

ADIPOKINES MAY MEDIATE THE RELATIONSHIP BETWEEN RESTING METABOLIC RATES AND BONE MINERAL DENSITIES IN OBESE WOMEN

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Introduction: The researchers sought to test the possible link between resting metabolic rate and bone mineral density through four adipokines. Participants with lower resting metabolic rate (RMR) per kilogram demonstrated higher total bone mineral density (BMD), total T-score, and total Z-score. Omentin-1 had a mediatory effect on the relationship between RMR/kg of body weight and bone parameters. The previous results of studies regarding the links between obesity and bone health are controversial. For this reason, the researchers sought to test the possible link between RMR and BMD through the following four adipokines: vaspin, retinol binding protein 4, angiopoietin-like 6 (ANGPL6), and omentin-1.

Methods: We enrolled 312 obese Iranian women ($30 \leq$ body mass index <40) in this cross-sectional study. In order to examine the association of serum adipokine levels with RMR and BMD, the participants were grouped based on RMR per body weight. Body composition, dietary intake, bone mineral density, and resting metabolic rate were assessed in all participants. Serum adipokine levels were quantified by the enzyme-linked immunosorbent assay (ELISA) method.

Results: Low levels of RMR/kg were strongly associated with higher weight, body mass index, fat mass, and visceral fat levels. In fact, participants with an RMR/kg of body weight <20 kcal/24 h/kg were more obese ($p<0.05$). Another noteworthy finding was that participants with lower RMR/kg demonstrated higher total BMD, total T-score, and total Z-score. Our results showed that omentin-1 had a mediatory effect on the relationship between RMR per kilogram of body weight and bone parameters ($p<0.05$). Nevertheless, other adipokines such as vaspin, retinol-binding protein 4 (RBP4), and ANGPL6 did not affect the relationship between RMR and BMD ($p>0.05$).

Conclusions: The inhibitory effect of omentin-1 on TNF-alpha seems to be able to reduce the amount of circulating leptin as adipokine, affecting energy expenditure and improving bone loss induced by estrogen deficiency and controlled effect of RMR on BMD.

BIOGRAPHY

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