Magnesium status and the metabolic syndrome: A systematic review and meta-analysis.

Sarrafzadegan N, Khosravi-Boroujeni H, Lotfizadeh M, Pourmogaddas A, Salehi-Abargouei A.

Isfahan Cardiovascular Research Center, Cardiovascular Research Institute, Isfahan University of Medical Sciences, Isfahan, Iran; Menzies Health Institute and School of Medicine, Griffith University, Queensland, Australia; Community Health Department, Shahrekord University of Medical Sciences, Shahrekord, Iran; Hypertension Research Center, Cardiovascular Research Institute, Isfahan University of medical Sciences, Isfahan, Iran; Nutrition and Food Security Research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran; Department of Nutrition, Faculty of Health,

OBJECTIVES: To systematically review the published evidence regarding the association between Mg intake and serum concentrations with MetS and, if possible, to summarize the results using a meta-analysis.

METHODS: PubMed, ISI Web of Science, Scopus, and Google Scholar were searched to identify related articles. Fully adjusted odds ratios (ORs) of MetS in participants with the highest intake of Mg compared with those who had the least consumption, and the mean difference in serum Mg levels between patients with MetS and their controls were extracted for the meta-analysis.

RESULTS: In total, 9 articles with 31 876 participants were included in the meta-analysis regarding the association between dietary Mg intake and MetS, and 8 studies that assessed the mean level of serum Mg in 3487 individuals with and without MetS were eligible. Our analysis found that higher consumption of Mg is associated with lower risk of MetS (OR = 0.73; 95% confidence interval: 0.62, 0.86; P < 0.001); we also could find a significant but heterogeneous association between serum Mg and MetS (mean difference: -0.19; 95% confidence interval: -0.36, 0.03; P = 0.023).

CONCLUSIONS: The present systematic review and meta-analysis found an inverse association between Mg intake and MetS. However, the inverse association for serum Mg levels was highly heterogeneous and sensitive. The link between Mg status and MetS should be confirmed by prospective cohort studies.

PMID: 26919891