

Power Plate® Training Increases Strength and Muscle Mass in Older Men

One Year of Acceleration Training™ Showed a Significant Increase in Muscle Mass, Isometric and Explosive Strength in Older Men.

This is a summary of a study published in *Journal of Gerontology: Medical Sciences* 2007, Vol. 62A, No. 6, 630–635.

By An Bogaerts, Christophe Delecluse, Albrecht L. Claessens, Walter Coudyzer, Steven Boonen and Sabine M. P. Verschueren
Katholieke Universiteit Leuven, Belgium

Study Conclusions:

Power Plate training, performed on a Power Plate Next Generation (2004), is at least as effective as a conventional fitness program in order to enhance isometric and explosive knee extension strength, as well as to increase muscle mass of the upper leg in community-dwelling older man. These findings suggest that Power Plate training has the potential to prevent or even reverse the age-related loss of skeletal muscle mass, referred to as sarcopenia.

The number of elderly people in Western populations is increasing every year. Because of the fact that the population is aging, more people will be confronted with age-related conditions. Maintaining the best possible health and fitness level is very important in order to prevent or cope with any of these conditions. And there are many ways in which people can contribute to sustain that level, for example, a healthy diet or staying in shape by adopting an active lifestyle.

Aging is associated with a decline in muscle mass and muscle strength, also known as sarcopenia. This condition is directly linked to decreased mobility, loss of independence, increased fall risk and a diminished quality of life and may contribute to many other age-related disorders. At this time, an estimated 30% of the population over 60 suffers from sarcopenia, but this number is expected to grow exponentially.

Method:

In this study, 97 participants were divided into three groups: a Power Plate group, a fitness group and a control group. Both the Power Plate and fitness group trained three times a week for one year. The Power Plate group exercised for a maximum of 40 minutes (see fig. 1), whereas the fitness group trained for about 90 minutes, performing cardiovascular, resistance, balance and flexibility exercises. The control group was advised not to change their lifestyle or physical activity during the project.

Figure 1



Deep Squat

Wide Stance



Calves

Lunge

Power Plate® Training Increases Strength and Muscle Mass in Older Men



Discover the Difference

Figure 2

Overview of the Power Plate® Program

Week	Duration set (sec.)	Frequency (Hz)	Amplitude	Rest (sec.)	Modalities	Number of sets
1 - 4	30	35	Low	60	Static	4
5 - 9	45	40	High	60	Static & Dynamic	7
10 - 14	60	40	High	45	Dynamic	12
15 - 19	60	40	High	45	8s principle	12
20 - 24	60	30	High	30	8s principle	12
Mid-test	30	30 -35	Low	30	Static & Dynamic	12
25 - 29	30 - 45	35	High	30	Dynamic	12
30 - 34	45 - 60	35	High	15	Dynamic	14
35 - 39	60	35	High	15	8s principle	15
40 - 44	60	35	High	15	8s principle & Dynamic	15
Post-test	60	35 - 40	High	15	8s principle & Dynamic	11

Results:

Participants of both training groups showed an increase in isometric and explosive strength. Muscle mass increased as well. There was no significant difference in results between these groups, whereas the parameters for the control group showed that their situation had not changed at all.

The conclusion the researchers reached was that Power Plate training is at least equivalent to regular fitness training. The participants achieved the same results with both kinds of training, however, training time of the Power Plate group was less than half that of the conventional fitness group. Participants considered the training more pleasant and showed greater compliance.

This study shows that using Power Plate equipment can be beneficial to fight age-related problems such as sarcopenia. It is thought that this loss of muscle mass, strength and function may contribute to several other disorders, such as osteoporosis, type 2 diabetes, insulin resistance and arthritis. Previous research has shown Acceleration Training™ to have a positive effect on osteoporosis, balance and postural control. It is an effective tool in helping to prevent some of the negative effects of aging, and may assist the growing number of elderly in maintaining their health and independence.

Figure 3

Total Training Time

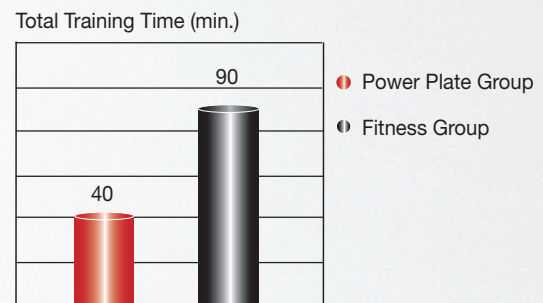
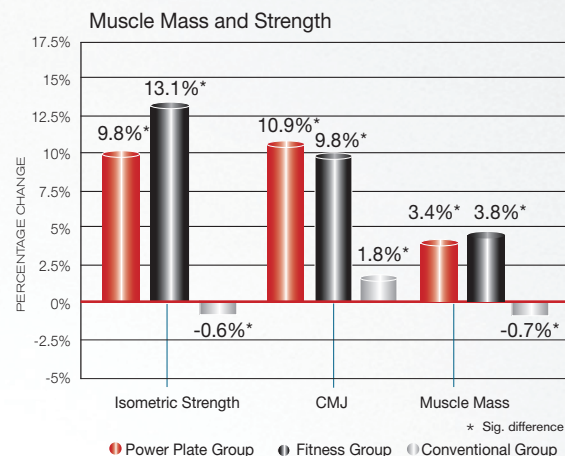


Figure 4

Both Power Plate and fitness group shows a significant increase in muscle mass and strength.



This study once again shows that Power Plate Acceleration Training is a very effective training method. It enables elderly subjects to gain muscle mass and strength in less than half the time conventional fitness training would take.