



INVISIBLE MINERALS

PART II

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**REMYTE
&
RECALCIA**

Dr. Carolyn Dean MD, ND



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INTRODUCTION

In medical school, I studied acupuncture as a second-year elective. I also read all the health books I could get my hands on. With my naturopathic training, I was able to practice acupuncture, herbal medicine, homeopathy, nutrition, and prescribe vitamin and mineral supplements as soon as I opened my clinic.

Even before medical school, I read everything I could about natural health. After almost 50 years of study, I'm convinced that mineral supplementation is the most valuable healing tool you can use. It's the easiest to implement, the most cost effective to use, and the most valuable for your health.

Successful mineral therapy depends on the bioavailability of the minerals you use. If a mineral is not absorbed directly into the cells, it cannot participate in cellular functions and is, therefore, useless. In fact, I call my multiple mineral, [ReMyte](#), and my magnesium formula, [ReMag](#), the main building blocks of the Completement Formulas, because they complete the body by providing the right minerals in the proper form for optimum function. My Completement Formulas are the culmination of almost 50 years of studying the safest, most effective, and revolutionary therapies that are at least 20 years ahead of their time.

NOTE: ReMyte was originally known as ReLyte, but the name changed in May 2015. The ReMyte formulation is exactly the same as ReLyte.

I'll explain more throughout this book and in my ReMag book (*Invisible Minerals Part I*), which you can obtain under the Books Link on my [RnA ReSet](#) website. Briefly, the conditions plaguing the patients and customers I consult with every day often have a basis in hormone imbalance. Thyroid, adrenal, and sex hormones are increasingly drained in our stressed-out society. The best treatment is not hormone replacement, it is mineral replacement.

Completement Formula Overview

1. ReMag is a picometer-sized, stabilized ionic magnesium that is 100 percent absorbed at the cellular level and is non-laxative. It successfully treats heart disease, anxiety, muscle pain and spasms, nerves problems, and much more.
2. ReMyte is a combination of 12 minerals that are picometer in size and stabilized through a proprietary process, allowing them to be fully absorbed at the cellular level, balancing the thyroid, adrenals, sex hormones, immune system, and much more.
3. ReCalcia combines picometer, stabilized ionic forms of calcium, boron, and vanadium.
4. ReAline is a very powerful, yet gentle, detoxifier, because it promotes glutathione production, via L'methionine; enhances sulfation pathways in the liver, via L'taurine; and provides 4 methylated B vitamins, including vitamin B12.
5. ReStructure is a highly absorbed protein powder for athletes and Paleo dieters, and it is a meal replacement for losing weight and balancing blood sugars. Protein is the main component, but carbs and fats are also a part of the formula, creating the appropriate macronutrient balance. It's also the perfect meal if you are on a yeast elimination diet. ReStructure contains a "secret" ingredient: concentrated, dehydrated RnA Drops that make ReStructure the most unique meal replacement you will ever find. Mix with water, coconut milk, almond milk, or your favorite juice for a delicious healthy beverage, charged with the power of RnA Drops!
6. Our most amazing product is the RnA Drops. It's made from barley sprouts (and it's non-gluten). RnA Drops make perfect cells and uncover our hidden "junk" DNA that makes up 98 percent of our DNA.

7. ReNew is a skin serum that is 25X the concentration of RnA Drops, and it's been doing miraculous things for scars, wrinkles, and all types of skin conditions our customers have.

I'm amazed at how the Completement Formulas are changing people's lives, especially when they are taken all together. You can hear testimonials about the Completement Formulas on my radio show, [Dr. Carolyn Dean Live!](#) on Achieve Radio, Mondays at 4pm PST. You can go to my indexed radio show archives at [RnA ReSet](#), too.

MINERALS PLUG US IN

Not only do minerals provide the necessary building blocks for the structure and function of the body, they are also required for the electrical conductivity that occurs between all cells. The electrical or energetic message that minerals send is created from very small amounts of minerals, but it results in a huge impact. The nervous system uses electrical energy to transmit messages (nerve impulses) from one cell to another. The muscles are similarly activated to create all movement – large and small.

According to Dr. Roderick MacKinnon of the Rockefeller University, electrical signals have many roles to play in the body. They control the heart rate, regulate hormones, and transfer information from one cell to the next in the nervous and musculoskeletal systems. The end result is muscle movement, nerve firing, glandular secretion, excretion, temperature regulation, and even thought.

The electricity in the body is very real. It can be measured by several medical instruments, like the EKG or EEG. Those measurements are made possible due to cells having what's known as a "membrane potential," which is the difference in electricity between the inside and the outside of the cell. The amount of this potential ranges from 70 to 90 millivolts. The cell membrane is a double layer of fat and protein. The fats insulate the membrane, and the proteins create ion channels to transport ions in

and out of the cell. The mineral ion pump and ion channels are compared to a set of batteries and resistors, inserted in the membrane, that create a voltage difference between the two sides of the membrane.

I've had the report from several people that their energy therapies work better when they are taking my [ReMag](#) and [ReMyte](#) minerals and drinking sea salted water! It seems that you can't boost your energy with energy therapies unless you have the necessary minerals to create that energy in the first place.

INTRODUCTION TO INVISIBLE MINERALS

It's all well and good knowing that minerals are required to make our bodies electric, but the minerals that perform this function have to be in the ionized form and small enough to enter cells.

The first invisible mineral that I created was ReMag. You can read all about it in my book, *Invisible Minerals: Part I – Magnesium*. You can obtain a free copy at the [RnA ReSet](#) website under the Books Link. In that book, I talked about creating a magnesium in a small enough size (picometer) that it can act at the cellular level and is stabilized in its ionic form, allowing it to easily enter the cells that require it.

Mineral ions are much more available in a liquid base than they are in tablets or capsules. The fluid disperses mineral compounds into its two ionic forms. Magnesium chloride would have interspersed magnesium ion and chloride ions in the liquid, but those ions would be constantly sharing electrons and becoming magnesium chloride again, preventing easy absorption. However, even if something is ionic in charge, it doesn't mean the mineral is broken down into a small enough size to navigate picometer-sized mineral ion channels.

ReMag and ReMyte are made by proprietary processes that break the minerals down into a picometer size, which is one trillionth of a meter. Another part of the process stabilizes the ions, making them highly absorbed at the cellular level. As I

explain in *Invisible Minerals Part 1: Magnesium*, I had been actively seeking a form of magnesium that is fully absorbed at the cellular level and did not have any laxative effect. For my own magnesium deficiency symptoms, I was unable to get enough magnesium, whether from pills or powders, into my cells without developing the laxative effect.

When I began using picometer, stabilized, ionic magnesium, I finally found relief from all my magnesium deficiency symptoms (heart palpitations, charley horses, insomnia, muscle twitching, and back muscle spasms) with no laxative effect.

Initially, when I encountered this type of magnesium, it was in a form called angstrom magnesium. Angstrom is simply a word that stands for a unit of measurement. One angstrom equals one-tenth of a nanometer (0.1nm); or 100 picometers; or 1/10,000,000,000 (one ten billionth) of a meter (1×10^{-10} m). It even has its own symbol, which is Å, in honor of the Swedish scientist, Anders Jonas Ångström, who first named it.

According to Wikipedia, angstrom, as a measurement, is used in the natural sciences and in technology to express the size of atoms, molecules and microscopic biological structures, the lengths of chemical bonds, the arrangement of atoms in crystals, the wavelengths of electromagnetic radiation, and the dimensions of integrated circuit parts.

I chose to call the form of magnesium in ReMag, as well as the minerals in ReMyte, “Picometer” to bring them into the better known scientific metric system and to stay away from the word “nano,” which has become synonymous with nanotechnology.

ReMag came out of my search for a more concentrated form of angstrom magnesium. The angstrom form I had been using had 3,000 ppm (parts per million) of magnesium. One tablespoon contained only 45mg of magnesium, and it came in

32oz. bottles. I had to choke back six TBSP two to three times a day to get what I required to keep my symptoms under control.

The picometer, stabilized ionic form of magnesium I use has been concentrated to 60,000 ppm and comes in 8oz. bottles at a dosage of 300 mg per teaspoon. Do the math and you will find that picometer, stabilized ionic magnesium is 20 times more concentrated than angstrom. ReMyte has 12 different minerals, all at different parts per million, but all in picometer, stabilized ionic form.

WHAT SCIENCE SAYS

Science supports the efficacy of picometer-sized minerals in the body. In the past decade, physicists determined that mineral ion channels, the gateways through which minerals enter cells, are only 400-500 picometers in diameter.

Ion channels are composed of proteins that form pores through a cell membrane. These specialized proteins help establish and control the voltage traveling across the cell membranes by allowing ions to flow along a particular gradient. That may not make a lot of sense to you, but these ion channels are crucial components of the membranes that surround all biological cells.

When I was first introduced to picometer minerals, I met Dr. Terry Wood, a veterinarian, who was also researching highly absorbable forms of minerals. Dr. Wood found that oral picometer minerals were as effective as IV minerals for seriously ill animals. Dr. Wood was looking for a way to save animals suffering from pneumonia that really needed minerals, but their lungs would “drown” if you gave them the necessary minerals in intravenous (IV) fluids. When Dr. Wood began using picometer minerals, he found his answer. Either the animal patient lapped up the minerals in a water solution, or Terry syringed them down their throats, finding they worked better than IV mineral replacement.

Dr. Wood realized these minerals are almost completely absorbed in the face of maldigestion and/or malabsorption, since they completely bypass the gut and do not have to be attached to carrier protein molecules that must be digested before the mineral is absorbed.

Dr. Wood told me that another huge point in favor of picometer minerals is that their available surface area is extremely large. If you take a certain amount of a mineral and calculate the surface area, by the time it is broken down into picometer size, the surface area is increased by millions and millions of units. This means that there is more mineral surface area available to do its job. This is why just a few parts per million (ppm) of an ionic, picometer sized mineral can do a better job than hundreds or thousands of milligrams of the same mineral in a non-picometer form.

One piece of science that helps validate the efficacy of angstrom and picometer, stabilized ionic minerals is the electron microscope. A university professor was asked to view the various stages of these minerals, as they were processed, under a microscope, and he found that at the final stage, his viewing field was blank. The minerals were so tiny that they could no longer be seen.

The professor verbally confirmed that this finding meant that such minerals would be absorbed 100 percent at the cellular level. However, he was unwilling to sign off on this observation, for fear of a backlash from his peers.

In 2016, the particle size of ReMag was also undetectable by The AVEKA Group, a company that specializes in particle processing technology. Here is there report:

“Aveka Characterization Lab received a liquid sample containing magnesium chloride on April 21, 2016. Particle size analysis was conducted on this sample using a Horiba LA-950 laser scattering particle size analyzer. This instrument uses a combination of Fraunhofer and Mie light scattering theory to analyze the size distribution of solid and liquid particles. The size distribution is

presented as a histogram, with discrete size bins ranging from 0.03microns to 3000 microns. ‘No particles were detected’ in this sample.”

“No particles were detected” means that the magnesium within the sample was smaller in size than .03 microns. A micron is one millionth of a meter. A heart muscle cell is between 100-150 microns long. The size of stabilized ReMag ions is even less than .03 microns. As technology gets even more precise we will have tests that show ReMag is even smaller than .03 microns. However, this micron sizing shows that stabilized magnesium ions in ReMag are small enough to be fully absorbed at the cellular level, which is what we observe clinically.

When picometer-sized minerals are absorbed directly into cells, they improve cell function immediately. The minerals are “magnetically” attracted to the cell ion channels and the picometer size means they just slide in without impedance.

If minerals don’t properly get inside cells, because they are too large, then non-mineralized water floods into the cells and the large-sized minerals stay outside. All forms of edema, including brain edema, are caused by fluid and electrolyte imbalance at the cellular level. Brain edema is more common than you think. The troops in the Middle East sweat out gallons of water and most of their electrolytes: sodium, potassium and magnesium. When they just replace their losses with highly sugared and salted (sodium chloride) water, they are subject to brain edema and the errors in judgment that are losing lives in the field.

Picometer minerals are small enough to enter cells, placing the minerals where they are most needed. A body can only be as healthy as its cells.

Another important aspect about picometer, stabilized ionic minerals is that people who suffer from IBS-diarrhea, Crohn’s, colitis and leaky gut can use picometer, stabilized ionic minerals, because they are so highly absorbed at the cellular level that they circumvent issues of malabsorption and do not cause a laxative effect.

Some practitioners counsel their patients to not bother taking nutrient supplements until their gut is healed! That makes absolutely no sense, because you can't heal your gut without the right nutrients. ReMyte and ReMag allow you to place the minerals you require directly into your cells and begin the healing process.

In summary, picometer minerals are extremely well absorbed, because their size allows them to be taken directly into the cell. Picometer minerals don't have to be broken down by digestion like most minerals that are chelated to a protein. This is definitely a benefit if you have an enzyme deficiency, a leaky gut, or malabsorption.

THE BIRTH OF REMYTE

As soon as ReMag became a reality, I began working on a mineral formula using the same picometer, stabilized ionic process. Magnesium is definitely the most important mineral, but I've always encouraged people to make sure they have a source for all the other minerals that are important in a healthy body.

As with ReMag, the minerals in ReMyte are not chelates, colloids, or anything you've ever heard about before. Using a proprietary process, the minerals are broken down into a soluble form that is the same size as the minerals absorbed through plant rootlets and as the cell mineral ion channels.

I began creating ReMyte as an electrolyte replacement, but it grew into much more. It includes 12 minerals that go far beyond any electrolyte solution on the market and helps solve many of the chronic disease problems that I've been seeing over the past three decades. See [Dosing ReMyte](#) for specific dosing info.

Minerals are inorganic substances that your body can't make. You must obtain minerals from the food you eat or from pills, capsules, or (preferably) liquids. I've written in my magnesium books and articles that the soil in which we grow our food most likely does not contain the minerals you require. Therefore, food has become the least effective way to obtain your minerals. Water is supposed to carry the

minerals that we require, but the many forms of filtration that we put in place to remove toxic chemicals and heavy metals also remove important minerals.

If you think you can get all the nutrients you need from eating a raw, green, and organic diet, think again. I've counseled people who, even though they are drinking over 40 ounces of green drinks a day, are still mineral-deficient, displaying serious magnesium deficiency symptoms of heart palpitations and leg cramps.

The following ingredients make up the most popular electrolyte fluid replacement drinks on the market:

- * water
- * sucrose
- * dextrose (there are usually two or more sources of sugar in these drinks)
- * citric acid flavor
- * sodium chloride (table salt)
- * sodium citrate
- * monopotassium phosphate (phosphorous and potassium)
- * flavoring/coloring ingredients (synthetic)

Read my blog, [LeBron James Has Magnesium Deficiency](#), which I wrote after he was carried off the court with severe muscle cramps near the end of the first game of the 2014 NBA Championship. In it, I mention that the best that sports doctors and researchers can come up with for muscle cramping is 6-8, 20 oz Gatorades with added table salt. That means these elite athletes are risking diabetes by ingesting 60 tsp of sugar a day, risking high blood pressure with excessive sodium chloride intake, and hardly replacing any minerals.

The commonly measured electrolytes are sodium, potassium, chloride, and bicarbonate. ReMyte goes far beyond most electrolyte formulations by providing 12

important minerals that work together synergistically: boron, calcium, chromium, copper, iodine, magnesium, manganese, molybdenum, potassium, selenium, sodium, and zinc. ReMyte comes in liquid form; it does have a mineral taste, so you can dilute it in water, juice, or your smoothies.

I don't just leave it up to ReMyte to replace all the minerals. I also recommend ReMag and ¼ tsp of unprocessed sea salt (Celtic or Pink Himalayan) in every pint of drinking water. Daily water intake should be ½ your body weight (in pounds) in ounces of water.

Along Comes ReCalcia

ReCalcia is a picometer-sized, stabilized ionic form of calcium, boron, and vanadium, however calcium makes up the majority of the formula. Please read the sections on [calcium](#), [boron](#), and [vanadium](#) in the text to find out their specific functions.

Many doctors think that calcium is the most important mineral in the body. It is important, as you will read in the calcium section of the book but it works synergistically with other minerals, especially magnesium. In that section, I also talk about the overprescribing of calcium by doctors to try and prevent and treat osteoporosis. That policy has backfired to a monumental degree, because magnesium is not given equal emphasis. It's not just the overprescribing but the form of calcium that's being prescribed by doctors.

My railing against calcium is mostly because calcium supplements are only about 4 percent absorbed, and many foods are fortified with calcium, and people swallow calcium carbonate antacids like candy, all of which has led to an epidemic of tissue calcification in our society. I don't deny that calcium is vital, so much so that I've been creating a form of calcium that is so well absorbed that you don't have to take large amounts to give your body what it needs. That calcium is in a liquid formula called ReCalcia.

Instead of using inappropriate supplements, and until I created ReCalcia, I used to recommend that people get their calcium from their diet, either dairy products, bone broth, deep green leafy vegetables, nuts, and seeds. However, it's become obvious to me that many people, including myself, don't eat dairy (or don't eat enough dairy) and don't have time to cook bone broth, or we find bone broth too expensive, therefore, we miss out on taking proper amounts of calcium. I created ReCalcia for myself and for anyone else who finds themselves not getting my recommendation of 600mg of calcium per day in their diet.

What is extremely important and unique about ReCalcia is its picometer, stabilized ionic form. This makes ReCalcia 100% absorbed at the cellular level. It will not suffer the same fate as other calcium supplements and cause constipation or build up in your tissues slowly calcifying your vital body organs, including your arteries.

ReCalcia, being fully absorbed at the cellular level, taken along with equal amounts of ReMag, creates the perfect synergistic balance of those two minerals to enhance body function. I'm having good results with the ReCalcia I've been testing on myself for the past several months. As you incorporate ReCalcia into your Completement Formula protocol, please keep track of how you feel and report your findings!

THE MINERAL CYCLE

It may be known to soil scientists and some doctors that picometer-sized minerals are better absorbed by our cells, but Mother Nature figured this out eons ago. Most mineral supplements are simply ground up rocks that are too large to pass through the membrane barrier in cells. We were never meant to absorb this form of minerals. Instead, our minerals come from food and water produced through the Mineral Cycle.

Here's what happens. With the winter melt, minerals, gouged out of rocks by ice and snow, wash down from the mountains into rivers and streams. Ideally, these rivers and streams overflow and the minerals enrich the soil in the fertile flood plains. Worms, bacteria, and other organisms, break down the minerals in this soil into smaller and smaller particles, until they are tiny enough to be absorbed by plant rootlets. The plant rootlets are extremely small—picometers in diameter. Therefore, minerals absorbed by plants have to be picometer in size.

Next in the mineral cycle sequence is the chelation (or binding) of minerals with plant proteins, which allows them to travel through the plant as a water soluble mineral. The mineral size and protein binding makes them perfect for absorption and assimilation by any animal eating the plant, or by eating the animal that ate the plant.

There is no advantage, however, to a chelated mineral created in a lab that is not picometer in size. Chelating minerals to a protein seems to be a theoretic attempt to mimic what plants do, without any evidence of benefit.

Most minerals sold as supplements are only 4-20 percent absorbed by our body. Even then, most studies that report on mineral absorption only refer to absorption into the bloodstream, not absorption into the cells, where the metabolism occurs. Therefore, the whole field of mineral nutrition is rife with inaccuracies and misinformation and a lack of thorough research.

To measure the minerals in cells, you would need ion electrodes for every mineral. There are calcium ion electrodes that are now being used more widely. There are magnesium ion electrodes, but they are only used in magnesium research.

The fluid and electrolyte system in the body is dynamic and very difficult to measure, but we do know it depends on access to minerals dissolved in water and proper cellular absorption of those minerals, making them bioavailable.

One of the most important functions of electrolytes is to enhance cellular hydration. To most people, hydration just means there is enough water in the body,

but the real key is to get the water into the cells and make it stay there in balanced association with minerals to perform its biological functions.

The best way to understand hydration is to describe what happens if you don't have enough water in your tissues. Mild to moderate dehydration can cause the following symptoms:

- Dry, sticky mouth
- Sleepiness or tiredness
- Thirst
- Decreased urine output
- Few or no tears when crying
- Dry skin
- Headache
- Constipation
- Dizziness or lightheadedness

Unfortunately, thirst isn't always a reliable indication of the body's need for water. Many people misinterpret thirst as hunger, so they eat more and don't drink enough, becoming even more dehydrated. Alternatively, they drink alcohol or coffee, both of which dehydrate the body.

The guide to water intake that I follow and recommend is: drink half your body weight (measured in pounds) in ounces of water every day. To help replenish trace minerals, in each quart of drinking water, I recommend $\frac{1}{4}$ teaspoon of unprocessed sea salt (Celtic or Pink Himalayan). Taking these salts ensures that you have enough sodium in your diet, as well as 70-80 other trace minerals.

You can diagnose dehydration by pinching and elevating the skin on the top of the web space between your thumb and pointer finger. When you release the skin, if it snaps back to normal immediately, then you are not dehydrated. However, if it hesitates for even a fraction of a second, you need to drink more water. Even that

measurement tells you nothing about the fluid content in the cells, which is the ultimate goal of hydration.

Another indicator of hydration is the color of your urine. Clear or light-colored urine means you're well hydrated, whereas a dark yellow or amber color usually signals dehydration. However, this means of determining hydration is undermined if you take a vitamin B complex or vitamin C, which will turn your urine yellow.

Basically, water alone is ineffective in hydrating the body. If your cells are depleted of minerals, they have no ability to attract water. Minerals inside the cells are the attractive force that pulls the proper amount of water into the cell.

Fluid in the body is found in three different areas:

1. Intercellular: Inside the cells of the body
2. Interstitial or Intracellular: Between the cells of the body
3. In the bloodstream

To effectively hydrate cells, it is necessary to pull minerals from the bloodstream or from between cells into the cells, and then water will passively follow. The active transport of minerals being pulled into cells is due to the sodium-potassium pump. Magnesium activates the sodium-potassium pump, which is essential for nerve and muscle recovery. With picometer-sized minerals, the pump isn't needed as much—the minerals are small enough to go into the cells without much prompting.

Good hydration means there is enough water and nutrients inside the cells to do its metabolic work, to wash out waste products and toxins from the cells, and to transport the waste to the organs of elimination. If your body is poorly hydrated, these processes will be slow or absent. When nutrients are unavailable to the cells and unavailable to participate in thousands of cellular enzyme reactions, waste products can build up to toxic levels.

Hydration is one of the most essential processes in a healthy body, but it is overlooked and misunderstood by most doctors. I've consulted with people who have high blood pressure and weigh 200 pounds, and their doctors tell them to avoid salt and only drink 20-30 ounces of water a day, and they wonder why they don't feel well.

Salt (sodium chloride) is the worst choice for electrolyte replacement, because salt dehydrates cells. As salty water fills up the (interstitial) spaces between the cells, the salt pulls water from the cells, making them even more dehydrated. Dehydrated cells can't be properly oxygenated. The increased water pressure outside the cells and in the bloodstream eventually increases blood pressure, putting more strain on the heart. That's why heart patients are told to reduce their salt intake, but that's just closing the barn door after all the minerals have escaped!

Excess sodium chloride also forces potassium and magnesium out through the kidneys, further worsening electrolyte and fluid balances. Heart patients are usually put on diuretics to decrease the fluid in the bloodstream, causing more dehydration and more mineral loss.

In extreme cases, when athletes or soldiers are working in excessively hot environments, up to three liters of sweat can be lost each hour! When T-shirts soaked with mineral-rich sweat are hung up to dry, they become as hard as boards. Replacing those fluid and mineral losses with only salt and sugar can cause low-grade cerebral edema, due to intracellular dehydration.

I mentioned earlier that picominerals are able to fit perfectly into cells. This only became known in recent years through the work of Dr. MacKinnon, whom I mentioned earlier. Dr. MacKinnon studies trans-membrane ion transport channels. He found that channels that transport minerals in and out of the cell are specific for size and electrical charge. Thus, the picometer size of ReMyte minerals and their ionic charge makes them a cellular "shoe in."

Minerals that make up most supplement formulas are much too large to take advantage of these ion transport channels. Even if a mineral is artificially chelated (bound) with a protein to mimic nature, that protein has to be broken down first, and if it's not, it can block that specific transport channel and render it useless. Some practitioners promote colloidal minerals, which are measured in microns and are electrically neutral. However, they are still too large to be easily absorbed into the cell.

ReMyte minerals are 100-200 picometers (one trillionth of a meter) in size, and they are electrically charged stabilized ions. These attributes mean they can hitch a ride through the chloride ion transport channel. These channels penetrate the fat-soluble cell membrane, allowing water-soluble minerals to access the cells. Picometer minerals, by their size and charge, can take advantage of a super highway into the cell, where the cell can decide if the mineral is needed. If it's not needed, it is ushered out of the cell.

HYPERTENSION AND MINERAL DEFICIENCY

Our 10 trillion body cells are mineral-deficient by virtue of the fact that our soil is very much depleted of all minerals. This lack of minerals makes the cellular fluid “less dense” than the fluid outside the cells, which is loaded with protein and minerals. This means that proteins and minerals outside the cells exert a greater osmotic pull on the fluids inside the cells, thus pulling even more fluid out of the cells, expanding the volume of fluid inside blood vessels, causing hypertension.

When you take picometer-sized minerals, they enter your cells and exert the correct osmotic pull on the fluid in the blood vessels and the interstitial fluid, pulling that fluid into cells. This action will restore the correct fluid balance, and your blood pressure will return to normal.

Unfortunately, doctors don't understand these fluid and mineral dynamics. Instead of restoring minerals to resolve hypertension, they prescribe diuretics that

deplete even more minerals, worsening hypertension and requiring more and more intervention.

ADRENAL FATIGUE AND THYROID INSUFFICIENCY

Minerals play a huge part in the rehabilitation of the major hormone systems in the body. The three major hormone systems in the body are the adrenals, thyroid, and sex hormone systems, which I refer to as a three-legged stool. When one of the legs of the stool is shortened, it affects the other two. This can be seen on blood testing; when cortisol levels go up, thyroid hormone levels go down.

There is an ongoing debate among natural medicine practitioners about what comes first; is it adrenal fatigue or thyroid insufficiency, and what do you treat first? I think it's a moot point, because they are often not looking at one of the main causes of both conditions, mineral deficiency, which means you can treat the two conditions simultaneously.

The standard treatment for the thyroid, even for natural medicine practitioners, is to give thyroid replacement therapy. It may be the more natural form of Armour thyroid, but it's still treating with hormones, instead of treating the reason the thyroid became weakened in the first place. In my experience, most low thyroid conditions are caused by mineral deficiency. Treating with ReMyte, you have the nine minerals necessary for the creation, conversion, activation, and transportation of thyroid hormones; these include iodine, selenium, zinc, molybdenum, boron, copper, chromium, manganese, and magnesium.

Treating disease in a linear format, one thing at a time, like allopathic medicine dictates, is not consistent with the way the body works, where everything is interrelated and happens synergistically.

It's usually agreed that the most common reasons for adrenal fatigue and dysfunction are poor diet, mineral deficiency, intense emotional stress, chronic

inflammation, and an underactive thyroid. The real question is what's causing the inflammation and underactive thyroid, and what diet is feeding into the problem?

Since I've worked closely with Candida (yeast) overgrowth for decades, I think it's a diet of refined sugars, high gluten wheat, and processed dairy feeds yeast. A poor diet along with antibiotics and cortisol from acute and chronic emotional stress causes yeast overgrowth.

There are 178 different yeast toxins that are produced by yeast in its life cycle. These toxins are absorbed into the bloodstream and lead to a chronic inflammatory state, which can cause arthritis, chronic fatigue, and pain. Magnesium and molybdenum help detoxify yeast toxins. Some yeast toxins can directly block thyroid function, and possibly adrenal function, as well. The best anti-inflammatory agent available to the body is magnesium. When magnesium is depleted, whether due to overuse or elimination, adrenal fatigue symptoms continue unabated.

The treatment for adrenal fatigue begins with sodium, which is vitally important for proper adrenal function. If your adrenal glands are weak or depleted, as indicated by exhaustion, low blood pressure, and chronic stress, there is a combined sodium and magnesium depletion. If you start taking large doses of magnesium without replacing sodium, you may feel even worse. I recommend ¼ tsp of sea salt in every pint of drinking water. How much water? Half your body weight (in pounds) in ounces of water.

The best diet for the adrenals is a yeast-free diet, avoiding sugar, gluten, and dairy to cut down on the body-wide inflammation that yeast produces. Magnesium will also treat inflammation. The adrenals are supported with methylated vitamin B complex, which you can obtain from [ReAline](#) and vitamin C Complex, from a company called [Grown by Nature](#).

The other key ingredient to adrenal health is plenty of rest. In one of my blogs, I call it "Lying Down Therapy." Please don't think you can "tough it out" and just

“muscle your way through” adrenal fatigue. That’s the worst thing you can do. You may require 8-10 hours of sleep and naps to fully recover. It’s extremely important to take care of your adrenals, because they are responsible for the production of more than 50 hormones, all of which are essential for proper body function.

Extra sleep, rest, Celtic salt/Himalayan salt, and high dose magnesium work to help alleviate adrenal fatigue, but it’s also important to face the cause of your stress and realize your body may be producing physical symptoms as a result of this stress.

Adrenal stress causes a loss of minerals, across the board, that have to be replaced. I recommend ReMag for magnesium and ReMyte for its 12 minerals. As noted above, I also recommend ¼ tsp of Celtic salt or Himalayan salt in each pint of drinking water for the dozens of trace minerals in salt. If someone isn’t able to eat enough greens, I recommend [Potassium Broth](#).

Some practitioners suggest that you have to take DHEA and pregnenolone for adrenal repair, but I have some simpler suggestions. Instead of immediately jumping to hormone replacement, let’s use the proper building blocks to make our own hormones. For example, Dr. Norm Shealy tells us that transdermal magnesium will stimulate DHEA receptors. Therefore, I have people putting ReMag in a spray bottle and using that transdermally.

You need cholesterol to make hormones like pregnenolone, as well as all the other hormones in the body, for that matter. For cholesterol, you need to eat good fats, such as olive oil and coconut oil. The third requirement for making your own hormones is properly functioning enzyme systems, and we know that, in order for enzyme systems to function properly, you need lots of bioavailable magnesium.

An underactive thyroid, as one of the triggers for adrenal fatigue, has its own list of causes, including thyroid receptor blockage due to yeast toxins. Thus, the diet for an underactive thyroid is the same as for adrenal fatigue.

The sex hormones are also supported by minerals and the proper functioning of the thyroid and adrenals. As mentioned above, DHEA stimulation by transdermal magnesium will stimulate the production of hormones, including the sex hormones estrogen, progesterone, and testosterone. I've had clients tell me that, when they started taking ReMag and ReMyte, their bioidentical hormones started working better. Some women have said they no longer needed to take oral or transdermal hormones when they had enough magnesium and other minerals from ReMag and ReMyte. That makes sense, because those minerals are supporting the thyroid and adrenals and taking the pressure off the sex hormones.

THE REMYTE MINERALS

Minerals are categorized as macro minerals or trace minerals. I don't classify minerals in that way, because the word "trace" implies unimportant, while "macro" implies important. To my way of thinking, all minerals are important no matter how much or how little we require.

You may notice that the following 12 picometer-sized minerals in ReMyte are present in small amounts compared to other mineral supplements. However, small amounts of these minerals, as long as they are bioavailable, are enough to meet the body's needs.

With minerals like calcium, we are used to thinking several hundred or a couple thousand milligrams are required, when in fact, just a few milligrams are all that is needed. Without really understanding why, doctors give higher and higher amounts of poorly absorbed minerals to try to achieve a desired outcome. They don't even seem to register that minerals may only be 4-20 percent absorbed and can cause problems when that excess is not cleared from the body.

As I've mentioned above, when the minerals are picometer in size, there is a substantial increase in surface area, thus making them extremely bioavailable for their role as co-factors or facilitators in metabolic processes.

Mineral	Amount per ¾ tsp serving
Boron	750mcg
Calcium	31mg
Chromium	60mcg
Copper	300mcg
Iodine	75mcg
Magnesium	31mg
Manganese	300mcg
Molybdenum	11mcg
Potassium	49mg
Selenium	40mcg
Sodium	15mg
Zinc	3mg

BORON

Boron is concentrated in three major areas of the body—bones, thyroid, and spleen (immune system). I began hearing about the importance of boron for bone health over two decades ago. Boron improves calcium absorption and interacts with magnesium and vitamin D to maintain bone density. It directs calcium into bone and

cartilage, where it belongs. It also helps increase our muscle mass and strength while decreasing body fat.

Boron is being investigated as a treatment for the following conditions: congestive heart failure, high cholesterol, arthritis, gout, osteoporosis, menopause, and poor memory. Some people claim that it's a near miraculous treatment for arthritis.

When boron is deficient, the effect on the spleen and immune system can cause skin rashes, increased allergy symptoms and more frequent infections. Lack of boron in the bones affects the bone marrow and the bone structure.

Hypothyroidism is occurring in almost epidemic proportions, so I'm very interested in the fact that boron helps the conversion of the storage form of thyroid hormone, T4, to the active form, T3. The other minerals in ReMyte, besides boron, that support thyroid function are: iodine, selenium, zinc, molybdenum, copper, chromium, manganese, and magnesium. Boron also assists in the production of another hormone, estrogen.

Be aware that the main synthetic thyroid hormones that are prescribed are T4 hormones. They require selenium and several other minerals to make the active hormone, called T3.

Some practitioners promote boron in order to eliminate fluoride, because boron binds with fluoride in the body and inactivates it. However, they tend to use high doses of boron, which may not be safe and may throw other minerals off balance. The boron in ReMyte is low potency, well absorbed, and a very safe way to detoxify fluoride, all while performing its other functions.

It's unlikely that you will get enough boron in the diet when the major sources are beets, dates, dandelion leaves, legumes, poppy seeds, turnips, and red wine.

For many years, I've recommended boric acid suppositories for the treatment of yeast vaginal infections. It's only recently that I found that boron can also be used

to treat intestinal yeast overgrowth. Therefore, the boron in ReMyte will be helping you on many levels.

Relevant to the Completement Formulas, boron supports the uptake of the two sulfur amino acids found in ReAline (methionine and taurine). Boron also helps maintain the elasticity and structure of cell membranes. Boron works with the small amount of caldium that is found in ReMyte, and it will also enhance the absorption of calcium from ReCalcia.

CALCIUM

Calcium is essential for the strength and development of bones and teeth. Few people know that calcium is regulated and controlled by magnesium. Calcium is important for the transmission of impulses in nerve and muscle cells, including cardiac muscle cells. Even so, calcium can't deliver on this promise without the balancing effect of magnesium. Magnesium opens the cells to receive a measured amount of calcium, and then, after the muscle or nerve action has been performed, magnesium drives the excess calcium out of the cell.

Calcium also has an important role in blood clotting. Might this mean that the calcification people are experiencing by taking calcium supplements is a cause of the thick blood that so many people have these days, leading to the overprescription of blood thinning drugs?

The most recent statistics on the incidence of osteoporosis are for the years 1984-1993, showing that it rose an alarming 700 percent in that decade. How is that even possible when we have led a war on osteoporosis for so long? The answer is that we chose the wrong weapons, and now those weapons have turned against us.

Over the past few decades, women have been encouraged to supplement calcium for bone health, and they, consequently, have become calcified by taking large doses without the balancing effects of magnesium. Five studies in the past decade, led by Dr. Bolland in New Zealand, have proven calcium supplementation in

women carries an increased risk of heart disease. Besides depositing in the arteries, excess calcium is causing gall stones, kidney stones, heel spurs, fibromyalgia calcification, and breast tissue calcification.

One of the reasons why calcium has become such a problem is the lack of magnesium in our diet. One hundred years ago, we were able to obtain about 500mg of magnesium in our diet; today, we're lucky if we get 250mg, yet the amount of calcium from diet, fortified foods, and supplements can have people taking upwards of 3,000mg of calcium daily. Apply that amount to 250mg of magnesium and the ratio is 12:1. However, few doctors stop to ask what that incredible imbalance will do to our metabolism.

I learned that the 2:1 ratio of calcium to magnesium is a myth. It originated with the works of a French magnesium researcher, Dr. Jean Durlac, who was concerned about too much calcium. He said: never take more than two parts calcium to one-part magnesium from food, water, and supplements. Something very important got lost in the translation to English, and everyone, especially supplement manufacturers, thought they were being directed to use two parts calcium to one-part magnesium.

With the current RDA for calcium at 1500mg and the RDA for magnesium at 350mg, that's a ratio of more than 4:1. People look at the RDA and take that amount in supplement form without adding up the amount they get in their food. Did you know that one ounce of cheese has about 300mg of calcium? However, nobody has only one ounce! If you total the milligrams in your calcium supplement and the calcium in dairy, fortified foods, fortified orange juice, and in drinking water then you can see how easy it would be to obtain 3,000mg of calcium a day.

I favor the well-absorbed food sources of calcium instead of supplements. Calcium (in the carbonate, citrate, and gluconate forms) is only 4-10 percent absorbed. Unlike magnesium, calcium doesn't flush itself out with diarrhea if you take too much. Instead, calcium causes constipation and builds up in the body. As I

mentioned above, researchers have proven that calcium supplements are responsible for an increase in calcification, causing heart disease. However, the end stage of fatalities from heart disease is the focus of most studies, which misses the point of the soft tissue damage done to many other parts of the body by the overuse of calcium, such as kidney stones, gall stones, heel spurs, fibromyalgia calcification, and breast tissue calcification.

Our body holds on to calcium much more than magnesium. That may be because human beings grew up near the ocean, where seawater contains three times more magnesium than calcium, meaning they had much more magnesium in their diet. Thus, we evolved mechanisms that grabbed and stored calcium while releasing excess magnesium (the laxative effect). Without understanding these processes, we're all being calcified.

I think people do best on a 1:1 balance of calcium to magnesium. I support the calcium RDA from the UK (700mg) and the WHO (500-600mg). I personally try to get 600mg of calcium in my diet, which includes occasional yogurt, green leafy vegetables, nuts, seeds, and a small amount of bioavailable calcium in ReMyte. ReMyte contains 31 mg of calcium in the picometer form. That means it can readily enter into cells as needed. It's not in the formula as a therapeutic amount of calcium, but it is enough to balance the other minerals in ReMyte. If you feel you might not get enough calcium in your diet, then you can make bone broth by the gallon and store it in the freezer to use in your soups and stews. I use this [bone broth recipe](#), from the Weston A. Price Foundation.

I realize there are many people who avoid dairy and just can't get enough calcium in their diet. Therefore, I've developed ReCalcia, a calcium, boron, and vanadium formula, for the days when you don't eat enough calcium-rich foods.

Calcium in Foods

Below is a list of foods high in calcium. If you do the math, you'll see that we get much more calcium in our diet than magnesium.

Food	Calcium in milligrams
1 cup milk.....	300
6 oz yogurt.....	350
1 oz hard cheese (cheddar).....	240
2 slices processed cheese.....	265
¼ cup cottage cheese.....	120
½ cup soft serve frozen yogurt.....	100
½ cup ice cream.....	85
½ cup tofu.....	258
1 Tbsp sesame seeds.....	90
1 Tbsp Tahini.....	63
8 medium sardines (canned).....	370
3 oz salmon.....	180
1 cup kale.....	94
1 cup broccoli.....	178
10 medium dried figs.....	269

1 cup calcium-fortified orange juice....	300
1 cup enriched soy milk.....	300
1 cup enriched rice milk.....	300

Vitamin D's Effect on Calcium

Vitamin D is an important factor in calcium absorption, but high doses of vitamin D drains magnesium and zinc. I don't recommend high dose vitamin D, but if you do take vitamin D supplements higher than 1,000iu per day, make sure you have enough of the following nutrients. I'll list these nutrients and show where you are getting them in your Completement Formulas.

1. Magnesium in ReMag.
2. Zinc in ReMyte. Each vitamin D receptor requires a zinc molecule.
3. Boron In ReMyte and ReCalcia. Boron is important for the structure of cell membranes and the conversion of T4 into active T3 thyroid hormone.
4. Vitamin A, D, and K2 in Blue Ice Royal not a Completement Formula but a recommended product.

Vitamin D Recommendations

My basic recommendation for vitamin D is to try and get 20-30 minutes of sun exposure, per day. If you require a vitamin D supplement, take it along with extra magnesium. The brand of vitamin D I use is Blue Ice Royal (fermented cod liver oil for vitamin A and D, and butter oil for vitamin K2) from Green Pastures.

If you have your vitamin D blood levels tested, aim for the low range, not the high range. It's tricky to pin it down to a general number that covers the whole population. When I'm working with a client, I take the individual's geographical location and their health into consideration.

It's frustrating that medicine thinks the inactive form of vitamin D (25 OH-D) is the best measure of vitamin D status, instead of the active form. The amount of inactive form that becomes active depends on magnesium, zinc, and the other nutrients mentioned above.

All that being said and with the range of 25 OH-D at 30-74 ng/mL, I tell people that 40 is a good arbitrary measurement to aim for, rather than 70.

I've written in my blogs about the dangers of too much vitamin D, because it grabs too much calcium and ends up causing magnesium deficiency symptoms and overcalcification. The result can be kidney stones, gall stones, heel spurs, atherosclerotic calcium deposits, fibromyalgia calcification, and breast tissue calcification.

Microcalcification found in breast tissue alarms doctors who suspect breast cancer. It is even being diagnosed as a precancerous condition called DCIS. After a round of mammography and a breast tissue biopsy, the calcification is usually found to be benign, but the patient in the process has suffered extreme anxiety and is left in a fearful state.

Bones Are More Than Calcium

Several of the minerals contained in ReMyte are known bone-builders: boron, copper, magnesium, manganese, and zinc, along with calcium.

CHROMIUM

I learned about the glucose tolerance factor (GTF) in my naturopathic training. Researchers isolated a substance and called it GTF, which, when bound to insulin, triples its activity. Later, they realized that chromium was the active component of GTF, allowing it to enhance insulin activity and play a major role in the regulation of insulin action and its effects on carbohydrate, protein, and lipid metabolism. It is a latecomer to the nutrient scene, being recognized as an essential element rather recently, in 1959.

Diabetics need more chromium, because they excrete two to four times more with their tendency to excess urination (which is caused by high blood sugar levels). However, chromium deficiency can also cause hypoglycemia (low blood sugar). Therefore, this mineral is not only important for balancing high blood sugar, it is also important for balancing low blood sugar. Chromium affects carbohydrate metabolism, and is also involved in the metabolism of amino acids, fats, and nucleic acids (the building blocks of RNA and DNA).

Chromium assists in lowering cholesterol. It can also elevate sperm counts. Although chromium can improve response to antidepressant drugs, my recommendation is to take ReMyte and ReMag and add ReAline and RnA Drops for the natural approach to depression.

Chromium enhances insulin activity, playing a major role in the regulation of insulin release and its effects on carbohydrate, protein, and lipid metabolism. Conversion of T4 to T3 is influenced by insulin, so in a roundabout way, chromium helps this conversion.

Intestinal absorption of chromium is low, ranging from 1-25 percent and our body only contains about 2-6 milligrams. Chromium's food sources include brewer's yeast, meat, liver, and whole-wheat, but remember, they are high in chromium only if the soil in which these foods are grown or where animals graze, contains that chromium.

There is some concern about the safety of chromium supplements, since some are very poorly absorbed and can be dangerous. The chromium in ReMyte is elemental ionic chromium, not a chromium compound; it's safe, and it's 100 percent absorbed at the cellular level.

COPPER

Copper was recognized as an essential element in 1928, much earlier than most other minerals. Its uptake from the diet through the intestines is only about 5 percent, and adults only have about 80-100mg in the body.

However, I hear from practitioners who do hair tissue mineral analysis that there is a noticeable level of toxicity occurring in the population. They are sounding the alarm, and many people are now afraid of copper. The most common sources of copper toxicity are from water contaminated by copper plumbing; estrogens in birth control pills that drive down zinc, elevating copper; copper IUDs; and copper in multiple vitamin mineral supplements.

A zinc to copper imbalance, with too much copper and not enough zinc, can be a factor in postpartum-depression, premenstrual tension, ADHD, psychosis, and paranoia, since copper acts as a brain stimulant. ReMyte contains 15 times more zinc than copper, which will help treat excess copper in the body.

Perhaps because of its low level of absorption, copper has its own transport system, via a protein called ceruloplasmin, that ferries it through the blood. However, the picometer-ionic copper in ReMyte is 100 percent absorbed at the cellular level and does not require special transport, so it is completely bioavailable.

If you have copper toxicity, the excess mineral can jam copper receptor sites, causing simultaneous symptoms of copper excess and copper deficiency. Thus, the very low dose of copper in ReMyte will give the body the bioavailable copper it needs to carry out its important functions.

One of those crucial functions is related to thyroid health. Copper plays an important role in the metabolism of the amino acid tyrosine, which is a precursor to T4 (thyroxine).

Before my naturopathic training, I mostly heard about copper as an antagonist to zinc, and if you took too much zinc, you could lower your levels of copper. Then I

learned that copper helps create elastin, which cross-links with collagen in connective tissue.

NOTE: Lysine, an important component of RnA Drops, is a building block of collagen.

Copper is important in red and white blood cell formation; it is found in most antibodies; and it's necessary for producing the color and texture of your hair, as well as the elasticity of your skin.

Copper functions as a constituent of several enzymes. Superoxide dismutase (SOD), monoamine oxidase (MAO), and cytochrome oxidase are the most important. Cytochrome oxidase is the final step in the electron transport chain, occurring in mitochondria that creates ATP (adenosine triphosphate), the main energy source in our cells.

I repeat, copper deficiency and copper toxicity can both block copper function, resulting in hypothyroidism, decreased muscle function, and a sluggish brain. That's why a small amount of bioavailable copper, found in ReMyte, is the treatment of choice for both copper deficiency and copper excess.

IODINE

Iodine is part of the structural formula for T3 and T4 thyroid hormones. T3 has 3 iodine molecules; T4 has 4. Therefore, it's safe to say that the thyroid can't function without iodine. To illustrate the pivotal nature of iodine in the thyroid, T4 or (thyroxine) is 68 percent iodine by weight, and T3 (triiodothyronine) is 58 percent.

My veterinarian friend, Dr. Terry Wood, considers the thyroid the most important gland in the body. He says that most body functions require thyroid hormone to work efficiently and effectively, so, the body can't function without iodine!

Dr. Wood related a case of a middle age Dachshund recovering poorly from two previous back surgeries. He could not walk up or down stairs, and he had no

bowel or bladder control. Within two hours of receiving his first dose of picometer iodine, he was able to run up and down the stairs, and he had regained bowel control.

After about five or six weeks of taking ReMyte, I began to feel a bit “sped up,” and my pulse was slightly elevated. I was aware that those symptoms can be due to too much thyroid hormone. Since I was on Armour thyroid, I decided to stop taking it. Within a couple of days, my thyroid hormones settled down, and I feel great to this day, many years later.

Nine of the 12 minerals in ReMyte directly support the thyroid: iodine, selenium, zinc, molybdenum, boron, copper, chromium, manganese, and magnesium. When you take ReMyte, it can “wake up” your thyroid and improve your metabolism. However, be aware that if you are on thyroid medication, you may find yourself a bit hyperactive, because you no longer need as much thyroid medication as you have been taking. Besides being a bit “speedy,” you may find your pulse has increased by 5-10 points. Be sure and check with your doctor about reducing your medication.

Iodine is an absolute requirement for making thyroid hormone, and it is used to treat the following iodine deficiency symptoms:

1. Enlargement of the thyroid gland (goiter) from lack of iodine
2. Fatigue due to severely diminished thyroid metabolism
3. Diminished concentration
4. Reduced growth and slow mental development in children
5. Reduced body temperature
6. Cold extremities

These are some of the most common sources of iodine: sea salt, iodized table salt, shellfish, and ocean fish. However, apples, fruit, and spinach contain iodine, but only if there is iodine in the soil these foods are grown in. There are some foods that contain iodine antagonists that can block iodine, like soy, beets, and cabbage.

Iodine deficiency in pregnant women can put a strain on the fetus' thyroid, leading to enlargement of the gland, as it's being forced to support the mother as well as itself. This can be diagnosed at birth with a simple neck examination and routine blood tests. Untreated, it can cause some delay in brain development and bone maturation.

It wasn't until 1950 that iodine was recognized as an essential element, so, we still have a lot to learn about it. You have about 10-30mg of iodine in your body, and it is mostly in your thyroid gland.

The RDA for iodine is 150 micrograms. However, there are many doctors who promote high-dose iodine and recommend 12.5-50mg a day for the treatment of breast cancer and detoxification of bromine and fluoride in the body.

The total amount of iodine in the body is only 25-35 grams. I think the treatment amounts are quite extreme and should only be taken with caution under a knowledgeable doctor's supervision. Several books have been written about high dose iodine, and they all talk about the "detoxing" effect going on for months and causing a lot of suffering. Personally, I would be concerned that some of what's being called detox is a side effect of too much bio-unavailable iodine. In fact, high dose iodine therapy can cause a deficiency of magnesium.

If you choose to go on high dose iodine therapy, do so under the guidance of a practitioner, because you are taking it in medicinal amounts and you should be followed by an expert. I encourage people to take the RDA of bioavailable iodine in ReMyte and let their body's genius use it appropriately. The RDA for iodine at 150 micrograms may be too low, but the good news is that a daily dose of ReMyte iodine gives you 100 percent of the RDA and is 100 percent absorbed at the cellular level.

Most people are deficient in iodine. When I used to measure 24-hour urine iodine levels in my patients, I found that everyone was deficient. Iodine can be blocked by chloride in table salt, chlorine and fluoride in the water supply, and

bromine, which is a common chemical in our diet and environment. What you may not know is that bromine is an ingredient in most commercial breads so many people are exposed to high levels of this chemical element.

Other minerals vital for balanced thyroid function include selenium, zinc, molybdenum, boron, copper, chromium, manganese, and magnesium. All these minerals are included in ReMyte in a highly absorbed form, and you can read about them individually in this book.

Thyroid Hormone Replacement Therapy

Hormone replacement therapy is so common in medicine that we think that's the only treatment to balance our hormones. Allopathic medicine treats hypothyroidism when the blood tests show moderate to severe deficiency. They use synthetic thyroid hormone replacement. Natural medicine practitioners identify low thyroid function by measuring body temperature reduction and symptoms, often before it shows up on blood tests. They use natural thyroid hormone replacement, such as Armour thyroid.

However, as I've noted above, there is more to taking care of the thyroid than just replacing missing hormones. The mineral building blocks for the thyroid can often bring it back to life, so that you may no longer need thyroid replacement therapy.

MAGNESIUM

I've written tens of thousands of words about magnesium, so I'll only give an overview here and direct you to the book, *Invisible Minerals: Part 1 – Magnesium*, for more information.

How best to drive home the importance of this mineral? Magnesium is a crucial, vital, essential, necessary, requisite, indispensable, obligatory, central, and key substance for all living organisms. Without magnesium, we will die. Plants think magnesium is pretty important, too, and they would die without it. Magnesium is an

active part of the chlorophyll molecule, which is required by plants to transform the sun's energy into chemically bound energy via photosynthesis.

Magnesium is important in medicine, but with the reliance on drugs, it is not given its due as a therapeutic element. I didn't learn anything about it as a clinical treatment in medical school. However, since I was already interested in vitamins and minerals, I did notice in my 200 hours of biochemistry that magnesium and other minerals and vitamins were constantly coming up as cofactors in all the metabolic pathways in the body.

Magnesium activates between 700-800 enzyme systems that create these metabolic pathways, and it seems to be involved with everything the body is doing to keep us healthy!

1. Magnesium is a cofactor for the enzyme ATP (adenosine triphosphate), the main energy source in our cells.
2. Magnesium is an important stabilizing agent to decrease excitation of nerves and contraction of muscles.
3. Magnesium is required for the structural integrity of numerous body proteins. There are 3,751 magnesium receptor sites found on human proteins.
4. Magnesium is required for the structural integrity of nucleic acids that make RNA and DNA.
5. Magnesium is a cofactor for many enzymes that perform hundreds of vital functions, including the metabolism of amino acids, carbohydrates, fats, and steroids.
6. Magnesium is a direct regulator of ion channels for the other key electrolytes: calcium, sodium, and potassium.
7. Magnesium is involved with nerve conduction and prevents calcium from causing excessive nerve firing.

8. Magnesium is intimately involved in muscle function, preventing excess calcium from causing muscle spasm.

The soil is very deficient in magnesium. As I mentioned earlier, 100 years ago, we may have gotten about 500mg in our daily diet. Now, we are lucky if we get 200mg. However, even that 200mg is not totally absorbed. Only about 40-60 percent of the magnesium found in foods stay in our body. This can fall to 25 percent or rise to 75 percent in cases where the body is magnesium deficient. Intestinal uptake can be reduced by high fat and protein intake, foods high in oxalic acid and phosphates (soft drinks, soft ice cream), iron (forms insoluble compounds), alcohol, coffee, benzoic acid preservatives, chlorine and fluoride in water, toothpaste, and drugs. A high fiber diet can diminish magnesium absorption as well, due to elevated phytate levels.

Cooking and processing food further diminishes the magnesium content. That's why I came to the conclusion long ago that we all require magnesium supplementation to maintain our health, and we require it in a form that's picometer in size and bioavailable.

Why does magnesium seem so important, yet your doctor isn't telling you to take it? Doctors don't learn about the clinical application of magnesium or any other minerals in medical school. Actually, they do learn about recommending calcium to every woman that comes into their office. However, that turned out very badly, because calcium is very poorly absorbed and leads to calcification of arteries and an increased risk of heart disease.

The other reason doctors ignore magnesium is because it's usually measured in blood serum. However, those levels always appear normal. Magnesium levels are guarded closely by the body since it is so crucial for heart function, and if they become low, magnesium is immediately pulled out of muscles and bone to bring it back in balance. Since serum magnesium always looks normal, doctors don't even bother measuring it routinely. In a normal electrolyte panel, they just measure sodium, calcium, potassium, and chloride.

Magnesium RBC test from Request A Test

The ionized magnesium test is the most accurate but it's only used in research facilities. Therefore, I recommend the Magnesium RBC test, which is more readily available and is much more accurate than the serum magnesium test. The range of values of the Magnesium RBC test reflects the levels in the population, which may be as much as 80 percent deficient. Thus, even though the range is 4.2-6.8mg/dL, try to maintain an optimum 6.0-6.5mg/dL level. If your doctor won't order this test for you, do it yourself through [Request A Test](#). It only costs \$49.00 and is a great way to monitor your magnesium intake.

Magnesium and the Heart

Magnesium deficiency can cause the following symptoms that magnesium therapy can treat:

1. Heart muscle weakness
2. Angina pectoris
3. Cardiac arrhythmias
4. High blood pressure
5. Elevated cholesterol
6. Blood clotting
7. Intermittent claudication in the legs. (Cramping pain and weakness on walking associated with a lack of blood supply to the muscles.)

Magnesium and Muscles

Magnesium deficiency can cause the following symptoms in the muscles that magnesium therapy can treat:

1. Calf cramps that may occur after exercise or Charlie horse cramps that occur during the night
2. Cramps, spasms, tingling, and twitches

3. Spasms of the smooth muscles in retinal blood vessels that lead to a disturbing flickering in the field of vision
4. Spasms of the fallopian tubes, preventing sperm from reaching the egg and possibly causing infertility
5. Cramping of the sphincter muscles in the esophagus, stomach, intestines, and bladder
6. Cramping in the muscles of the larynx, bronchi (asthma patients), and in the ducts of the gall bladder and pancreas
7. Menstrual cramps

Magnesium and the Central Nervous System

Magnesium deficiency can cause the following symptoms in the central nervous system that magnesium therapy can treat:

1. Tension headaches
2. Migraines can be relieved by a magnesium injection or an oral intake of ReMag
3. Dizziness, nervousness, and mood disturbances (including depression)
4. Nausea
5. Stress releases the “stress hormones”—adrenaline and glucocorticoids—which increases the loss of magnesium from cells in exchange for calcium. Magnesium supplementation can decrease stress hormone release and stop this vicious cycle.
6. Cerebral circulation insufficiency, which may cause sleep disturbance, can be treated with nighttime magnesium.
7. Magnesium deficiency can cause an under-active autonomic nervous system, leading to low blood pressure and poor circulatory system performance among younger people. Some people think magnesium will lower their blood pressure further, but slowly increasing magnesium will treat the problem and improve the blood pressure.

Magnesium and Pregnancy

Every midwife knows that magnesium deficiency is associated with a higher incidence of miscarriage and premature birth. They used Epsom salts and called it “The Salts” in times past. The estrogen content in the birth control pill and elevated estrogen during pregnancy lowers magnesium levels by 15-30 percent.

Relaxed uterine muscles can prevent premature contractions, and magnesium is a very safe, natural laxative in most forms. Unfortunately, not enough emphasis is placed on taking magnesium during pregnancy, but when a woman develops eclampsia, she is put on an IV magnesium drip.

Magnesium and Kidney Disease

About one-third of the absorbed magnesium leaves the body through the kidneys. Thus, when kidney function is impaired, less magnesium is lost and more builds up in the body. Please read my article [“Kidney Disease Requires Magnesium”](#) to learn that the impairment in kidney function can be due to a lack of bioavailable magnesium.

The majority of kidney stones are calcium oxalate, caused by a combination of magnesium deficiency and calcium excess. Magnesium and vitamin B6 both treat kidney stones and prevent them from forming.

Magnesium and Athletes

Magnesium is one of the electrolytes lost through sweating during heavy exercise. Muscle cramping and pain, that is sometimes confused with lactic acid buildup, is a result. Although magnesium itself can prevent some of these symptoms, the complete ReMyte formula has much better success.

Magnesium and Osteoporosis

Magnesium supplementation is used in the treatment of osteoporosis and to reduce calcification near joints after hip replacement surgery, also.

Magnesium and the Thyroid

Calcium and magnesium must be balanced in the body to ensure proper thyroid function. If there is too much calcium, thyroid hormones can become diminished. Magnesium is the regulator of calcium absorption and utilization.

MANGANESE

Manganese is a little-known mineral with only about 20-40mg in your body. However, we can't live without it. The daily requirement for adolescents and adults is between 3-5mg. Manganese assists in the metabolism of fats, protein, and carbohydrates. It also helps in the production of T4 and the formation of collagen, particularly in bones, cartilage, and skin.

Manganese deficiency symptoms help us identify its functions.

- Problems with sugar and protein metabolism, creating hypoglycemia and diabetes
- Fatigue and muscle atrophy, as a result of disruption of the Krebs cycle and reduced energy output
- Muscle, connective tissue, and bone conditions, including osteoporosis
- Infertility in women
- Lowered immune function, causing increased allergies
- Cholesterol imbalance
- Lowered thyroid activity

Manganese is a cofactor in several enzyme systems. The most important is the powerful antioxidant, superoxide dismutase (SOD) enzyme, which protects against free radicals. Manganese takes part in the Krebs cycle, helping to produce ATP energy packets, as a requirement in two of the chemical substrates. Manganese is required to transport the hormone thyroxine into our cells.

I was very interested to learn that manganese counteracts the inhibitory effects of fluoride. This is very important for people who drink fluoridated water, use

fluoride toothpaste, or have been on fluoride medications. Most of the commonly used drugs contain fluoride. Fluoride binds irreversibly with magnesium, making it unavailable. The fact that manganese can counteract fluoride is very important in the battle of this poison.

The food sources of manganese are: leafy green vegetables, whole grain products, nuts, legumes, and brewer's yeast. Even if there is manganese in the soil where your vegetables are grown, you only absorb between 5-40 percent of the manganese that is in your food.

MOLYBDENUM

Molybdenum's role in human health is still evolving and is a bit mysterious. It was accepted into the ranks of essential elements in 1953.

Molybdenum is an essential mineral required for many significant chemical processes in the body. It acts as a cofactor in enzyme systems that support detoxification, such as sulfite, xanthine, and aldehyde oxidases. These enzymes help remove harmful substances (from internal or external sources) using oxidative detoxification.

Aldehyde oxidase converts acetaldehyde into acetic acid, a harmless chemical that is naturally excreted from the body. Acetaldehyde is a breakdown product of alcohol that is called the "hangover chemical." Guess what else produces acetaldehyde? *Candida albicans*. Therefore, if you have yeast overgrowth, the molybdenum in ReMyte will help break down toxic acetaldehyde and dissipate your brain fog.

Acetaldehyde is a particularly potent toxin that can damage all the tissues in the body, including the brain. It readily combines with red blood cells, proteins, and enzymes; travels to all parts of the body; and passes through the blood brain barrier. It damages the structure of red blood cells, making them unable to squeeze through tiny capillaries to convey oxygen to needy tissues. Acetaldehyde cannot be excreted

from the body; when it accumulates in tissues, it is responsible for weakness in muscles, irritation, and pain.

Sulfite oxidase breaks down sulfur compounds into sulfate, rendering them harmless to humans. It breaks down sulfur dioxide, found in smog, and sulfites in wine, which affects asthmatics. Molybdenum helps break down the sulfur-containing amino acids homocysteine and cysteine.

Besides treating dangerous levels of sulfur in sulfur-treated foods and smog, molybdenum can be used to treat depression, male impotency, hair loss, and mental imbalance.

Molybdenum is essential for the movement and release of iron in the body, allowing oxygen to travel to the body's organs. It's a cofactor in several important enzyme systems. One enzyme system helps mobilize sulfur amino acids, such as methionine and taurine found in ReAline (a Completement Formula); another breaks down foods into uric acid; and a third helps metabolize drugs and toxins, including sulfites, a known cause of asthma.

Molybdenum has a role to play in thyroid function. Molybdenum-dependent enzymes are important in the oxidative system of thyrocytes (thyroid epithelial cells). They also play a role in T3 (thyroglobulin) release from the thyroid gland.

Molybdenum is found in many foods, including beef liver, cereal grains, dark green leafy vegetables, legumes, and peas, but like most minerals, it doesn't get into these plants if it's deficient in the soil in which the plants were grown.

POTASSIUM

Potassium is the third most abundant element in the human body. Calcium is first and phosphorous is second. Potassium is mostly found inside the cells to the tune of 98 percent; whereas 98 percent of sodium is found outside the cells. The intracellular-to-extracellular dance of potassium and sodium helps create and conduct electrical impulses in muscle cells and nerves. Calcium and magnesium do a similar dance.

Potassium deficiency leads to muscle cramps and arrhythmias, but to a lesser extent than magnesium deficiency. The reason being that potassium deficiency is much less common than magnesium deficiency.

Since 98 percent of potassium is found inside the cells, measuring potassium in the blood can be misleading. Potassium is an important electrolyte for pH balance and fluid retention. Like most other minerals, it activates numerous enzymes; the most surprising one is related to metabolizing sugar.

Since potassium levels in the body are so high to begin with, the RDA of potassium is in grams (about 4-5 grams daily), not milligrams. However, there is an FDA ruling that potassium cannot exceed 99mg per dose in a supplement. That's less than one tenth of a gram. The best way to get all the potassium you need is through your diet – green leafy vegetables are very high in potassium, as are bananas, nuts, avocados, citrus fruit, and potatoes. For an extra boost, I'll give you a recipe for potassium broth.

Potassium deficiency is not common in people who eat vegetables. It can be created by the use of diuretics for high blood pressure, people eating hospital food and on medication, and prolonged periods of sweating, mostly in athletes. Chronic potassium deficiency can cause heart arrhythmia, low blood pressure, and constipation.

Potassium Broth

- To 2 quarts of water add:
- 2 large potatoes, chopped into ½ inch cubes
- 1 cup carrots, sliced or shredded
- 1 cup celery, chopped, leaves and all
- 1 handful of beet tops
- 1 handful turnip tops

- 1 handful parsley
- 1 medium onion
- Herbs for seasoning: garlic, thyme, sage, rosemary
- You can add a teaspoon of miso or beef bouillon after straining off the liquid for some extra flavor and extra sodium.

Directions:

- Cover and cook slowly for about 1/2 hour, using stainless steel, glass, or earthenware utensils only.
- Strain the broth off and cool.
- Serve warm or cold. Keep refrigerated.
- Discard the cooked vegetables or put them on your compost pile.
- This is the type of broth favored in “fasting” clinics. It’s a mineral-rich, alkalizing, cleansing drink.

SELENIUM

In my naturopathic training, I became aware of selenium as a treatment and a preventive measure for several forms of cancer, including skin, liver, lung, breast and intestine. Its ability to treat such serious conditions is due to its prominent position in the production of glutathione (methionine in ReAline is an amino acid precursor to glutathione).

Years later, I met [Dr. Harold Foster](#) and studied his selenium research for HIV and cancer. Dr. Foster found that high selenium soils meant a lower incidence of AIDS in various regions of Africa. It truly seems to be a very important mineral.

It was only in 1957 that selenium was declared a mineral that is essential to life. Our body contains about 10-30mg of selenium, and the RDA for an adult is 50 micrograms. The source of selenium is from plants, either directly or by eating

animals that ingested selenium-rich plants, but as I've learned from my research on magnesium, selenium and most other minerals are very deficient in most agricultural farmland.

The best source of selenium is sardines, where the mineral is found in the skin. Food sources include: raw dairy products, garlic, blue corn, brewer's yeast (great on popcorn), sunflower seeds, and almonds (soaking your nuts and seeds makes them more digestible). Again, the amount of selenium in these foods depends on it being in the soil where the plants are grown or where the dairy cows feed.

There is a selenium deficiency condition called "white muscle disease" in lambs. A human selenium deficiency disease, called Keshan disease, causes heart damage. It was identified in Keshan Province of China and affected about 10 percent of the population, until the whole population was given 1000 micrograms per day to eliminate the disease entirely. Another selenium deficiency disease in the Keshan Province, called "big-joint disease," leads to tremendous swelling of the joints.

It may be that the isolated and specific nature of these cases led people to ignore less dramatic signs of selenium deficiency. Not enough research has been done on selenium and its effect on the heart and joints, but we have to be aware that studies that focus on only one nutrient are gravely missing the point. The point being that minerals work together, so it is impossible to study one mineral in isolation. Selenium works in concert with other minerals. For example, the heart needs magnesium as well as selenium. Studies do show that when selenium fortification is applied to soil and food grains, the incidence of heart disease diminishes.

Selenium: A Super Antioxidant

The complementary nature of The Completement Formulas is found in ReAline, which contains methionine and ReMyte, which contains selenium. Methionine is the precursor amino acid to glutathione. Selenium is part of the structure of glutathione. Thus, both these nutrients work together to create this important antioxidant.

Glutathione is found in most cells of the body, but is most plentiful in red blood cells, platelets, white blood cells, liver cells, and retinal (eye) cells. There are four selenium atoms in each glutathione molecule. To put its importance into perspective, glutathione has 1,000 times the antioxidant power of vitamin E.

People don't use glutathione as a supplement because it is very expensive. It is much better to use the proper precursors to produce it – methionine and selenium. Glutathione in oral supplement form is rendered ineffective by stomach acid and doesn't make it to its intended destination. It must be lipolyzed (bound with fat molecules) or given intravenously for absorption.

Glutathione is a powerful anti-inflammatory, so it has a place in treating any condition that causes inflammation; this includes serious conditions such as cancer and heart disease. It is also very important in the treatment of burns, infections, and the detoxification of heavy metals. Toxic chemicals and heavy metals are mainly dealt with in the liver. If there is a deficiency of glutathione due to a selenium deficiency, detoxification is impaired.

Selenium Supports the Thyroid

In 1991, researchers discovered that selenium is a necessary cofactor in the production of thyroxine (T4), one of the thyroid hormones. It also has a role in the conversion of T4 to the more active form of the hormone, called triiodothyronine or T3. This conversion is vital, and most doctors aren't aware that a selenium deficiency can cause hypothyroidism. Instead, doctors measure T3 and T4 levels and usually just replace T4 with a synthetic counterpart. However, T4 will just build up if there isn't enough selenium to convert it to T3.

Since 1991, a total of 11 selenium-dependent enzymes have been identified as necessary for thyroid function and thyroid hormone production. Selenium can help treat protrusion of the eye that can occur in thyroid disease. It's also used in the

treatment of Hashimoto's autoimmune thyroiditis. Conversely, selenium deficiency can worsen symptoms of Graves, Hashimoto's, and hypothyroidism.

A very important, but little known, association with iodine has been discovered. When iodine levels are low, taking selenium can magnify iodine deficiency symptoms. Similarly, if you take high doses of iodine, you can magnify an existing selenium deficiency. That's why ReMyte contains both iodine and selenium, so that a proper balance of the two minerals is always maintained.

The symptoms of selenium deficiency are quite generalized, to include hypothyroidism, impaired immune function, and blood sugar imbalance.

Since it is an essential nutrient, a small bioavailable dose of selenium in ReMyte is the best way to ensure that you are supporting your thyroid and your immune system.

SODIUM

Salt has gotten very bad press in recent years, but not all salt is created equal. There is Celtic salt and Himalayan salt (and their 72 minerals), which are good and table salt (sodium chloride), which is not so good. Most people just think sodium is hell bent on giving us high blood pressure. In the rush to convict sodium, some doctors preach abstinence. However, by avoiding it so rigorously, we are taking it away from our adrenal glands that depend absolutely on sodium.

More than 2.5 million sweat glands cover nearly every inch of our body, and they can produce about three liters of sweat an hour during intense exercise (the norm is about one quart per hour). A hot environment, heavy exercise, anxiety, fear, and menopausal hot flashes can cause you to sweat excessively. Sweat is our natural air conditioner, but it comes at the cost of losing sodium, chloride, magnesium, potassium, and zinc.

We focus on sodium as the major mineral lost in sweat; the other mineral losses are ignored, and the minerals that are replaced in electrolyte solutions are mostly sodium and potassium.

The amount of sodium we require on a daily basis is measured in grams, not milligrams. The normal daily requirement in adults is 2-3 grams. One teaspoon equals 4.2 grams.

Sodium is important for water regulation and the conduction of nerve and muscle impulses, but it also works in concert with other minerals, such as potassium and magnesium. Read more about sodium and its function in adrenal health under the heading, [Adrenal Fatigue & Thyroid Insufficiency](#).

Because ReMyte is a multiple mineral and not just an electrolyte, the amount of sodium in ReMyte is very low, to make room for all the other minerals. That's why I recommend ¼ teaspoon of Celtic sea salt or Pink Himalayan salt in every pint of drinking water to keep sodium levels properly maintained and for the added benefit of all the many other trace minerals in sea salt.

ZINC

We have about 3 grams of zinc in our bodies. Around 1934, zinc was declared essential for humans and animals. It was several years before the enzymes governed by zinc began to be researched. Zinc-containing enzymes are involved in many aspects of metabolism, many of them overlapping and intersecting with magnesium enzymes.

1. Blood formation
2. DNA, RNA, and protein metabolism
3. Fatty acid and prostaglandin metabolism
4. Vitamin A metabolism
5. Growth phases (fetal, infancy, childhood, and puberty, ensuring proper physical, mental, and sexual development)

- 6.** Wound healing (zinc travels to wound sites: burns, abscesses, injury, and surgery)
- 7.** Regulation of sex hormones
- 8.** Reproductive organ function and fertility (miscarriage, birth defects, and immune deficiency are common effects of zinc deficiency)
- 9.** Membrane stabilization
- 10.** Free radicals protection with superoxide dismutase and zinc thionine
- 11.** Inhibiting intestinal absorption of toxic heavy metals (such as lead and cadmium)
- 12.** Regulation of brain neurotransmitters (GABA, glutamate, and the storage of histamine)
- 13.** Sensory functions (vision, hearing, smell, and taste)
- 14.** Immune defense (cellular and antibody immunity)

Like magnesium, zinc is a calcium antagonist or calcium channel blocker, preventing calcium from improperly activating muscle and nerve cells and depositing in soft tissue in the body.

Ninety percent of the body's zinc is found in red and white blood cells. Only 10 percent is found in serum (by comparison, only one percent of magnesium is found in serum). The highest concentrations of zinc are also found in the prostate, sperm, and hair, which has to be accounted for when doing hair analysis. In other words, if zinc is already naturally high in the hair, that attribute may give a false reading on a hair test.

The causes of zinc deficiency are somewhat similar to the causes of magnesium deficiency, such as:

- Zinc is required by the body during pregnancy and nursing.
- There is a lack of zinc in the soil and, therefore, the food supply.
- Fast food diets are low in zinc.

- Strict vegetarian diets are low in zinc (since animal products have more zinc).
- Alcoholism promotes zinc deficiency.
- Excessive sweating in athletes or laborers working in hot climates depletes zinc.
- Use of cortisone or steroids creates zinc deficiency.
- Zinc is lost by metabolism of the birth control pill.

Zinc is required for the synthesis of thyroid hormones and the delicate conversion of T4 to T3. Thus, zinc deficiency can result in hypothyroidism. Conversely, thyroid hormones are essential for the absorption of zinc. Researchers have found that the hair loss attributed to hypothyroidism may not improve with thyroid hormone replacement unless zinc supplements are added.

Many diseases burn off zinc. Loss of zinc occurs due to severe skin rashes, diarrhea, vomiting, increased urination in diabetes, burns, acute and chronic infections, surgery, cancer, and heart attacks. A vicious cycle can occur, where a zinc-dependent enzyme involved in the lipid synthesis of skin cells is not functioning properly, creating dermatitis, dry skin, and eczema, that causes more loss of zinc. White spots on the fingernails are a strong indication of zinc deficiency.

One of the problems with getting zinc in your diet is that it's no longer abundant in the soil. Then we find out that the body may absorb only about 25 percent of the zinc that does find its way into your diet.

High doses of zinc are not recommended due to the imbalance that can be caused in other minerals. Zinc can block the absorption of copper and manganese, for example. However, when modest amounts of zinc and copper are bioavailable and absorbed at the cellular level, they play very well together, enhancing each other's functions.

Zinc overdose is very rare, except if people are taking 50-100mg daily for extended periods. Overdose symptoms focus on the GI tract with nausea and vomiting.

Your sense of taste can be used to diagnose zinc deficiency. You can put a teaspoon of Zinc Tally (Metagenics) in your mouth and gauge your deficiency by taste. If you taste nothing or the solution tastes sweet, you are suffering from zinc deficiency. If you perceive a metallic taste, you are supposedly not deficient.

Zinc status can be evaluated on hair mineral analysis, on a zinc RBC blood test or by assessing a zinc-dependent enzyme, alkaline phosphatase, before and after supplementing.

Because mineral testing is highly inaccurate, I feel that the very low potency of zinc and the other minerals in ReMyte allows us to take small doses of these minerals in bioavailable form and let our body decide how much of each mineral it wants to use. This is the opposite recommendation of many doctors who give higher and higher doses of minerals to try to force the body to comply.

DOSING REMYTE

Adults:

The ReMyte label gives the maintenance dose of ReMyte as $\frac{3}{4}$ teaspoon twice a day (or $\frac{1}{2}$ tsp three times a day). However, if you have any sensitivity to supplements, are chronically ill, and/or have been mineral-depleted for a long time, then start with a very small dose. One teaspoon equals 120 drops. Some people begin with only 5-10 drops a day and add another 5 drops every week. Slowly, but surely, is the best policy. Starting and completely starting a supplement can be confusing to the body.

Some people who weigh more than 150 lbs or who have been on high iodine supplementation in the past may require 1 tsp twice a day of ReMyte.

An occasional person may experience a touch of nausea when taking zinc, even the well absorbed form of zinc in ReMyte. To avoid this reaction, just take your zinc or ReMyte with meals.

You can mix full strength ReMag and ReMyte in a spray bottle and spritz it on your face. Then, you will notice the benefits of superior skin hydration.

All three Completement Formula minerals, ReMag, ReMyte, and ReCalcium can be taken together in your liter bottle of sea-salted water.

Children:

In nutrient supplementation, the common guideline is to advise ½ the adult dose for children ages 4 to 12 years old. For younger children, consult your pediatrician or follow the RDA guidelines for children under 4 years. Just as with adults, it's best to begin very slowly and start with 2-3 drops a day, working up to the suggested dose. You will be amazed that even that small amount will start to help activate enzyme systems in the body.

Slowly building up the dose of ReMyte will prevent most detox symptoms. You can add 2 drops every three days until you arrive at the recommended Children's Dose.

The minerals in ReMyte are of such low potency that you will never overdose when you take the suggested amount. Some doctors may look at the label of ReMyte and say the levels are too low. However, they are 100 percent absorbed and bioavailable, compared to the absorption of minerals from supplements, which may reach a maximum of 20 percent, or from food, which has a wide range of absorption, from 5-70 percent, only if the soil on which the food was grown contained minerals, ReMyte minerals are quite enough to meet our needs.

You can take ReMag, ReMyte, and ReCalcium together in the same liter of sea-salted water, smoothie, or juice. The amount of water you use simply depends on how much you require so that the water doesn't have a metallic taste.

NOTE: The best way to take ReMag, ReMyte, and ReCalcia is to put your full day's dose in a liter of water and sip it through the day. That way, your cells are never overwhelmed with an overload of minerals that could be wasted by being excreted in the urine or through the bowels.

What to Expect

When people take ReMyte, they talk about reaching a new level of energy, strength, balance, calmness and much more. Since there are 6 minerals important for the thyroid in ReMyte, people often say their cold hands and feet begin to warm up when they take ReMyte.

ReMyte enhances the performance of ReMag (pico-ionic magnesium). ReMyte minerals affect thousands of enzyme systems and processes in the body as subclinical deficiencies are treated and your level of health increases. Each person experiences ReMyte according to their particular deficiencies and imbalances.

Sometimes, when the body changes and shifts, you can feel stirred up and uneasy. You may interpret these signs and symptoms as a bad thing, when really they just represent a change. You can read my blog, "[When Magnesium Makes Me Worse](#)," to understand what happens when you start taking a mineral that your body has been lacking. The article is about magnesium, not ReMyte, but the reactions of the body can be similar as the body responds to the introduction of a missing mineral.

Your body may get revved up as all those forgotten enzyme systems wake up, and it may make you feel a bit sped up or spacey in the transition. If that happens, simply cut back on your dosage and increase it more slowly, but try not to stop it entirely.

When rashes occur while taking ReMyte or ReMag, this can mean a detox reaction or, possibly, that yeast overgrowth is being treated. When the thyroid is working more efficiently, the body temperature rises, which is incompatible with yeast overgrowth. Also, the immune system becomes more efficient, and it may start

attacking yeast. The yeast toxins released may cause symptoms, including skin rashes. Fill out the Yeast Questionnaire on the [YeastConnection](http://YeastConnection.com) website, to assess if you are experiencing yeast overgrowth and yeast die off symptoms.

After being on ReMyte for a period of time, you may find that you no longer need medications you were on. As I mentioned earlier, about 6 to 8 weeks after taking ReMyte, I began to feel a bit “sped up,” and my pulse was slightly elevated. I was aware that those symptoms could be due to too much thyroid hormone. Since I was on Armour thyroid, I decided to stop taking it. Within a couple of days, my thyroid hormones settled down and I felt perfectly fine and continue to feel fine several years later, without taking any more Armour thyroid.

NOTE: I recommend that you wean off your thyroid hormones slowly and not stop them cold turkey. Try to have your TSH and thyroid hormones checked to make sure your thyroid is beginning to function again as you increase your ReMyte and lower your thyroid hormones under a doctor’s supervision.

Also, after about two months of taking ReMyte, I found that I didn’t need as much magnesium to keep from getting heart palpitations. This became evident when I skipped a few doses and I noticed that my heart palpitations didn’t begin as they normally would. That meant I had been taking extra magnesium to help deal with symptoms caused by a deficiency of other minerals!

I used to require between 3 and 4 teaspoons of ReMag per day, but with the ReMyte taking care of all the other mineral functions, I found I only needed 2 tsp a day.

I repeat that when you take small amounts of 100 percent absorbed minerals, the body will decide what it wants to use and when it wants to use it. Otherwise, taking high amounts of nutrients will force the body into activities that can eventually throw other minerals out of balance. Calcium precipitating into soft tissues, vitamin D over

utilizing magnesium, and high dose iodine depleting magnesium are all results of high dose supplementation.

RECALCIA

- Calcium: 300mg per tsp
- Vanadium: 1 mg per tsp
- Boron: 0.5mg per tsp

ReCalcia is primarily a calcium formula for people who are unable to obtain enough calcium in their diet. It helps support bones and teeth. I've already discussed calcium and boron in great detail above in the ReMyte formula, so it only remains to give you an overview of vanadium.

VANADIUM

Vanadium has been recognized by the American Dietetic Association as an essential mineral in human nutrition. Most research into vanadium has centered on its role in improving insulin function. In animal studies, it has been shown to improve glucose tolerance, inhibit cholesterol synthesis, and improve mineralization of the teeth and bones. Vanadium may act as a co-factor for enzymes involved in blood sugar metabolism, lipid and cholesterol metabolism, bone and tooth development, fertility, thyroid function, hormone production, and neurotransmitter metabolism.

DOSING RECALCIA

Adults: 1 tsp (300mg calcium), twice a day if there is little calcium in the diet. One tsp, once a day if there is at least 300mg of calcium in the diet.

Children: 1 tsp (300mg calcium) once a day if there is little calcium in the diet. One-half tsp, once a day if there is at least 300mg of calcium in the diet.

My recommendation for calcium is based on the UK and WHO guidelines, which are set at about 600 mg per day. They include calcium from food, water, and supplements. One tsp of ReCalcia contains 300 mg of calcium. Use the calcium food list to determine how much calcium you are getting in your diet on a daily basis. The symptoms of magnesium deficiency are very easy to track compared to the symptoms of calcium deficiency, which seem to be few and far between.

Personally, if I eat two cups of yogurt, 2-3 days in a row, my heart palpitations return, so I know I'm getting too much calcium compared to magnesium. Also, when I did some experiments with chelation, after a few IV EDTA treatments, I noticed that my knees were aching. I attributed that to calcium being pulled out of my bones.

My experiment gave me an understanding of the side effects of IV chelation and how it can pull minerals out of the body along with heavy metals. After an IV chelation treatment, doctors will run an IV of magnesium and other minerals. However, I'm not convinced that those minerals are properly absorbed and replace the minerals that are lost.

Blood test for calcium may tell you if you are deficient in calcium, but testing has never been used by doctors as a reason to recommend calcium. They just automatically say to any woman over 50 to take calcium supplements. Lack of testing means it's up to you to keep track of how you feel before you start taking ReCalcia and how your symptoms shift as you take it.

LEARNING MORE & ASKING QUESTIONS

There is so much more that I'd like to share, but I have to stop writing at some point! For more on ReMyte and ReCalcia, as well as ReMag, ReStructure, RnA Drops, ReAline, and ReNew, join me on [Dr. Carolyn Dean Live!](#) for my weekly two-hour radio show at Achieve Radio. It's on Mondays, at 4pm PST on Achieve Radio. Listen for the best way to use these products and hear amazing personal testimonials. You may even

become an amazing testimonial yourself! At the [Achieve Radio link](#) you can click on Studio D, which features re-runs of my radio shows 24/7.

You can search the archives of my radio show on my [RnA ReSet Blog/Radio](#) site and find complimentary copies of my books on: ReMag, ReMyte/ReCalcia, ReStructure, Anxiety, and Atrial Fibrillation at [RnA Reset](#) under the Books Link.

APPENDIX A: MANUFACTURER'S WORDS ON REMAG AND REMYTE

“To understand how ReMag and ReMyte are created requires a basic knowledge of the chemistry of ions, ionization, ionization potential and mineral absorption. Some basic Google searches using the above key words will provide the necessary background information.

ReMag magnesium and ReMyte minerals are in the same form as found naturally in our food. All these minerals are liquid, ionic, monatomic (individual ions of minerals in solution) and can be described as picometer in size. There is no nanotechnology involved. Picometers are units of measurement, nothing else. (There are one quadrillion, 1,000,000,000,000 picometers in a meter.)

ReMag and ReMyte are not just ionic solutions. Ions are a charge, not a size. Ions in solution can still form large complexes or lattice structures, which increases their size beyond that of an individual ion. They also have the tendency to bond with hydrogen and oxygen to form magnesium oxides and hydroxides, both of which act as antacids neutralizing stomach acid. They are also laxatives and difficult to digest, requiring digestive energy to be absorbed.

Our technology ensures individual ions in solution remain individual (monoatomic) and thus we distinguish them from weak complex ionic solutions by calling them picometer minerals. The size of an individual ion, when ionic and not bound as a compound or to other ions, falls in the picometer units of measurement. The size of the individual ion is determined by the nature of the element in question and its atomic weight. An ion of magnesium for example can only be as small as is allowed by the laws of Mother Nature. For example, we cannot make a single atom of magnesium smaller; we can only ensure that the atom does not combine with other atoms to form larger groups of atoms. It's the same with ions. The size of a single monoatomic ion of magnesium is approximately 86 picometers. Our process ensures magnesium stays picometer-sized for maximum absorption.

The real secret of our process is that we control all the factors in the ionization process so that the finished product is a monoatomic picometer-sized ionic form of magnesium (as absorbed by roots systems of plants, released in our digestive system and absorbed into cells). The ionization process itself is complex but is no different than what occurs in nature every minute of the day.

To repeat, we don't allow the ions to bond into complex ionic groups or compounds that required digestive energy to break down.

How does nature provide minerals to the human body? When we eat food (the ideal most natural source of minerals) minerals are released from our food by the action of hydrochloric acid and gastric juices in the stomach. Essentially the digestive juices ionize the minerals in the food forming individual ions, not chelates or compounds or large clusters of ions. Ions are the basis of biological energy and function.

It is only after the ions are freed from food, that ionized minerals, which carry a positive electrical charge, will attach themselves to a very strong negatively charged carrier, via chelation, or a carrier protein. They are then either passed through the body or absorbed by the protein sites. Or they can pass into the intestine as unattached, positively charged mineral ions for absorption by ionic receptor sites.

An ion is any atom or group of atoms that holds a positive or negative electrical charge. Positively charged ions are known as cations (minerals form cations) while negatively charged ions are called anions. Ions are formed by the addition of electrons to, or the removal of electrons from, neutral atoms or molecules or other ions. It is generally known that in order for a body to effectively and completely absorb minerals, they must have an electrical charge attached in order to penetrate cellular barriers. We want the mineral to be absorbed into the cell, not just into the blood stream.

This electrical charge exists surrounding the atom because the atom is either missing an electron or has additional electrons within its surrounding area. This charge causes the ions to interact, attracting or repelling each other in a search for another ion to contribute or remove additional electrons. It is the charge on the particle that allows minerals to activate the many functions they carry out within the body. But remember, an ionically charged mineral can still be in a complex that makes it too big to enter into cells.

Minerals are fundamentally catalysts, (reaction starters) and cofactors in metabolic processes because of their electrical charge. The fluid surrounding our cells is saturated with both cations and anions, as is the fluid inside our the cells. Because of this separation of atoms with specific electrical charges, an electrical gradient, or current, is formed across the cell membrane. Because of this current that charged mineral IONIC particles can flow more easily across the cell membrane. The mineral must be in an ionic state for this to happen!

Ionic monoatomic minerals, of picometer size, are already have a charge and size that the body recognizes and understands so they can be easily assimilated through the selectively permeable cell membranes from head to toe. Ionic monoatomic minerals are also easily transported across the highly selective cell membranes of the human digestive tract. Because ionic minerals are charged, the body has to employ less energy in order to absorb these minerals. However, some ions are bound to carrier proteins, or chelated, or complexed to amino acids and must be dismantled into smaller parts and obtain an electrical charge in order to cross the intestinal membrane.

The electrical (charged ions) gradient allows for the easy flow of ionic minerals from an area of higher concentration (digestive tract from mouth to intestines) to an area of lesser concentration (cells of the body).

The body absorbs monoatomic picometer ionic minerals with greater efficacy than other forms of minerals, as most other minerals must undergo the complete

processes of digestion into smaller charged particles. In fact, the membranes lining our digestive tract maintain their own specific electrical charge in the form of ionic receptors. The body maintains this charge on the lining of membranes in order to facilitate the absorption of nutrients. Different receptor areas maintain different charge qualities, allowing for the attraction of the multitudes of nutrients that pass through the digestive tract.

It is our belief that supplying the body with minerals in the form that is equivalent to minerals in food makes the most sense since the stomach makes ionic minerals from food.”

MEET THE DOCTOR OF THE FUTURE



Dr. Dean has been in the forefront of health issues for almost 40 years. She is not only a medical doctor, she is also a naturopath, herbalist, acupuncturist, nutritionist, intuitive, lecturer, consultant, author, inventor, capitalist, and purveyor of commonsense, too! She has authored and co-authored over 35 books including, *The Magnesium Miracle*, *IBS for Dummies*, *Hormone Balance*, and *Death by Modern Medicine*, as well as 110 Kindle books.

Dr. Dean is on the Medical Advisory Board of the non-profit [Nutritional Magnesium Association](http://www.NutritionalMagnesiumAssociation.org). She was awarded The Arrhythmia Alliance Outstanding

Medical Contribution to Cardiac Rhythm Management Services Award 2012, presented at The Heart Rhythm Congress, organized by the Heart Rhythm Society (HRS), Sept 23-26, 2012.

You are invited to receive a free subscription of Dr. Dean's [Doctor of the Future Newsletter](#) and join her online wellness program [Completement Now!](#)

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