

Effects of 24 weeks of whole body vibration training on body composition and muscle strength in untrained females.

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The aim of this study was to investigate and to compare the effect of 24 weeks "whole body vibration" training and fitness training on body composition and on muscle strength. Forty-eight untrained females (21.3 +/- 2.0 yr) participated in the study. The whole body vibration group (N = 18) performed unloaded static and dynamic exercises on a vibration platform (35 - 40 Hz, 2.5 - 5.0 mm; Power Plate). The fitness group (N = 18) followed a standard cardiovascular (15 - 40 min) and resistance training program including dynamic leg press and leg extension exercises (20 - 8 RM). Both groups trained 3 times weekly. The control group (N = 12) did not participate in any training. Body composition was determined by means of underwater weighing. Additionally 12 skinfolds were assessed. Isometric (0 degrees /s) and isokinetic (50 degrees /s, 100 degrees /s, 150 degrees /s) knee-extensor strength was measured by means of a motor-driven dynamometer (Technogym). Over 24 weeks there were no significant changes ($p > 0.05$) in weight, in percentage body fat, nor in skinfold thickness in any of the groups. Fat free mass increased significantly in the whole body vibration group (+ 2.2 %) only. A significant strength gain was recorded in the whole body vibration group (24.4 +/- 5.1 %; 5.9 +/- 2.1 %; 8.3 +/- 4.4 %; 7.6 +/- 1.5 %) and in the fitness group (16.5 +/- 1.7 %; 12.0 +/- 2.7 %; 10.4 +/- 2.3 %; 10.2 +/- 1.9 %), at 0 degrees /s, 50 degrees /s, 100 degrees /s and 150 degrees /s respectively. In conclusion, 24 weeks whole body vibration training did not reduce weight, total body fat or subcutaneous fat in previously untrained females. However, whole body vibration training induces a gain in knee-extensor strength combined with a small increase in fat free mass. The gain in strength is comparable to the strength increase following a standard fitness training program consisting of cardiovascular and resistance training.

Roelants M., Delecluse C., Goris M. & Verschueren S. (2004). Effects of 24 weeks of whole body vibration training on body composition and muscle strength in untrained females. *International Journal of Sports Medicine*. 25(1).