



Endocrinología y Nutrición



417 - The effects of weight loss approaches on bone mineral density in adults: a systematic review and meta-analysis of randomized controlled trials

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Resumen

Introduction: Findings are not consistent on the effect of weight loss on bone mineral density (BMD). We conducted a systematic review on the randomized controlled trials to assess the effect of weight loss strategies including calorie restriction and exercise programs on BMD in adults.

Methods: A structured and comprehensive search of MEDLINE and EMBASE databases was undertaken up to August 2015. Study-specific weighted mean differences (WMD) were pooled using a random-effects model. Subgroup analysis and meta-regression were used to find possible sources of between-study heterogeneity.

Results: Thirty randomized controlled trials met predetermined inclusion criteria. The meta-analysis revealed no significant difference on total BMD (WMD: 0.00, 95%CI: 0.00-0.01, $p = 0.729$) and lumbar spine BMD (WMD: 0.004 g/cm², 95%CI: -0.004 to 0.013, $p = 0.318$) after weight loss program. In contrast, the pooled data of sixteen studies with 2,975 participants showed a significant effect of weight loss on hip BMD (WMD: -0.007, 95%CI: -0.012-0.002 g/cm², $p = 0.011$). BMD in the hip site decreased after more than 4 months, especially in those who were obese. Moreover, exercise interventions during 4-9 months showed a significant increase in lumbar spine BMD.

Conclusions: Weight loss led to significant decreases at the hip but not at the total body or lumbar spine. Weight loss response following calorie-restriction and combination of calorie-restriction and exercise program resulted in a decrease in hip bone density; whereas an exercise-induced weight loss did not.