

## **Functional Medicine: Low magnesium Associated with Coronary Artery Calcification**

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Magnesium is probably the greatest predictor of all aspects of heart disease. Approximately more than 50% of Americans are deficient in this mineral. Magnesium plays a key role in more than 350 enzymes and is involved in virtually every metabolic process occurring in the body.

Studies have suggested an association between low serum magnesium levels and cardiovascular disease. Low magnesium intake has also been associated with future risk of hypertension and stroke. Furthermore, numerous studies have shown that low serum magnesium is associated with vascular calcification, but there have been no studies examining a relationship to coronary artery calcification.

In a study published in Nutrition, Metabolism & Cardiovascular Diseases, researchers analyzed 34,553 participants who underwent coronary multi-detector computed tomography and serum magnesium level measurement from 2010 to 2012 as part of a health examination program. According to the analysis, low serum magnesium was associated with coronary artery calcification after adjustment for age, sex, BMI, diabetes, hypertension, cardiovascular disease, systolic blood pressure, LDL cholesterol, HDL cholesterol, eGFR, serum calcium and phosphorus, hs-CRP, current smoking status, alcohol intake and vigorous exercise frequency.

Low serum magnesium was significantly associated with coronary artery calcification for those at low risk for developing cardiovascular disease. This association was significant after adjustment for various risk factors related to cardiovascular disease and was even withheld in groups without risk factors such as hypertension, diabetes, and obesity.

Keep in mind that serum magnesium only represents only 1% of magnesium stores. Magnesium is homeostatically controlled in the serum and measuring serum magnesium levels provides many false negatives. By the time an individual's serum magnesium is low, they are very deficient in magnesium, as the body cannot maintain the serum magnesium levels. RBC magnesium is definitely a better choice and the most accurate test we have. This can be done by most laboratories.

We have seen decades of increased dietary calcium intake in the American population that has not been balanced with an increase in dietary magnesium intake, and as a result the majority of adults have become magnesium deficient. Dietary calcium-to-magnesium ratios have continued to increase and studies are showing that calcium supplements not balanced with magnesium actually contribute to an increase in the risk of heart disease

**Dr. Badanek has been and currently is 40 years into active/private practice in the Ocala/Marion County, Florida region. Dr. Badanek practices Natural/Holistic Medicine through the use of Functional/Integrative Models for diagnostic and treatment protocols for the health challenged. Find him online at [Dr.Badanek.com](http://Dr.Badanek.com) and [www.alternativewholistic.com](http://www.alternativewholistic.com), and see what the facility has to offer the sick and health challenged. To schedule an appointment call 352-622-1151**

