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Power Plate® Training Enhances Resistance Training, to Further Improve Body Composition

This is a summary of a study published in the international scientific journal Maturitas (2009).

By Cecilie Fjeldstad, Ian Palmer, Michael Bemben, and Debra Bemben
University of Oklahoma, USA.

Study Conclusions:

- Adding Power Plate training to a high intensity resistance training program resulted in greater improvements in the percentage of body fat, compared to resistance training alone.
- In both the exercise groups, bone free lean tissue mass increased after eight months of training.

Introduction:

Age-related changes in body composition are well documented, with the most commonly observed of these being an increase in fat mass and a decrease in muscle mass. The purpose of this study is to determine the effects of a combined Whole Body Vibration and traditional high intensity resistance training program on the body composition of postmenopausal women.

Method:

The study involved 55 postmenopausal women, who were divided into three groups. The first group performed a resistance program only (RG), which consisted of eight resistance exercises (leg press, hip flexion and extension, hip abduction and adduction, seated military press, pull down and seated row) performed in three sets of 10 repetitions with 80% of the 1-repetition maximum (1-RM). The 1-RM was obtained by finding the maximum weight lifted through an entire range of motion in a single repetition. The 1-RM was re-assessed every 4 weeks and the load was adjusted to maintain the 80% 1-RM intensity.

The second group performed the same resistance exercise program as well as performing exercises on a Power Plate machine (PP). This program included three exercises:

- Dynamic squat (figure 1a)
- Dynamic shoulder press (with straps) while seated on the Power Plate machine platform
- Wrist curl while standing in front of the Power Plate® machine (figure 1b)

This Power Plate training program was progressed by increasing the time (from 15 to 60 seconds) and frequency (from 30 to 40 Hz). Amplitude was kept constantly on low.

The third group was the control group (CON), who did not perform any exercises and was instructed to continue with their usual lifestyle.

Both exercise groups (RG and PP groups) exercised three times a week for eight months.

Figure 1A

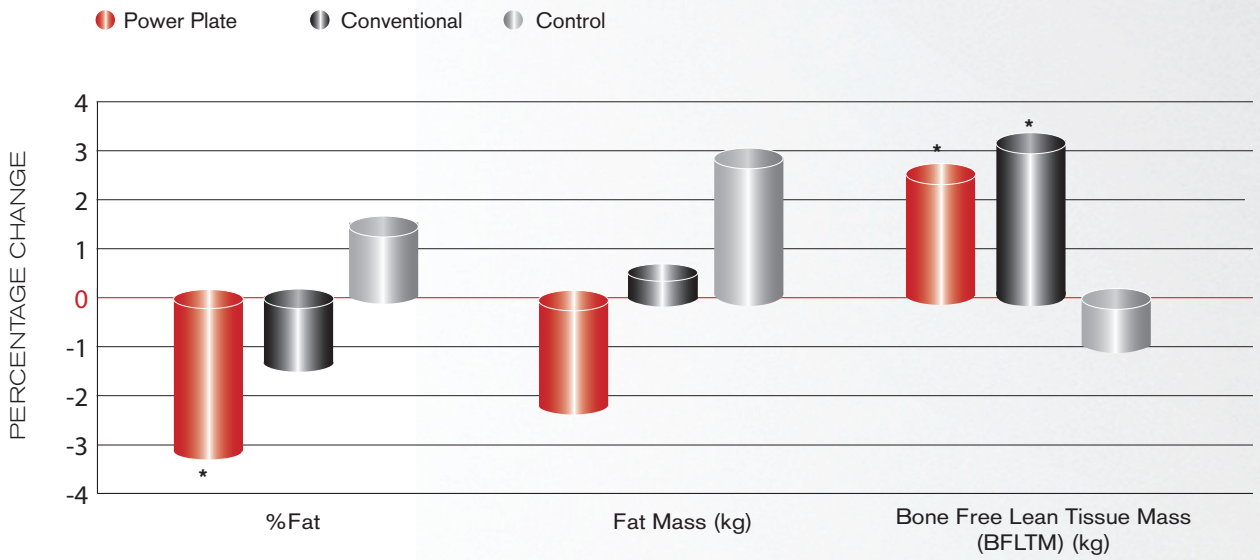
Squat

Figure 1B

Wrist Curl

Figure 2

As illustrated in figure 2, all outcome measurements improve for the PP group after 8 months of training. The total percentage of body fat decreased significantly more in the PP group than for the RG and CON groups. In both the RG and PP groups, BFLTM significantly increased after eight months of training.



***Significant Change pre vs. post**

Results:

To gauge the effectiveness of the different work-outs, measurements were taken at the start of the study, and after eight months. These measurements included percentage of fat, fat mass in kilograms and bone free lean tissue mass (muscle mass) in kilograms.

The PP group showed a larger decrease in percentage of fat, compared to the CON and RG groups. The muscle mass increased in both the PP group as the RG group. As you can see in figure 2 there is also a trend visible of a decrease in fat mass in the PP group, but the decrease isn't significiant.

Discussion and conclusion:

The primary finding of this study shows that adding whole Body Vibration training to a high intensity resistance training program resulted in a greater improvement in the percentage of body fat, when compared to resistance training only, in post menopausal women.

Bone free lean tissue mass increased for both the Power Plate and Resistance groups, which is mainly due to an increase in muscle mass.

This increase in muscle mass is an important health outcome, as it could help to reverse sarcopenia (a degenerative loss of skeletal muscle mass and strength, related to ageing) and reduce the risk of associated problems, such as decreased mobility and independence and an increased risk of falling, which can occur as a result of this.