

Power Plate® Training Can Reduce Abdominal Fat in Overweight and Obese Adults

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By Vissers, D., A. Verrijken, I. Mertens, C. van Gils, A. van de Sompel, S. Truijen, and L. van Gaal University of Antwerp, Belgium

Study Conclusions:

One of the biggest health issues for obese people is visceral (or abdominal) fat. Visceral fat is the fat tissue between the organs in the abdomen. It is a major health concern because there is a strong correlation between high levels of visceral fat and the incidence of cardiovascular diseases, such as heart disease, hypertension and diabetes.

Method:

The study of Vissers et al. (2009) involved 79 obese adults (61 of whom completed the study), who were randomly divided into 4 groups:

- Group 1 received a hypocaloric (low in calories) diet only program (DIET).
- Group 2 received a hypocaloric diet plus fitness program (cardio and weights exercises) (FITNESS).
- Group 3 received a hypocaloric diet and progressive Power Plate machine program (see figure 1) (Power Plate)
- Group 4 made no changes to their lifestyle (CONTROL).

Each group followed the intervention for six months and had a six month 'no intervention' follow up. The anthropometric data, body composition and metabolic features were measured at three, six and 12 months. One measurement performed was the determination of visceral fat tissue.

In all three intervention groups (DIET, FITNESS and Power Plate) bodyweight decreased significantly, by 5-10%, which is the international standard for a real impact on health, in measurements taken after the 6 intervention months. Only the FITNESS and Power Plate groups managed to maintain their weight loss of 5% or more in the six 'no intervention' months (see figure 1). The Power Plate group even maintained a weight loss of over 10%. The mean weight in the Power Plate group was 95.2 kg, in which case

10% means that they lost 9.5 kg of their body weight, which is a considerable amount and is regarded to be significant enough to improve health.

The main difference between the Power Plate group and other groups is in the decrease of visceral fat that occurred. As illustrated in figure 2, the Power Plate group lost twice as much visceral fat after six months, when compared to the FITNESS and DIET groups. The decrease in visceral fat also remained at the same level in the Power Plate group after 12 months, while the DIET and FITNESS groups returned to their baseline values after 12 months.

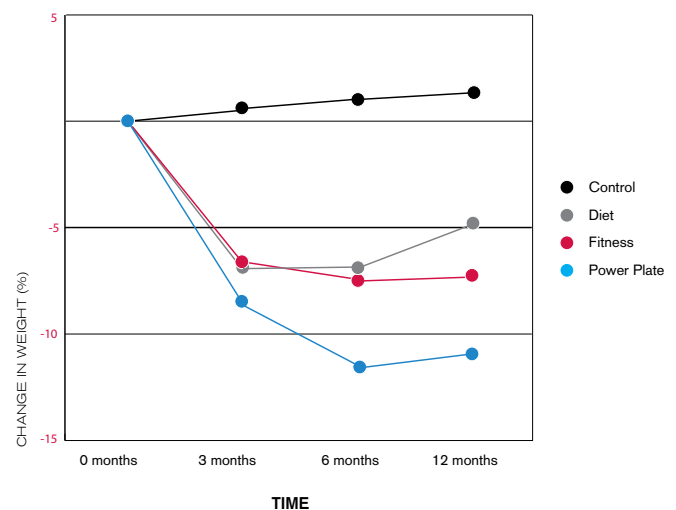


Figure 1

There was a significant difference in weight loss, expressed as a percentage of initial weight, between the 4 study groups ($p < 0.001$).

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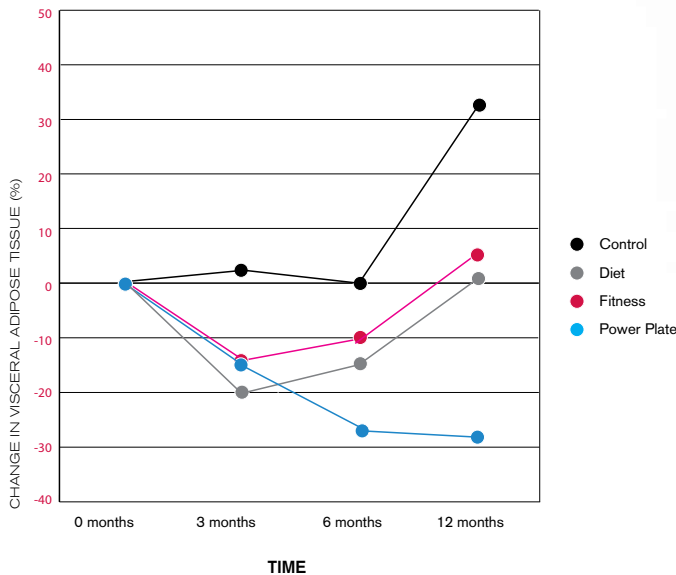


Figure 2

There was a significant difference in visceral adipose tissue between the 4 study groups ($p < 0.001$).

One possible explanation for why the Power Plate group did not return to baseline values as the other groups did after 12 months may be related to the hormonal changes that Power Plate training may cause. An animal study (Rubin et al. 2007) showed that vibration caused the adipogenesis (creation of fat cells) in mice to drop by 27%. Therefore the vibration prevented the creation of new fat cells. The underlying principles of these possible changes in humans aren't exactly clear yet, but research is currently being conducted into this.

Why did the DIET group lose more visceral fat than the FITNESS group?

The FITNESS group use more calories than the DIET group, because of their extra fitness training. During and up to 24 hours after fitness training, the human body needs energy, which is called the 'after-burning' effect. To get that energy, the human body will burn the 'easy' fat tissue (such as the subcutaneous fat) first. This means more subcutaneous fat is burned, rather than visceral fat. The results which showed that the FITNESS group lost more body weight than the DIET group is caused by this reduction in subcutaneous fat tissue.

Why did the CONTROL group lose visceral fat tissue during the first six months and then gain visceral fat tissue over the next six months?

This is most likely due to the fact that the CONTROL group knew they were involved in a study which would involve their weight and fat tissue being measured after the first six months. This may cause them to change their lifestyle, such as eating more healthily or eating smaller meals, which would result in a minor decrease in visceral fat tissue, although not of any great significance. In the second six month phase of the study, the group could be aware that the others being tested were not doing any interventions, so they would feel comfortable in adopting their previous lifestyle, or perhaps adopting even more unhealthy habits, resulting in an increase in visceral fat tissue.

Practical Applications:

Many obese or overweight people find it difficult to start an exercise routine, as the common fitness options, such as the gym, are too difficult or demanding, or they may feel embarrassed by their own bodies and their low fitness level. For obese or overweight people, the Power Plate machine could be the ideal introduction to exercise.

The Power Plate machine offers several advantages. Acceleration Training™ exercise is low-impact; reducing strain on the joints, especially while doing static exercises. Also the time needed to complete a workout is much shorter on a Power Plate machine. The average time for traditional fitness training is approximately 60 minutes or more, while the average time for a Power Plate session in this particular study was 30 minutes. This shows that exercising on the Power Plate machine is very time-efficient.

Study Conclusion:

Adding Power Plate® Training to a hypocaloric diet can help to achieve a SUSTAINED LONG TERM WEIGHT LOSS and can reduce visceral adipose tissue in obese adults MORE than aerobic exercise.