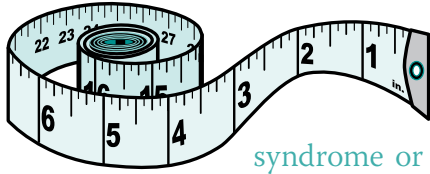


# Magnesium & Metabolic Syndrome

by Channing Dallstream



**Large waistline. Arterial plaque. High triglycerides. Low HDL. High blood pressure.** Having more than three of these symptoms puts you at risk for developing metabolic syndrome (MetS), also known as insulin resistance syndrome or syndrome X. Classified as the next epidemic by health professionals; MetS increases the risk of developing heart disease and diabetes. Both diseases are in the World Health Organization's top 10 for causes of early death or health issues that reduce the quality of life. Along with proper diet and exercise, the mighty enzyme-regulating mineral magnesium (Mg) can help reduce the factors and thus the risk of developing MetS.

## Large waistline defined

We're not talking 'love handles' but the big hard 'pot belly' of more than 40 inches for men; 35 inches for women. Soft squishy fat in your midsection is located just under the skin. The hard visceral fat is found intertwined with abdominal organs and situated near the portal vein, responsible for moving blood from the intestinal area to the liver. Harvard Medical researchers link this fat with higher total cholesterol, high LDL, low HDL and insulin resistance.<sup>1</sup> The good news is visceral fat responds quickly to increased exercise (30 to 60 minutes daily) and improved diet/weight loss.

## Plaque, plaque, plak

Blocked arteries caused by plaque buildup and blood clots are the leading cause of death in the U.S.<sup>2</sup> Arteries narrowed by the accumulation of this waxy, sticky substance stress the entire circulatory system, which is responsible for bringing blood and oxygen to the heart, brain and rest of the body. Plaque alone can lead to heart attack, heart damage and stroke.

## Cholesterol numbers game

The combination of high density lipids (HDL), low density lipids and triglycerides has been recalculated in recent years. The American Heart Association's (AHA) current recommendation is a total cholesterol level of 200-240 mg/dL. HDL of 60 mg/dL or higher gives some protection against heart disease.<sup>3</sup> Triglycerides should be below 200 mg/dL. The AHA attributes high triglycerides to several causes; genetics, a high refined carb diet (more than 60% of total calories), obesity, and medications including beta blockers and estrogens.



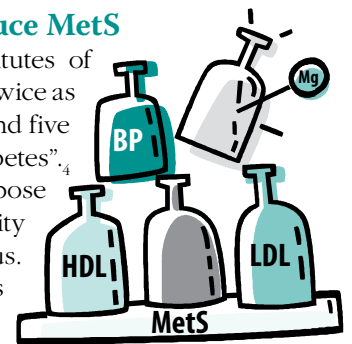
## Lub dub

There are two numbers measuring blood pressure; systolic (the higher number) and diastolic. The systolic number rises steadily with age due to "increasing stiffness of large arteries,

long-term build-up of plaque, and increased incidence of cardiac and vascular disease" per the AHA. The diastolic measurement is the force at which the heart pumps blood through arteries between heartbeats (when the heart muscle is resting between beats and refilling with blood). What's currently considered healthy? Below 160/100 mm Hg.

## How these five factors induce MetS

According to the National Institutes of Health having MetS makes you "twice as likely to develop heart disease and five times as likely to develop diabetes".<sup>4</sup> Visceral fat is known to predispose to a reduced insulin sensitivity which may also reduce Mg status. Insulin is a hormone that helps move blood sugars into the cells for energy. Diets high in sugars and fat deplete Mg stores, and low intracellular Mg means low metabolism. Lose the fat by kicking out the 'white foods' – refined white flour and white sugar, white potatoes, etc. Opt for deeply colored veggies and fruits, complex carbs and ancient grains like quinoa. Reduce or eliminate 'super sizing' with portion control. Protein servings should be about the size of your open palm, complex carbs about the size of your fist. Limit fats like butter, peanut butter and cream cheese servings to a thumb-sized one tablespoon. Mg replacement improves blood sugar control and helps activate enzymes that tell your body whether it's getting enough food to satisfy its needs. Of course, Mg also helps you feel energized.<sup>5</sup>



Chances are if your doctor has already diagnosed you with high cholesterol, high triglycerides or high blood pressure, you're low in Mg. This mineral helps maintain a healthy cholesterol total by raising the HDL which "might well reverse the process" of fat depositing in the arteries; while also lowering LDL through enzyme regulation.<sup>6</sup> And Mg specifically lowers triglyceride levels.<sup>7</sup>

*Continued*

## Magnesium & Metabolic Syndrome

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Heart muscles rely on magnesium for relaxation after the heart muscle contraction. Mg produces electrical charges controlling calcium ion concentrations within the muscle cell, allowing those cells to relax. Maintaining a normal heartbeat, and therefore a normal blood pressure, requires a delicate balance of calcium monitored by magnesium. In order to maintain this balance, when serum (blood) Mg becomes low it will 'borrow' from your cellular Mg stores.



Even if you're vigilant with your diet it is difficult to consume your daily Mg requirement (300-400 mg)<sup>8</sup>, and more difficult if you're low. Organic chelated Mg supplements are highly absorbable and remain gentle on the GI tract unlike oxide and salt Mg forms,<sup>9</sup> "Absorption matters. The right chelate form promises to be absorbed up to four times better than mineral salt forms," explains Theresa Seaquist of Albion. Supplementing with an organic chelated Mg, like Fibro-Care™, gets the mineral into the cell where it can regulate more than 300 enzyme functions.

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Making healthy changes now can help you avoid or stop the development of MetS and/or reduce its health impact. Lose the belly. Eat better. Exercise more. Get tested. Share the red blood cell magnesium (RBC Mg) test with your healthcare professional to find out what your Mg status is. Only the RBC Mg test measures the mineral level inside the cell where it matters most. Maintain your cellular Mg level to help alleviate all of the risk factors for developing MetS.

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## Know YOUR Magnesium Level

**Keeping tabs on this important mineral is as easy as a blood test.  
Just make sure you ask your healthcare professional for the right test!**

Ask for a Magnesium Red Blood Cell test (Mg RBC) which measures cellular Mg levels. It is the test recommended by Thomas Romano, M.D.\* Dr. Romano opts for an RBC value of at least 5.5 mg/dL. If the level is low (even low normal), oral Mg is recommended. If very low, IV drip or intramuscular (push) Mg may be necessary to bring levels up more quickly.

A common Mg test is done on blood serum or plasma but these parts of the blood do not represent cellular levels. Mg RBC is the most efficient or practical way to test for cellular magnesium; therefore, ask your doctor for the Mg RBC test.

Your doctor's office can draw the necessary blood and ship it to Quest for processing if a local laboratory does not offer Mg RBC tests. Your doctor needs a Quest client number or account first. You may wish to have the test

done even if your insurance company does not pay for it as the cost is low – in Arizona, Mg RBC is \$83 with an \$11 draw fee. To find a Quest laboratory near you call the general number below.

**Quest Diagnostics 1-866-697-8378 (most states)**  
**Sonora Quest 602-685-5000 (Arizona only)**

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\*Dr. Thomas Romano has no monetary affiliations with TyH, Inc. or Quest Labs. He is a rheumatologist by specialty, clinician, researcher, and author of "Magnesium Deficiency in Fibromyalgia Syndrome" published in the *J Nutr Med* (1994) 4:165-167. Dr. Romano practices in Martin's Ferry, Ohio.

