

Magnesium may benefit blood pressure in hypertensives

By Stephen Daniells, 19-May-2009

Supplemental magnesium may reduce blood pressure people with high blood pressure, but seemingly normal magnesium levels, says a new study from Korea.



On the other hand, the supplements had no effect on the blood pressure measurements of normo-tensive individuals, according to findings published online in *Nutrition, Metabolism and Cardiovascular Diseases*.

"These findings suggest that magnesium supplementation may help prevent the progression of hypertension in normo-magnesemic non-diabetic overweight people with higher BP, although mechanisms of counter-regulation preventing further BP increase remain to be elucidated," wrote the researchers from Pusan National University.

The study adds to findings from epidemiological studies which reported that more magnesium, potassium and calcium may reduce the risk of hypertension in certain populations.

High blood pressure (hypertension), defined as having a systolic and diastolic blood pressure (BP) greater than 140 and 90 mmHg, is a major risk factor for cardiovascular disease (CVD) - a disease that causes almost 50 per cent of deaths in Europe, and reported to cost the EU economy an estimated €169bn (\$202bn) per year.

Study details

Since very little is known about how magnesium may effect insulin sensitivity and blood pressure in healthy individuals, the researchers recruited 155 people to take part in a double-blinded, placebo-controlled, randomised trial. The subjects, who had an average BMI of 23 kg/m², were randomly assigned to receive either daily supplements of 300 mg of elemental magnesium in the magnesium oxide form or placebo for 12 weeks.

At the end of the study, no significant differences were observed between the magnesium or placebo groups. However, when the researchers looked specifically at hypertensives, significant decreases in both systolic and diastolic blood pressure were observed in the magnesium group (17.1 and 3.4 mmHg, respectively), compared to placebo (6.7 and 0.8 mmHg, respectively).

"Most of epidemiologic studies have shown an inverse association between magnesium intake and fasting insulin concentration or the incidence of type 2 diabetes although associations for magnesium-rich diets in these studies may reflect other beneficial dietary components such as fibers in foods that are high in magnesium," wrote the researchers. "Thus, magnesium supplements could be an alternative tool for the prevention of type-2 diabetes and metabolic syndrome."

Magnesium and diabetes



A meta-analysis of prospective cohort studies by researchers at Stockholm's Karolinska Institutet, reported that for every 100 milligram increase in magnesium intake, the risk of developing type-2 diabetes decreased by 15 per cent.

Writing in the *Journal of Internal Medicine* Susanna Larsson and Alicia Wolk concluded that while it is too early to recommend magnesium supplements for type-2 diabetes prevention, increased consumption of magnesium-rich food "seems prudent."

Source: *Nutrition, Metabolism and Cardiovascular Diseases* Published online ahead of print, doi: 10.1016/j.numecd.2009.01.002 "Effects of oral magnesium supplementation on insulin sensitivity and blood pressure in normo-magneseimic nondiabetic overweight Korean adults"
Authors: S. Lee, H.K. Park, S.P. Son, C.W. Lee, I.J. Kim, H.J. Kim

