

Magnesium is probably the greatest predictor of all aspects of heart disease. Perhaps up to 50% of Americans have deficient or suboptimal levels of this macro 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. This may be one of the reasons that perhaps as many as half the people who die of heart disease have normal cholesterol levels!

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. But it is expensive, time consuming and not usually covered by insurance.

However, **Nutritional Response Testing**, NRT for short, is a simple, quick and painless yet highly accurate solution. If you would like me to "muscle test" test your magnesium levels next visit, just ask, There is no extra charge.: -). It is easy to tell if you are taking too much supplemental magnesium. Your stools will lose form and become pudding like.

Generally, magnesium citrate is the best form for the price. Dosage can range for 200 to 800 mg day.

Everyone should have a magnesium rich diet. Here are Ten foods high in magnesium.

<https://www.medicalnewstoday.com/articles/318595>

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!!!



Vitally Yours, Dr. John

The information in this newsletter is not intended to replace a one-on-one relationship with a qualified health care professional and is not intended as medical advice. It is only intended as a sharing of knowledge and information from the reading, research and experience of Dr. John. Dr. John encourages you to make your own health care decisions based upon your research and in partnership with him or another qualified health care professional.

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