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7. Changes on bone mineral density after a body weight loss program.

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Background: Body weight is directly associated with bone mass and obese adults usually have higher bone mineral density (BMD) (Villareal, Apovian, Kushner, & Klein, 2005). Body weight loss, especially via energy restriction, has been observed in numerous studies (Jensen, Quaade, & Sorensen, 1994; Pritchard, Nowson, & Wark, 1996; Villareal et al., 2006) to be associated with bone loss (Pritchard, et al., 1996; Reid, 2002). Therefore, maintenance of BMD after weight loss is extremely important to maintain bone integrity and avoid fracture. The objective was to compare the changes on bone mineral density after a 6-months body weight loss program based on calorie restriction and exercise.

Methods: One hundred and eighty overweight and obese people (body mass index: 30.5±2.6 kg/m²), aged 18-50 years, participated in the study (84 men, 96 women) during 6 months. Four types of treatments were randomly assigned: strength training (S), endurance training (E), strength and endurance training (SE), and control group (C). All participants followed a 25-30% caloric restriction diet. Two-way ANOVA with repeated measures was used to compare the changes on bone mineral density among the different intervention groups. The level of significance was set at 0.05.

Results: A significant interaction moment X group was revealed (F3,171=2.675; p=0.049). S group reduced its BMD by -0.008±0.003 g/cm² (p=0.005), while E, SE and C maintained it unaltered (-0.004±0.002 g/cm² [p=0.073], 0.002±0.003 g/cm² [p=0.349], and -0.001±0.003 g/cm² [p=0.647], respectively) after the body weight loss program.

Conclusion: The results show that the inclusion of physical exercise in weight loss programs does not ensure the maintenance or improvement of BMD, since the S group, with low impact, decreased its BMD.

References:


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