NEWtritional Health Care

"Making America Healthy One Person At A Time"

The Benefits of Magnesium

Magnesium is a mineral that is essential for proper functioning of the body. Magnesium is alkaline and it binds acids in the body, regulating acid-alkaline balance. Some of the major functions of magnesium in the body are: for calcium, potassium, sodium and Vitamin C utilization, activation of B vitamins, efficient production of enzymes, cardiac function, production of ATP (energy production in the mitochondrion), relaxation of muscles including the heart muscle, aid in neurotransmission functions, serotonin receptor functions, to aid in protecting arterial walls from stress due to sudden changes in blood pressure, manufacture of protein by cellular ribosomes, formation of fatty acids, metabolism of carbohydrates, conversion of blood sugar into energy, bone formation, nitric oxide synthesis, regulation of the adrenals, maintaining healthy gums and teeth, aid in proper insulin production, to promote restful sleep and for prevention of aging in the cell and organs.

There are 17 minerals that are generally considered essential; seven are macrominerals and ten, trace minerals. The macrominerals make up 99 percent of the body's mineral content. The list includes sodium (we get plenty of this), potassium, calcium, phosphorus, sulfur (MSM), and magnesium.

Minerals comprise about 4% of the body's tissues. They are vital for body functions. The primary role of minerals include strengthening hard tissues such as the bones and the teeth: helping to regulate muscle and nerve activity through influencing cell membrane permeability (`electro-osmotic" roles); functioning as electrolytes; and serving as essential cofactors in enzyme catalysis. Magnesium is so important because it is involved with all of these functions. Additionally, it is required for homeostatic maintenance of electric transmission activity in the nerves, muscles & other tissue and homeostatic regulation of sodium and potassium. It is found inside every living cell in the body. Over 300 enzymes are activated by magnesium and therefore this mineral is essential to many biochemical pathways in the body.

Just as sodium and potassium are co-dependent in the body, so is calcium and magnesium. When we take in calcium, the muscles in our body contract. It is magnesium that allows the muscles to relax. When we think about how much calcium we take in our daily diet with enriched food, dairy and vegetables, it is no wonder we are tense and not relaxed. We take in high amounts of calcium without getting enough magnesium. When there is a deficiency in magnesium, calcium is not properly used by the body. If there is a deficiency of magnesium in the body and an excess of calcium, we may put our health at risk. Too much calcium (unbalanced) may result in cellular death and this imbalance may cause include osteoporosis, arthritis, senility, calcification of tissues and organs (including kidney, bladder and the joints), and heart disease. Excess calcium can be a problem, but excess magnesium is not, because magnesium is eliminated when unused while calcium builds up. The build up begins in the mitochondrion in the cell and extends to organs. This calcification process is the beginning of the aging process. It is initiated by too many acid-forming toxins and from an imbalance of calcium and magnesium. The balance of calcium and magnesium in the cell is the "biochemical" age of the cell.

People developing or who have osteoporosis need to be aware that just taking calcium and Vitamin D is not enough to reverse or stop the osteoporosis from progressing. Osteoporosis is a widespread problem in the United States. That is not true in third world countries, where there is no calcium supplementation and very little dairy and meat are consumed. The consumption of meat, dairy and carbonated beverages contribute to osteoporosis because they are acid forming in the body and are high in phosphates. Acid toxin formation in the body causes the leaching of minerals, such as calcium, from the bones, organs and tissues into the bloodstream on a regular basis to alkalize the body. As we leach the calcium, magnesium and potassium from the body to balance the pH in our system we weaken our bone structure. When the diet is high in phosphates, the phosphate binds up magnesium and converts it to a magnesium phosphate, which is not readily absorbed. **Magnesium Chloride *is readily absorbed and very high in elemental magnesium.*** Other forms of magnesium may be absorbed, but the actual amount of magnesium in the molecule is much lower than the amount available in magnesium chloride.

Magnesium is very important in the equation to improve bone density. Without it, the calcium is not appropriately utilized by the body. Over 50% of the magnesium in our body is in the bone structure. That is because calcium formations depend upon magnesium for a strong structure. When we lack magnesium in the bone, the calcium crystal formations are weaker. So we need to develop a habit of taking additional magnesium (preferably as magnesium chloride) to balance our calcium intake. While a calcium/magnesium ratio of 2:1 is recommended for healthy individuals, some health care professionals recommend a ratio of 1:1 for those individuals with osteoporosis. We should also try to eat a healthier diet richer in plant foods whenever possible.

Too many acid toxins in the body may cause arthritis. Magnesium deficiency exacerbates the situation, because calcium is then deposited in the soft tissues. Also, many patients with arthritis and osteoporosis believe calcium supplementation will contribute to a more healthful situation. However, that is not the answer. When calcium becomes elevated in the blood the secretion of calcitonin occurs, which suppresses the secretion of PTH (parathyroid hormone). PTH regulates the levels of calcium in the soft tissue, bone and other parts of the body. Calcitonin increases the calcium level in the bones and blocks its absorption into the soft tissue. PTH draws calcium from the bones and deposits it into the soft tissue. Magnesium levels are the determining factor on the balance of calcitonin and PTH in the body, as it stimulates calcitonin and suppresses PTH. Therefore, excessive calcium coupled with the deficiency in magnesium only make matters worse. If the individual supplements only with the magnesium, the calcium that has been underutilized and stored in the soft tissue will be utilized and the body will begin to feel relief. There is a body of doctors and researches that now believe that the way to manage what appears to be a calcium deficiency is to increase magnesium supplementation and to decrease calcium supplementation. By doing this the individual can properly utilize the calcium in the body and the calcium consumed in the diet and by supplementation. Only magnesium supplementation can break the cycle of problems that occur when calcium and magnesium are out of balance and taking excess magnesium is not a concern, since it is excreted in the urine.

Researchers have also found that a deficiency in magnesium greatly contributes to blood vessel constriction, high blood pressure and hardening of the arteries. Most victims of heart attacks are found to have low levels of magnesium in the heart muscle. Clinical, experimental, and epidemiological studies support the importance of magnesium for the homeostatic maintenance of blood pressure and heart rhythm. The deficiency of this important mineral contributes to heart disease and other diseases. A lack of magnesium causes the heart and other muscles experience excessive stress. Taking magnesium with calcium in the right ration promotes better sleep if the restlessness is caused by tension. Magnesium is helpful in patients with chronic constipation since magnesium acts as a cathartic. Supplementation with magnesium may also reduce hyperactivity.

Another benefit of calcium is that it stops cortisol production in the body. Cortisol may make you bloated in the abdomen area. Magnesium also converts fatty acids in the body into prostaglandins, which are anti-inflammatory. Those women deficient in magnesium may notice that they have lots of cellulite. By adding magnesium to your supplement regimen you may take swelling and inflammation in the body down significantly, to the point of losing up to 10 pounds in about a week.

Our diets have changed over thousands of years from a plant-based diet to a dairy/animal flesh diet. Plants are loaded with magnesium and low in calcium and dairy and meat contain high levels of calcium and lower levels of magnesium. Today in America we eat lots of sugar and drink alcohol, and this kind of diet creates a more rapid loss of magnesium through the urine than normal. Magnesium absorption may also be inhibited by alcohol. Additionally, when food is cooked it leaches out magnesium and other minerals and vitamins. Cooking breaks the phytonutrient chain in the food. Grains that are processed contain less magnesium. The water supply is fluoridated and that causes magnesium to leach. And, acid rain washes magnesium out of the soil. As you may be aware, our soils have been depleted of most minerals and trace minerals including magnesium. Commercial farming methods use specific chemical ingredients and farmers no longer turn under crops rich in a variety of minerals and trace minerals. So the numbers that we see for mineral content in food is frequently not accurate. Also, there is a debate regarding the government standards that have been set as a daily requirement. People who take extra minerals and trace minerals, more than the RDA, seem to have better immunity. Recent studies suggest that as many as 40% of the U.S. population may have a magnesium deficiency. Considering the factors mentioned here, it is no surprise.

Calcium and magnesium should be taken in a ratio of 2:1. Therefore it is advisable to take extra magnesium daily to balance the intake of calcium that you get in enriched foods and in dairy. The RDA for calcium is 1000 mg and for magnesium is 400 mg. Many health care practitioners believe the average person should take about 1000 to 1500 mg of calcium daily and that means that this same person needs at least 500 - 750 mg of magnesium. Since we are unsure of just how much calcium we are taking in from dietary factors, taking a little more is always beneficial. If we already have a degenerative or "aging" disease, extra supplementation with magnesium is considered important. During pregnancy the intake of these minerals should be increased to insure that both the mother and child are protected. For those patients with a potassium deficiency, be sure to have your health care practitioner check your magnesium levels, as frequently they will also be low. It is difficult to restore potassium levels when magnesium levels are low. Individuals with low potassium levels should consider the fact that they may very well be deficient in magnesium.

SUPPLEMENT WITH MAGNESIUM IF THERE IS:

Acidity	ADD	Addictions
ADHD	Alcoholism	Angina
Anorexia nervosa	Anti-social behavior	Anxiety
Apathy	Arrhythmias	Arteriosclerosis
Arthritis	Asthma	Athletic effort
Backaches	Body-Tension	Brain fog
Cardiac dysfunctions	Chocolate cravings	Chronic Fatigue
Chronic Stress	Confusion	Constricted blood vessels
Cramping	Depression	Diabetes
Drug Abuse	Easily angered	Easily chilled
Eating disorders	Electrolyte imbalance	Fatigue
Fibromyalgia	Food allergies	Gastrointestinal
Gingivitis	Glandular disorders	Growth failure
Headaches	Heart beat abnormalities	Heart-Disorders
High blood pressure	High cholesterol	Hyperactivity
Hypertension	Insomnia	Irregular-Heartbeat
Irritability	Kidney dysfunctions	Kidney stones
Low energy	Malabsorption	Mental derangement
Migraines	Muscle Cramps	Muscle Tension
Muscle weakness	Muscular excitability	Nausea
Nervousness	Obesity	Osteoporosis
PMS	Potassium depletion	Poor circulation
Pregnancy	Restlessness	Sleep-Disorders
Spasms	Suicidal tendencies	Tinnitus
Tremors	Use of oral contraceptives	

MAGNESIUM MAY IMPROVE OR BENEFIT:

Activity of white blood cells	Arrhythmias	Calcium utilization
Cellular structure	Chronic diarrhea	Diabetes
Electrical transmission processes	Enzyme activity	Health of heart and arteries
Heart palpitations	Nerve function	Peripheral vascular disease
Potassium retention	Precancerous cellular changes	Protein production
Reduce cellulite	Sodium utilization	Vomiting

FACTORS THAT INCREASE THE NEED FOR MAGNESIUM, LIMIT MAGNESIUM ABSORPTION AND EFFECT MAGNESIUM DEFICIENCY INCLUDE:

Addictions	Addictive drugs	Alcohol
Athletics	Colas & other soft drinks	Consumption of fast food
Cortisone	Dieting	Digitalis
Diuretics	Environment	High fat intake
High intake of Vitamin D	Jogging	Lactation
Lifestyle	Mineral Deficient Symptoms	Missed Meals
Prescription drugs	Stressful Career	Tetracycline

TESTING FOR MAGNESIUM DEFICIENCY

Some doctors have asserted that serum testing for magnesium deficiency is inadequate since only about 1% of the bodies' magnesium is found in blood serum. A more accurate measurement would be a loading test performed with magnesium chloride, where urine measurements are taken prior to the loading and 24 hours after the loading. If the secretion of the magnesium is high, it is not likely that the individual has a deficiency. If it is low, it is reasonable to begin a program of supplementation. In some cases, a difference in symptoms may be observed after just a short period of supplementation. In others, more time is required for symptomatic improvements to be noticeable.