

## Magnesium intake lowers the metabolic syndrome risk in young

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People suffering from metabolic syndrome are known to be at higher risk of developing coronary heart disease and type 2 diabetes mellitus. Epidemiological studies show that magnesium lowers the triglyceride serum level, increases the high-density lipoprotein (HDL) cholesterol level and plays an important role in glucose metabolism; still, these mechanisms are not yet entirely understood. Previous cross-sectional studies show an inverse correlation between serum magnesium levels or magnesium intake and the prevalence of metabolic syndrome. However, there was no longitudinal study ever to be considered; also, all the current information about magnesium influence on the cardiovascular risk or on the diabetes onset is based on studies on middle-aged and old population.

The purpose of this study was to prospectively examine the relation between magnesium intake and the incidence of metabolic syndrome. The study population consisted in 4637 young people, aged 18 to 30 years old, free of metabolic syndrome or diabetes at baseline. The follow-up period was 15 years.

The participants underwent several assessments over the years: dietary information, clinical examination, lifestyle, fasting glucose and insulin levels, triglycerides and HDL-cholesterol levels. Only 16 percent of the participants were taken supplements that contained magnesium. The diagnosis of metabolic syndrome was made according to the National Cholesterol Education Program/ Adult Treatment Panel III (ATP III) definition.

A total of 608 cases of metabolic syndrome were identified during the follow-up period. Magnesium intake was inversely associated with waist circumference, fasting glucose level, triglyceride and HDL-cholesterol levels and blood pressure. This inverse correlation remained the same in the supplement nonusers group. It was independent of calcium levels. The gender and race made no statistical significant difference. There is still no clear evidence of magnesium specific action mechanisms.

This is the first prospective study which successfully provides evidence that magnesium intake is inversely associated with the development of metabolic syndrome and its components in young adults.

*Comment on the paper:*

He K, Liu K, Daviglus ML et al – Magnesium Intake and Incidence of Metabolic Syndrome Among Young Adults. *Circulation* 2006; 11:1675-1682