

WHAT *THEY*  
DON'T WANT YOU  
TO KNOW ABOUT  
MAGNESIUM...

YOU  
*REALLY*  
**SHOULD**  
**KNOW.**

# THE **CALCIUM** CONTROVERSY

BY GUY E. ABRAHAM, M.D.



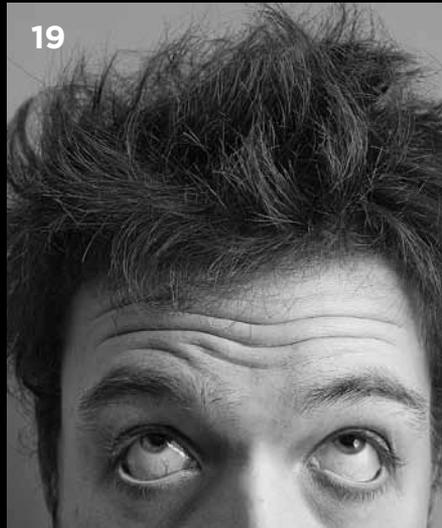
# 14 CLASSES OF **DRUGS** THAT DEplete YOUR BODY OF MAGNESIUM

BY SUZY COHEN, R.PH.

# LET'S GET **SICK**

IN 10 EASY STEPS

BY MORLEY M. ROBBINS



# INTRODUCTION

## BY MORLEY M. ROBBINS (AKA “MAGNESIUM MAN”)

We've all been trained to believe that Calcium is good for strong bones. Right? But as a former hospital executive and consultant of 32 years, I want you to understand that Calcium is also good for strong bottom lines - for Doctors & Hospitals. An intriguing thought...

That Calcium is good for bones is, in reality, a credible myth. In fact, it takes 18 different nutrients, including Calcium and Magnesium, to make a strong bone matrix, but then that amount of information starts getting too complex. What is important to understand is that Calcium and Magnesium are in an endless and dynamic dance within our bodies and our bones. These two key minerals are actually antagonists. And when these minerals get out of balance in our body, which does happen when acute and chronic stress depletes our bodies of Magnesium, a whole series of problems and chronic diseases unfold.

Sloooowly, the world of allopathic medicine (AMA Doctors) is recognizing what the world of natural healing has known all along about the relationship of Calcium and Magnesium, particularly as it relates to chronic disease:

- That most, if not all, chronic disease is triggered by unchecked inflammation. It is now well established for heart disease, arthritis, IBS, and many other chronic conditions. Recently, even the world of Oncology embraced this new world order that even this most dreaded disease, Cancer, is now considered an inflammatory disease.
- That all Inflammation is controlled by the Sympathetic Nervous System, otherwise known as the “fight or flight” response.
- That the Sympathetic Nervous System is triggered by excess, unregulated Calcium.
- And finally, that Calcium is, in fact, regulated, and controlled, by Magnesium.

Wait a minute. Calcium is regulated and controlled by Magnesium? I've never heard that before. Probably, because your Doctor simply doesn't know this foundational aspect of how our bodies actually work. It's not their fault; they simply have not been trained completely in how these critical mineral relationships effect our metabolism.

As we'll see from the initial article by Guy Abraham, MD, what is well known is that there are three hormones that control the level and placement of Calcium within our body: Parathyroid Hormone, Calcitonin and Vitamin-D (1 $\alpha$ 25[OH]2-D3). What

is important to know is that the production of all three of these hormones is regulated by Calcium's antagonist: **Magnesium**. It's starting to get interesting, wouldn't you agree?

Following Dr. Abraham's article, is a most revealing article by Suzy Cohen, RPh, also known as "America's Most Trusted Pharmacist." She reveals the fact that there are 14 Classes of Drugs that cause Magnesium depletion in our bodies. Many of these drugs are commonly prescribed and are household names, despite the fact that there are only adding to the level of imbalance between Calcium and Magnesium.

And finally, the third article is my paradoxical attempt to wake you up to the cold hard reality of how easy it is to get Magnesium deficient in our society today. Not known, because not looked for.

As we begin to pull back the curtain on these ground-breaking discoveries about the true relationship between Calcium and Magnesium, it is revealing that the body of research supporting these conclusions, in fact, goes back as far as the early 1900's. Almost too hard to believe, but true. (Please note: some of the first studies on how to create heart disease - by increasing the level of Calcium, with a corresponding decrease in Magnesium - were published in the 1930's.)

To get a better understanding of the critical role of Magnesium in our bodies, please go to the website: [www.MagnesiumMan.com](http://www.MagnesiumMan.com). You might also enjoy a series of Magnesium-related articles which are posted at [www.monthlyaspectarian.com/the-monthly-aspectarian-morley-articles-archive.html](http://www.monthlyaspectarian.com/the-monthly-aspectarian-morley-articles-archive.html).

Thank you for taking the time to read this monograph. May it shed light on the underlying cause many, if not all, of your aches and pains.

A votre santé! ■

"PEOPLE WOULD RATHER BELIEVE  
**A SIMPLE LIE**  
THAN THE COMPLEX  
**TRUTH"**  
- LAO TZU - 600 BC



## IT IS OFTEN STATED

that large amounts of calcium are required for strong bones, to calm nerves and for other characteristics of good health. Some nutritionists recommend up to three grams of calcium a day to prevent calcium deficiency. The purpose of this editorial is to review some aspects of Human Evolution, Physiology, Biochemistry and Dietary Habits in order to clarify calcium requirements and its close relationship to intake of other nutrients, mainly magnesium.

# THE CALCIUM CONTROVERSY

BY GUY E. ABRAHAM, M.D.

## EVOLUTIONARY CONSIDERATIONS

Over the past 6000 years or more man evolved in a magnesium and potassium-rich, but calcium and sodium-poor, environment. For survival, the human body had to develop efficient conserving mechanisms for sodium and calcium. To conserve sodium, the Zona Glomerulosa of the Adrenal Cortex secretes a very potent mineralocorticoid, Aldosterone, which increases sodium retention via the kidney<sup>27</sup>. To conserve calcium, the skin developed a synthetic process that manufactures Vitamin D<sub>3</sub> from a cholesterol derivative, under the influence of solar ultraviolet radiation. Vitamin D<sub>3</sub> is then hydroxylated by the liver to 25-OH-D<sub>3</sub>. The kidney is the site of the most important step: 1-hydroxylation of 25-OH-D<sub>3</sub> to generate 1, 25 (OH)<sub>2</sub> D<sub>3</sub>, the most potent calcium-conserving substance<sup>16</sup>. It increases calcium and phosphate absorption in the small intestine and decreases calcium excretion in the urine:

## PHYSIOLOGICAL CONSIDERATIONS

The 1-hydroxylase is located in the kidney as a mitochondrial enzyme. It is sensitive to intramitochondrial calcium and phosphate. Intramitochondrial accumulation of both calcium and phosphate depress the activity of 1-hydroxylase, thereby decreasing formation of 1, 25 (OH)<sub>2</sub> D<sub>3</sub><sup>22</sup>. A low phosphate diet increases and a high phosphate diet depresses 1, 25 (OH)<sub>2</sub> D<sub>3</sub> production<sup>20</sup>.

Besides 1, 25 (OH)<sub>2</sub> D<sub>3</sub>, there are two hormones that play an important role in calcium metabolism: Calcitonin (CT) and Parathyroid Hormone (PTH)<sup>3</sup>. Both hormones are sensitive to serum ionized calcium levels. An increase in serum ionized calcium results in stimulation of CT secretion and suppression of PTH secretion. CT and PTH regulate skeletal turnover of calcium and availability of cytoplasmic calcium<sup>3</sup>. The major skeletal effect of PTH is to increase bone

resorption by stimulating osteoclasts, thereby increasing mobilization of calcium from bone. PTH also favors cellular uptake of calcium by soft tissues and phosphate excretion by the kidney. CT has the opposite effect, that is, it increases deposition of calcium in the bone matrix and blocks cellular uptake of calcium by soft tissues. Magnesium suppresses PTH and stimulates CT secretion<sup>28</sup>, therefore favoring deposition of calcium in the bone and removal of calcium from soft tissues. Furthermore magnesium enhances calcium absorption and retention<sup>5, 12</sup>, whereas increasing calcium intake suppresses magnesium absorption<sup>2, 25</sup>.

## **BIOCHEMICAL CONSIDERATIONS**

Calcium and magnesium are often antagonistic in their effect of biological reactions<sup>7</sup>. For example, the biosynthesis of both phospholipids and proteins involve enzymatic steps which have an obligatory requirement for magnesium and are calcium-inhibited. The glycolytic pathway contains five enzymatic reactions that have an absolute requirement for magnesium and require optimal magnesium/calcium ratio for peak performance.

In order for the cell to maintain the proper magnesium/calcium ratio, several levels of regulation are available, acting on the removal of calcium from the cytoplasm. One such mechanism is the ATP-dependant calcium pump in the cell membrane<sup>9, 10</sup>. The other important mechanism is the transport of calcium inside the mitochondria. The mitochondria uptake of calcium is reversible if calcium concentrations in the microenvironment are kept below certain limits. Above these limits, calcification of mitochondria occurs with subsequent cellular death. In the presence of magnesium, the uptake of calcium by mitochondria can be slowed down. Since ATP utilization is magnesium-dependent, it becomes obvious that the calcium pump at the cell membrane is also magnesium-dependent. The generation of ATP itself through the glycolytic pathway is in part magnesium-dependent and inhibited by calcium.

## **DIETARY CONSIDERATIONS**

Stable civilizations have arisen only when primitive hunting communities have learned to cultivate cereals, such as wheat, rice maize, millets, barley, oats and rye. In many rural areas, cereals provide more than 70% of the energy consumed<sup>9</sup>. Table I shows the magnesium and calcium concentrations in these staple foods. They contain two to eight times more magnesium than calcium, and as much as one thousand milligrams of magnesium could be consumed if two thousand calories were obtained from these sources. One may argue that dairy products contributed to most of the ingested calcium. This is unlikely since 50% of individuals tested so far show allergic reactions to dairy products and lactose intolerance is common in most ethnic groups, occurring in 70% of Black Americans and over 70% of Orientals, Jews, Arabs, Greeks, Japanese, Eskimos, Indians, Africans and Asians<sup>23, 17, 13, 14, 15, 1, 24, 18, 8, 19, 30, 31</sup>.

**MAGNESIUM AND CALCIUM CONCENTRATIONS IN SOME CEREALS**

Cereal	Magnesium (mg / 100 Cal)	Calcium (mg / 100 Cal)	Magnesium / Calcium Ratio
Millet	50	6.2	8.2
Maize	42	6.0	7.0
Wheat	34	11.0	3.1
Rye	34	11.5	3.0
Brown Rice	25	9.0	2.8
Barley	11	4.6	2.3
Oat	38	18.0	2.1

Considering that 99% of the total body calcium is located in the bones, it is not surprising that academic proponents of high calcium intake have used as an argument the possible role of calcium deficiency in osteoporosis<sup>1, 4, 29</sup>. There is no evidence, however, to support this view. Osteoporosis is not more common in those parts of Asia and Africa where diets are relatively low in calcium (300-500 mg/day) than in Europe and North America where consumption of dairy products contributes to more than 1000 mg of calcium/day. When patients with severe osteoporosis were given massive doses of calcium they went into positive calcium balance, but radiographic studies revealed no changes in the osteoporotic process. Where did that calcium go? Obviously into the soft tissues where it does not belong.

Calcium balance studies have indicated that man can adapt to relatively low calcium intake by increasing calcium absorption and decreasing urinary excretion<sup>10</sup>. There is not such a mechanism for magnesium<sup>26</sup>. The adaptation to low calcium intake is most likely via synthesis of  $1, 25(\text{OH})_2\text{D}_3$  by the kidney. It was previously discussed that high intramitochondrial concentrations of phosphate and calcium in the kidney suppress the formation of  $1, 25(\text{OH})_2\text{D}_3$ <sup>20, 22</sup>. Therefore, mechanisms that increase intracellular and intramitochondrial calcium would prevent adaptation to low calcium intake. Failure of the calcium-pump at the cell membrane and increased uptake of calcium by mitochondria are two such mechanisms which are both magnesium-dependent as previously discussed. Since a low phosphate diet increases formation of  $1, 25(\text{OH})_2\text{D}_3$ <sup>20</sup> and a high magnesium diet would keep calcium out of the mitochondria, it seems therefore that one approach to improving the adaptation to low calcium intake is to ingest a diet low in phosphate and high in magnesium. Such an approach to the management of osteoporosis would seem more appropriate than the ingestion of massive doses of calcium. The latter approach blocks magnesium absorption and creates a magnesium deficiency, conducive to a failure of the calcium-pump and intracellular accumulation of calcium in soft tissues that eventually leads to irreversible cell damage. Also,

magnesium deficiency results in elevated PTH which prevents the utilization of the absorbed calcium for bone formation and favors soft tissue calcification.

Recent studies suggest that calcium requirements are increased by acid-ash, high- protein and high sulfur diet<sup>21</sup>. In order to increase the efficiency of the adaptation mechanism to low calcium intake, every attempt should be made to ingest foods containing a magnesium/calcium ratio of two or more, with neutral or alkaline ash, not excessive in phosphate, sulfur, proteins, refined sugar, fats and other substances that drain the body of both calcium and magnesium. Magnesium deficiency causes a reduced intestinal absorption of calcium and decreased serum ionized calcium. Magnesium has a calcium-sparing effect and decreases the need for calcium.

Since magnesium suppresses PTH and increases CT, adequate magnesium intake would improve the phosphorous balance from a low phosphate diet by increasing phosphate absorption via the 1, 25 (OH)<sub>2</sub> D<sub>3</sub> mechanisms and by preventing the PTH induced phosphaturia. Furthermore, a high magnesium intake would enhance calcium absorption by the 1, 25 (OH)<sub>2</sub> D<sub>3</sub> mechanisms, increase serum ionized calcium, promote deposition of calcium in the bone matrix where it belongs and minimize cellular uptake and mitochondrial accumulation of calcium. With such an approach there would be no need for pharmaceutical companies to develop new and improved calcium blockers in the management of cardiovascular diseases, since magnesium works naturally to produce the same end result. ■

## **ABOUT THE AUTHOR**

*Guy E. Abraham, MD, is a former professor of Obstetrics and, Gynecology, at the UCLA School of Medicine. Some 45 years ago, he pioneered the development of assays to measure minute quantities of steroid hormones in biological fluids. His contributions have been acknowledged with several awards: General Diagnostic Award from Canadian Association of Clinical Chemist, 1974; the Medaille d'Honneur from the University of Liegc, Belgium, 1976; the Senior Investigator Award of Pharmacia Sweden, 1980.*

*Some 30 years ago Dr. Abraham developed a magnesium emphasized nutritional program for women with premenstrual tension syndrome and post-menopausal osteoporosis. This magnesium emphasized program is currently part of the nutritional management of PMS and osteoporosis of many gynecologists. In 2000 he initiated the Iodine Project, a reevaluation of the role of the essential element iodine in medical practice. In order to better understand iodine metabolism, he developed a simple technique to measure iodide and other halides in biological fluids. Ten years ago, he introduced the concept of Orthoiodosupplementation, that is, iodine supplementation for whole body sufficiency, based on an iodine/iodide test that he developed. He is currently involved in research on the effects of negatively charged electrolyzed water on aging and degenerative disease.*

## REFERENCES:

1. Alzante, H. Gonzalez, H. and Guzman, J. "Lactose intolerance in South American Indians." *Am. J. Clin. Nutr.* 22: 122, (1969).
2. Amiot, D., Hioco, D. and Durlach, J. "Frequence du deficit magnesique chez le sujet et dans diverses osteopathies." *J. Med. Besancon* 5:371-378, (1969).
3. Aurbach, G.D., Marx, S.J. and Spiegel, A.M. "Parathyroid Hormone, Calcitonin, and Calciferols." In textbook of Endocrinology, Williams, R.H. (Ed), Saunders Co., 922-1032, (1981).
4. Aviolo, LV. "Postmenopausal osteoporosis: prevention versus cure." *Fed. Proc.* 40: 2418, (1981).
5. Briscoe, A.M. and Ragen, C. "Relation of magnesium on calcium metabolism in man." *Am. J. Clin. Nutr.* 19: 296-306, (1966).
6. Bryan, W.T.K. and Bryan, M.P. "Cytotoxic Reactions in the Diagnosis of Food Allergy." *Otol. N. Am.* 4: 523-533, (1971).
7. Bygrave, F.L. "Cellular Calcium and Magnesium Metabolism." In *An Introduction to Bio-inorganic Chemistry*. Williams, D. R. (Ed) Thomas, 171-184, (1976).
8. Cook, G.C. and Kajubi, SK. "Tribal incidence of lactase deficiency in Uganda." *Lancet* I: 725, (1966).
9. Davidson, S., Passmore, R., Brock, J.F. and Truswell, AS. "Human Nutrition and Dietetics." Churchill Livingstone, 166-175, (1979).
10. Davidson, S., Passmore, R., Brock, J.F. and Truswell, A.S. "Human Nutrition and Dietetics." Churchill Livingstone, 90-106. (1979).
11. Draper, H.H. and Scythes, C.A. "Calcium, phosphorous, and osteoporosis." *Fe. Proc.* 40: 2434, (1984).
12. DuRuisseau, J.P. and Marineau, J.M. "Osteoporose medication calcique et magnesienne," See *Int'l Sympos on Magnesium*, 223-226, (1971/1973).
13. Gilat, T., et. al. "Lactase deficiency in Jewish communities in Israel." *Am J. Digest. Dis.* 16:203, (1971).
14. Gilat, T., et. al. "Lactose intolerance in an Arab population." *Am. J. Digest. Dis.* 16:203, (1977).
15. Gudmand-hoyer, and F., Jarnum, S. "Lactose malabsorption in Greenland Eskimos." *Acta Med. Scand.* 186:235, (1969).
16. Holick, M.F. and Clark, MB. "The photobiogenesis and metabolism of Vitamin D." *Fed. Proc.* 37: 2567-2574, (1978).
17. Huang, S.S. and Bayless, T.M. "Milk and lactose intolerance in healthy orientals." *Science* 160: 83, (1968).
18. Johnson, J.D., et. al. "Lactose malabsorption among the Pima Indians of Arizona." *Gastroenterology* 73: 985, (1977).
19. Kretchmer, N., et.al. "Intestinal absorption of lactose in Nigerian ethnic groups." *Lancet* 2: 392, (1971).
20. Larkins, R.G., McAuley, S.J., Colston, K.W., Evans, I.M.A., Galante, L.S. and Macintyre, I. "Regulation of Vitamin D. Metabolism without Parathyroid Hormone." *Lancet*: 289-291, (1973).
21. Linkswiler, H.M., Zemel, M.B., Hegsted, M., and Schuette, S. "Protein-induced hypercalciuria." *Fed. Proc.* 40:2429, (1981).
22. MacIntyre, I. "Vitamin D and the integration of Calcium Regulating Hormones." In *First European Symposium on hormones and Cell Regulation*. Dumont, J. and Nunez. J. (Ed) North Holland, 195-208, (1977).
23. Nasrallah, SM. "Lactose intolerance in the Lebanese population and in 'Mediterranean lymphoma'." *Am. J. Clin. Nutr.* 32:1994-1996, (1979).
24. Newcomer, AD., et. al. "Family studies of lactose deficiency in the American Indian." *Gastroenterology* 73: 1299, (1977).
25. Parlier, R., Hioco, D. and LeBlanc, R. "Les troubles du metacolisme magnesien. Symptomes et traitement des carences et des plethores magnesiennes." *Rev. Franc. Endocr. Clin.* 4: 335-339, (1963).
26. Rude, R.K., Bethune, J.E. and Singer, F.R. "Renal tubular maximum for magnesium in normal, hyperparathyroid and hypoparathyroid man." *J. Clin. Endocrinol. Metab.* 51: 1425-1431, (1980).
27. Schrier, R.W. and Leaf, A. "Effect of Hormones on Water, Sodium, Chloride, and Potassium Metabolism." In *Textbook of Endocrinology*, Williams R.H. (Ed) Saunders Co., 1032-
28. Seelig, MS. "Magnesium Deficiency in the Pathogenesis of Disease." Plenum Medical Book Company, 317-321, (1980).
29. Seeman, E. and Riggs, B.L. "Dietary prevention of bone loss in the elderly." *Geriatrics* 36:71-79, (1981).
30. Senewiratne, B., et. al. "Intestinal lactase deficiency in Ceylon (Sri Lanka)." *Gastroenterology* 72:1257, (1977).
31. Shibuya, S. et. al. "Lactose intolerance in Japanese children." *Advan. Med (Japan)*. 72:323, (1970).

# 14 CLASSES OF DRUGS THAT DEplete YOUR BODY OF MAGNESIUM

BY SUZY COHEN, R.PH.

## ACID BLOCKERS

- Cimetidine (Tagamet)
- Esomeprazole (Nexium)
- Famotidine (Pepcid and Pepcid Complete)
- Nizatidine (Axid)
- Omeprazole (Prilosec OTC)
- Pantoprazole (Protonix)
- Ranitidine (Zantac)
- Rabeprazole (Aciphex)

## ANTACIDS

- Aluminum and magnesium hydroxide (Maalox, Mylanta)
- Aluminum carbonate gel (Basaljel)
- Aluminum hydroxide (Amphojel, AlternaGEL)
- Calcium carbonate (Tums, Titalac, Rolaids)
- Magnesium hydroxide (Phillips' Milk of Magnesia)
- Sodium bicarbonate (Alka-Seltzer, baking soda)

## ANTIVIRAL AGENTS

- Delavirdine (Rescriptor)
- Foscarnet (Foscavir)
- Lamivudine (Epivir)
- Nevirapine (Viramune)
- Zidovudine, AZT (Retrovir)
- Zidovudine and Lamivudine (Combivir)

## ANTIBIOTICS (A FEW EXAMPLES)

- Amoxicillin (Amoxil)
- Azithromycin (Z-Pak)
- Cefaclor (Ceclor)
- Cefdinir (Omnicef)
- Cephalexin (Keflex)
- Ciprofloxacin (Cipro)
- Clarithromycin (Biaxin)
- Doxycycline (Doryx)
- Erythromycin (E.E.S.)
- Levofloxacin (Levaquin)
- Minocycline (Minocin)
- Sulfamethoxazole and trimethoprim (Bactrim, Septra)
- Tetracycline (Sumycin)

## BLOOD PRESSURE DRUGS

- Hydralazine (Apresoline)

### *ACE inhibitors:*

- Enalapril and HCTZ (Vaseretic)

Angiotensin II receptor blockers:

- Valsartan and HCTZ (Diovan HCT)

### *Diuretics, loop:*

- Bumetanide (Bumex)
- Ethacrynic acid (Edecrin)
- Furosemide (Lasix)
- Torsemide (Demadex)

*Diuretics, thiazide: (and any combination drug that contains HCTZ or hydrochlorothiazide—dozens of drugs contain this)*

- Candesartan and HCTZ (Atacand HCT)
- Chlorothiazide (Diuril)
- Chlorthalidone (Hygroton)
- Hydrochlorothiazide or HCTZ (Hydrodiuril)
- Methyclothiazide (Enduron)
- Metolazone (Zaroxolyn)

*Diuretics, potassium-sparing:*

- Possibly the potassium-sparing diuretics, however this is not conclusive

*Diuretics, sulfonamide:*

- Indapamide (Lozol)
- Cardiac Glycoside
- Digoxin (Digitek, Lanoxicaps, Lanoxin)

## **CENTRAL NERVOUS SYSTEM (CNS) STIMULANTS**

- Methylphenidate (Metadate, Ritalin)

## **CHOLESTEROL AGENTS**

- Cholestyramine (Questran)
- Colestipol (Colestid)

## **CORTICOSTEROIDS**

- Betamethasone (Diprolene, Luxiq)
- Dexamethasone (Decadron)
- Hydrocortisone (Cortef)
- Methylprednisolone (Medrol)
- Mometasone (Elocon)
- Prednisolone (Pediapred Liquid)
- Prednisone (Deltasone, Liquid Pred, Sterapred)
- Triamcinolone (Aristocort cream)

*Inhaled corticosteroids:*

- Flunisolide (Nasarel, Nasalide)
- Fucicason (Flonase)
- Triamcinolone (Azmacort inhaler)

## **HORMONE REPLACEMENT THERAPY / ORAL CONTRACEPTIVES**

- Diethylstilbestrol (DES)
- Estradiol (Activella, Climara, Combipatch, Estrace, Estraderm, Estring, EstroGel, Femring, Menostar, and many others)
- Estrogen-containing drugs (hormone replacement therapy and birth control)
- Estrogens, conjugated (Premphase, Prempro)
- Estrogens, esterified (Estratab)
- Estropipate (Ogen)
- Ethinyl estradiol (found in many birth control pills)
- Levonorgstrel (found in many birth control pills)

## **IMMUNOSUPPRESSANTS**

- Cyclosporine (Sandimmune, Neoral)
- Tacrolimus (Prograf)



## **NONSTEROIDAL AROMATASE INHIBITORS FOR BREAST CANCER**

- Anastrozole (Arimidex)

## **OSTEOPOROSIS**

- Raloxifene (Evista)

## **SERMS (SELECTIVE ESTROGEN RECEPTOR MODULATORS / USED FOR BREAST CANCER)**

- Raloxifene (Evista)
- Tamoxifen (Nolvadex)
- Toremifene (Fareston)

## **SULFONAMIDES**

- Sulfa antibiotics, some diabetic medications

## **MISCELLANEOUS**

- Alcohol
- Calcium supplementation (prolonged or in excess)
- Coffee
- Estrogen dominance
- High cortisol levels
- High-sugar diet (glucose, fructose, sucrose)
- Malabsorption of any sort (celiac or Crohn's disease, pancreatitis, crash dieting, anorexia)
- Mineral oil



**MAGNESIUM** has to be one of my all-time favorite minerals because it has beneficial effects all over the body. Think of it as your chill pill because it makes you relax from your head down to your toes. Magnesium is important for a good mood, first and foremost, but most people don't realize it's also necessary for stabilizing blood pressure. Without enough magnesium, your blood pressure rises. You need the mineral to keep your heart beating in perfect rhythm and to keep your pancreas functioning optimally.

Deficiencies of magnesium can lead to cardiac and blood sugar issues. Western societies are short on magnesium in part as a result of soil depletion and the processing of food. I believe this is one reason why we are seeing so much heart disease, depression, and diabetes. Magnesium is not as chic as calcium. You don't see people wearing magnesium mustaches, do you? If you did, they'd be green, since magnesium is found in a lot of green foods, including seaweed, spinach, turnip greens, and spirulina. It would not be pretty.

I feel that magnesium is so important that without enough of it in your system, you will suffer more diseases in your lifetime and die sooner than if you had normal, healthy levels. Seriously, it's that important.



Magnesium deficiency can cause muscle weakness, tremor, and spasm. Your heart is a muscle. If you get a spasm or tremor in your heart, you're in trouble. In fact, magnesium deficiency can cause arrhythmias such as atrial fibrillation, irregular contraction, and rapid heart rate. Some studies show that magnesium also benefits people with asthma by preventing bronchospasm.

Magnesium is so protective of the brain that when you run low, you are more prone to migraines, insomnia, anxiety, phobias, brain fog, depression, and suicidal thoughts. A deficiency of this mighty mineral could result in more frequent headaches, migraines, fasciculation (twitching), muscle pain, fibromyalgia, poor nail growth, and asthma. And if that's not bad enough, you could also develop leg cramps, tenderness all over your body, a weak heart, high blood pressure, and thicker, stickier blood. Since magnesium is married to calcium and used to build bone, a magnesium deficiency could cause bone brittleness (osteoporosis), a condition more likely to occur in women. In fact, women have a particularly hard time of it when they run low on magnesium. In addition to osteoporosis, we see a lot more emotional instability and PMS symptoms such as tearfulness, cramps, mood swings, and irritability—even panic attacks.

Kids need magnesium for healthy brain function. Studies have shown that low magnesium can cause attention deficit problems. In fact, medical researchers have known about this effect for quite some time. One study done way back in 1997 found that 95 percent of kids with ADHD (attention-deficit/hyperactivity disorder) were deficient in magnesium. In 1987, another trial included 75 magnesium-deficient children with ADHD who were randomly assigned to receive either magnesium along with their standard treatment or just their standard treatment alone for 6 months. Those who received magnesium showed a significant improvement in personality and behavior, while the control group exhibited worsening behavior over the study period. This explains why many natural supplements for ADHD contain magnesium. The mineral helps relax the brain and allow more focus.

This book is for adults, not children, so the doses I suggest throughout the book are adult doses. But it seems necessary to include appropriate daily children's doses here: For children 1 to 3 years old, 80 mg; for children 4 to 8, 130 mg; and for children 9 to 13, 240 mg. Make sure you let your child's pediatrician know about the supplement. If your child takes medication, you'll want to get the doctor's approval before starting.

I often recommend this mineral to people with depression (for mood stability), fibromyalgia (because it reduces muscle pain), and anger management problems and for aggressive personalities (for its calming effects). Make no mistake, if you are married to a Tasmanian devil who blows his or her fuse at the sight of dirty

dishes, magnesium won't do a thing for it. It's really for people who want to chill out a bit more, stop being worrywarts, feel more content, or reduce the frequency of panic attacks.

Some experts think magnesium has a place in treating suicidal depression, and I happen to agree. Anyone with serious depression should, of course, be under a doctor's care. But do ask the doctor about adding a magnesium supplement to the treatment regimen. It goes without saying that it's a good bet for milder forms of depression as well. Many of my readers have taken magnesium for this reason with good results after reading a syndicated column that I wrote on the subject, "Natural Ways to Ease Depression and Reduce Anxiety." It is now posted on my Web site, [www.DearPharmacist.com](http://www.DearPharmacist.com).

I've saved the best surprise of all for last: One bar of exceptionally dark chocolate contains about 300 mg of magnesium. I've drawn the conclusion that chocolate is not only good for your soul, it's also good for your brain! Sweet. ■

## ABOUT THE AUTHOR

*Suzy is known as "America's Most Trusted Pharmacist." As a pharmacist for 22 years and a newspaper columnist with 20 million readers each week, she has devoted her life to helping all of us feel better. She's been featured on The Dr. Oz Show, The View, Good Morning America, Mercola.com, The 700 Club, The Huffington Post, and much more. She prides herself on "thinking outside the pill."*

*"Excerpted from Drug Muggers: Which Medications Are Robbing Your Body of Essential Nutrients--and Natural Ways to Restore Them. Copyright 2011, Rodale Publishing. Reprinted with permission."*



“WITHOUT ENOUGH  
**MAGNESIUM**  
CELLS SIMPLY  
**DON'T**  
**WORK”**

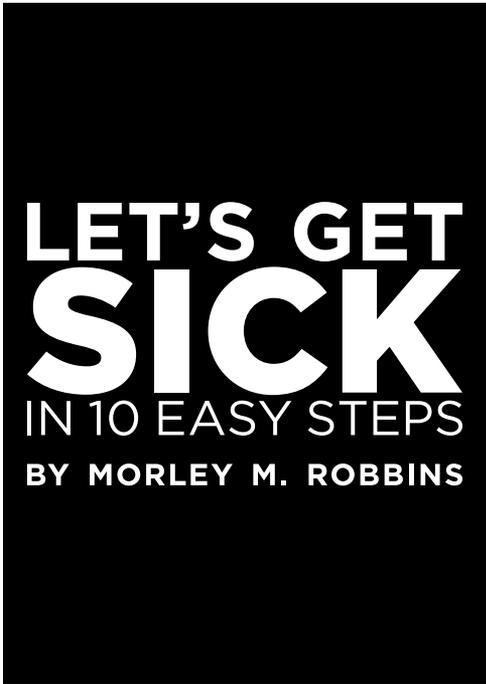
-LAWRENCE M. RESNICK, MD



# I AM SO OVER

the “schoolmarm mentality” of health and wellness: “Do this! No, don’t do that, Now, if you really want to get healthy...” That is so ‘90’s.

Maybe it’s a Mayan thing, what with the 2012 Armageddon approaching, but my professional goal as an Illness Coach is to teach you how to get sick! Yeah, you read that right. I’ve spent the last 30 years working in & for hospitals, so I’m quite good at it, having been immersed in nothing but disease & illness for my entire professional life. But don’t despair, should you NOT want to get sick, then just DON’T do what I recommend -- are we clear on that premise?...

The image shows the front cover of a book. The background is solid black. The title 'LET'S GET SICK' is written in large, bold, white, sans-serif capital letters. 'LET'S GET' is on the top line, and 'SICK' is on the second line, significantly larger than the first. Below the title, the subtitle 'IN 10 EASY STEPS' is written in a smaller, white, sans-serif font. At the bottom of the cover, the author's name 'BY MORLEY M. ROBBINS' is written in the same smaller, white, sans-serif font.

## LET'S GET SICK IN 10 EASY STEPS BY MORLEY M. ROBBINS

First, the good news. Here are some key trends indicating that we’re getting sicker, faster in America:

- Despite spending \$32B/year on statins, the rate of Coronary Heart Disease (CHD) has continued to grow at an accelerating rate since 1983 – up 85%;<sup>1</sup>
- Even though we’re ingesting a mere 160 lbs of sugar/person each year, a modest increase from 3 lbs/person/year in Colonial days, the rate of Diabetes has now increased only 300% in the past twenty years;<sup>2</sup> and
- Even though we’re swimming in dietary and supplementary Calcium, the rate of being diagnosed for Osteoporosis in America during the period 1984-1993 grew 700%.<sup>3</sup> (No, that is NOT a typo...) More current date is not available.

Now the bad news, we must do more! If we are to sustain the stratospheric Ca/Mg ratio (the ratio of Calcium to Magnesium in our diet) that is fueling the alarming increase in disease as noted above,<sup>4</sup> we simply must take more aggressive measures to drive this imbalance even greater. The fact that science and medicine have known intimately about the devastating impact of too much Calcium – since the ‘30’s! – need not enter into your thought process or day-to-day dietary decision-making.

Keep in mind, for 3.5 million years early humans’ diet was an ideal 1:1 balance of Calcium to Magnesium. But starting about 100 years ago, our food started to

change, in large part due to refining, the introduction of thousands of food additives, and the advent of carbohydrate-rich, carbonated drinks. As only America could, we have now created a dietary Ca/Mg ratio of almost 5:1. Yes, a 500% increase is a good start, but not nearly enough, especially if we're going to keep building bigger and more expensive hospitals. We must all do our part -- OK?

So here's my simple, and clinically proven, 10-step program for "Let's Get Sick!" But before we start, two ground-rules for this sickening recipe: First, please ignore the thousands of articles, compiled and written following decades and decades of research on the impact, and the import, that Magnesium deficiency (i.e. an outrageously high Ca/Mg ratio...) has on our health. Most notable are: Guy E. Abraham<sup>5</sup>, Jerry K. Aikawa<sup>6</sup>, Bella T.<sup>7</sup> and Burton M. Altura<sup>8</sup>, Thomas W. Anderson<sup>9</sup>, Jean Durlach<sup>10</sup>, Ka He<sup>11</sup>, Heikki Karppanen<sup>12</sup>, Fred A. Kummerow<sup>13</sup>, Kiang Liu<sup>14</sup>, Lawrence J. Resnick<sup>15</sup>, Andrea Rosanoff<sup>16</sup>, Robert K. Rude<sup>17</sup>, H.A. Schroeder<sup>18</sup>, Mildred S. Seelig<sup>19</sup>, and K.C. Thirivikraman<sup>20</sup>, Kenji Ueshima<sup>21</sup>, and Federica I. Wolf<sup>22</sup>. These luminaries, and dozens of other Magnesium researchers, are just a bunch of losers who simply won't quit whining about the need for "more Maggie!"

Secondly, simply ignore the overwhelming facts about Magnesium's pivotal role in the human body. Please, pay no attention to the fact that it is a key catalytic agent/cofactor in over 350 metabolic processes in the body -- accounting for over 80% of the physiological transactions that occur 24/7 throughout your body. Most notable are the following:

- Energy transfer, storage and use
- Helping to synthesize nucleic acids (DNA & RNA)
- Protein, Carbohydrate and Fat metabolism
- Maintenance of normal cell membrane function and cellular mineral balance
- All enzymatic processes using ATP as an energy source
- Systematic blood pressure control & peripheral vascular resistance
- Regulation of the Parathyroid Gland (key to Bone Health & proper Bone Matrix)
- Hormone secretion throughout the Endocrine system
- Nervous tissue conduction
- Neuromuscular excitability
- Muscle relaxation following contraction triggered by Calcium
- Regulating body temperature
- Proper arterial function and reduction of inflammation; and
- Systemic detoxification.<sup>23</sup>

It is certainly understandable why 92% of physicians, when surveyed at a teaching hospital, and reported in JAMA, never even think to measure Magnesium status in their patients.<sup>24</sup>

Hey, let's stay on point here! We all know that, as a nation, we have a stunning Calcium deficiency, right? I mean, why else would our bones keep breaking? It couldn't possibly have anything to do with deficiencies of Magnesium, Boron, Vitamin-K, saturated fats, Vitamin-C, protein levels or a dozen other key nutrients in our diet. Given that our shared national objective seems to be to increase illness, at all cost, let's all adopt the attitude of the winning Presidential campaign of 1922: "Keep cool with Cal(cium)..." And the best way to do that is to elevate our Ca/Mg ratio, wherever possible, in our day-to-day lifestyle habits.

So here's my Top 10 List to make sure our bodily Ca/Mg ratio continues its historic, apparently unchecked, inflationary spiral, and thereby ensure we attain the highest levels of chronic disease on the planet, as well as in the history of humanity:

- 1.** Please set your alarm, but for as late in the morning as you possibly can. There's no better way to start your day than in a total panic, thereby expending what little Magnesium (Mg) remains following a restless night's sleep. Drag yourself out of bed, get a nice HOT shower<sup>25</sup>, and be sure to brush your teeth with a brand name toothpaste.<sup>26</sup> This post-slumber combo will flood your body with toxic halogens (Chlorine gas and Fluoride), which are amazing at binding up Mg, thereby making it perfectly bio-unavailable.<sup>27</sup>
- 2.** Befriend your nearest Starbuck's Barista. The really caring ones will sell you a Trenta (31oz) brimming with the strongest coffee on the planet. No kidding! This is an amazing way to fuel the start of your day. Given that your Mg levels are lowest ~7am<sup>28</sup>, this will flood your body with a Tsunami of caffeine, triggering an unstoppable adrenaline rush, and then wash what little Mg remains during your non-stop trips to the bathroom.<sup>29,30</sup> Don't stress about this – it's automatic!
- 3.** If possible, on your congested commute to work, please call your spouse, your best friend, your neighbor, or whomever, and pick a fight about some minor, but annoying, habit that they've got. This added emotional tension will really get your stress alarm signals firing. Remember, the less Mg we have (see #1 & #2 above) to tap into, the better for our soaring Ca/Mg strategy. Now, the slightest provocation will set us off, which will only accelerate our stress hormone response, and further speed the Mg loss.<sup>31</sup> Don't you just love these endless negative feedback loops? Best of all, they're all over the body.
- 4.** Now, right about 10am, just when your blood sugar is heading toward the sub-basement, please start your carbo-loading for the day -- the more refined, the better. This inevitable sugar spike will necessitate an Insulin spike, which then requires a Mg spike to store all that excess glucose flooding your body. As your body becomes increasingly overwhelmed

with these edible food-like substances, the Mg loss will only accelerate.<sup>32</sup>

5. Ah, it's lunchtime! But be careful. No nuts or seeds, no whole grains, and please, no greens, especially kale or spinach. Again, given that our goal is to ramp up the Ca/Mg ratio, please eat the following: a) a cheese sandwich on white bread, b) some non-fat yogurt with "fruit" (a.k.a. sugar) on the bottom, and c) a glass of skim milk. Here's how this simple meal contributes to our skyrocketing ratio of Ca/Mg:<sup>33</sup>

Item	Amt of Ca to 1 Part of Mg
Squash	1 : 1
Milk	7 : 1
Yogurt	11 : 1
Cheese	26 : 1
Fortified OJ	27 : 1
Antacids	300 : 1

Now if possible, and this is important, please try to repeat this meal every day! Remember, the more habitual your diet, the better your chances for developing a food allergy, which will then add to the growing stressors on your body, thereby further depleting your Mg stores. Oh, and I almost forgot, the best part about bulking up on these dairy products is that they use a synthetic form of Vitamin-D3 (cholecalciferol) which has been tested in numerous research studies and is known to increase Calcium and deplete Magnesium - no worries, it's automatic!<sup>34</sup> And by all means, DO NOT use any Vitamin-K2 (esp. MK-4) as this will only ensure that Calcium is put back into the bone, thus driving down our Ca/Mg ratio!<sup>35</sup>

6. It's now almost 2pm. At this point in the day, chances are good that, either you have a headache or a stomach ache, or likely both. By all means, pop some OTC drugs -- the more popular, the better. The NSAIDs and/or the Proton-pump Inhibitors are awesome for our "No Mg" strategy. In fact, they are among at least 14 classes of drugs that are specifically designed to deplete your body of Mg.<sup>36</sup> (Please, read that sentence again, sloooooowly...) And given that Ca and Mg work in a seesaw fashion in your body, when one goes down (i.e. Mg), it's a lock that the other goes up (i.e. Ca)! Yes! And you never even saw that one coming in your daily rituals, now did you?...
7. OK, we've made it through that incredibly boring and/or stressful meeting at work, now it's snack time!-- Let's really bring "Maggie" to her knees... Please follow this step very carefully: chow down on any kind of processed, packaged snack, ideally cooked in partially hydrogenated vegetable oil - my favorite is potato chips!-- and swig down a diet soda. The chips, due to the trans fatty

acids, are perfectly designed to stimulate Ca growth (a.k.a. calcification and arterial plaque) and deplete Mg levels inside your artery walls<sup>37</sup> and the HFCS (please forgive me, the newly named: “Corn Sugars”) are known to bind up your cellular Mg due to the excess fructose sugars.<sup>38</sup> Wow, how sweet is that?!?

8. It's been a tough day – but you still need a good workout! Let's really go for it -- hard cardio for 30-40 min. There's nothing better than an intense workout at the end of the day to completely drain the Mg in your heart and muscle tissues. Now for you aerobophiles keep in mind that it's Mg that enables ATP to release that Phosphorous atom and thereby create “energy!”<sup>39</sup> The more intense the workout, the more ATP that's needed, and thus the more Mg that must get expended. If possible, please keep running until you totally cramp up, as this is the perfect sign of near total Mg depletion. And when you're done, please re-hydrate with one of the more popular “sport drinks,” but be sure that it has tons of sugar (as most do) and NO Mg -- which they ALL have missing! The last thing we want at this point is metabolic “recovery!” Btw, the sugar serves as a perfect diuretic<sup>40</sup>, and keeping those muscles cramped up only adds to our rising Ca/Mg ratio...
9. Thank heavens! Now we can finally eat our BIG meal for the day! And given how stressful today has been, don't we deserve a treat? Never mind that it's getting late (likely after 9pm, if you do this correctly), so let's have something really yummy, but fast! My sincere recommendation: a triple cheese (low-fat, of course) deep-dish pizza (with refined crust), and wash it down with some wine and/or beer. Ditto on the cheese and refined crust, and just know that there's no better diuretic on the planet than alcohol -- the fastest sugar there is. It totally drains your Mg levels -- trust me on that one.<sup>41</sup> And then let's top it off with some ice cream -- Yes! More dairy, and even more sugar... You know, it's almost too easy driving our Ca/Mg ratio to the Moon, wouldn't you agree?
10. And finally, please stay up, as late as humanly possible – just ignore that fact that you're totally exhausted. After all, you just ate your biggest meal a couple of hours ago, and it needs to digest! Again, whatever you can do to maintain this heightened state of sympathetic overdrive will be key<sup>42</sup>: surf the web endlessly, watch an adrenalin-crazed movie, or stay up with Dave, then Conan, etc. And if you do this right, and I'm confident you will, all that sugar and electronic stimulation will totally disrupt your sleep pattern, thus raising your key stress hormone, Cortisol. Just know, there's no better way to zap Mg in your body than through chronic stress, and thus chronically elevated Cortisol levels.<sup>43</sup>

Wow! Not bad, for just a single day's work! Aren't you exhausted just thinking about this right about now? And while I know it's tempting, please NO Magnesium supplements! If you must, go ahead, but please make sure that the Mg supplements

used are as synthetic, and as inorganic, as possible.<sup>44,45</sup> Again, please stay focused! Our goal here is to MAXimize the Ca/Mg ratio, right? Using a restorative Mg product that has clinically-proven, superior absorption properties, especially one from a perfectly formulated and chelated product like di-magnesium malate, is the LAST thing we want in our over-stressed bodies, right?<sup>46</sup>

So, there you have it! 10 easy steps -- day, by day. If you do exactly as I suggest, you'll be sure to get sick, which can only benefit your doctor and hospital - right? Why I'm so confident -- I'll even guarantee it! A migraine today, likely hypertension, a stroke or a heart attack, tomorrow. But if that's NOT your preference, then you know exactly what NOT to do, right?

Thanks, again, for taking the time to review these "sickening" recommendations. I do hope they help you understand how your lifestyle perfectly supports your never ending quest for lifelong, chronic disease and debilitating ailments. And if we're both lucky, I'll be seeing you in the local Emergency Room, assuming that there's room. ■

*Disclaimer - The contents of this article are based upon the farcically-constructed, but scientifically-based findings of Morley Robbins. He is convinced the American people have been misled... and seriously misled for the last 60 years about what to think, and more importantly, what to eat, to allegedly stave off disease. These "paradoxical intentions" are meant to wake you up! They are not meant to replace a one-on-one relationship with a qualified health care professional. Furthermore, shame on you if you think they are intended as "medical advice."*

*Morley encourages you to take responsibility for your own health care decisions based upon inspired research, and in partnership with a qualified health care professional who can think well outside the box of today's vogue, misguided, biologically-incorrect, but very "politically-correct" medical and dietary recommendations that are fueling the epidemic of chronic disease raging across America and much of the Western world.*

## **ABOUT THE AUTHOR**

*Morley was a hospital executive and consultant for 32 years before becoming a wellness coach. He "discovered" Magnesium several years ago and is now heading up the Magnesium Advocacy Group as its Executive Director. Morley can be reached at [morley@magfor.org](mailto:morley@magfor.org) or [morley@magnesiumman.com](mailto:morley@magnesiumman.com). You can also follow his videos on YouTube or just pick up the phone and challenge him with your "health" issues (847.922.8061). Just for the record, he has never met a question he didn't enjoy.*

*In closing, Morley is in total agreement with Prof. Pierre Delbet (1861-1957) - "Magnesium should be considered a food and not a drug."*

## REFERENCES:

1. Source: National Hospital Discharge Survey, NCHS.
2. Source: Data for 1960-1998 from the National Health Interview Survey, NCHS, CDC.
3. Stafford, RS, et al, National Trends in Osteoporosis Visits & Osteoporosis Treatment, 1988-2003; *Archives of Internal Medicine* 2004 July 26; 164:1525-1530.
4. Vitale, J.J., et al, Studies in the Interrelationships between Dietary Magnesium and Calcium in Atherogenesis and Renal Lesions. *American Journal of Clinical Nutrition*, 1959, Jan-Feb; 7:13-22 and Qi Dai, et al, The Relation of Magnesium and Calcium intakes and a genetic polymorphism in the Magnesium transporter to colorectal neoplasm risk. *American Journal of Clinical Nutrition* 2007, September; 86(3):743-751, among scores of similar research that has definitively proven that the basis of all chronic disease is a grossly disproportionate balance of dietary Calcium and Magnesium leading to a similarly disproportionate balance of tissue Calcium and Magnesium.
5. Abraham, GE, The Importance of Magnesium in the Management of Primary Postmenopausal Osteoporosis. *Journal of Nutritional Medicine* 1991; 2:165-178.
6. Aikawa, JK, Magnesium: Its Biologic Significance, CRC Press, Boca Raton, FL, 1981; and numerous other articles and books on this vital mineral.
7. Altura, BT and Altura, BM: Role of magnesium in the pathogenesis of hypertension: relationship to its actions on cardiac, vascular smooth muscle, and endothelial cells updated. In John H. Laragh and Barry M. Brenner (editors): *Hypertension: Pathophysiology, Diagnosis, and Management*, 2nd edition. New York, Raven Press, 1995; and Altura, BT, Shirey, T. L., Young, C. C., Dell'Orfano, K., Hiti, J., Welch, R., Yeh, Q., Barbour, R. L., and Altura, B. M. Characterization of a new ion-selective electrode for ionized magnesium in whole blood, plasma, serum and aqueous samples. *Scand. J. Clin. Lab Invest.* 1994; 54 (Suppl. 217): 21-36; among scores of other articles...
8. Altura, BM, et al Magnesium deficiency and hypertension: Correlation between magnesium deficient diet and microcirculatory changes in situ. *Science*, 1984; 223:1315-1317; and Altura BM and Altura, BT "Magnesium in Cardiovascular Biology." *Scientific American, Science & Medicine*, May/June 1995:28-37; and Altura, BM, Durlach, J and Seelig, MS (Editors) *Magnesium in Cellular Processes and Medicine*, Karger, New York, 1987; and Altura, BM, and Altura, BT: Magnesium and cardiovascular disease. In Guy Berthoin (editor): *Handbook on Metal-Ligand Interactions in Biological Fluids*, Vol. 2. New York, Marcel Dekker, Inc., 1995; and Altura BM, Altura BT. Magnesium: Forgotten Mineral in Cardiovascular Biology and Thero genesis. In: *International Magnesium Symposium. New Perspectives in Magnesium Research*. London: Springer-Verlag; 2007:239-260; among scores of other articles...
9. Anderson, TW, Serum electrolytes and skeletal mineralization in hard- and soft-water areas. *Canadian Medical Association Journal* 1972 July 8; 107:34-37.
10. Durlach, J., Clinical aspects of chronic magnesium deficiency. Neuromuscular and psychiatric manifestations; thrombogenic effects. See *Magnesium in clinical practice*; John Libbey, London, 1988, 360pg; and numerous other articles and books devoted to this critical subject matter...
11. He, Ka, et al, Magnesium Intake and Incidence of Metabolic Syndrome among Young Adults. *Circulation* 2006; 113:1675-1682.
12. Karppanen, H., et al, Minerals, Coronary Heart Disease and Sudden Coronary Death. *Advanced Cardiology* 1978; 25:9-24; and Karppanen, H., et al, Why and how to implement sodium, potassium, calcium and magnesium changes in food items and diet. *Journal of Human Hypertension* 2005; 19:S10- S19. NOTE: Dr. Karppanen is credited with reducing Sudden Coronary Death by 70+% in Finland due to his innovations reversing Ca/Mg ratios via Pan Salt and dietary changes as noted above in the Finnish diet.
13. Kummerow, FA, et al, The Influence of Egg Consumption on the Serum Cholesterol Level in Human Subjects. *American Journal of Clinical Nutrition* 1977; 30:664-673; and Kummerow, FA, Nutrition Imbalance and angiotoxins as dietary risk factors for cardiovascular disease. *American Journal of Clinical Nutrition* 1979; 32:58-83; and Kummerow, FA, et al, Effect of trans fatty acids on calcium influx into human arterial endothelial cells. *American Journal of Clinical Nutrition* 1999; 70:832-8; and 300+ peer- reviewed articles that still rock the conventional dietary dogma destroying our nation's health.
14. Liu, KJ, et al, Magnesium Intake in Relation to Systemic Inflammation, Insulin Resistance, and the Incidence of Diabetes. *Diabetes Care* 2010 December; 33(12):2604-10.
15. Resnick, LJ, Intracellular free magnesium in erythrocytes of essential hypertension: Relation to blood pressure and serum divalent cations. *Proceedings of the National Academy of Sciences USA* 1984 October; 81:6511-6515; and Resnick, LJ, Cellular Calcium and Magnesium Metabolism in the Pathophysiology and Treatment of Hypertension and Related Metabolic Disorders. *The American Journal of Medicine* 1992 August 31; (93/Suppl 2A):11S-20S; and scores of articles that re-defined the origin and understanding of cardiovascular heart disease and its reversal.
16. Rosanoff, A and Seelig, MS, The Magnesium Factor, Penguin Group, New York, NY, 2003; and Rosanoff, A, Seelig, MS, Comparison of Mechanism and Functional Effects of Magnesium and Statin Pharmaceuticals. *Journal of the American College of Nutrition* 2004; and Rosanoff, A, Rising Ca:Mg intake ratio from food in USA Adults: a concern?. *Magnesium Research* 2010; 23(4):181-193.
17. Rude RK, Singer FR, Gruber HE. Skeletal and hormonal effects of Magnesium Deficiency. *Journal of the American College of Nutrition*, 2009, Apr; 28(2):131-141; and Rude RK, Gruber HE. Magnesium deficiency and osteoporosis: animal and human observations. *The Journal of Nutritional Biochemistry*. 2004; 15: 710-6, and Rude RK, Olerich M. Magnesium Deficiency: possible role of osteoporosis associated with gluten-sensitive enteropathy. *Osteoporosis International Journal*, 1996; 6(6):453-461; and dozens of other definitive studies on the effect of Magnesium and Mg Def in human physiology and pathophysiology.

18. Schroeder, HA, Relation between Mortality from Cardiovascular Disease and Treated Water Supplies: Variations in States and 163 Largest Municipalities of the United States. *Journal of the American Medical Association* 1960; (172)17: 98-104; and Schroeder, HA, Nason AP, Tipton IH, Essential Minerals in Man – Magnesium. *Journal of Chronic Disease* 1969; 21:815-841.
19. Seelig, MS, Magnesium Deficiency in the Pathogenesis of Disease: Early Roots of Cardiovascular, Skeletal and Renal Abnormalities, Plenum Medical Book Co., New York, NY, 1980; and Seelig, MS Cardiovascular consequences of magnesium deficiency and loss: Pathogenesis, prevalence, and manifestations – magnesium chloride loss in refractory potassium repletion, *American Journal of Cardiology* 1989; 53:4g-21g; and Seelig, MS and Rosanoff, A, Comparison of Mechanism and Functional Effects of Magnesium and Statin Pharmaceuticals. *Journal of the American College of Nutrition* 2004; 23(5):501S-505S; and Seelig, MS and Rosanoff, A, The Magnesium Factor, Penguin Group, New York, NY, 2003; and countless other books, articles and monographs. NOTE: Dr. Seelig devoted her entire clinical & research career to furthering the knowledge and understanding of this blatantly overlooked, but vital nutrient.
20. Thrivikraman, K.V. and George, S., *Journal of Animal Morphology* 1972; 19: 196-204.
21. Ueshima K., Magnesium and ischemic heart disease: a review of epidemiological, experimental, and clinical evidences. *Magnesium Research*. 2005; 18: 275-84.
22. Wolf, FI, et al, Cell (patho)physiology of magnesium. *Clinical Science* 2008; 114:27-35.
23. Wester, P.O., Magnesium. *American Journal of Clinical Nutrition*. 1987; 45:1305-1312.
24. Whang, R & Ryder KW, Frequency of Hypomagnesemia and Hypermagnesemia: Requested vs Routine. *Journal of the American Medical Association* 1990, June 13; 263(22):3063-3064.
25. Rodale, JJ, Magnesium: The Nutrient that Could Change Your Life. (Chapter 7) Jove Publications, New York, NY 1968.
26. Zacharias, M., Chlorinated Water... A BIG No, No!!!; 1995. Available at: <http://www.cyberpet.com/dogs/articles/health/chlrh2o.htm>. Accessed: Friday, August 12, 2011.
27. Machoy-Makrzynska, A., Fluoride-Magnesium Interaction. *Fluoride* 1995; 28(4):175-177.
28. Conversation with Paul Mason on 8/15/11, owner of Adobe Springs Water Co. (Patterson, CA), founder of [www.mgwater.com](http://www.mgwater.com), a comprehensive website hosting hundreds of documents stressing the importance of Magnesium in our diet, in our water, and most importantly, in our moment-to-moment metabolism.
29. Massey, LK, and Berg, TA, The effect of dietary caffeine on urinary excretion of calcium, magnesium, phosphorus, sodium, potassium, chloride and zinc in healthy males *Nutrition Research* 1985, November 5(11):1281-1284.
30. Massey, LK and Wise, KJ The effect of dietary caffeine on urinary excretion of calcium, magnesium, sodium, and potassium in healthy females *Nutrition Research* 1984 Jan-Feb 4(1):43-50.
31. Malter, R., Magnesium Deficiency and the Mind/Body Connection. 2008. Available at: [www.malterinstitute.org](http://www.malterinstitute.org). Accessed Saturday, August 27, 2011.
32. Ahlborg, B., et al, Muscle glycogen and muscle electrolytes during prolonged physical exercise. *Acta Physiol. Stand.* 1967; (70): 129-142.
33. Ca/Mg ratios for selected dairy products are available at: [www.charlespoliquin.com/ArticlesMultimedia/Articles/Article/208/Magnesium\\_Deficiency\\_A\\_Growing\\_Health\\_Crisis.aspx](http://www.charlespoliquin.com/ArticlesMultimedia/Articles/Article/208/Magnesium_Deficiency_A_Growing_Health_Crisis.aspx) Accessed Saturday, August 13, 2011.
34. Ito, M., Sekine, I., Kummerow, FA., Dietary magnesium effect on swine coronary atherosclerosis induced by hypervitaminosis-D. *Acta Pathology Japan* 1987; 37(6):955-64.
35. Gelenijnse, J.M., et al, Dietary Intake of Menaquinone (MK-4) is Associated with a Reduced Risk of Coronary Heart Disease: The Rotterdam Study. *The Journal of Nutrition* 2004, November; 134:3100-3105.
36. Cohen, S., 14 Classes of Drugs that Deplete Magnesium. Available at: <http://www.jigsawhealth.com/resources/drug-muggers-suzy-cohen-magnesium> Accessed: Monday, July 18, 2011.
37. Kummerow, FA, Nutrition Imbalance and angiotoxins as dietary risk factors for cardiovascular disease. *American Journal of Clinical Nutrition* 1979 (32):58-83; and Kummerow, FA, et al, Effect of trans fatty acids on calcium influx into human arterial endothelial cells. *American Journal of Clinical Nutrition* 1999 (70):832-8.
38. Sinatra, S., Why High Fructose Corn Syrup is Health Enemy #1. Available at: <http://blog.drnsinatra.com/blog/heart-health-nutrition/why-high-fructose-corn-syrup-is-health-enemy-1> Accessed: Monday, July 25, 2011.
39. Altura BM and Altura, BT "Magnesium in Cardiovascular Biology." *Scientific American, Science & Medicine*, May/June 1995:28-37.
40. Sugar is a perfect diuretic – it requires 28 molecules of Mg to process 1 molecule of glucose as noted by Natasha Campbell-McBride, *Gut and Psychology Syndrome*, 2010; and Czapp, K., *Magnificent Magnesium. Wise Traditions in Food, Farming and the Healing Arts*, the quarterly magazine of the Weston A. Price Foundation, Fall 2010.
41. Shane, SR, Magnesium deficiency in alcohol addiction and withdrawal. *Magnesium Trace Elements* 1991-1992 10(2-4):263-268.42 Shimosawa, T., et al, Magnesium Inhibits Norepinephrine Release by Blocking N-Type Calcium Channels at Peripheral Sympathetic Nerve Endings. *Hypertension* 2004, (44):897-902.
42. Dean, C., *The Magnesium Miracle*. Ballantine Books, New York, NY 2007, pg 50-51.



# HOLMES AND RAHE STRESS SCALE

MULTIPLY EVENT BY THE NUMBER OF TIMES  
YOU HAVE EXPERIENCED IT IN THE LAST YEAR.

LIFE EVENT (STRESSOR)	VALUE	# YEARS	TOTAL
Death of spouse	100	x	=
Divorce	73	x	=
Marital separation	65	x	=
Jail term	63	x	=
Death of a close member	63	x	=
Major personal injury or illness	53	x	=
Marriage	50	x	=
Fired from work	47	x	=
Marital reconciliation	45	x	=
Retirement	45	x	=
Major change in health of family member	44	x	=
Pregnancy	40	x	=
Sex difficulties	39	x	=
Gain of new family member	39	x	=
Major change in financial state	38	x	=
Death of a close friend	37	x	=
Change to a different line of work	36	x	=
Major change in no. of arguments w/ spouse	35	x	=
Mortgage over 100k	31	x	=
Foreclosure of mortgage or loan	30	x	=
Major change in responsibility at work	29	x	=
Son or daughter leaving home	29	x	=
Trouble with in-laws	29	x	=

LIFE EVENT (STRESSOR)	VALUE	# YEARS	TOTAL
Outstanding personal achievement	28	x	=
Spouse begins or stops work	26	x	=
Begin or end school	26	x	=
Major change in living conditions	25	x	=
Revision of personal habits	24	x	=
Trouble with boss	23	x	=
Major change in work hours or conditions	20	x	=
Change in residence or schools	20	x	=
Major change in recreation	19	x	=
Major change in church activities	19	x	=
Major change in social activities	18	x	=
Mortgage or loan less than 10k	17	x	=
Major change in sleeping habits	16	x	=
Major change in no. of family get-togethers	15	x	=
Major change in eating habits	15	x	=
Vacations, Christmas	13	x	=
Minor violations of the law	11	x	=
<b>YOUR TOTAL</b>			

Now add up the points you have to find your score. 150 pts or less means a relatively low life change and thus susceptibility to stress-induced health breakdown. 150-300 pts implies a 50% chance of a major health breakdown in the next two years while 300+ pts raises the odds to about 80%. ■

# MAGNESIUM DEFICIENCY HEALTH HISTORY CHECKLIST

Source: Rick Malter, Ph.D., The Malter Institute, Cottonwood, Arizona 86326 [www.malterinstitute.org](http://www.malterinstitute.org)

## CHECK ANY / ALL THAT APPLY (CURRENT OR PAST)

- PMS
- Fatigue & exhaustion
- Allergies
- Mind is in a fog
- Headaches, migraines
- Mood swings
- Supersensitive, weepy
- Cold hands, and/or feet
- Depression
- Dry skin
- Chocolate cravings
- Feeling of loss of control
- Paranoia
- Despair, suicidal feelings, hopelessness
- Arthritis, calcium spurs
- Constipation
- Racing heart, pounding heart
- Adverse reaction to vitamins & minerals
- Problems with concentration and memory
- Short attention span, "spaciness"
- Eating disorders: anorexia, bulimia, overeating
- Panic attacks, high anxiety, free floating anxiety
- Yeast infections (candida)
- Aching muscles or muscle cramps
- Hypoglycemia
- Mind races -- insomnia, interrupted sleep
- Cysts
- Mononucleosis
- Low blood pressure
- Obsessive thoughts
- Hypothyroid (slow thyroid)

Medications or Hormones: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# MAGNESIUM RICH FOODS (100 mg = 3.5 oz)

Source: The Composition of Foods Agriculture Handbook No. 8, USDA (Reprinted Oct. 1975)

## NUTS

Almonds, dried, shelled	270
Cashew Nuts	267
Brazil Nuts, shelled	225
Peanuts: Raw, shelled	206
Walnuts: Black, shelled	190
Pumpkin Seeds, raw	185
Hazelnuts, shelled	184
Sesame Seeds, whole raw	181
Peanuts: Roasted, shelled	175
Peanut Butter	173
Hickory Nuts, shelled	160
Pistachio Nuts, shelled	158
Walnuts: Persian/English, shelled	149

## WHOLE GRAINS

Wheat Germ, crude	490
Wheat Germ, cereal	420
Wheat Germ	336
Brewer's Yeast	231
Buckwheat, whole grain	229
Millet, proso, whole grain	162
Whole Grain	160
Wild Rice, raw	146
Oatmeal or Rolled Oats	144
Malt Extract, dried	140
Shredded Wheat	133
Barley, whole grain	124
Cornmeal, whole-grain, bolted dry	120
Whole Wheat Flour	113
Rice, brown, raw	88

## BEANS / LEGUMES

Beans, lima, mature, raw, dry	180
Peas, mature seeds, dry	180
Beans, red-raw	163
Pigeon Pea, mature, dry	121
Lentils, mature seeds, dry	91
Black-Eyed Peas	62

## FRUITS

Coconut Meat, unsweetened	90
Dates, raw	57
Peaches, raw	55
Avocado	45
Raisins, seedless	40
Prunes, raw	39
Banana	33
Blackberries, raw	32

## VEGETABLES

Kelp, raw	760
Corn, whole grain, raw	147
Beet Greens, common, raw	106
Spinach, raw	88
Swiss Chard, raw	65
Collard Greens, raw, w/o stems	57
Turnip, raw	55
Corn, sweet	48
Okra, raw	41
Garlic Cloves, raw	36
Garlic, cloves	36
Kohlrabi, raw	31
Brussels Sprouts, raw	30
Mustard Greens	27
Kale, raw, leaves w/o midribs	26
Cauliflower	24

## MISC.

Coco, dry power	420
Baking Chocolate	292
Curry Powder, raw	284
Molasses, blackstrap	258
Whole-Wheat	78
Pumpernickel, dark	71
Parsley, raw	47
Cured bacon	25
Cooked Fried Liver	18
Eggs, whole, raw	11

**“MAGNESIUM IS THE MINERAL OF MOTION.”**

**“CALCIUM IS THE MINERAL OF CONCRETE.”**

**THINK ABOUT THAT FOR JUST A MOMENT...**

**THE MAGNESIUM ADVOCACY GROUP IS DEVOTED TO EASING BIOLOGICAL DYSFUNCTION AND EMOTIONAL SUFFERING THAT STEMS FROM MAGNESIUM DEFICIENCY.**

**MAG IS FULLY COMMITTED TO RESTORING MAGNESIUM'S MAJESTIC STANCE IN OUR ENVIRONMENT -- AND OUR BODIES -- THROUGH INNOVATIVE PROGRAMS AIMED AT AWARENESS, ADVOCACY AND ACTIVISM.**

**MAGNESIUM  
ADVOCACY  
GROUP**

**MAGFOR.ORG**