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Last Updated: 1 - 02 - 23	

Magnesium (mineral)

A DEFICIENCY IN THIS CRITICAL nutrient makes you twice as likely to die as other people, according to a study published in The Journal of Intensive Care Medicine. It also accounts for a long list of symptoms and diseases — which are easily helped and often cured by adding this nutrient. In fact, in my practice, this nutrient is one of my secret weapons against illness. Yet up to half of Americans are deficient in this nutrient and don't know it.

I'm talking about magnesium. It is an antidote to stress, the most powerful relaxation mineral available, and it can help improve your sleep. I find it very funny that more doctors aren't clued in to the benefits of magnesium, because we use it all the time in conventional medicine. But we never stop to think about why or how important it is to our general health or why it helps our bodies function better. I remember using magnesium when I worked in the emergency room. It was a critical "medication" on the crash cart. If someone was dying of a life-threatening arrhythmia (or irregular heart beat), we used intravenous magnesium. If someone was constipated or needed to prepare for colonoscopy, we gave them milk of magnesia or a green bottle of liquid magnesium citrate, which emptied their bowels. If pregnant women came in with pre-term labor, or high blood pressure of pregnancy (preeclampsia) or seizures, we gave them continuous high doses of intravenous magnesium. But you don't have to be in the hospital to benefit from getting more magnesium. You can start taking regular magnesium supplementation today and see results.

Fast Track in causing " Magnesium depletion" can also be cause by … acute or prolong stress, drugs, poor intestinal absorption and chemical medications prescribed for humans and pets, severely deplete the body of this mineral magnesium. Certain situations cause your body to lose magnesium faster than you can replace it from your diet or supplements. These situations include treatment with "water pills" (diuretics such as furosemide, hydrochlorothiazide), a poor diet (**alcohol, coffee** .. in humans) or other medical conditions *(e.g., severe diarrhea / vomiting, stomach/intestinal absorption problems, poorly controlled diabetes).*

The Relaxation Mineral

Think of magnesium as the relaxation mineral. Anything that is **tight, irritable, cramps, and stiff — whether it is a body part or an even a mood —** is a sign of magnesium deficiency.

This critical mineral is actually responsible for **over 400 enzyme reactions** and is found in all of your tissues — but mainly in **your bones, muscles, and brain**. You must have it for your cells to make energy, for many different chemical pumps to work, to stabilize membranes, and to help muscles relax. That is why the list of conditions that are found related to magnesium deficiency is so long. In fact, there are over 3,500 medical references on magnesium deficiency!
Even so, this mineral is mostly ignored because it is not a drug, even though it is MORE powerful than drugs in many cases. That's why we use it in the hospital for life-threatening and emergency situations like seizures and heart failure. Magnesium deficiency has even has been linked to inflammation in the body and higher CRP levels. In our society, magnesium deficiency is a huge problem. By conservative standards of measurement (blood, or serum, magnesium levels), 65 percent of people admitted to the intensive care unit — and about 15 percent of the general population — have magnesium deficiency. But this seriously underestimates the problem, because a serum magnesium level is the LEAST sensitive way to detect a drop in your total body magnesium level. So rates of magnesium deficiency could be even higher!

Calcium actually.. Competes with (depletes) magnesium in the body.

Most of us (and pets) are storing calcium in the blood and soft tissues, so we do not need any more calcium, it is magnesium levels that we need to build up.

Note: RBC magnesium blood test is the only type of test that will reveal what is in the cells.
Serum Magnesium tests only measure 1% of magnesium in the blood, not the cells of the body

So if you suffer from any of the symptoms I mentioned or have any of the diseases I noted, don't worry — it is an easy fix!!

Reference: The Antidote for Stress – Mark Hyman, MD https://www.nutritionalmagnesium.org/magnesium-the-antidote-for-stress-mark-hyman-md/

For humans Here's how.

1. **Foods High in Magnesium** *(if depletion is not causing any symptoms)*

Include the following in your diet as often as you can*:* *Kelp, wheat bran, wheat germ, almonds, cashews, buckwheat, brazil nuts, dulse, filberts, millet, pecans, walnuts, rye, tofu, soy beans, brown rice, figs, dates, collard greens, shrimp, avocado, parsley, beans, barley, dandelion greens, and garlic.*

2. "Topical Spray" on Skin

Magnesium "Topical Spray" by Activation. Contains: magnesium chloride heahydrate. It is not salty and does not sting unlike the other magnesium chloride sprays. ***** *Spray directly onto your pets (or your) skin or onto your palm and smooth in. Use 30 sprays per day. Can spread it out e.g 10 sprays am and evening and before bed etc.* ***Use for whole family.***

3. Take Magnesium Oral Supplements.

The RDA (the minimum amount needed) for magnesium is about 300 mg a day. Most of us get far less than 200mg. Some may need much more depending on their condition.

Most people benefit from 400 to 1,000 mg a day.

Or use a Spray topically **(for pet or human)**

*Always start small amounts couple times a day then gradually increase oral dosing, which can take up to 1-2 months to see 100% all symptoms and conditions no longer a issue. Then you can take less as a maintenance dosing ongoing. **e.g Magnesium liquid**

Ingredients- Each DROP contains 2.5 mgs of Magnesium Chloride concentrate.

So 1/2 teaspoon of Magnesium liquid is 150mg of Magnesium.

DOSING Pets and Animals

Felines, Toy dog, Rabbits etc:

If *acute magnesium symptoms: Mix in 10 drops in 1/4 cup of milk drinks or water and oral syringe—1ml once a day then after 3-5 days repeat twice a day. Increase to 2 ml twice a day. If still unwell, add 20 drops in 1/4 cup of liquid and oral dose twice a day. Once improvement of not acute symptoms, can add 5 drops directly in daily meals (if possible)

Birds: stir in 2-3 drops to water dish every time you change it.

Small dog or animal: Mix in 20 drops in 1/4 cup of milk drinks or water and oral syringe—1ml once a day then after 3-5 days repeat twice a day. Increase to 2 ml twice a day. If still unwell, add 40 drops in 1/4 cup of liquid and oral dose twice a day. Once improvement, can add10 drops directly in daily meals (if possible)

Equines: Mix 10 drops diluted in approx. 5ml of some liquid, then oral syringe. Repeat twice daily for a week, if needed go to three times a day.

Humans, Med to large Dog: start off with 1/2 tsp (40 drops) in some juice or water. 150mg Then increase after a month to twice a day. (300mg) then three times a day. (450mg daily), if still deficient go up to four times a day (600mg)

* For All Acute Symptoms e.g. *seizures, acute anxiety, etc*

IMPORTANT: Increase a repeat dosing after 2 weeks, to three times a day. Then keep slowly building up the dose every 2 -3 week, by a few more drops. Continue to do this until all the acute symptoms go. Then reduce frequency per day as ongoing maintenance. It took 2 months of small increase amount of ReMag magnesium drops to completely rid acute anxiety attacks along with a number of chronic health issues as well (all from being deficient in Magnesium)

~ Ease "Topical Spray" Magnesium

We use Magnesium "Topical Spray" by Activation.

Contains: magnesium chloride heahydrate. It is not salty and does not sting unlike the other magnesium chloride sprays. ***** *Spray directly onto your pets (or your) skin or onto your palm and smooth in. Use 30 sprays per day. Can spread it out e.g 10 sprays am and evening and before bed etc.* ***Use for whole family***

This special topical magnesium spray is **Magnesium Chloride Heahydrate** is the form of magnesium that we resonate with the most.

There's Bioavailability and also its about compatibility both are needed.

Things can absorb, like you could have a magnesium sulfate bath for example, that will absorb in and you will feel calmed by it and feel good, but it dosen't hold in your tissue to build up a reserve because you gotta have your reserves.

For example if you or your horse or pet have a high stress day (coffee and some drugs deplete this mineral from body) your going to burn a lot more magnesium than normal, there's not enough magnesium in the food, its just that simple. So we want to have all the elements and everything set in order catalytic-ally. The Catalysts like, things like cell salts, which is the deepest levels of the building, the magnesium is the fuel. If you take magnesium supplements orally your channels could be blocked, so its not getting there, but when you put the stuff on your system it just gets right there geographically that the beauty of that application.

80% of you and your pets central nervous system which is run by your brain is connected to muscles.

Hypercalcemia?

Magnesium is necessary for controlling calcium levels in the blood.

We have found when we add Magnesium (mineral) in daily meals will help prevent hypercalcemia. or to treat excessive calcium levels in the body, we suggest oral dosing magnesium twice a day. (diluted in some liquid first then oral syringe side of mouth)

Because of the location of toxic cells (cancer), a side effect is "Hypercalcemia", to prevent this or treat this condition we can use the mineral, magnesium. Which Is excess amounts of calcium. Hypercalcemia is commonly associated with solid cancers such as multiple myeloma and breast cancer, but it may occur with lymphoma as well.

As the serum calcium level increases, it leads to renal failure, constipation, and nausea/vomiting. In advanced stages, hypercalcemia causes cardiac arrhythmias and coma.

Magnesium (mineral) in daily meals will help prevent or treat hypercalcemia
Magnesium drops (we use the ReMag Magnesium Solution liquid.

We can provide smaller bottle 50ml of this to get you started OR order a larger bottle 240ml - from Dr. Carolyn Dean Website.

PREVENTION - Add Magnesium (mineral) in daily meals will help prevent hypercalcemia.

RELIEF from excessive calcium levels in the body, we suggest oral dosing magnesium twice a day. (diluted in some liquid first then oral syringe side of mouth)

Magnesium and Bone Health

Osteoporosis is considered a disease of the bones. While magnesium is not a drug and cannot treat any disease, it's informative to consider the role that magnesium plays in healthy bones.

The majority of the magnesium stored in your body is in bone, accounting for approximately 60% of total body magnesium. This magnesium is present on the surface of bone, and is available for the body to exchange into the blood as needed (1). It is very important for our bone health to make sure that we have adequate magnesium. Not only does magnesium have a structural role in bone maintenance, but it also influences bone-building cells and it modulates potential bone-damaging inflammation.

Magnesium, the fourth most abundant mineral in your body, is a component necessary for the activation of vitamin D, and without sufficient amounts of it, your body cannot properly utilize the vitamin D you're taking. So, low magnesium levels can jeopardize bone in many ways, including making the body resistant to the effects of vitamin D and the parathyroid hormone.
***If taking Vitamin D, the most natural and best form is to take Cod Liver Oil Capsules.**

Magnesium and bone density

- Magnesium intake was positively associated with whole-body bone mineral density in a study of more than 2,000 people. (2)
- A large study found that women who consumed 422 mg or more of magnesium per day had significantly higher hip and whole-body BMD than those who consumed less than 206 mg daily. (3)
- In the Framingham study, higher intake of magnesium was associated with greater BMD in the hip for both men and women, and in the forearm for men. (4)
- Cheng et al. reported that for every 0.16 mmol/L increase in serum magnesium, bone density increased 8.78-fold.

Magnesium and fracture

- Having low magnesium levels in the blood correlated to a 44% higher risk of bone fractures, particularly hip fractures, as reported in a 2017 study that looked at serum magnesium levels of 2,245 middle-aged men. Interestingly, *none* of the men with what they regarded as "high" magnesium levels (more than 2.3 mg/dL) fractured *at all.* (7)
- A 2018 study of more than 113,000 participants reported that hemodialysis patients with the highest serum magnesium levels had a 23% lower risk of hip fracture than those with the lowest serum magnesium (highest quartile vs. lowest). (8)
- Another study reported that the risk of fracture decreased significantly in those who had the highest magnesium intake: (9)
    - 53% decreased risk of fracture in men
    - 62% decreased risk of fracture in women

Studies have proven that magnesium is crucial to bone health. With a lack of magnesium in the body, crystal formation occurs on the bone cells, directly impacting the parathyroid hormone and promoting low-grade inflammation. The same study says, "Optimizing Mg intake might represent an effective and low-cost preventive measure against osteoporosis in individuals with documented Mg deficiency." In an additional study, it is indicated that low serum magnesium levels are associated with increased risk of bone fractures. The research showed that men taking higher doses of magnesium were 44 percent less likely to suffer from a bone fracture; none of the 22 men studied with high magnesium levels had a bone fracture during the 20-year study.Considering the information above, it makes sense to include magnesium in your daily diet to support the health of your bones. Magnesium and calcium work closely together to ensure bone health; an appropriate amount of both is necessary for either to be effective. Ideally, everyone, including at-risk individuals, should have a 1:1 calcium-to-magnesium ratio. So, if you are taking 500 mg of magnesium supplement each day, you should take 500 mg of calcium from food source only, which you can normally obtain from food.

If you or your pet have osteoporosis, you both may benefit from receiving as much as 750 mg of magnesium every day on going. *(half that amount for toy dogs)*

References:

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6. Welch, A. A., et al. 2017. Dietary magnesium may be protective for aging of bone and skeletal muscle in middle and younger older age men and women: Cross-sectional findings from the UK Biobank Cohort. Nutrients 9(11):1189. doi:10.3390/nu9111189.

Different types of Magnesium available:

Magnesium Glycinate powder or **liquid** is a chelated form of magnesium that tends to provide the **highest levels of absorption and bioavailability** and is typically considered ideal for those who are trying to correct a deficiency. * This form of magnesium will NOT cause DIARRHEA "IF" needing to take a lot of Magnesium for therapeutic benefits.	**Magnesium Oxide powder** is a non-chelated type of magnesium, bound to an organic acid or a fatty acid. Contains 60 percent magnesium, and has stool softening properties.
Magnesium Chloride / Magnesium lactate powder contain only 12 percent magnesium, but has better absorption than others, such as magnesium oxide, which contains five times more magnesium.	**Magnesium Sulfate / Magnesium hydroxide** (milk of magnesia) are typically used as a laxative. Be aware that it's easy to overdose on these, so ONLY take as directed or use a better quality magnesium. * We suggest to Avoid - poorly absorbed (and the cheapest and most common forms found in supplements)
Magnesium Carbonate powder, which has antacid properties, contains 45 percent magnesium. Low response support for heart conditions.	**Magnesium Taurate** contains a combination of magnesium and taurine, an amino acid. Together, they tend to provide a calming effect on your body and mind. **** FOR ALL HEART CONDITIONS*****
Magnesium Citrate powder is magnesium with citric acid, which has laxative properties. * Use for constipation issues if required. **Magnesium Asparate** – NOT recommended.	**Magnesium Threonate** is a newer, emerging type of magnesium supplement that appears promising, primarily due to its superior ability to penetrate the mitochondrial membrane, and may be the best magnesium supplement on the market

Some signs of Magnesium Deficiency

The classic physical signs of low magnesium are:

Neurological:
Behavioral disturbances -
Irritability
Anxiety
Tinnitus * Read more Page 46
Lethargy
Impaired memory and cognitive function
Anorexia or loss of appetite
Nausea and vomiting
Seizures
Insomia
hyperactivite
Bruxism (grinding teeth)
nerve disorder

Muscular:
Weakness
Muscle spasms (tetany)
Tics
Muscle cramps
Hyperactive reflexes
Impaired muscle coordination (ataxia)
Tremors
Involuntary eye movements and vertigo
Difficulty swallowing
reflux

e.g in Equines
Polysaccharide Storage Myopathy (PSSM1)
providing Magnesium will help prevent or treat clinical symptoms - that can include:
... *skin twitching, stiffness, firm painful muscles, sweating, weakness, and reluctance to move with light exercise. Occasionally gait abnormalities, mild colic, and muscle wasting may also occur.*
In may, cases horse that has tested positive have had no history of 'tying-up' or other symptoms associated with PSSM1. A horse **has** a unique metabolism they do not need much of the mineral or herbs etc.

Metabolic:
Increased intracellular calcium
Hyperglycemia
Calcium deficiency
Potassium deficiency

Cardiovascular:

Irregular or rapid heartbeat arrhythmias including
.. arterial fibrillation (AF), Coronary spasms ,
cardiac arrhythmias, particularly in hypomagnesemic patients, ventricular tachycardia, ventricular fibrillation, multifocal atrial tachycardia, atrial fibrillation and supraventricular tachycardia.
May be of benefit in Dilating Blood Vessels (***Magnesium helps as a "Vasodilator", which affect the muscles in the arteries and veins, preventing the muscle walls from tightening and narrowing)*** Magnesium glycinate is a good option because it is both absorbent and bioavailable.
This makes it ideal for those who need to fix a deficiency.

Example: ~ **Atrial fibrillation (also called AFib or AF)**
is a quivering or **irregular heartbeat** (arrhythmia)
that can lead to blood clots, stroke, heart failure and
other heart-related complications - **which can be**
corrected by taking the mineral magnesium daily.
~ **Left ventricular hypertrophy** is enlargement and thickening (hypertrophy) of the walls of your heart's main pumping chamber (left ventricle). ... Left ventricular hypertrophy can develop in response to some factor — such as **high blood pressure** or a **heart condition** — that causes the left ventricle to work harder. A left sided dysfunction is called **" left-sided diastolic failure" (or dysfunction).** The left ventricle loses its **ability to relax** normally (because the muscle has become stiff). The heart can't properly fill with blood during the resting period between each beat. Often times with this kind of failure the heart walls are thick, weak and stiff. * The mineral - Magnesium helps muscles to relax. **In the article**, "Magnesium supplementation improves diabetic mitochondrial and cardiac diastolic function," author Samuel Dudley, MD, PhD, Academic Chief of Cardiology at the University of Minnesota Medical School and his fellow researchers found that magnesium can be used to treat diastolic heart failure. "We've found that cardiac mitochondrial oxidative stress can cause diastolic dysfunction. Since **magnesium** is an essential element for mitochondrial function, we decided to try the supplement as a treatment," explained Dudley. "It eliminated the poor heart relaxation that causes diastolic heart failure."
Reference: https://www.sciencedaily.com/releases/2019/01/190110141730.htm

You or your pet might be magnesium deficient if you have any of the following symptoms:

Insomnia
Irritability
Sensitivity to loud noises
Anxiety
Autism
ADD
Palpitations
Angina
Constipation
Anal spasms
Headaches
Migraines
Fibromyalgia
Chronic fatigue *See page 44
Asthma
Kidney stones
Diabetes
Obesity
Osteoporosis
High blood pressure
Menstrual cramps
Irritable bladder
Irritable bowel syndrome
Reflux
Trouble swallowing

There are many different types of magnesium as discussed on previous pages, however there are also different forms magnesium comes in:

1. **Oral supplements** - capsule or tables or liquid – for all species
2. **Magnesium oil or cream** – work better for humans as it needs to be directly onto the skin to absorb
3. **Magnesium baths** (using Epsom salts – magnesium sulphate) for humans * if you have a sulpur intolerance, avoid using **Epsom salts** but rather use the Magnesium Chloride flakes instead.
4. **Magnesium Spray - Contains:** magnesium chloride heahydrate. It is not salty and does not sting unlike the other magnesium chloride sprays. ***** *Spray directly onto your pets (or your) skin or onto your palm and smooth in. Use 30 sprays per day. Can spread it out e.g 10 sprays am and evening and before bed etc.* ***Use for whole family***

We will mention some of the ORAL Supplements.

Magnesium is available in chelated (bound to) combinations such as alpha-ketogluconate, aspartate, glycinate, lysinate, orotate, taurate and others.

Chelated magnesium is far better absorbed than magnesium oxide but is more expensive. Complementary medicine practitioners rely on chelated magnesium, such as magnesium **glycinate, taurate and oratate** (magnesium plus amino acids) to treat serious cases of magnesium deficiency. These kind of magnesium's have less laxative effect on the intestines than magnesium citrate, so they are recommended if you tend to have loose stools.

Magnesium Taurate is a combination of the Amino acid Taurine and magnesium that has special properties for the heart. Taken together in this combination, magnesium and taurine have a synergistic effect, stabilizing cell membranes, making this form of magnesium highly absorbed. Magnesium Taurate does not have great laxative effect and is the recommended form of magnesium for people with heart problems. It appears that the amino acid Taurine is important for hearth health and may prevent arrhythmias and protect the heart against the damage caused by heart attacks. Magnesium taurate requires oral supplementation for six to twelve months to restore intracellular levels.

Magnesium citrate is probably the mostly widely used magnesium supplement because it is inexpensive, easily absorbed and only has a **mild laxative effect**. The best form is magnesium citrate powder mixed in water that can be taken everyday.

Magnesium malate combines magnesium with malic acid, a weak organic acid found in vegetables and fruit, especially apples. The weak bond with magnesium makes it readily soluble in the body. Malic acid is a key component of several energy making chemical reactions in the body. Researchers have used magnesium malate successfully to treat the chronic fatigue, pain and insomnia of fibromyalgia.

Dimagnesium malate increases the amount of magnesium available to the body; it has the same properties as magnesium malate.

Magnesium oxide appears to have high amount of elemental magnesium. One 500 mg capsule of magnesium oxide contains 300 mg of elemental magnesium. But little of that amount is available to the body because it is not absorbed and therefore not biologically available. One recent study reported 4 percent absorption rate of magnesium oxide. This means 12 mg of 500 mg capsule are absorbed and 288 may stay in the intestines, acting like a laxative. Imagine how much favorable the result would be if a more absorbable form of magnesium were used.

"Type" of Magnesium to Avoid

Avoid magnesium glutamate; it breaks down into the neurotransmitter glutamic acid, which without being bound to other amino acids is neurotoxic. Glutamic acid is a component of aspartame, which should also be avoided.

Avoid magnesium aspartate; it breaks down into the neurotransmitter aspartic acid, which without being bound to other amino acids is neurotoxic. Aspartic acid is a component of aspartame, which also should be avoided.

How to take magnesium for humans

Take your first dose of magnesium when you wake up in the morning and the last dose at bedtime. Magnesium is most deficient in the early morning and late afternoon. Most people find magnesium as good as a sleeping pill to help them get a good night's rest.
Magnesium can be taken with or without meals, but it is preferable to take it between meals for better absorption. Magnesium requires stomach acid to be absorbed. After a full meal, your stomach acid is busy digesting food and may not be available to help absorb magnesium.
Also magnesium is an alkaline mineral and acts like an anti-acid: taken with meals, it may neutralize stomach acid and impair digestion. If you develop loose stools while taking magnesium, it does not necessarily mean you are absorbing enough and losing the rest; it may mean you are taking too much at one time.

NEVER TAKE (or give your pet) a/YOUR DAILY MAGNESIUM ALL AT ONCE.

Spread it out through the day; four times a day is best if you have been experiencing diarrhea. If that does not do the trick, you probably need to cut back the amount you are taking or switch to another type or brand of magnesium.

Can you test for magnesium deficiency?

Yes. As the majority of magnesium is *inside* your cells, having a "**Serum Magnesium test"** is useless as only detects 1% in your blood, not your cells. However, if you have an "**RBC Magnesium test"** *(red blood cells)* **this will show how much magnesium is in your cells**. * **But you need to put in a special request to get RBC Magnesium blood test done,** as it is not the standard blood test. Or just simply start using Magnesium mineral supplement to improve your pets health conditions. .. You will see it!!

Optimum range is 6 – 7

Serum Magnesium Levels, like the kind that are routinely done in the hospital, are going to miss a HUGE percentage of people and pets with very real and very problematic magnesium deficiencies.

The normal range of Magnesium Blood Tests on Laboratory evaluations is from approximately 1.5 to 2.5 mEq/liter - although this will vary slightly depending upon each individual laboratory- but having a 'normal' level simply is worthless information if you are having problems.

A Better Magnesium Level Test

Red Blood Cell Magnesium Levels also called **'RBC Magnesium' tests,** are an improved way to get your magnesium level checked. RBC magnesium tests the level of magnesium inside of the Red Blood Cells inside your bloodstream. Unfortunately, this level does not correlate very well with the levels inside your TISSUES where you really want to know about your magnesium status.

As the majority of magnesium is inside your cells, having a Serum Magnesium test is useless as only detects 1% in your blood, not your cells.

Which unfortunately is the only type of blood test Vets and Doctors suggest.

Which Magnesium Supplement is Best if taking Orally?

The best supplement is **Magnesium Glycinate** (or bisglycinate) a magnesium joined to the amino acid glycine. This is the least laxative of all the magnesiums, and the most absorbable. Glycine has its own beneficial calming effect on your GABA receptors. Most people **start off** at one capsule **(100mg) once to twice a day.** Then over 3 weeks go up to three capsules once a day am and evening. Then go up to 2 capsules twice a day. Then over a period again, if needing, go up to 3 capsules twice a day. Some people also combine other sources of magnesium as well. This is also same amount formed to large dog.
Having a Epsom Salt baths (mag sulpate) three times a week, and topically using magnesium cream or magnesium oil on sore muscles or anywhere to absorb the magnesium daily.

Taking 600mg to 1,00mg a day is good.

‘Every Known Illness Is Associated With A Magnesium Deficiency’

According to Dr. Norman Shealy’s

‘Every known illness is associated with a Magnesium deficiency’ and ‘Magnesium is the most critical mineral required for electrical stability of every cell in the body. A Magnesium deficiency may be responsible for more diseases than any other nutrient’
This exposes a gaping hole in modern medicine that explains a good deal about iatrogenic death and disease. Because magnesium deficiency is largely overlooked, millions of Americans suffer needlessly or are having their symptoms treated with expensive drugs when they could be cured with magnesium supplementation.

Magnesium deficiency is often misdiagnosed because it does not show up in blood tests – only 1% of the body’s magnesium is stored in the blood. Most doctors and laboratories don’t even include magnesium status in routine blood tests. Thus, most doctors don’t know when their patients are deficient in magnesium, even though studies show that the majority of Americans are deficient in magnesium. Magnesium is needed by every cell in the body including those of the brain and is one of the most important minerals when considering supplementation because of its vital role in hundreds of enzyme systems and functions related to reactions in cell metabolism, as well as being essential for the synthesis of proteins, for the utilization of fats and carbohydrates.

Magnesium is needed not only for the production of specific detoxification enzymes but is also important for energy production related to cell detoxification. A Magnesium deficiency can affect virtually every system of the body

There is an eternal need for magnesium as well as water and when Magnesium is present in water life and health are enhanced. We literally thirst for magnesium rich water.. In a world though where doctors and patients alike do not even pay attention to thirst and important issues of hydration it is not hopeful that we will find many recognizing and paying attention to magnesium thirst and hunger which is a dramatic way of expressing the concept of Magnesium deficiency. In fact there happens to be a relationship between what we perceive as thirst and deficiencies in electrolytes.

I remember a person asking, "Why am I dehydrated and thirsty when I drink so much water?" Thirst can mean not only lack of water but it can also mean that one is not getting enough nutrients and electrolytes. Magnesium, Potassium, Bicarbonate, Chloride and Sodium are some principle examples and that is one of the reasons magnesium chloride is so useful.
Few people are aware of the enormous role that Magnesium plays in our bodies. It is by far the most important mineral in the body after oxygen, water, and basic food. Magnesium is more important than Calcium, Potassium or Sodium and regulates all three of them.

Sadly, millions of people suffer around the world today from Magnesium deficiency without even knowing it.

Symptoms of Magnesium Deficiency

The first symptoms of deficiency can be subtle as most Magnesium is stored in the tissues: leg cramps, foot pain, or muscle 'twitches' can be the first sign.

Other early signs of deficiency *include ...* *loss of appetite, nausea, vomiting, fatigue, and weakness. As Magnesium deficiency worsens, numbness, tingling, seizures, personality changes, abnormal heart rhythms, and coronary spasms can occur. Magnesium levels drop at night, leading to poor REM (Rapid Eye Movement) sleep cycles and unrefreshed sleep. Headaches, blurred vision, mouth ulcers, fatigue and anxiety are also early signs of depletion.*

A full outline of Magnesium deficiency was beautifully presented in a recent article by **Dr. Sidney Baker**. "Magnesium deficiency can affect virtually every organ system of the body. With regard to skeletal muscle, one may experience twitches, cramps, muscle tension, muscle soreness, including back aches, neck pain, tension headaches and jaw joint (or TMJ) dysfunction. Also, one may experience chest tightness or a peculiar sensation that he can't take a deep breath. Sometimes a person may sigh a lot."

"Symptoms involving impaired contraction of smooth muscles include constipation; urinary spasms; menstrual cramps; difficulty swallowing or a lump in the throat-especially provoked by eating sugar; photophobia, especially difficulty adjusting to oncoming bright headlights in the absence of eye disease; and loud noise sensitivity from stapedius muscle tension in the ear."

"**Other symptoms and signs of Magnesium deficiency** and discuss laboratory testing for this common condition. Continuing with the symptoms of Magnesium deficiency, the **central nervous system** is markedly affected. **Symptoms *include*** *insomnia, anxiety, hyperactivity and restlessness with constant movement, panic attacks, agoraphobia, and premenstrual irritability*.

Magnesium deficiency symptoms involving the peripheral nervous system include numbness, tingling, and other abnormal sensations, such as zips, zaps and vibratory sensations."

"Symptoms or signs of the cardiovascular system include palpitations, heart arrhythmias, and angina due to spasms of the coronary arteries, high blood pressure and mitral valve prolapse.
Be aware that not all of the symptoms need to be present to presume magnesium deficiency; but, many of them often occur together.
For example, people with mitral valve prolapse frequently have palpitations, anxiety, panic attacks and premenstrual symptoms.
People And Animals With "Magnesium Deficiency" Often Seem Agitated Or 'Uptight'.
One of the principle reasons doctors write millions of prescriptions for tranquilizers each year is the nervousness, irritability, and jitters largely brought on by inadequate diets lacking magnesium.
People (or Animals) with even a slight deficiency become irritable, highly-strung, sensitive to noise, hyper-excitable, apprehensive and belligerent. Other general symptoms include a salt craving, both carbohydrate craving and carbohydrate intolerance (especially chocolate) and breast tenderness.
If the deficiency is more severe or prolonged, they may develop twitching, tremors, irregular pulse, insomnia, muscle weakness, jerkiness and leg and foot cramps.

If Magnesium is severely deficient, the brain is particularly affected.

.. Clouded thinking, confusion, disorientation, marked depression and even the terrifying hallucinations of delirium tremens are largely brought on by a lack of this nutrient and remedied when magnesium is given. Because large amounts of calcium are lost in the urine when magnesium is under supplied, the lack of this nutrient indirectly becomes responsible for much rampant tooth decay, poor bone development, osteoporosis and slow healing of broken bones and fractures.
With Vitamin B6 (P5P) (the activated B6 form), Magnesium helps to reduce and dissolve Calcium Phosphate Kidney Stones.

Early warning signs of Magnesium Deficiency can include for humans:

- Physical and mental fatigue
- Persistent under-eye twitch
- Tension in the upper back, shoulders and neck, Headaches
- Premenstrual fluid retention and/or breast tenderness

Further manifestations of Magnesium Deficiency can include:

- Low energy
- Fatigue
- Weakness
- Confusion
- Nervousness/Anxiousness
- Irritability
- Seizures (and tantrums)
- Poor digestion
- PMS and hormonal imbalances
- Insomnia/Inability to sleep
- Muscle tension, spasm and cramps
- Calcification of organs
- Weakening of the bones
- Abnormal heart rhythm

Signs Of Severe Magnesium Deficiency Include:

- Extreme thirst
- Extreme hunger
- Frequent urination
- Sores or bruises that heal slowly
- Dry, itchy skin
- Unexplained weight loss
- Blurry vision that changes from day to day
- Unusual tiredness or drowsiness
- Tingling or numbness in the hands or feet
- Frequent or recurring skin, gum, bladder or vaginal yeast infections

~ Severe magnesium deficiency can result in low levels of calcium in the blood called (hypocalcemia).

~ Magnesium deficiency is commonly associated with low levels of potassium in the blood called (hypokalemia). Pets that have had fluid drained from body or on chemical diurectics, heart conditions all need the correct amount of electrolytes to help body and heart function, that is why the homeopathics cause stressed as it helps the heart muscle function, but if the rest of the mineral electroyles is out of balance, the body dosent cope.

Electrolyte Imbalances

Heart throbbing, pounding, fluttering, or skipping a beat.

You can't help but feel anxious and might even worry you're about to have a heart attack. You end up going to the doctor for a checkup, and the provider mentions your heart palpitations could be an electrolyte imbalance. Part of you is relieved. After all, an electrolyte imbalance sure sounds better than a heart attack.

Electrolytes

Electrolytes are minerals, and the body needs them to:

- balance its water levels
- move nutrients into cells
- remove waste products
- allow nerves to send signals
- enable muscles to relax and contract normally
- keep the brain and heart functioning

What Causes an Electrolyte Imbalance?

You can suffer an electrolyte imbalance for an assortment of reasons. For example, you might have an electrolyte imbalance if you are losing too many fluids and replacing fluid/water.

What Symptoms Can You Expect if You Have an Imbalance?

Heart palpitations and numerous symptoms you can expect if you have an electrolyte imbalance. Other symptoms include dizziness, fatigue, and trembling. When levels of electrolytes become too high or low, this is an electrolyte imbalance. It is not a disease, but it is a sign of another issue in the body.

What causes an electrolyte imbalance?

An electrolyte imbalance can happen if a person is dehydrated or if they have too much water in their body.

The things that most commonly cause an electrolyte imbalance are:

- vomiting
- diarrhea
- not drinking enough fluids or loss of vital fluids (drained from body)
- certain medications, such as laxatives and diuretics
- liver or kidney problems
- congestive heart failure

How to Keep Your Electrolytes Balanced

Unless you have a health condition, it's pretty easy to keep your electrolytes balanced.

~ Magnesium

Magnesium regulates heart rhythm, nerve function, and muscle contractions. If you're suffering from an electrolyte balance and heart palpitations.

~ Potassium

Potassium is generally the mineral that people connect to low electrolytes. It's also responsible for regulating your heart, so you want to make sure you get enough of it.

People and Animals with "magnesium deficiency" often seem to be "uptight."

Other general symptoms include a **salt craving, both carbohydrate craving** and carbohydrate intolerance, especially of chocolate, and breast tenderness.

START NOW … You and Your pets!

Magnesium is needed by every cell in the body including those of the brain and is one of the most important minerals when considering supplementation because of its vital role in hundreds of enzyme systems and functions related to reactions in cell metabolism, as well as being essential for the synthesis of proteins, for the utilization of fats and carbohydrates. Magnesium is needed not only for the production of specific detoxification enzymes but is also important for energy production related to cell detoxification. A magnesium deficiency can affect virtually every system of the body. There is an eternal need for magnesium as well as water and when magnesium is present in water life and health are enhanced. One of the principle reason doctors write millions of prescriptions for tranquilizers each year is the nervousness, irritability, and jitters largely brought on by inadequate diets lacking magnesium.

Persons (or Animal) that is only slightly deficient in magnesium become irritable, highly-strung, and sensitive to noise, hyper-excitable, apprehensive and belligerent.

HEART and MINERALS

Magnesium is absolutely essential for the proper functioning of the heart.

The powder of a simple mineral. People and (pets given foods) who eat rich in the mineral **magnesium** appear to reduce their odds of having a **stroke**, a new study shows. The link between **magnesium** in the diet and **stroke** risk was strongest for ischemic **stroke**, which is when a clot blocks a blood vessel in the brain.

Magnesium and **potassium** are all effective in lowering blood pressure.

Magnesium is useful in **preventing** death from **heart attack** and protects against further **heart attacks**. It also reduces the frequency and severity of ventricular arrhythmias and **helps prevent** complication.
This Mineral also treats cardiac arrhythmias, particularly in hypomagnesemic, ventricular tachycardia, ventricular fibrillation, multifocal atrial tachycardia, atrial fibrillation and supraventricular tachycardia.

Thus avoiding the need to be on chemical drugs of any sort. Or can use at same time if on drugs.

So what we are saying here is that Mg is most likely the main reason why potassium/calcium channels / pathways are blocked or sluggish. Since all ATP is actually Mg-ATP we start to get more proof that low magnesium can impede other areas of biology that Mg was never thought to have an active role in.

Magnesium – ATP

Mg-ATP is involved to make them all work. It means to re-activate the "blocked" channels one should have more Mg and less Fe. Then more Potassium will flood into the cells.

Magnesium – the Ultimate Heart Medicine

*Posted by **Dr Sircus** on December 8, 2009 | Filed under Cardiology*, Magnesium, Medicine

This edition offers a substantial breakthrough in cardiac medicine that could positively impact the lives of thousands of people and their families. When someone is in cardiac arrest or are having a stroke, having panic attacks with heart palpitations what is the first thing, the very first thing we would reach for? Our biological engine is seizing up (heart attack) what do we inject?
For the next million years there is going to be only one answer and that answer is magnesium. If you're ever rushed to the hospital with a heart attack, intravenous magnesium could save your life.

In a 1995 study, researchers found that the in-hospital death rate of those receiving IV magnesium was one-fourth that of those who received standard treatment alone. In 2003, a follow-up study of these same patients revealed an enduring effect of magnesium treatment.
Nearly twice as many patients in the standard treatment group had died compared to those who received magnesium, and there were considerably more cases of heart failure and impaired heart function in the placebo group. In addition to increasing survival after heart attack, IV magnesium smoothes out arrhythmias and improves outcomes in patients undergoing angioplasty with stent placement. Magnesium is absolutely essential for the proper functioning of the heart.
Magnesium's role in preventing heart disease and strokes is generally well accepted, yet cardiologists have not gotten up to speed with its use.
Magnesium was first shown to be of value in the treatment of cardiac arrhythmias in 1935. Since then there have been numerous double-blind studies showing that magnesium is beneficial for many types of "**arrhythmias" including "atrial fibrillation" (AF)**, ventricular premature contractions, ventricular tachycardia, and severe ventricular arrhythmias. Magnesium supplementation is also helpful in angina due to either a spasm of the coronary artery or atherosclerosis. *Heart palpitations, "flutters" or racing heart, otherwise called "arrhythmias", usually clear up quite dramatically on **500 milligrams of Magnesium Taurate or glycinate**, (request hospital staff - you do not want magnesium citrate or aspirate as hospitals will use the cheaper form of magnesium, which is not the best form of magnesium) once or twice daily or faster if given intravenously.– **Dr. H. Ray Evers***

A magnesium deficiency is closely associated with cardiovascular disease.[1] Lower magnesium concentrations have been found in heart attack patients[2] and administration of magnesium[3] has proven beneficial in treating ventricular arrhythmias.[4],[5],[6],[7] Fatal heart attacks are more common in areas where the water supply is deficient in magnesium and the average intake through the diet is often significantly less than the 200-400 milligrams required daily.[8]

Magnesium is proving to be very important in the maintenance of heart health and in the treatment of heart disease. Magnesium, and potassium are all effective in lowering blood pressure.[9],[10],[11],[12] Magnesium is useful in preventing death from heart attack and protects against further heart attacks.[13],[14] It also reduces the frequency and severity of ventricular arrhythmias and helps prevent complications after bypass surgery.

Magnesium deficiency appears to have caused eight million sudden coronary deaths in America during the period 1940-1994.[15]– ***Paul Mason***

Researchers from North western University School of Medicine in Chicago have determined that not having enough magnesium in your diet increases your chances of developing coronary artery disease. In a study of 2,977 men and women, researchers used ultrafast computed tomography (CT scans) of the chest to assess the participants' coronary artery calcium levels.

Measurements were taken at the start of the study—when the participants were 18- to 30-years old—and again 15 years later. The study concluded that dietary magnesium intake was inversely related to coronary artery calcium levels. Coronary artery calcium is considered an indicator of the blocked-artery disease known as atherosclerosis.

Almost all adults are concerned about the condition of their heart and cardiovascular system. Some live in constant fear wondering whether any ache, cramp or pain in their upper body is a sign of a heart attack. There isn't an adult living in North America that hasn't lost a loved one or a family member to heart disease. The fact is heart attacks kill millions every year.

Chernow et al in a study of postoperative ICU patients found that the death rate was reduced from 41% to 13% for patients without hypomagnesemia (low magnesium levels). Other post heart surgery studies showed that patients with hypomagnesemia experienced more rhythm disorders.

Time on the ventilator was longer,[16] and morbidity was higher than for patients with normal magnesium levels. Another study showed that a greater than 10% reduction of serum and intracellular magnesium concentrations was associated with a higher rate of postoperative ventricular arrhythmias. The administration of magnesium decreases the frequency of postoperative rhythm disorders[17] after cardiac surgery. Magnesium has proven its value as an adjuvant in postoperative analgesia. Patients receiving Mg required less morphine, had less discomfort and slept better during the first 48 hours than those receiving morphine alone.

It is established that clinically significant changes in a number of electrolytes occur in patients with congestive heart failure (CHF). Magnesium ions are an essential requirement for many enzyme systems, and clearly magnesium deficiency is a major risk factor for survival of CHF patients. In animal experiments, magnesium has been shown to be involved in several steps of the atherosclerotic process, and magnesium ions play an extremely important role in CHF and various cardiac arrhythmias.

Magnesium is also required for muscle relaxation.

Lower magnesium levels can result in symptoms ranging from tachycardia and fibrillation to constriction of the arteries, angina, and instant death.

Due to lack of magnesium the heart muscle can develop a spasm or cramp and stops beating. Most people, including doctors, don't know it, but without sufficient magnesium we will die. It is important to understand that our life span will be seriously reduced if we run without sufficient magnesium in our cells and one of the principle ways our lives are cut short is through cardiac arrest (heart attack).

Yet when someone dies of a "heart attack: doctors never say … "He died from Magnesium Deficiency."

Allopathic medicine ignores the true causes of death and disease and in the field of cardiology this is telling. Magnesium is an important protective factor for death from acute myocardial infarction.[18]

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Heart Conditions

like congestive heart failure, cardiomyopathy, arrhythmias (irregular), tachycardia (rapid), hypertrophic, aortic thromboembolism.

Typically, cats that are predisposed to saddle thrombus have an underlying cardiac (heart) disease that increases turbulence to the flow of blood through the heart. This increased turbulence makes these patients more prone to the formation of clots. **Cats with hyperthyroidism** are prone to a cardiac condition called "**hypertrophic cardiomyopathy"**. Therefore, **saddle thrombus tends to be associated with cats that have hyperthyroidism.** Cats that have formed a saddle thrombus typically **appear very weak back end to partially or fully paralyzed, unable to move the "rear legs"** They are often vocalizing due to severe pain. When touched, the back legs are often cold and stiff, and sometimes there is panting and trouble breathing. Yes, you can prevent "**aortic thromboembolism**" from forming in cats with heart failure, with homeopathic medicines as prescribed in this set.

Bradycardia

is a medical term derived from Greek and means "**slow heart."** In humans, bradycardia is a diagnosis given when resting heart rate falls below 60 beats per minute and causes symptoms. For infants, bradycardia is defined as a heart rate less than 100 beats per minute with symptoms. Bradycardia has many causes, but a primary one is **congestive heart failure or CHF.** In some cases with pets, there is also a mitral valve insufficiency, and so if acute congestion, we suggest also formula **Acute Mitral Valve drops** (to use intially to help balance fluid again, then continue with the Congestive Heart Formula drops for prevention and support) Suggest using these formula's as well as adding the content of the **Vitamin Coenzyme Q10,** or CoQ10 for short, is a vitamin-like substance that helps strengthen your heart and is able to mitigate the symptoms of CHF and bradycardia.

Heart murmurs

in older dogs may indicate that these dogs have a leaky mitral valve (the heart valve in between the left atrium and left ventricle). The mitral valve's job is to allow blood to flow from the left atrium to the left ventricle but not allow blood to flow backward from the left ventricle to the left atrium. This valve degenerates as dog's age and when it does, the older valve allows blood to leak backward. We refer to this disease as chronic valve disease, endocardiosis or degenerative mitral valve disease. If "ACUTE" Mitral Valve insufficiency, also see the formulas for this condition. **Heart Murmur - Mitral Valve Disease** (endocardiosis) **- Mitral Valve Regurgitation, Insufficiency or Incompetence (or Feline).** HAMPL Product Code AN305 **"Mild" or Chronic Mitral Valve insufficiency** that leads to small leaks across the mitral valve usually does not create a problem for a dog. The disease is slowly progressive in most cases and the leak will continue to worsen over months to years. If the disease becomes severe, the dog is at risk for developing congestive heart failure.

Congestive heart failure

means that the leak across the heart valve overwhelms the heart and fluid goes from the heart backwards into the lungs (instead of from the heart forward to the body).

* Signs of congestive heart failure *include cough (especially a cough at rest), a fast breathing rate, difficulty breathing, fainting, weakness, lethargy, exercise intolerance and abdominal distension.*

Congestive Heart Failure.

Many of the symptoms that can be associated with having a heart disease or condition are:

reflex dry hacking coughing and breathlessness

with little exercise tolerance

congested lungs

Resting for long periods in sternal recumbency

Weakness, falling over is often seen in older pets with weak heart action.

Mitral Valve Weakness

may even cause the trachea to collapse, as the heart enlarges and fills voids in the chest cavity. Moreover, when a critical pressure is reached, pulmonary edema (flooding of the lungs) can occur. **This weakness can cause** "**Mitral regurgitation**" which i*s leakage of blood backward through the mitral valve each time the left ventricle contracts. Watch an animation of mitral valve regurgitation. A leaking mitral valve allows blood to flow in two directions during the contraction.*

The remedy **Apis Melliifca is indicated for valve regurgitation, which the DurAid and the LungOdema has Apis Mell in the complex.** If not enough **See Mitral Valve Set**

Symptoms felt are: Rapid and irregular pulse producing palpitation, for congestive heart conditions.

Valvular disease with or without endocarditis.
Possible Irregular pulse .. conditions of the valvular in the older dog.
Violent and rapid action, palpitations.
Low blood pressure.
Edema of limbs.
Cardiac edema.
Excessive exhaustion.
Myocarditis, Irregularities of action cause state of anemia with edema.
Arrhythmic heart conditions.
Irregularities or rhythm, dropsy.
Dyspnoea on least exertion, dilated heart, weak heart sounds or valvular murmur.
Shortness of breath symptoms or fainting fits, weak heart.
Mitral regurgitation producing cyanosis with a small feeble pulse.

What about "Arrhythmias" *(irregular heartbeats)*

a heart murmur, an enlarged heart, or even heart failure.
Types of "Arrhythmias" Understanding some common terms in the language of cardiac arrhythmias helps sort through the types of rhythm problems. An arrhythmia is any abnormality in heart rhythm.

Arrhythmias are categorized in three main ways:

* Rate: If the heart rate is rapid, or greater than 100 beats a minute, it is considered a tachycardia. Alternatively, a slow heart rate, below 60 beats a minute, is known as a bradycardia.

* Location: The location of the problematic electrical circuit helps define the arrhythmia. For instance, a rhythm is called supraventricular if it originates above the ventricles (lower chambers). So, the problem is most likely in the upper chambers (atria). It follows that a ventricular arrhythmia is the result of a problem in the lower chambers (ventricles).

* Irregular: The nature of the heartbeat, whether it is steady or chaotic, is another key to categorizing an arrhythmia. A rapid beat that is irregular and chaotic may be a type of fibrillation or quivering beat. *Need to be on magnesium to fix this.

Tachycardia (rapid heartbeat)

Types and Causes of "Rapid Heartbeat" Tachycardia usually is caused by a problem with the electrical system that flows from the upper to the lower chambers of the heart and triggers the heartbeat.

~ Supraventricular tachycardia (SVT) This type of tachycardia originates in the upper chambers (the name supraventricular means above the ventricles). In most cases, SVT is not dangerous; however, if episodes happen frequently, the heart muscle can be weakened over time. *Need to be on the "Herbal Heart Tonic 73 Mix" as well as magnesium.

~ Ventricular tachycardia (VT). This more dangerous type of tachycardia starts in the lower chambers, or ventricles. VT can be life-threatening. Without treatment, ventricular tachycardia can lead to ventricular fibrillation, a severely irregular, rapid and ineffective beating of the ventricles that is the most *common cause of cardiac arrest.* *Need to be on the "Congestive Heart Formula Set " as well as magnesium.

Supraventricular tachycardia (SVT)

is as an abnormally **fast or erratic heartbeat** that affects the heart's upper chambers. An abnormal heartbeat is called an arrhythmia (*cause by a magnesium deficiency).* SVT is also called paroxysmal supraventricular tachycardia

Symptoms - The main symptom of supraventricular tachycardia (SVT) is a very fast heartbeat (100 beats a minute or more) that may last for a few minutes to a few days. The fast heartbeat may come and go suddenly, with stretches of normal heart rates in between. Some people or pets with SVT have no signs or symptoms at all. This type of tachycardia originates in the upper chambers (the name supraventricular means above the ventricles). In most cases, SVT is not dangerous; however, if episodes happen frequently, the heart muscle can be weakened over time.

Signs and symptoms of supraventricular tachycardia may include:

Very fast (rapid) heartbeat
A fluttering or pounding in your chest (palpitations)
A pounding sensation in the neck
Weakness or feeling very tired (fatigue)
Chest pain
Shortness of breath
Lightheadedness or dizziness
Sweating
Fainting (syncope) or near fainting.

NATURAL HEART HEALTH SUPPORT

Use the Magnesium (mineral) supplement, as well as depending on symptoms. However, if no symptoms other than **fast or erratic heartbeat**, suggesting the "**Heart Tonic Mix"** (*heart muscle tonic support*) The efficacy of magnesium therapy in patients with ventricular tachycardia has previously been reported. Recently completed and ongoing studies validate earlier observations that potassium and magnesium supplementation may control other cardiac arrhythmias, particularly in hypomagnesemic patients.

Magnesium treatment is a viable therapeutic option for … *ventricular tachycardia, ventricular fibrillation, multifocal atrial tachycardia, atrial fibrillation and supraventricular tachycardia.*

Magnesium is the fourth most abundant cation in the human body and is the second most prevalent cation in intracellular tissues. Myocardial cell action potentials are mediated by voltage-dependent Na+, K+, and Ca2+ channels which, when their function is altered, can lead to the genesis of cardiac dysrythmias. Magnesium regulates the movement of ions through these channels within myocardial tissues. The potential ability of magnesium supplementation to prevent and/or treat arrhythmias has been recognized in clinical medicine for years. This includes termination of torsade de pointes, prevention of post-operative atrial fibrillation, acute treatment of atrial fibrillation, and improving the efficacy and safety of antiarrhythmic drugs. Despite what is currently known about magnesium's therapeutic potential, a number of limitations and gaps to the literature exist. This includes an unclear link between correction of intracellular magnesium concentrations and both mechanistic and clinical outcomes, small sample sizes, varying routes of administration and doses, as well as short follow-up periods. This review highlights these gaps and recommends areas of need for future research.

The ability of magnesium supplementation to prevent and/or treat arrhythmias has been recognized in clinical medicine for years.[15–17] This includes prevention of AF following cardiac surgery,[18] acute treatment of rapid AF,[19,20] new-onset and treatment-refractory supraventricular tachycardia (SVT),[21,22] refractory ventricular fibrillation,[23] and a variety of drug-induced arrhythmias most notably torsade de pointes (TdP).[24–28] As a result, the American Association for Thoracic Surgery and European Society of Cardiology have incorporated magnesium into their recent guidelines for preventing and managing certain arrhythmias.

Morley Robbins (nutritional expert USA)

Research tells us that "**EXCESS Iron"** is now recognized as the source of "arrhythmogenesis" (silly way of saying: creates arrhythmias) **The last line of this article:** "The specific K+ (Potassium) Channel affected by Iron, may, therefore, be a target for treatment of the arrhythmias caused by iron-overload cardiomyopathy."And there's one other amazing fact, that says it all in this article. It's a recognized fact that Rats have the natural ability to produce Vitamin C (not the man-made Ascorbic Acid, mind you). And what this article reveals is that Rats have the natural ability to EXCRETE IRON! "Because the Rat can excrete excess Iron, cardiac iron deposition could not be produced in vivo in this species.

" There are two very important conclusions to be drawn:

1) All Cardiac studies based on Rats are TOTALLY invalid, as the reduced iron status of these rodents puts a wrench into thousands & thousands of studies; and

2) **Take Vitamin C!** If a Rat can use their natural ability to "excrete excess Iron," why can't we?! No, I can find NO research to back that up. Please read this article carefully and know that excess, unmanaged Iron is the BAD guy, and **Vitamin C** is the good guy.

Reference: http://m.circ.ahajournals.org/content/100/6/675.full.pdf

Older dogs show signs:

of cyanosis, a dry cough, and respiratory distress. Insufficient systole action, fibrillation dyspnoea, decompensated heart valve, enlarged liver or heart disease associated with kidney failure. Did you know panting after exercise may be because they have a weak heart action as a consequence of simply old age Angina muscles restriction of chest muscles, anxiety?

Minerals - This is why the mineral "MAGNESIUM" supplementation given daily will quickly resolve many of these symptoms.

Please note: ***Congestive Heart 50ml and DurAid (diuretic) which are both natural formula*** - will not interfere with any other chemical heart drugs or medications. Our Formula combines the peripheral circulation building benefits of ginkgo with the heart strengthening and stabilizing properties of hawthorn into one for maximum circulatory support.

FOR ALL HEART CONDITIONS – they need this mineral

The type of Magnesium you or your pet needs is **MAGNESIUM TAURATE** The type of Magnesium you or your pet needs is MAGNESIUM TAURATE recommended brands below:

* For USA clients only ... (as they dont ship to other countries) **Magnesium Taurate 500mg - 210 Capsules By Double Wood Supplements** For Sleep, Calming, and Cardiovascular Support Made in USA, by Double Wood Supplements by Double Wood Supplements

or

* For USA and Australian and other countries. **KAL® Magnesium Taurate Plus 400mg w/Coenzyme B6 - 90 tabs Highly Bioavailable, Chelated, Vegan | for Normal Nerve, Muscle Function and Heart Health**

* Buy from iherb.com (worldwide shipping) Or Piping Rock Magnesium Taurate 1000 mg - 120 Caplets

The Amino acid Taurine and magnesium that has special properties for the heart. Taken together in this combination, magnesium and taurine have a synergistic effect, stabilizing cell membranes, making this form of magnesium highly absorbed. Magnesium Taurate does not have a laxative effect and is the recommended form of magnesium for people with heart problems. It appears that the amino acid Taurine is important for heart health and may prevent arrhythmias and protect the heart against the damage caused by heart attacks.

GENERAL HEART HEALTH

TOY DOG to FELINES: open one capsule and add half a cap of the powder from in every meal given.

SMALL TO MED CANINES: open one capsules and add the all of the powder in meals.

LARGE CANINE: open two capsules and add the all of the powder in meals.

ACUTE OR ADVANCE HEART CONDITIONS

TOY DOG to FELINES: open one capsule and add half a cap of the powder mixed in a little food – repeat this four times a day.

SMALL TO MED CANINES: open one capsules and add the all of the powder mixed in a little food – repeat this four times a day.

LARGE CANINE: open two capsules and add the all of the powder in meals mixed in a little food – repeat this four times a day.

How do we loss Magnesium (deplete) on a daily basis?

… prolong or intense stress, poor intestinal absorption. Certain situations cause your body to lose magnesium faster than you can replace it from your diet or supplements. These situations include treatment with "water pills" (diuretics such as furosemide, hydrochlorothiazide), a poor diet (alcohol, coffee .. in humans) or other medical conditions (e.g., severe diarrhea / vomiting, stomach/intestinal absorption problems, poorly controlled diabetes). Excess salt, phosphoric acid in colas, profuse sweating, chronic diarrhea, excessive menstruation, antibiotics and other drugs (ant acid drugs), and some intestinal parasites drugs.

Potassium (mineral)

Potassium Bicarbonate powder *(or powder from capsules)* **or** **Potassium Gluconate capsules** *(only adding powder)*

Toy dog, Cat - a pinch in meal twice a day.

or 1 drop of Organic apple cider in a tablespoon of water and add to meals daily

Small dog: - 1/2 powder from capsule twice a day or 5 drops of Organic apple cider in 2 tablespoons of water and add to meals daily,

Med – Large - 1 powder from capsule twice a day or 1 tablespoon of Organic apple cider and add to meals daily.

Humans – 2 x capsules with food twice a day. Also If you or your pet is taking a drug that is a "Diuretic " also be aware this may cause a deficiency in magnesium and potassium. Potassium is often lost through--frequent urination -- which causes potassium loss--which causes frequent urination --more potassium loss. Also relevant to heart function having a low potassium or magnesium is - Tachycardia which is a condition that causes your resting heart rate to elevate to higher than normal, which for an adult at rest is 60 to 100 times per minute. *** Symptoms include-** *dizziness, light-headedness, elevated pulse rate, palpitations and chest pain.*

MayoClinic.com notes.

Heart disease, high blood pressure and imbalanced levels of electrolytes like potassium are possible causes of tachycardia. Abnormal levels of potassium coupled with heart disease potentially cause tachycardia, according to a study published in a 2001 issue of the "Journal of Cardiovascular Electrophysiology."

Diuretics

One can take the Lasix drug in conjunction with the homeopathic diuretic (DuraAid) or use one or the other. Some animals need both, some animals respond better just the homeopathic formula on its own. If your pet has issues still, please contact our office so a custom formula is made specifically for complex health situations**. Also, can be used as a natural diuretic for your pet in cases of heart insufficiency causing fluids on the lungs.**

OR

Braggs Organic Apple Cider Vinegar in daily meals to help replace potassium loss.
e.g Toy dog: 4 drops. Small and med dogs. * ¼ - ½ teaspoon in water and/or add to meals.
*1-2 teaspoons for large dog pets. Use this for a month. Repeat if still on the Lasix drug or both formulas.
Pets can be diagnosed with having a **Heart Murmur,** which can be quite common or less common is having **Cardiomyopathy (enlarged heart) or Hyperthyroid and/or-or is (Hypertrophic or dilated). Congestive Heart Failure.**

Potassium

Twitching, Trembling or Shaking

Low potassium levels can cause twitching, trembling or shaking. Other possible causes include high potassium levels, high blood pressure, high phosphorus levels, calcium imbalances (especially head twitching), hyperthyroidism or Vitamin B deficiency. Twitching may also be caused by high toxin levels. If your cat only twitches while you are giving fluids, it is probably caused by either the type of fluid used or by giving cold (room temperature) fluids.

Weakness, Especially in the Back Legs

Weakness may be seen in the back legs. This is a common symptom of low potassium levels. You may also see a plantigrade posture, where the cat walks on his/her hocks instead of his/her feet. Back half also seemed to sway when he walked. There was improvement within 24 hours, and within 48 hours he was walking normally again.

Low potassium levels in Renal Failure is called "Hypokalaemia" .

What causes hypokalemia?

Magnesium deficiency is also associated with low levels of potassium in the blood (hypokalemia).

The most common cause of hypokalemia is chronic kidney failure, a condition common in older cats.

Severe or chronic vomiting may also cause hypokalemia in cats.

Published case series suggest that around 25% of cats with chronic renal failure suffer from hypokalaemia – partly due to inadequate potassium intake, but also as a result of inappropriate potassium loss from the kidneys. Although dietary management (feeding of a renal diet) is successful in managing some of these, cats not eating the diet (or those remaining hypokalaemic in spite of dietary management) will benefit from additional potassium. Consequences of hypokalaemia include worsened renal function, weakness, loss of appetite and, in severe cases, muscle necrosis (hypokalaemic polymyopathy). Severely hypokalaemic cats may be presented with severe generalised muscle weakness including ventroflexion of the neck. All of the consequences of hypokalaemia are reversible with appropriate treatment. Severely hypokalaemic cats (potassium less than 2.5 3.0 mmol/l) and those that are dehydrated or anorexic may benefit from intravenous potassium chloride.

Cats with potassium levels between 3.0 and 4.0 can be supplemented orally. A starting dose of 12 mmol twice daily is recommended, this can be increased as needed following reassessment of potassium levels. Hypokalaemia is best prevented by feeding a high quality protein (which is not found in commercial tin foods), non acidifying diet supplement. *Oral supplementation is safe and there is no danger of inducing hyperkalaemia through this route of supplementation.*

Low potassium causes

Low Potassium Causes and Side Effects.

Sodium and potassium play unique roles within the body. If sodium levels are high, your potassium levels are low. If your pet may have low levels of potassium, they may experience side effects such as abnormal heart rhythms, a breakdown of muscle fibers, constipation, fatigue, and muscle weakness or spasms. Symptoms usually occur when there is a dramatic drop in potassium. You may not always experience side effects if your potassium levels are slightly off balance. **Potassium (mineral)** - Humans need about 4500mg of it a day from all source

Potassium is important for a pet or person's muscles to work effectively, including the heart. Potassium also has a role in regulating blood pressure. So if your pet has got High Blood Pressure, then to get this back down, we need **to give ¼ teaspoon of Potassium Gluconate powder** (from capsule) in meals twice a day. Or dilute in some liquid and oral syringe. Low potassium levels (hypokalaemia) can cause weakness as cellular processes are affected. **Potassium** is a mineral (electrolyte) in the body. Almost 98% of potassium is found inside the cells. Small changes in the level of potassium that is present outside the cells can have severe effects on the heart, nerves and muscles. **The kidney is the main organ that controls the balance of potassium by removing excess potassium into the urine.**

* Low potassium causes ... Dehydration, diarrhoea, excessive sweating (hyperhidrosis) a are common causes of low potassium levels. Other causes include medicines that affect the amount of potassium in the body, such as diuretics, also known as water pills.

Low potassium symptoms.

Symptoms of low potassium are usually mild.

At times the effects of low potassium can be vague.

There may be more than one symptom involving the gastrointestinal (GI) tract, kidneys, muscles, heart and nerves.

Weakness, tiredness, or cramping in arm or leg muscles, sometimes severe enough to cause inability to move arms or legs due to weakness (much like a paralysis)

Tingling or numbness

Nausea or vomiting

Abdominal cramping, bloating

Constipation

Palpitations (feeling your heart beat irregularly)

Passing large amounts of urine or feeling very thirsty most of the time

Fainting due to low blood pressure

In many cases, the cat will have **a poor quality coat**.

Abnormal psychological behaviour: depression, psychosis, delirium, confusion or hallucinations.

How to Support or Prevent

"Low potassium " (Hypokalemia)

Hypokalemia occurs when the blood's potassium levels are too low. Magnesium deficiency is also associated with low levels of potassium in the blood (hypokalemia).

NATURAL SOLUTION or PREVENTION:

~ **Potassium Bicarbonate** powder, Magnesium, Taurine amino acid powder and Vitamin B6 (P5P)Capsules (by Thorne Research Brand)

~ **Vitamin B6 – (PHP) activated B6.** Pyridoxine also aids in maintaining "**sodium and potassium" balance**. Vitamin B6 also promotes **red blood cell formation** prevent **anemia.**

~ **Taurine amino acid in cells,** Taurine keeps "potassium and magnesium" inside the cell, while keeping excessive sodium out, and

~ **Magnesium deficiency** is also associated with low levels of potassium in the blood (hypokalemia).

Types of Potassium Supplement

There are three main types of potassium supplements;

Potassium gluconate - this oral supplement is often used by people. Potassium Gluconate (one of the most available supplement forms) goes into solution easily to give potassium ions (which is the electrolyte), and the gluconate part is **metabolized in the liver** to create bicarbonates. Bicarbonates are also electrolytes. So this is similar to supplementing potassium bicarbonate.

Potassium citrate - another oral supplement which can be helpful for cats and dogs who also may have metabolic acidosis happening.

Potassium chloride - **used if you are injection potassium into the Sub-Q bag of fluids.** Potassium Chloride is another important electrolyte – it gives the salty taste to salt and tends to "raise blood pressure" (loss of chloride usually accompanies a potassium deficiency because chloride is secreted to maintain serum pH). So naturally, potassium chloride tends to raise blood pressure, and tends to be **acid forming.** Potassium chloride will also help to raise the cell levels of potassium faster than potassium bicarbonate. This seems to make sense given their relative effects on electrolyte balance and blood pressure and pH.

Chloride helps maintain the proper acid/alkali balance in the body. Chloride is also necessary for the production of hydrochloric acid (HCl) in the stomach which helps in the digestion of protein. In general, the

chloride requirement is 1.5 times the sodium requirement. This is because most of the sodium and chloride come from salt, and by weight, salt provides 1.5 times more chloride than sodium.

Potassium Bicarbonate - is "alkalizing" it helps to prevent calcium loss that can be caused by a functional potassium deficiency…. which are both desirable for most people – particularly given modern diets. Potassium bicarbonate is also the form most similar to what you get from eating vegetables. However potassium bicarbonate will tend to ***lower*** **blood pressure.**

But often High Blood pressure is seen, and therefore potassium is also needed to correct this.

Bicarbonates are also electrolytes.

Weakness, especially in the back legs.

Weakness may be seen in the back legs. This is a common symptom of low potassium levels. You may also see a plantigrade posture, where the cat walks on his/her hocks instead of his/her feet. Back half also seemed to sway when he walked. This is very common in **anemia**. Your cat or dog may find it more difficult to jump on your bed.

* Also low potassium (see below), metabolic acidosis and high phosphorus.

Also pets with high blood pressure may also no longer jump.

If acute back end weakness all of a sudden like pain, see **Thrombosis 50ml** (treatment or prevention) as blood clots can be common in kidney pets, old pets, heart condition, or hyperthyroidism pets. **Magnesium deficiency** is also associated with low levels of **potassium** in the blood (hypokalemia).

So start providing these minerals to prevent this condition or treat.

NATURAL SOLUTION:

1. **HBP formula** (a formula for high blood pressure drops, plus the other supplements below)
2. **Anemia drops** this formula is supplied with the Kidney Set).
3. For **Boron (trace mineral) *phosphorus balancer- use the (ReMyte Mineral drops)** for reducing high phosphorus levels. 5 to 10 drops cat, double for dogs.

4. **For prevention or solution to "Low Potassium" minerals in body.** *add **"Potassium Bicarbonate"** powder is effective in treating most causes of potassium deficiency called " **Hypokalemia"** (i.e. commonly occurring issue for renal conditions or older pets - low potassium levels)
5. For all situation we are also needing to provide **Magnesium** (5 drops of reMag Magnesium) or a pinch of Magnesium Glycinate powder twice a day in food or milk drinks. Ongoing. We all need this mineral daily.

Low potassium causes and symptoms.

Sodium and potassium play unique roles within the body. If sodium levels are high, your potassium levels are low. If your pet may have low levels of potassium, they may experience side effects such as **abnormal heart rhythms, a breakdown of muscle fibers, constipation, fatigue, and muscle weakness or spasms**.
Symptoms usually occur when there is a dramatic drop in potassium.

You may not always experience side effects if your pet's potassium levels are slightly off balance.

Vitamin C

Whole Food Vitamin C powder ** buy from iherb or other suppliers*

Toy dog, Cat: a pinch in meal twice a day.

Small dog: 1/2 powder from capsule twice a day.

Med - Large: 1 powder from capsule twice a day.

MAGNESIUM Taurate Powder (mineral)

*** Suggest Magnesium Taurate capsules (use powder form cap and add to meals).**

Magnesium deficiencies can lead to muscle weakness and tremors (spasm) and a host of cardiovascular problems ranging from high blood pressure to arrhythmias. It was suggested that many pets and humans that suffered sudden "cardiac death" from heart rhythm disturbances resulting from a deficiency of magnesium and / or potassium. A shortage can cause or worsen congestive heart failure, atherosclerosis, chest pain (coronary vasospasm), high blood pressure, cardiac arrhythmias, heart muscle disease (cardiomyopathy), heart attack and even sudden cardiac death. Your cells need a steady supply of magnesium to maintain proper smooth muscle function in your blood vessels. In addition, magnesium supplements can help your body shuttle potassium and sodium, two other essential electrolytes, into and out of cells, maintaining proper balance (homeostasis). (There is a great deal of evidence that magnesium, when administered according to specific protocols in appropriate dosages, can reduce the risk of death in patients who have suffered a heart attack. For example, when a person comes in with a heart attack, doctors give two grams (2,000 mg) intravenously over an hour)

Magnesium Taurate is a combination of the Amino acid Taurine and magnesium that has special properties for the heart. Taken together in this combination, magnesium and taurine have a synergistic effect, stabilizing cell membranes, making this form of magnesium highly absorbed. Magnesium Taurate does not have a great laxative effect and is the recommended form of magnesium for people with heart problems. It appears that the amino acid Taurine is important fo heart health and may prevent arrhythmia and protect the heart against the damage caused by heart attacks. Magnesium taurate requires oral supplementation for six to twelve months to resto intracellular levels.

**** Please Note**: Do not take Magnesium and Calcium - calcium competes and will deplete magnesium, therefore staying magnesium deficient.

Herbal formulas will not interfere with any other chemical heart drugs or medications.

HERBAL MIX e.g **Heart Tonic Mix**

A Herbal formula will not interfere with any other chemical heart drugs or medications.

These formulas combines the peripheral - circulation - building benefits of ginkgo with the heart - strengthening and stabilizing properties of hawthorn into one for maximum circulatory support.
Research indicates that the herb **ginkgo's** circulatory - system benefits may result from this special ability. Randomized, double-blind clinical studies using standardized hawthorn berry extract show that hawthorn appears to increase the efficiency of nerve impulses in, and protect against oxygen deprivation of, the heart muscle. Also, controlled study and found that hawthorn extract can improve heart function in patients suffering from chronic heart disease. These Hawthorn patients also reported fewer overall symptoms, less fatigue and less shortness of breath.

Can be taken long term in Homeopathic form (small animals) or in a Herbal extract liquid tonic (for larger pets) which is added to daily meals.

SOME OF THE COMMON side effects of the
DRUGS PRESCRIBED FOR OUR PETS - unfortunately.

HEART DRUGs often prescribed

*****_google side effects about the drug your pet maybe on._

Common Side Effects of the

~ Vetmedin drug.

The most commonly reported side effects of VETMEDIN were **poor appetite**, **lethargy**, **diarrhea**, **dyspnea**, **azotemia**, **weakness**, and **ataxia**. The prevalence of side effects was similar in the active control group (enalapril, an angiotensin-converting enzyme [ACE] inhibitor).

~ Diuretic Drug

Common Side Effects of the UREX drug.

Symptoms of overdose may include **weakness**, **dizziness**, **lethargy**, **nausea**, **vomiting**, diarrhoea, anorexia, sweating, mental confusion, blurred vision, tingling in the arms or legs, **restlessness**, **headache**, tinnitus (ringing in the ears), **cramping**, **constipation**, and symptoms associated with electrolyte and fluid depletion. The active ingredient in Urex is called frusemide which belongs to a group of medicines called diuretics. ***(which also deplete magnesium)***

Diuretics are used to help the kidneys remove excess fluid from the body. Urex is used to treat a number of medical conditions, including oedema (swelling of the body due to excess fluid).

~ Beta Blockers Drugs *(to slow the heart down)*

Beta-blockers, as a class of drugs, are primarily **used** to treat cardiovascular diseases and other conditions. **Beta-blockers** are used when symptoms of - **tachycardia**, hypertension, myocardial infarction, congestive heart failure, cardiac arrhythmias (which can be corrected with Magnesium), coronary artery disease, hyperthyroidism, essential tremor, aortic dissection, portal hypertension, glaucoma, and other conditions. **Beta Blockers - Adverse Side Effects**

Beta receptors are found all over the body and induce a broad range of **physiologic effects**.

The blockade of these receptors with beta-blocker medications can lead to many adverse effects.

Example - **Bradycardia** and **hypotension** are two adverse effects that may commonly occur. **Fatigue, Dizziness, Nausea, and Constipation** are also widely reported. Also **bronchospasm** presents in patients on beta-blockers**. Asthmatic** patients are at a higher risk. Beta-blockers can induce **hyperglycemia** and mask the hemodynamic signs, usually seen in a hypoglycemic patient, such as tachycardia. Reports of **insomnia, sleep changes, and nightmares** while using beta-blockers.

This effect is more pronounced with beta-blockers that cross the blood-brain barrier.

Carvedilol may **increase edema** in some pets.

Sotalol blocks the potassium channels in the heart and thereby induces QT prolongation. It increases the risk of torsades de pointes.

All beta-blockers, especially in pets with cardiac risk factors, carry a risk of heart block (fatal)

~ High Blood Pressure Drugs

eg. **Enalpril Maleate Drug**

Enalapril is an angiotensin-converting enzyme (ACE) inhibitor that is commonly prescribed by veterinarians for the treatment of high blood pressure in cats and dogs. It can also be used in conjunction with other medications for the treatment of mild to severe heart failure.

Side Effects and Drug Reactions

~ Allergic reaction (labored breathing, hives, etc)

~ Vomiting

~ Diarrhea

~ Lethargy

~ High blood pressure

~ Fever

~ Dizziness

~ Fainting

~ Ulceration of the digestive tract

Drug side effects (common to rarer)

https://www.webmd.com/drugs/2/drug-6301-3281/enalapril-maleate-oral/enalapril-oral/details/list-sideeffects

Potassium (mineral)

Humans - Our bodies need about 4500mg of it a day from all source

- **We take "Life Enhancement" Potassium Basics Capsules (2 capsules = 1020mgs)**

If you take (2) taken 2 x daily = 2040mg with food

If you take (2) taken 4 x daily = 4080mg with food

Low potassium – symptoms

Potassium is important for a person's muscles to work effectively, including the heart. Potassium also has a role in regulating blood pressure. Low potassium levels (hypokalaemia) can cause weakness as cellular processes are affected. Potassium is a mineral (electrolyte) in the body. Almost 98% of potassium is found inside the cells. Small changes in the level of potassium that is present outside the cells can have severe effects on the heart, nerves and muscles. The kidney is the main organ that controls the balance of potassium by removing excess potassium into the urine.

The normal potassium level is 3.5-5.0 mmol/L (millimoles per litre). Low potassium is defined as a potassium level below 3.5 mmol/L.

Low potassium causes **...** Dehydration, diarrhoea, excessive sweating (hyperhidrosis) and laxative abuse are common causes of low potassium levels. Other causes include medicines that affect the amount of potassium in the body, such as diuretics, also known as water pills.

Low potassium symptoms

Symptoms of low potassium are usually mild.

At times the effects of low potassium can be vague. There may be more than one symptom involving the gastrointestinal (GI) tract, kidneys, muscles, heart and nerves.

Weakness, tiredness, or cramping in arm or leg muscles, sometimes severe enough to cause inability to move arms or legs due to weakness (much like a paralysis)

Tingling or numbness

Nausea or vomiting

Abdominal cramping, bloating

Constipation

Palpitations (feeling your heart beat irregularly)

Passing large amounts of urine or feeling very thirsty most of the time

Fainting due to low blood pressure

Abnormal psychological behaviour: depression, psychosis, delirium, confusion or hallucinations.

Note: anyone (and pets) on heart medication and diuretics, will be also become deficient in this mineral. Due to the actions of the diuretic drug. (loses potassium from body). These patients must replace enough Potassium back into their body to prevent side effects from lose of this vital mineral.

Chronic Fatigue and Magnesium Health

Summary By Hans R. Larsen MSc ChE – http://www.afibbers.org/magnesium.html

BERKELEY, CALIFORNIA. Dr. Melvyn Werbach, MD of the UCLA School of Medicine has just published a thorough review of nutritional deficiencies involved in chronic fatigue syndrome (CFS). These include deficiencies in vitamin C, coenzyme Q10, magnesium, zinc, sodium, l-tryptophan, l-carnitine, essential fatty acids, and various B vitamins. He points out that there is some evidence that the deficiencies are caused by the disease itself rather than by an inadequate diet. He suggests that the deficiencies not only contribute to the symptoms of CFS but also impair the healing process. Although the results of supplementation trials involving CFS patients have been inconclusive so far Dr. Werbach nevertheless recommends that CFS patients be given large doses of certain supplements for at least a trial period to see if their symptoms improve.

His recommendations are:

* **Folic acid:** 1-10 mg/day for 3 months
* **Vitamin B12:** 6-70 mg (intramuscular injection) per week for 3 weeks
* **Vitamin C**: 10-15 grams/day
* **Magnesium:** 600 mg/day + 2400 mg/day for 8 weeks
* **Zinc Picolinate:** 135 mg/day for 15 days
* **5-hydroxytryptophan**: 100 mg three times daily for 3 months (if fibromyalgia is present)
* **L-carnitine:** 1-2 grams three times daily for 3 months
* **Coenzyme Q10**: 100 mg/day for 3 months
* **Essential fatty acids**: 280 mg GLA and 135 mg EPA daily for 3 months

The supplements should be administered with medical supervision and accompanied by a high-potency vitamin/mineral supplement for the duration of the trial. [95 references] Werbach, Melvyn R. Nutritional strategies for treating chronic fatigue syndrome. Alternative Medicine Review, Vol. 5, No. 2 April 2000, pp. 93-108

How Does Magnesium Deficiency Cause Tinnitus?

Excites the Auditory Nervous System

Magnesium deficiency leads to increased calcium channel activity. This over-influx of calcium then enhances the production of glutamate. Glutamate is a neurotransmitter that is present in 90% of the brain's synapses. Excessive production of glutamate can therefore lead to a state of hyperexcitation of the brain. This has a telling effect on the auditory nerve's function. Tinnitus is one of the side effects.

So, when magnesium deficiency is addressed, its Glutamate inhibiting characteristic prevents your nervous system from going into overdrive. Tinnitus can either decrease in intensity or even resolve itself in some cases.

Increases Blood Pressure

If you have been a regular reader at Tinnitus And You, you would have by now known that high blood pressure doesn't go well with Tinnitus. Your ears rely on oxygen and glucose that is provided by blood. When your blood pressure is high, it means that the heart is working hard and is still not able to provide blood to all organs in the body. Your ears are supplied by narrow or fine capillaries or small blood vessels that are particularly difficult to push blood through, when blood pressure is up.

How Magnesium helps here is that it relaxes your blood vessels. Blood flows more easily and your ears receive an optimal amount of blood. With blood comes oxygen and also sodium and potassium and other nutrients that make up the inner ear fluid's composition.

This is why there are many anecdotal references where people having both heart problems and Tinnitus experience a tremendous amount of relief after going to the hospital for a heart ailment. It is because Magnesium is the first thing that is usually administered to stabilize people with heart disorders. Besides addressing their heart ailment, it does wonders to their Tinnitus as well.

Improves Protection Against Loud Noise-Induced Hearing Loss

Anything over 85 dB is harmful to your ears. This is why most concerts cause or make the ringing in your ears worse. Rock concerts feature decibel levels that easily cross 115 dB, well over the 85 dB threshold for safe hearing.

When you are exposed to very loud sounds, there's a lot of free radical damage in your ears. Free radicals attack small hair like cells that are responsible for converting sound waves into electrical signals for the brain to process. Magnesium inhibits this free radical damage, thus preventing death or damage of these hair like cells that don't have the ability to repair or regenerate themselves.

It is also suggested that Magnesium can protect the Dorsal Cochlear Nucleus. After being exposed to loud sounds, your hearing is usually muted. When this happens, your Dorsal Cochlear Nucleus amplifies sounds you hear to normalize your hearing to levels that you are used to. But, when your hearing returns to normal, this amplification can be left 'on' due to the Dorsal Cochlear Nucleus's compromised memory. Magnesium can prevent this from happening.

Studies Linking Magnesium and Tinnitus

A Mayo Clinic sponsored study examined the effects of Magnesium supplements on the amount of Tinnitus relief it can provide. 19 subjects with slight to intense Tinnitus completed a 25 day magnesium supplementation course. They were given 532 mg of Magnesium a day as a daily supplement. After 25 days, the group that received Magnesium supplementation reported a significant improvement in the intensity of their Tinnitus, measured by THI scores (Tinnitus Handicap Inventory). The placebo group showed no such improvement. The study arrived at a P value of 0.03 for the group that received Magnesium supplementation. Among patients who had slight to intense Tinnitus, P was calculated as 0.008. In scientific studies, a P value of less than 0.05 is considered statistically significant. The lower the P value, the higher the statistical significance. So, in this case, the study concluded that having a more severe form of Tinnitus means that you have a better chance of seeking relief with Magnesium supplementation.

Magnesium Supplements for Tinnitus

Magnesium is available in many forms. Of all the forms available, magnesium citrate, magnesium glycinate and magnesium threonate are the most easily absorbed forms. On the other hand, you can avoid supplements that deliver magnesium in magnesium oxide and magnesium sulfate forms, as these have poor absorption profiles.

You must remember that merely taking a supplement doesn't mean that it will be absorbed by your body. Sometimes, it can just pass through and be wasted.

Studies have shown that poor Vitamin D levels cause poor absorption of Magnesium. So, get a natural Vitamin D supplement (cod liver oils capsules) as well, if needed. Vitamin D can also be obtained with exposure to sunlight. **In fact, Vitamin D deficiency on its own can cause or exacerbate Tinnitus.**

You must also avoid having foods rich in calcium or phosphate in a two hour window before and after taking a Magnesium supplement. This is because both Phosphate and Calcium can inhibit the absorption of Magnesium. This doesn't mean that you should avoid Calcium or Phosphate though. You just shouldn't take it around the times you take your Magnesium supplements.

Also Read: Vitamin B 12 Deficiency and Tinnitus
https://tinnitusandyou.com/can-vitamin-b12-cure-tinnitus/

Also Read: Benfotiamine for Tinnitus **Vitamin B1 Capsules**
https://tinnitusandyou.com/benfotiamine-for-tinnitus-viable-treatment-option/