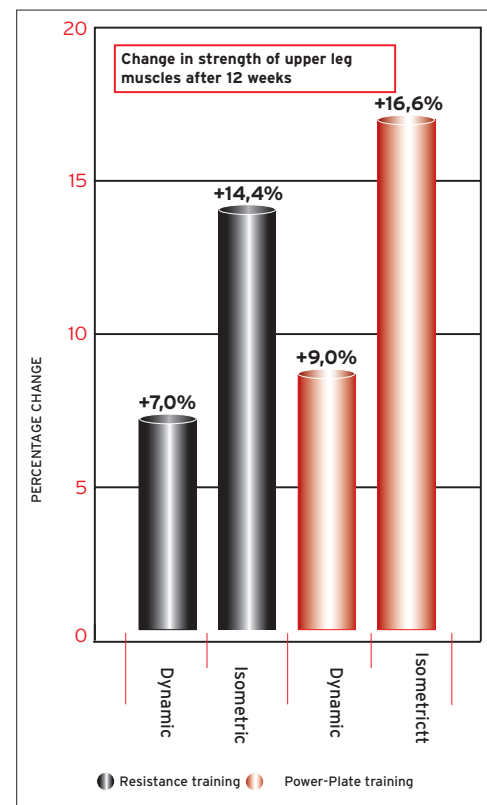
- The Power-Plate increases strength at least as effectively as conventional resistance training.
- Proof that the Power-Plate's strength increases are not due to the placebo effect.
- The Power-Plate enhances the body's sensory awareness and function, force production and vertical jump height (a measure of power).
- The study's previously untrained subjects found the Power-Plate workouts to create no adverse side effects. They found the workouts were enjoyable and not exhausting.
- The positive results suggest the indication of Power-Plate training for therapeutic uses with populations who may not be able to perform or are not attracted to strength training. This may provide safe, proactive, effective interventions to enhance wellness in many environments.

These research findings reveal exceptionally positive outcomes for many populations who wish to enhance their strength for activities of daily living. Benefits of Power-Plate's training are not exclusive to healthy untrained subjects, like those studied here. Benefits can be seen by anyone who wants to become or remain strong and perform better in life. Many populations such as geriatric, post-injury, rehabilitation, and performance athletes will benefit from the simple, effective exercises performed while standing on the Power-Plate.

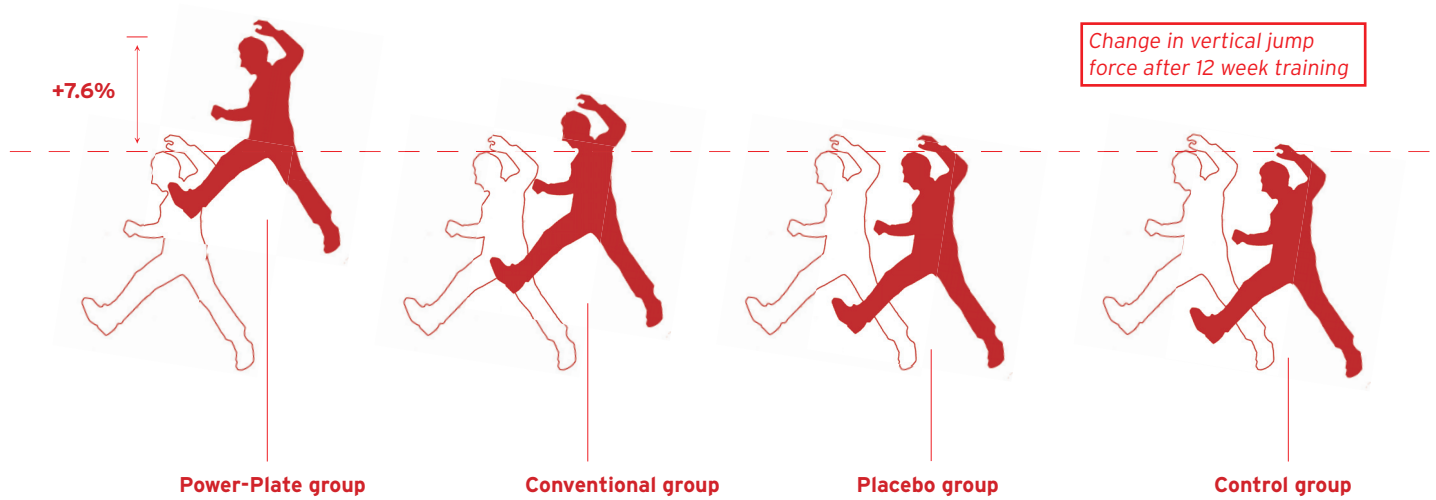
### Four groups were studied:

Sixty-seven untrained subjects were divided into four groups, and exercised three times per week for 12 weeks.

- The Power-Plate group used Power-Plate exclusively. They performed standing knee extensor exercises at a frequency of 35-40 Hz, such as lunges and squats (see pictures)
- The placebo group also used the Power-Plate, on a setting that did not generate vertical sinusoidal vibration. They felt a vibration, but it was too



**Fig. 1.** Percentage change in strength of upper leg muscles (*M. rectus femoris*) after 12 weeks for the Power-Plate training group and conventional resistance training group.



**Fig. 2.** Percentage change in vertical jump force after 12 weeks training for the four experimental groups.

- subtle to elicit a training effect. They performed the same exercises as the Power-Plate group.
3. The resistance training group performed a cardio warm-up and knee extensor exercises on two conventional strength training machines.
  4. The control group did not participate in a training program.

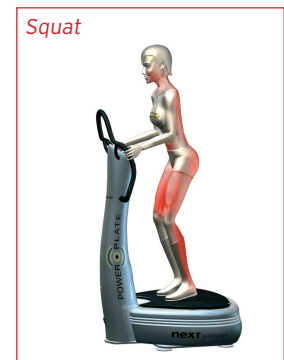
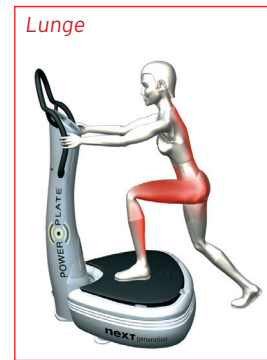
**Tests:** The contractile properties of the knee extensors were evaluated at the start (pretest) and after 12 weeks (posttest). A dynamometer was used both pretest and posttest to measure isometric, dynamic and ballistic knee extensor strength on all subjects.

**The Results:**

**The Power-Plate group** achieved a **16.6%** gain in isometric strength of knee extensors, a **9%** increase in dynamic strength of the quadriceps muscles, and a **7.6%** increase in vertical jump height. There were no reports of adverse side effects. Most subjects found the vibration loading as enjoyable and fatiguing, but did not consider it a hard or exhausting workout.

**The placebo group**, using a placebo Power-Plate, did not achieve strength or power gains; they performed the same standing knee extensor exercises on a Power-Plate that created no vertical vibration loading.

**The resistance training group** achieved strength gains of 14.4% in isometric and 7.0% dynamic



strength were achieved, while there was no improvement in power and vertical jump height.

**The control group** did not increase in any of the measurements.

**Conclusions:**

Training on the Power-Plate has proven to be an efficient training stimulus to increase muscle strength.

In addition, it is likely that while Power-Plate's Whole Body Vibration requires little exertion and is enjoyable, it elicits a biological adaptation that is similar to that produced by resistance and explosive strength training.

The Power-Plate provides all the benefits of strength and power training, without the dangers of heavy loading, particularly for special populations who would not tolerate loading but will benefit from strength gains. The Power-Plate may be indicated for use in all strength training environments, and for varied populations.

**This research suggests that Power-Plate has great potential in therapeutic environments where it can enhance muscle performance in rehabilitation patients and in the elderly, and in populations who may not be able to perform or be attracted to strength training. The Power-Plate can also enhance performance of athletes, as suggested by improved strength and vertical jump height.**