

Magnesium, insulin resistance and body composition in healthy postmenopausal women

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Abstract

Objective: This study was conducted to determine the association between magnesium (Mg), body composition and insulin resistance in 136 sedentary postmenopausal women, 50 to 77 years of age.

Methods: Diabetics, hypertensives and women on hormonal replacement therapy were excluded and the remaining 74 were divided according to BMI \geq 25 (obese: OG) and BMI<25 kg/m² (non-obese: NOG). Nutritional data disclosed that intakes were high for protein and saturated fat, low for carbohydrates, polyunsaturated fat and Mg and normal for the other nutrients, according to recommended dietary allowances (RDA). Mg values in red blood cells (RBC-Mg) and plasma (P-Mg), were determined, as were fasting glucose, and insulin levels, Homeostasis Model Assessment (HOMA), body mass index (BMI), body fat percent (BF %), abdominal fat (AF) and free fat mass (FFM).

Results: RBC-Mg values were low in both groups when compared with normal values. There were significant differences in body composition parameters, HOMA and insulin levels, with higher basal insulin levels in OG. RBC-Mg was directly correlated with insulin, HOMA and FFM in both groups, according to Pearson correlations. HOMA in OG was also directly correlated with BMI, FFM and AF. In NOG, HOMA was only

correlated with FFM. The low RBC-Mg levels observed were probably due to low Mg intake and to deregulation of factors that control Mg homeostasis during menopause.

Conclusions: Both Mg deficit and obesity may independently lead to a higher risk for insulin resistance and cardiovascular disease.

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- [Mg deficiency,](#)
- [insulin resistance,](#)
- [body composition,](#)
- [postmenopause,](#)
- [fat-distribution,](#)
- [obesity](#)

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