

*Atherosclerosis*. 2010 Dec;213(2):563-9. doi: 10.1016/j.atherosclerosis.2010.08.073.  
Epub 2010 Sep 22.

## Low serum magnesium concentrations predict increase in left ventricular mass over 5 years independently of common cardiovascular risk factors.

Reffelmann T<sup>1</sup>, Dörr M, Ittermann T, Schwahn C, Völzke H, Ruppert J, Robinson D, Felix SB.

### + Author information

#### Abstract

**OBJECTIVE:** Left ventricular hypertrophy (LVH) is a significant predictor of adverse cardiovascular events. Experimental studies suggest a pathophysiological role of magnesium (Mg(2+)) in the development of arterial hypertension and LVH.

**METHODS:** In subjects with complete echocardiographic data from the population-based longitudinal "Study of Health in Pomerania" (n=1 348), the difference in left ventricular mass (LVM) over 5 years (echocardiography) was analyzed in relationship to serum Mg(2+) at baseline.

**RESULTS:** Mg(2+) at baseline ( $0.790 \pm 0.003$  mmol/l, mean  $\pm$  SEM) inversely correlated with the difference in LVM over 5 years ( $p < 0.0001$ , females:  $p < 0.002$ , males:  $p < 0.024$ ). In the lowest Mg(2+)-quintile ( $\text{Mg}(2+) \leq 0.73$  mmol/l), LVM ( $187.4 \pm 3.1$  g at baseline) increased by  $14.9 \pm 1.2$  g, while in the highest Mg(2+)-quintile ( $\text{Mg}(2+) \geq 0.85$  mmol/l) LVM ( $186.7 \pm 3.4$  g at baseline) decreased by  $-0.5 \pm 2.8$  g ( $p < 0.0001$  between quintiles). By multivariable analysis including several cardiovascular risk factors and antihypertensive treatment, serum Mg(2+) was associated with the increase in LVM at a statistically high significant level ( $p < 0.0001$ ). LVM after 5 years was significantly higher in subjects within the lower Mg(2+)-quintiles. This association remained highly significant after adjustment for several cardiovascular risk factors including arterial hypertension and diabetes mellitus.

**CONCLUSIONS:** Hypomagnesemia is one of the strongest predictors of gain in LVM over the following 5 years.

Copyright © 2010 Elsevier Ireland Ltd. All rights reserved.

PMID: 20864108 DOI: [10.1016/j.atherosclerosis.2010.08.073](https://doi.org/10.1016/j.atherosclerosis.2010.08.073)

[Indexed for MEDLINE]



Publication type, MeSH terms, Substance



LinkOut - more resources

