

## Magnesium (Mg)– “Missing Miracle Mineral”

*"Deficiency of magnesium is associated with virtually every known disease: heart attacks, diabetes, depression, cancer, etc."*

- Dr. C Norman Shealy M.D., PhD.  
Author of “Holy Water, Sacred Oil, The Fountain of Youth”

*“Without magnesium, muscle and nerve functions are compromised and energy diminished. We are operating with the power turned off.”*

- Dr. Jerry Aikawa - The University of Colorado. Author of "Magnesium: Its Biological Significance."

- ◆ People in N. America tend to consume too much calcium and sodium, and insufficient magnesium and potassium - This is often reflected in urine tests which show calcium and sodium being excreted while magnesium and potassium are being retained. All four of these minerals work together in the body. Problems arise when one or more of the minerals are deficient or when the minerals are out of balance with each other.

- ◆ So what’s so special about magnesium? . . .

When magnesium is deficient, which it is for many people, then replenishing the body’s stores of this important and busy mineral has a healing effect on a wide range of diseases as well as being able to rejuvenate the aging body.



**A Little Extra Magnesium  
to Keep Your Cells Younger**

## Mg deficiency doubles your risk of dying!

A study published in the journal "Critical Care" found that a deficiency in magnesium makes you twice as likely to die as other people. About 70% of Americans are deficient in this critical mineral.

[Why are we magnesium deficient?](#)

## Signs of Mg deficiency

In the USA, magnesium supplementation is dramatically under-utilized by conventional physicians.

### How to supplement magnesium?

#### Mg has vital and essential functions in the body

For more details: [Functions of Mg in the body](#)

FUNCTION	COMMENT
Maintains alkaline pH balance in the body	Next to potassium, Mg is the most abundant positively charged mineral buffer <u>within the body's cells.</u>
Determines amount of energy produced by your body's cells	
Counteracts and regulates body's use of calcium	Prevents abnormal calcification of tissues
Necessary for production of glutathione	A major antioxidant in the body
Promotes healthy functioning of nerves and muscles (includes the heart)	
Activates more than 300 enzymes in the body	To metabolize blood sugars, proteins and carbohydrates
Needed for proper bone growth	Indirectly related to adequate calcium absorption
Defends body from infectious diseases, toxic chemicals, heavy metals	
Controls uptake and release of many hormones, nutrients and neurotransmitters	
Mg is a mineral needed by every cell in your body	Mg is the 4 <sup>th</sup> most abundant mineral in the body; Most magnesium is found in intracellular fluid in bone, muscle and soft tissue in combination with calcium and phosphorus. Of the 20-30 g of Mg in our body, 60-65% of total body Mg is in our bones and teeth, ~25% in our muscle cells, and only 1% is in the blood.
The highest concentrations of Mg are in the heart and brain	Areas of considerable electrical activity

## Mg Deficiency is involved in many Health Problems

(Since Mg has so many roles in the body)

For more details: [Health Benefits of Magnesium](#)

<b>ADD/ADHD</b>	<b>Alzheimer's</b>	<b>Angina</b>
<b>Anxiety disorders</b>	<b>Arrhythmia</b>	<b>Arthritis –</b> Rheumatoid/Osteoarthritis
<b>Asthma</b>	<b>Autism</b>	<b>Auto immune disorders - all</b> types
<b>Cavities</b>	<b>Cerebral Palsy - in</b> children from Mg deficient mothers	<b>Chronic Fatigue Syndrome</b>
<b>Congestive Heart</b> <b>Disease</b>	<b>Constipation</b>	<b>Crooked teeth / narrow jaw - in</b> children from Mg deficient mothers
<b>Depression</b>	<b>Diabetes - Type I and</b> II	<b>Eating disorders - Bulimia,</b> Anorexia
<b>Fibromyalgia</b>	<b>Gut disorders – e.g.</b> peptic ulcer, Crohns disease, colitis, food allergy, GERD, gastroparesis;	<b>Heart Disease - Arteriosclerosis,</b> high cholesterol, high triglycerides
<b>Heart Disease- in</b> infants from Mg deficient mothers	<b>High Blood Pressure</b>	<b>Hypoglycemia</b>
<b>Impaired athletic</b> <b>performance</b>	<b>Infantile Seizure - in</b> children from Mg deficient mothers	<b>Insomnia</b>
<b>Kidney Stones</b>	<b>Lou Gehrig's Disease</b>	<b>Migraines - including cluster type</b>
<b>Mitral Valve Prolapse</b>	<b>Multiple Sclerosis</b>	<b>Muscle cramps – “Charlie</b> Horses”
<b>Muscle weakness,</b> <b>fatigue</b>	<b>Myopia - children</b> from Mg deficient mothers	<b>Obesity – especially from high</b> carb diets
<b>Osteoporosis – Just</b> Mg reverses bone loss	<b>Parkinson's Disease</b>	<b>Ob/Gyn – PMS, menstrual pain</b> /irreg., infertility, preeclampsia, <b>Estrogen</b> dominance
<b>PPH - Primary</b>	<b>Raynaud's Disease</b>	<b>SIDS - Sudden Infant Death</b>

Pulmonary Hypertension		Syndrome
<b>Stroke</b>	<b>Metabolic Syndrome - insulin resistance</b>	<b>Thyroid disorders - low, high and auto-immune; low Mg reduces T<sub>4</sub>.</b>

## Signs of Deficiency

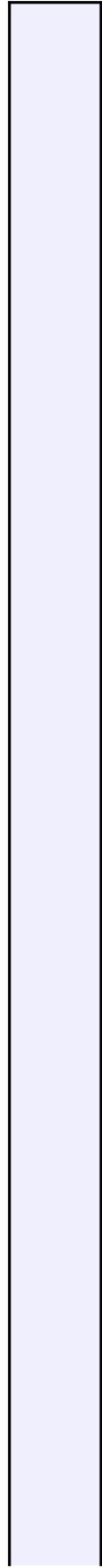
(Indicating increased requirement for Mg)

Not all symptoms need to be present to assume deficiency,  
But many of them often occur together

**Circulation** **Nervous System** **Other** ✓ **Angina** (due to spasms of the coronary arteries)

- ✓ **Palpitations**
- ✓ **Abnormal heart rhythms** (arrhythmias)
- ✓ **Arteriosclerosis/atherosclerosis**
- ✓ **High cholesterol w/hypertension**
- ✓ **Heart attack**
- ✓ **Stroke**
- ✓ **Tachycardia** (fast pulse),
- ✓ **Thrombosis**
- ✓ **Seizures**
- ✓ **Mitral valve prolapse**
- ✓ **Agoraphobia**
- ✓ **Apathy**
- ✓ **Anxiety**

Digestive System ✓ Colic, ✓ Constipation, ✓ Chronic diarrhea, ✓ Malabsorption, ✓ Pancre



# Mg ↑ -▶ Inflammation ↓

- ◆ Mg deficiency raises **CRP** (inflammatory marker)
  - [King DE, Mainous AG 3rd, Geesey ME, Woolson RF. Dietary magnesium and C-reactive protein levels. J Am Coll Nutr. 2005 Jun;24\(3\):166-71.](#)
- ◆ Mg (also B6 and zinc) required for the **Δ6D** enzyme – which convert essential fatty acids in foods into needed active forms, and which eventually convert to inflammation-controlling prostaglandins and leukotrienes (local “Hormones” called eicosonoids)

## Local "Hormones"

- ◆ Mg intake ↑ Inflammation ↓
- ◆ A study by Dr. Ka He of the University of North Carolina at Chapel Hill and colleagues found a connection between dietary **magnesium** and a lowered risk of diabetes/decreasing **INSULIN** resistance - also revealed that as *magnesium* intake increased, inflammation levels decreased  
Dae Jung Kim et al, [Magnesium Intake in Relation to Systemic Inflammation, Insulin Resistance, and the Incidence of Diabetes](#). Diabetes Care, publ. inline Aug 31, 2011
  - “Conclusion: Our results suggest that magnesium intake is inversely associated with systemic inflammation and the prevalence of the metabolic syndrome in middle-aged and older women.”  
Magnesium intake, C-reactive protein, and the prevalence of metabolic syndrome in middle-aged and older U.S. women
- ◆ Mg intake ↓ Chronic Inflammation markers ↑ - CRP is a test for inflammation level.
  - According to the **USDA** - “Both decreased magnesium intakes and blood magnesium levels have been associated with an increased marker of chronic inflammation in people of all ages. Numerous studies have shown that a low magnesium status occurs often in

people with diseases that have a chronic inflammation component, including heart disease, diabetes, high blood pressure, and osteoporosis.”

- “Most Americans consume magnesium at levels below the RDA. Individuals with intakes below the RDA are more likely to have elevated CRP, which may contribute to cardiovascular disease risk.”  
[Dietary magnesium and C-reactive protein levels.](#)
- “Conclusion: The results of this study show that low serum magnesium levels are independently related to elevated CRP concentration, in non-diabetic, non-hypertensive obese subjects.”  
[Relationship between serum magnesium levels and C-reactive protein concentration, in non-diabetic, non-hypertensive obese subjects](#)