

Whole Body Vibration Augments Resistance Training Effects on Body Composition in Postmenopausal Women

Power Plate® whole body vibration training with resistance training decreases body fat percentage in postmenopausal women.

This is a summary of a study published in the Maturitas in Mar. 2009. By Cecilie Fjeldstad, Ian J. Palmer, Michael G. Bembien, and Debra A. Bembien, University of Oklahoma.

Background:

As people age, changes in body composition include increases in fat mass, decreases in lean body mass, and a redistribution of body fat patterns.

Postmenopausal women experience hormone changes, which can lead to the development of insulin resistance and the metabolic syndrome.

In this study, the goal is to determine the effects of combined traditional high intensity interval training and whole-body vibration on body composition in postmenopausal women.

Method:

The subjects of this study were estrogen-deficient postmenopausal women between the ages of 60-75. 55 subjects completed the entire 32 weeks of the study. The women were non-randomly assigned to either a resistance training group, a vibration plus resistance training group, or a non-exercising control group.

Prior to the study, total and regional body composition was measured by dual energy X-ray absorptiometry (DXA).

For resistance training intervention, resistance training and strength testing were performed using Cybex isotonic weight training equipment. Eight resistance exercises were conducted: supine leg press, hip flexion, hip extension, hip abduction, hip adduction, seated military press, latissimus pull down, and seated row. Participants performed a 5 minute warm up and a warm-up at each exercise machine prior to the 1-RM testing (finding the maximum weight lifted through range of motion). The resistance exercise protocol consisted of training 3 times a week for 8 months, with 1 hour sessions each time.

The whole body vibration (WBV) training was conducted with the use of a Power Plate® vibration platform. Participants performed dynamic movements in three positions: (1) dynamic squats while standing on

vibration platform, (2) performing shoulder extension/flexion movements using the straps while seated on the vibration platform, and (3) performing wrist curls with the attached straps while standing on the floor. Vibration exposures started at a low intensity and increased throughout the study. There was a 15 second rest interval between every vibration exercise.

Results:

Fifty-five women were assigned to either resistance only, vibration plus resistance, or non-exercising control groups. In the vibration plus resistance group, total percentage body fat decreased whereas the control group experienced a significant increase in total body fat percentage. In addition, both training groups experienced increases in bone-free lean tissue mass for the total body, arm, and trunk regions. The control group experienced no changes in lean tissues.

Conclusion:

It is becoming more and more clear that resistance training is a key factor in women's health. This study demonstrates that whole body vibration in addition to resistance training can result in positive body composition changes by increasing lean tissue. The combination of resistance training plus whole body vibration was also effective for decreasing body fat percentage. This study varies from previous studies because most other studies look solely at whole body vibration against a control, whereas this study included resistance training for optimal results.