THE TOTAL HUMAN BODY WEIGHT; is made up of approximately 70% water (with water making up 85% of your brain, 80% of your blood, 70% of your muscles, and every cell in your body requiring water to live). At birth the centre of each vertebral disc is composed of 90% water, as we age this reduces to 70% and degeneration is experienced, but through hydration (bathing and drinking water) we are able to improve this.

WATER HELPS REMOVE DANGEROUS TOXINS; that your body takes in, helps cushions your joints, carries oxygen and nutrients into all your cells, and helps regulate your body temperature.

IF YOU’RE NOT GETTING ENOUGH WATER; your body will react by pulling the water from other places within your body, including your blood. This causes the closing of some smaller vessels (capillaries), making your blood thicker, more susceptible to clotting, and harder to pump through your system. This can have serious implications in hypertension, high cholesterol, heart disease, headaches, arthritis, and heartburn not to mention countless other ailments. www.theragear.com/article/water.php

DEHYDRATION PROMOTES THE INCREASE OF BODY FAT; as water contributes to energy storage along with glycogen. Without water, extra amounts of glucose remain in the bloodstream until reaching the liver, the extra glucose is then stored as fat. Your body takes water from the inside of cells in an effort to compensate for the dehydrated state, including fat cells. Less water in your fat cells means less mobilization of fat for energy.

ITS A MYTH THAT DRINKING WATER ALONE WILL HYDRATE THE SKIN; www.eczemahelp.ca However, bathing in water encourages hydration up to 9 times greater that drinking water, this is due to the surface area of our skin functioning as an absorbing sponge.

THE BENEFITS OF HYDRATION; especially when bathing in sweet/ocean water; i.e. rain fed mineral rich mountain-spring-fed rivers, Ocean waters are whole sea ‘mineral rich’ water, these waters represent the original constructor of single cell life since the beginning of time.

HYDRATING; stimulates body cell to take in this water and release the old toxic ‘contaminated’ waters. With an increase of bathing and absorption of fresh water into the skin comes the removal of toxins, improved blood flow, and the increase of oxygen flow to muscles, nerves and organs resulting in an overall improvement of mobility, body function, and strengthening of our immune system. When bathing in mineral enriched waters, the nutrition levels of the body increase leaving us feeling calm and tension free. www.life-enthusiast.com/index/Brands/MMPSolutions/Benefits of hydration

HYDRATION; BENEFITS OF MAGNESIUM BATHING AND SUPPLIMENTS

‘THE MAGNESIUM MIRACLE’, by Carolyn Dean, M.D., N.D www.carolyndean.com
Mineral deficiencies due to poor farming methods, acid rain, deficient soil and food processing, has seen a dietary decline of magnesium of 60% in the last decade.

MAGNESIUM REGULATES 325 Enzymes in the body; the most important of which produce, transport, store, and utilize energy. Many aspects of cell metabolism are regulated by magnesium, such as DNA and RNA synthesis, cell growth, and cell reproduction, (1/3 of a cell is made up of magnesium www.jbc.org with water playing a major role in both stabilizing protein structures and modulating protein dynamics).
MAGNESIUMS PHYSIOLOGICAL ROLES; are to control nerve action, the activity of the heart, neuromuscular transmission, muscular contraction, vascular tone, blood pressure, and peripheral blood flow.

MAGNESIUM MODULATES AND CONTROLS; the entry and release of calcium from the cell, which determines muscular activity.

WITHOUT MAGNESIUM; muscle and nerve functions are compromised and energy diminished (our power is turned off, we have muscle weakness, soft bones, anxiety, heart attacks, arrhythmia, and even seizures and convulsions can result).

MAGNESIUM IS RECOMMENDED FOR TREATING A MYRIAD OF SYMPTOMS; Anxiety / Panic attacks – Aging - Asthma – Blood clots – Bowel disease – Cystitis – Depression – Detoxification – Diabetes – Fatigue – Heart disease – Hypertension – Hypoglycaemia – Insomnia – Kidney disease – Migraine – Musculoskeletal pain conditions – Nerve problems – Obstetrical and Gynaecological problems – Osteoporosis – Raynaud’s syndrome (pain and numbness of the fingers) – Tooth decay. EXAMPLE; Chronic Fatigue Syndrome / Fibromyalgia treated for yeast overgrowth, and magnesium can result in an overall improvement of about 70 to 80%.

DEPLETION OF MAGNESIUM HAS BEEN IDENTIFIED IN; Aging/poor memory - Asthma - Alzheimer’s – Chemical Sensitivity - Chronic Fatigue – Fibromyalgia - Parkinson’s ETC. Further depletion of magnesium is caused through the excessive use of painkillers, diuretics, antibiotics, and cortisone.

MAGNESIUM DEFICIENCY, SYMPTOMS AND BEHAVIOURS; Alcohol intake greater than 7 drinks p/wk – Anger – Angina – Anxiety – Apathy – Arrhythmia of the heart – Asthma – Blood test low; calcium, potassium, magnesium – Bowel problems; undigested fat in stool, constipation, diarrhoea, alternating constipation and diarrhoea, IBS, Crohn’s, colitis – Brain trauma – Chronic Bronchitis – Caffeine (coffee, tea, chocolate) greater than 3 p/day – Chronic fatigue syndrome – Cold extremities – Concentration difficulties – Confusion – Convulsions – Depression – Diabetes; type I, type II, gestational diabetes – Fibromyalgia – Food intake imbalances; limited green leafy vegetables, seeds, fresh fruit / high protein – Food cravings; carbohydrates, chocolate, salt, junk food – Gagging or choking on food – Headaches – Heart Disease – Heart; rapid rate – High blood pressure – Homocysteinuria - Hyperactivity – Hyperventilation – Infertility – Insomnia – Irritability – Kidney stones – Medications; digitalis, diuretics, antibiotics, steroids, oral contraceptives, indomethacin, cisplatin, amphotericin B, cholestyramine, synthetic estrogens – Memory impairment – Mercury amalgam dental fillings – Menstrual pain and cramps – Migraines – Mineral supplements; calcium without magnesium, zinc without magnesium, iron without magnesium – Mitral valve prolapsed – Muscle cramps or spasm – Muscle twitching or tics - Muscle weakness – Numbness of hands or feet – Osteoporosis – Paranoia – Parathyroid hyperactivity – PMS – Polycystic ovarian disease – Pregnancy; currently pregnant, pregnant within one year, history of preeclampsia or eclampsia, postpartum depression, have a child with cerebral palsy – Recent radiation therapy – Raynaud’s syndrome – Restlessness – Diminished sexual energy – Shortness of breath – Smoking – Startled life or circumstances – Stroke – Sugar, daily high intake – Syndrome X – Thyroid hyperactivity – Tingling of hand or feet – Transplants; kidney, liver – Tremor of the hands – Water containing the following; fluoride, chlorine, calcium – Wheezing.

Magnesium is the most important mineral to man and all living organisms. It is critical to the metabolic process of lowly one-celled living organisms and is the second most abundant element inside human cells. Magnesium existed at the beginning of life and was involved with all aspects of cell production and growth in plants and animals, magnesium became an essential mineral involved in hundreds of enzyme processes affecting every aspect of life. 99% of the body’s mineral content is made up of seven macro-minerals: Sodium, potassium, calcium, phosphorus, chlorine, sulphur, and magnesium.

The body is electric; Impulses for any body movement arise from electrical transmission; the conductor for these bodily electrical currents is Calcium, with Magnesium being the regulator (maintaining the proper level of calcium entering the blood) by allowing only a certain amount of calcium to enter to create the necessary electrical current, then immediately helps to eject the calcium once the work is done. (If the calcium were to accumulate in the cell, it would cause hyper-excitability and calcification and disrupt the cell function). 60–65% of magnesium is housed in our bones and teeth, the remaining 35–40% is found in the rest of the body (muscle and tissue cells, and body fluids) the highest being in the heart and brain (the two organs with the most electrical activity). Magnesium mostly works inside our tissue cells, bonding with ATP (Adenosine Triphosphate) the energy packs made in each cell in the body required for our body’s vital force. The combination of ATP and magnesium triggers production of all the body’s protein structures by revving up the messenger RNA (RNA move around the cells of living organisms and serve as a sort of genetic messenger, relaying information stored in the cell’s DNA out from the nucleus to other parts of the cell where it’s used to help make proteins). This combination is also a requirement for the production of DNA (our genetic code); both RNA and DNA are the basic building blocks of life, both are dependent on ATP/Magnesium to maintain stable genes, in addition to its stabilizing effect on DNA and the structure of chromosomes (ATP/Magnesium is an essential cofactor in almost all enzyme systems involved in the process of DNA). [www.johnkyrk.com/DNAtranscription.html](http://www.johnkyrk.com/DNAtranscription.html)

What magnesium does for us; can be divide into the following six essential categories

1. Is a cofactor assisting enzymes in catalyzing most chemical reactions in the body including temperature regulation
2. Produces and transports energy.
4. Helps to transmit nerve signals.
5. Helps to relax muscles.
6. Breaks down calcification between bone, and joint.

Hydrating the body through bathing / supplements

Magnesium bathing; Bath daily for 20 to 30 minutes in a bath of warm water (body temperature) which has a mug of Epsom salt ‘Magnesium Sulphate’ added to the bath water.

Magnesium oral supplements; The best supplement absorbed by the body would be 900MG P/DAY OF MAGNESIUM TAURATE, which is great for stabilising cell membranes, calming the nervous system, and inhibiting nerve excitation
The least expensive form would be 900MG P/DAY OF MAGNESIUM CITRATE (an inexpensive powder mixed in water.
Calculation for daily usage is 6 – 8mg/kg (3 to 4.5mg/lb) of body weight p/day, which translates to 600 to 900mg per day for a 200 lb man.
Magnesium Citrate

http://astronutrition.com/magnesium-citrate.html

Helps relax muscles and aids in fighting depression.

Essential for the maintenance of RNA & DNA.

Promotes cardiovascular health.

Works with Vitamin B6 in alleviating PMS.

Aids in tissue respiration.

Assists in the utilization of Vitamin B6 and Vitamin E.

**SIGNS OF DEFICIENCY:** Nervousness and muscle tics and twitches, apprehension, brain and body exhaustion, confusion and irritability, disorientation, irregular heartbeat, poor circulation and pale complexion, convulsions, seizures, tremors and glandular disturbances.

**CHARACTERISTICS:** Magnesium is an essential mineral nutrient. This vital mineral is needed in over 300 of the body's enzymes. Virtually all bioenergetic processes require magnesium. It plays an important role in bone formation, stress, exercise, depression, PMS and chronic fatigue.

Magnesium is absorbed from the small intestine. It is poorly absorbed from foods, less than 35% of the ingested amount. Only 25% - 35% of non-chelated magnesium ingested is absorbed and this can often have an adverse effect on the bowel.

**FUNCTION:** The body must modify mineral salts to assimilate the mineral. Magnesium salts, through complex digestive and transport processes, becomes magnesium amino acid chelate. The chelated magnesium is then metabolized and the magnesium mineral is released into the blood. Many people are unable to perform this complex digestive function. Therefore, non-chelated magnesium has little biological effect.

**Asthma and emphysema**
A population-based clinical study of over 2,500 children aged 11 - 19 years found that low dietary magnesium intake may be associated with a risk of developing asthma. The same was found in a group of over 2,600 adults aged 18 - 70. In addition, some clinical studies suggest that intravenous and inhaled magnesium can help treat acute attacks of asthma in children aged 6 - 18 as well as adults. However, evidence from other clinical studies report that long-term oral magnesium supplementation does not lead to improved control in adult asthma.

**Attention deficit/hyperactivity disorder (ADHD)**
Some experts believe that children with attention deficit/hyperactivity disorder (ADHD) may be exhibiting the effects of mild magnesium deficiency (such as irritability, decreased attention span, and mental confusion). In one clinical study of 116 children with ADHD, 95% were magnesium deficient. In a separate clinical study, 75 magnesium-deficient children with ADHD were randomly assigned to receive magnesium supplements in addition to standard treatment or standard treatment alone for 6 months. Those who received magnesium demonstrated a significant improvement in behaviour, whereas those who received only standard therapy without magnesium exhibited worsening behaviour.

These results suggest that magnesium supplementation, or at least high amounts of magnesium in the diet, may prove to be beneficial for children with ADHD.

**Depression**
Major Depression is a mood disorder characterized by a sense of inadequacy, despondency, decreased activity, pessimism, and sadness where these symptoms severely disrupt and negatively affect the person's life. Clinical studies have found that dietary deficiencies of magnesium, coupled with excess calcium and stress may cause many cases of other related symptoms, including agitation, anxiety, irritability, confusion, sleeplessness, headache, confusion, and hyper excitability.

**Diabetes**
Type 2 diabetes is associated with low levels of magnesium in the blood. A large clinical study of over 2000 people
found that higher dietary intake of magnesium may protect against development of type 2 diabetes. Magnesium was found to improve insulin sensitivity in these people, reducing the risk of developing type 2 diabetes. Other clinical studies have found similar results, especially in the elderly. Magnesium deficiency in diabetic patients may decrease their immunity, making them more susceptible to infections and illnesses.

**Fibromyalgia**
Results of a preliminary clinical study including 24 people with fibromyalgia suggest that a proprietary tablet containing both malic acid and magnesium may improve pain and tenderness associated with this health condition when taken for at least 2 months. Others suggest that the combination of calcium and magnesium may be helpful for some people with fibromyalgia.

**Heart disease**
Magnesium is essential to heart health. This mineral is particularly important for maintaining a normal heart rhythm and is often used by physicians to treat irregular heartbeat (arrhythmia). People with congestive heart failure (CHF) are often at particular risk for developing an arrhythmia. For this reason, your doctor may determine that magnesium should be a part of the treatment of CHF.

**High blood pressure**
Eating low-fat dairy products along with lots of fruits and vegetables on a regular basis is associated with lower blood pressure. All of these foods are rich in magnesium as well as calcium and potassium. Singling out which of these nutrients is responsible for lowering blood pressure is difficult. A large clinical study of over 8,500 women found that a higher intake of dietary magnesium may decrease the development of high blood pressure in women.

**Human immunodeficiency virus (HIV)**
Several clinical studies suggest that between 30 - 65% of people with human immunodeficiency virus (HIV) have low levels of magnesium. Those with low levels may be more likely to complain of fatigue (excessive tiredness), diminished energy, and confusion. Whether magnesium supplements would improve these symptoms in people with HIV, however, has not been evaluated.

**Inflammatory bowel disease (IBD)**
People with inflammatory bowel disease (IBD, particularly ulcerative colitis) may have low magnesium levels. In addition, there is some early clinical evidence that dietary magnesium supplements may be of some value for preventing IBD flare-ups.

**Infertility and miscarriage**
A small clinical study of infertile women as well as women with a history of miscarriage found that low levels of magnesium may impair reproductive function and increase the risk for miscarriage. The authors of the study suggest that one aspect of the treatment of infertility (particularly in women with a history of miscarriage) should include magnesium along with selenium. More research in this area is needed.

**Menopause**
Because magnesium improves the absorption of calcium from the gastrointestinal tract, some practitioners suggest that women take calcium and magnesium together at a ratio of 2:1, particularly around the time of menopause. This helps prevent osteoporosis (loss of bone mass).

In addition, as estrogen levels drop during menopause, magnesium levels seem to diminish as well. For this reason, magnesium may also help to relieve some menopausal symptoms such as hot flashes, depression, and insomnia. More research is needed.

**Migraine headache**
Magnesium levels tend to be lower in those with migraine headaches, including children and teenagers, when compared to those with tension headaches or no headaches at all. In addition, a few clinical studies suggest that magnesium supplements may decrease the length of time that one suffers from a migraine and reduces the amount of medication needed.

**Osteoporosis**
Calcium, vitamin D, magnesium, and other micronutrient deficiencies are believed to play a role in the development of osteoporosis. Adequate intake of calcium, magnesium, and vitamin D coupled with overall proper nutrition and weight-bearing exercise throughout childhood and adulthood are the primary preventive measures for this condition, in both men and women.
**Preeclampsia and eclampsia**
Intravenous magnesium sulfate is commonly used to prevent complications from preeclampsia and eclampsia. Preeclampsia is a condition characterized by a sharp rise in blood pressure during the third trimester of pregnancy. Women with preeclampsia may develop seizures, which is then called eclampsia. Magnesium, administered in the hospital intravenously (IV or into the veins), is the treatment of choice to prevent or treat seizures associated with eclampsia.

**Premenstrual Syndrome (PMS)**
Scientific evidence and clinical experience suggest that magnesium supplements may help relieve symptoms associated with PMS, particularly bloating, insomnia, leg swelling, weight gain, and breast tenderness. Preliminary information suggests that magnesium may be helpful for alleviating mood swings as well.

**Stroke**
Population-based information suggests that people with low magnesium in their diet may be at greater risk for stroke. Some preliminary clinical evidence suggests that magnesium sulfate may be helpful in the treatment of a stroke or transient ischemic attack (TIA, or a temporary disturbance of blood supply to an area of the brain). More research is needed to know for certain if use of this mineral following a stroke or TIA is helpful.

**Other**
A small clinical study including only 10 patients found that magnesium improved insomnia related to restless legs syndrome (a disorder characterized by uncomfortable sensations in the legs, which are worse during periods of inactivity or rest or while sitting or lying down). In another study including 42 patients undergoing abdominal hysterectomy, those who received intravenous magnesium sulfate before and after surgery required fewer pain-killers, experienced less discomfort, and slept better after surgery compared to those who received placebo.

Magnesium levels were also reported lower in alcoholics and those addicted to heroin. More studies are needed in using magnesium for addictive disorders.