Effects of bioDensity Training on Lipid Profile in Young Women: A Pilot Study

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ABSTRACT

bioDensity training is a novel type of resistance exercise, which includes four basic isometric exercises in a subsequent fashion: chest press, leg press, core pull, and vertical lift. Although it's primarily targeted on bone strength, a previous study showed that it improved HbA1C, fasting glucose, HDL, LDL and total cholesterol in elderly patients with Type 2 diabetes (Zheng et al. 2019). To date, the research on bioDensity training is limited, and its effects on a healthy population are unknown. **PURPOSE**: We are looking to examine the effects of 12-week bioDensity training on lipid profiles in young women. **METHODS**: Twelve young, healthy women, between the ages 18-30 years old completed this study. They were matched to 1-repetition group (1-REP, n=6) and 2-repetition group (2-REP, n=6) based on their age, weight and height. Both groups performed the bioDensity training protocol, either one repetition or 2 repetitions, once a week for 12 weeks. Two fasting blood samples were taken from the participants, both before and after the bioDensity training intervention. Whole blood was analyzed via the Lipid Panel Plus kit in Piccolo Express chemistry analyzer, including total cholesterol (CHOL), HDL, Triglycerides (TRIG), LDL, VLDL, Alanine Aminotransferase (ALT), Aspartate Aminotransferase (AST), and glucose (GLU). Independent sample t-test was used to compare the baseline between both groups, and mixed measure ANOVA (2x2) was used to compare the effects of time, group, and time x group interaction. **RESULTS**: We found significant time x group interactions in TRIG ($p = .04$) and VLDL ($p = .028$). Although there are no statistically significant differences, there is a large time effect in LDL ($\eta2 = .246$) and a large group effect in ALT ($\eta2=.235$). In addition, there are large effects of time x group interaction in HDL, ALT, AST, and Glucose despite no statistically significant differences. TRIG and VLDL significantly decreased in the 1-REP group after training, whereas AST significantly decreased in the 2-REP group after training. **CONCLUSION**: Our pilot data suggests that bioDensity training has potential beneficial effects on specific lipids. A larger sample size and manipulation of the training protocol are needed to further confirm the results from the study.