

Abstract

Nutr Metab Cardiovasc Dis. 2009 Apr 7. [Epub ahead of print]

Effects of oral magnesium supplementation on insulin sensitivity and blood pressure in normo-magnesemic nondiabetic overweight Korean adults.

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BACKGROUND AND AIM: Little is known about the effect of magnesium on insulin sensitivity and BP in healthy individuals. Therefore, we investigated whether magnesium could improve insulin sensitivity and blood pressure (BP) in normo-magnesemic nondiabetic overweight adults.

METHODS AND RESULTS: In a double-blinded, placebo-controlled, randomized trial, a total of 155 participants (BMI ≥ 23 kg/m²) received either 12.3 mmol (300 mg) of elemental magnesium in the form of magnesium oxide (n=75) or placebo (n=80) each day for 12 weeks, constituting the intent-to-treat population. A repeated-measures ANOVA was used to evaluate the between-group changes in variables during the study. The baseline characteristics between the intervention and control groups were similar. There were no significant differences between the groups in the pattern of change of the homeostasis model assessment insulin resistance index, BP over time during the 12-week study. In subgroup analysis, magnesium supplementation (n=8, 27, and 24, respectively) lowered BP much more than placebo (n=16, 29, and 25, respectively) in those subjects whose systolic BP ≥ 140 mmHg, diastolic BP 80-90 mmHg, and diastolic BP ≥ 90 mmHg at the start of the study (P=0.016, 0.043, and 0.023, respectively); in comparison, those subjects whose initial BP reading was low at baseline did not show a change in BP. **No significant adverse events related to magnesium supplementation were recorded.**

CONCLUSIONS: **These results suggested that magnesium supplementation does not reduce BP and enhance insulin sensitivity in normo-magnesemic nondiabetic overweight people. However, it appears that magnesium supplementation may lower BP in healthy adults with higher BP.**

PMID: 19359148