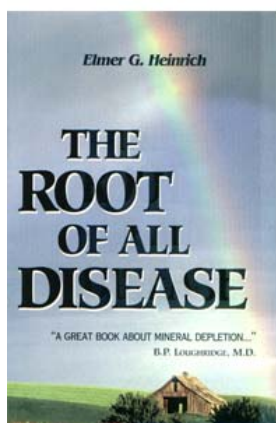


The Root of All Disease - Condensed Manuscript of E. G. Heinrich's Book

What would you say if many of the world's most respected health organizations have suggested that a lack of minerals may be the "Root of all Disease"? Would you be alarmed or maybe skeptical or would you want to learn more of the facts so you could make your own decision? Regardless of your reactions, it is necessary for you to understand the importance of minerals in relation to good health.



Minerals, as we know them, are locked in the crust of the earth. As land dwellers, our main link with minerals is through a diet of plants, which are able to extract and assimilate metallic minerals from the soil as they grow. Our secondary link is from meats of animals that eat plants. Minerals are extremely important for our well-being, yet they have always been taken for granted, and few of us have given them a second thought. Until a few years ago, no one knew of or cared about the importance of these essential building blocks. Now that minerals are enjoying tremendous success in the marketplace it is only prudent that users learn more about them. Mere knowledge of minerals and their differences may shed new light on how you perceive minerals.

In order for us to understand the importance of minerals, we need to first understand how minerals are composed. Vitamins, carbohydrates, proteins and lipids are all compounds of the chemical element known as carbon. Minerals from the earth are elements which are not carbon and which are not bound to carbon. These minerals participate in a multitude of biochemical processes necessary for the maintenance of health in human beings and animals which inhabit our planet. Nearly everything on our planet is comprised of minerals. Your lamp shade, furnace, wallpaper, flooring and your automobile would not exist if there were no minerals. There would be no life without minerals! Minerals control millions of chemical and enzymatic processes which occur in the human body at all times. This knowledge should make us aware of the importance of minerals for mankind's survival.

Although most of them are very rare, there are more than 100 mineral elements found on earth. Four of these, oxygen, hydrogen, carbon and nitrogen, make up 96% of our body. The remaining 4% of our body is basically made up in part of the other 70 or more minerals which are no longer readily available to us, as I will demonstrate further on.

The scientific community grouped minerals into two categories. Those that are considered to be required in our diets in amounts greater than 100 milligrams per day are called major minerals. Those that are considered to be required in our diets in amounts of less than 100 milligrams per day are called trace minerals. There are only seven major minerals. They are calcium, magnesium, potassium, phosphorus, sulfur, sodium and chlorine. Our bodies should contain significant amounts of each! Trace minerals, on the other hand, are present in the body in very small amounts. It is thought that each makes up less than one-hundredth of one percent of our body weight.

The nutritional experts who represent world governments point to 12 or 13 minerals as being necessary for average health and to another 8 or 10 minerals as possibly providing some benefit. I have always wondered why we have never studied the probable necessity of the other 70 or more minerals on earth! Is it possible these other minerals were overlooked because they just aren't available from the soil in any kind of quantity? In my opinion, this is a very interesting question and one which could be answered with a positive "yes"!

When you think about it, minerals are bound to play an important part in our lives. After all, rocks are the parent material for soil which is the main source of nutrition for plants, animals and ultimately humans. While deficiencies of a single mineral are quite common, what happens if we are marginally low in a number of minerals? The effects can be easily seen when studies are conducted on those persons who are pure vegetarians, those who consume a large amount of junk food in absence of mineral supplements, or those with poor diets in the absence of mineral supplements.

Also, it is a known fact the absorption of many minerals declines with old age. Additionally, stress and exposure to environmental pollution raise our requirements for minerals, especially zinc, calcium, iron and sulfur. In my own personal research I found and am amazed at the number of people who are not aware of the importance of minerals relative to good health. Most of them seem to have resigned to the fact that you've lived a full life if you die at the average age of 76 after suffering from several diseases for years prior to death.

In my estimation, less than one fourth of the people in the world are aware of the important part minerals play

for ultimate health, and they are likely not getting an adequate amount without consuming a full spectrum of mineral supplements. This stems from the lack of minerals in our present day foods. To grow and reproduce, crops take up minerals from water and soil, as plants have done for millions of years. According to science, millions of years ago the soil near the earth's surface, where our plants are grown, was saturated with dozens of minerals. At least 84 minerals were available nearly everywhere and some areas of the planet did contain 100 minerals. Science has proven the plants of prehistoric times were rich in minerals because there was an abundant supply for them to feed upon from the soil.

Man developed chemical fertilizers in the early 1900s by making or mining concentrated forms of nitrogen, phosphorus and potassium rather than using living compounds as they exist in nature. These living compounds include manure or humus, a rich, variegated blend of bacteria, fungi, molds, yeasts, algae, worms, insects and other tiny organisms. Without an abundant supply of these compounds our soils can become barren and in some cases can barely sustain life. The health and survival of all plants, domestic or wild, depends on the health of the soil and its ability to provide a constant supply of minerals.

When man began adding artificial fertilizers—nitrate, phosphate and potash—to the soil, it was learned that crop yields could be greatly increased. But what appeared to be a blessing has turned out to be a curse. According to the Complete Book of Minerals for Health by Rodale Press, man-made fertilizers upset the delicate balance of minerals and organisms in humus rich soil by killing off the beneficial bacteria, and lacking in the naturally occurring minerals they are less available to plants. Chemical fertilizers can also saturate plant roots with too much of one nutrient, making it difficult for plants or crops to pick up and absorb other minerals they need so much.

Where can we get the minerals we need if they are not available in our food supply? Well, about the only method available is to initiate a program of mineral supplementation. That is, take food supplements containing a large number of minerals. Various mineral supplement formulations can be purchased from hundreds of suppliers under literally thousands of labels. However, what the industry considers a large and adequate supply of minerals usually is no more than 12 or 13 minerals at best!

Most of the more popular mineral formulations available today contain no more than 10 to 15 minerals because they are derived from clay, ground up rock and soil, and ancient sea beds, like the Great Salt Lake in Utah. This type of mineral is known as a metallic hydrophobic mineral! Basically, it will not interact with water because it is not water-soluble. The type of mineral which comes from a plant and has been assimilated or digested by the plant is known as a water soluble, plant derived, hydrophilic mineral.

The few metallic minerals which come directly from the earth are hard to digest or assimilate. Many nutritional experts believe no more than 5% to 8% of metallic minerals (or those from the earth) are actually assimilated by the human body. This lack of assimilation occurs because the hydrochloric acid in our stomach isn't strong enough to totally dissolve metals during the short 15 to 21 hour digestive cycle. The balance, or up to 92%, merely passes through the waste system without benefit.

Minerals, even if they are metallic, are of significant value to balance and metabolize our bodily functions. However, you could not live on soil or rock because it is not alive or enzymatically active like plant derived minerals from raw plants. Plant derived minerals, which have not been destroyed by heat or altered by man-made chemicals are, from a medical standpoint, enzymatically active or living minerals.

What about vitamins? Most of us have been hearing about vitamins since we were children. And even today we hear authoritative sources say, "Be sure to take your vitamins!" Vitamins are sometimes expected to do far more than they are capable. Our bodies can go far longer suffering with a deficiency of vitamins than they can with a deficit of minerals. Did you know all the vitamins in the world would do us little good without minerals? The minerals in our bodies are so important that the body goes to complicated, even desperate lengths to maintain their balance. If a cell is deficient in a single mineral, it will suffer from a loss or imbalance of several minerals.

A vitamin can be broken down into its basic elements which are carbon, oxygen and hydrogen. Basically, vitamins are a group of chemically unrelated organic nutrients that are essential in small quantities for normal metabolism, growth and physical well-being. Vitamins must be obtained through diet since they are either not synthesized in our bodies or are synthesized in inadequate amounts. Many people have been misled or have a misconception about vitamins. Thousands have told us they will only use food supplements with "natural vitamins." The so-called natural vitamins do not exist in supplements. Natural vitamins only come in plants. All supplement vitamins are synthesized in a laboratory. Therefore, they cannot be called "natural vitamins." Don't believe anyone who tries to convince you otherwise.

There is a harmony between vitamins and minerals and even though vitamins are nearly ineffective without minerals, they both are necessary. Minerals are quite different from vitamins in their structure and the work

they do, but the two enjoy an excellent working relationship. According to Rodale's Complete Book of Minerals for Health, "minerals create a healthy environment in which the body, using vitamins, proteins, carbohydrates and fats, can grow, function and heal itself." What is a complete spectrum of minerals? I believe a mineral composition or a mineral solution cannot be considered a "complete spectrum of minerals" unless it contains at least seventy minerals. This large number of minerals has to include many of the "rare earth" minerals or there would not be a total of seventy.

Recently, we've begun to hear a lot about enzymes and anti-oxidants and their importance. Enzymes are extremely important for our metabolic functions, but again they do us little good without minerals. Conversely, some enzymes and vitamins are helpmates to minerals. Some minerals are eager workers, but to perform best they need an enzyme or a vitamin or two to stir them into action. As an example, vitamin C can triple iron absorption. Calcium absorption is impossible without vitamin D. Many minerals act as coenzymes, the so-called catalysts in chemical reactions with vitamins. This means they function as spark plugs, getting chemical reactions going in our bodies' giant chemical laboratories where billions of chemical reactions take place every day.

At this point you may ask yourself a question. Is all this publicity about mineral deficiencies and the lack of minerals really true and if so, which minerals and what kind of minerals should I be taking? In my opinion, at least part of your question can be answered with this little story.

Many movies have been made about the migration of the American settlers in the early 1800s. We all know they had to cross the great plains of the United States. What we don't know or realize is that few of these people settled in one place for a long period. Every few years, they would have to pick up and move. They'd start a small farm in the Midwest such as Iowa, Missouri, Kansas or Nebraska with a milk cow, a couple of pigs, maybe some sheep and a few children. After a few years the children would always be sick, Dad would get constipation and the cow would quit giving milk. The cucumber plants, tomato plants and farm crops wouldn't grow, so they would almost starve. If they were lucky enough to make it through the winter, they'd load all their belongings into a covered wagon and move West with the milk cow in tow. When they found a suitable place they started another farm. In a few years, the children would always be sick again. Mom would get constipated this time. The crops, cucumbers and tomatoes would quit growing and the cow would again quit giving milk. And, if they survived the winter, they'd load everything in a wagon and move farther West again.

What was the problem? The soil was being depleted! Crops and plant growth took minerals out of the soil. The only way to eliminate this problem was to own a piece of bottomland near a river. Only the lucky people farmed the bottom land. When it flooded, they'd get new topsoil and silt and sometimes additional minerals from miles upstream. So, if they were fortunate enough to have bottom land they didn't have to move. Why? Because the fertilizer would come to them during the flood. But if they were out on the prairie with no river or bottom land they would be required to move, otherwise the entire family would become malnourished and nearly starve.

This settling and moving process occurred many thousands of times during the last 175 years. This was necessary because the early settlers were actually strip-mining the nutrients from the soils.

Commercial fertilizers were introduced in 1908. Was the soil depletion problem solved? Not by a long shot! Study any commercial fertilizer by reviewing the ingredients listed on the package. You will see nitrogen, phosphorus and potassium (NPK) and most times, nothing more. It's a known fact that you can raise most crops and plants with what little nutrients are still in the soil, and NPK. Most farmers never put back more than 6 minerals. In the first place, more than 6 minerals would be nearly impossible to obtain. Secondly, if they were obtainable and if farmers attempted to put that many back into the soil they would soon be bankrupt.

According to Gary Price Todd, M.D., the human body requires at least 60 minerals for optimal health. But, according to dozens of tests we have had run over the years on a wide range of foods, only about 15 minerals are available in any kind of quantity in most of the food we eat today. We know plants can make vitamins, amino acids and varying amounts of fatty acids if they are healthy from being grown in soils containing abundant minerals.

If at this point, if you still do not grasp the fact minerals play an important role in our lives, you might ask the question: what are minerals like calcium, copper and iron from rocks in earth's crust doing in our living, breathing, active bodies? A lot. Let me mention a few examples. Calcium is essential for all organisms and is found in the cell walls of plants, all calcareous tissues and the bones of all mammals. Calcium is the fifth most abundant mineral element in the earth's crust. Calcium is also the most abundant mineral in the human body comprising approximately two percent of the adult body weight. Calcium is a construction worker so to speak. It is a builder. Calcium gives bones and teeth their strength and rigidity, and also helps nerves to function properly. As a construction worker, it builds strong bones. It is important to know that calcium, to be absorbed,

must be in water-soluble form by the time it reaches the small intestines. Calcium needs acid for proper assimilation. Without the proper strength acids, calcium is not dissolved and cannot be utilized. This is one reason a complete spectrum of minerals, with a low pH, is so important. But even more importantly, if utilized properly and in early stages after the foundation is firm, calcium will help build strong bones which will endure a life of havoc. To save your daughter or granddaughter from bone crippling osteoporosis in old age, you should begin giving her extra minerals and especially calcium between five and ten years of age. That startling advice comes from new research by pediatrician Steven A. Abrams at Children's Nutritional Research Center in Houston, Texas.

It's critical that young girls get lots of minerals and extra calcium several years before they reach 11. That's because "most bone-forming activity occurs in the years just before and just after the start of puberty," which on average is age 10, says Dr. Abrams. Menstruation begins two or three years later. By age 15, most bone-forming activity has come to a halt, he says. The higher the bone mass, the lower the odds of osteoporosis later in life. As we get older and become less active, bone density becomes a problem. Being inactive accelerates bone loss contributing to osteoporosis. Although it's regarded as a woman's condition, 20% of osteoporosis sufferers are men. Men tend to develop osteoporosis a few years later than women, because initially they have more bone mass. So extra minerals are necessary for everyone at all ages. Remember to supplement your calcium intake with adequate amounts of Vitamin D because calcium absorption is nearly impossible without Vitamin D.

Let's mention Iron! Iron is part of a substance called hemoglobin which carries life-sustaining oxygen to our cells. Iron, along with copper, appears to have participated very closely together in the evolution of aerobic life, maybe as long as three billion years ago! Iron is rather poorly absorbed and the condition most commonly associated with iron deficiency is iron deficiency anemia. Personally, I believe iron is very important regardless of what some health officials and the media reports say, especially if the iron comes from plants. Iron is stored in the bone marrow and liver. Symptoms of iron deficiency include listlessness, fatigue, memory problems and heart palpitations.

Copper, zinc and cobalt, among other minerals are necessary for enzyme activities such as food digestion. Copper also plays a significant role in respiration. Some research suggests that copper, like zinc, may be involved in healing. It is necessary for hair, skin and cell growth. Copper deficiencies have also been linked to lowered resistance to colds.

Sulfur may be one of the most important minerals for humans. It is a non-metallic mineral, widely distributed in nature. It is an important structural atom in many proteins and small organic molecules. Sulfur is involved in the quality and maintenance of many types of tissues and structures within the body including hair, fingernails and skin. It combines with nitrogen, carbon and hydrogen and oxygen to build protein, a main ingredient of muscles, skin and organs. It has been called the "beauty mineral" because it enhances those body externals. Sulfur also plays an important role in the production of insulin. My strictly personal opinion is that none of us gets enough sulfur and I believe the RDA should be increased by at least thirty times. Look for foods and mineral products that contain high amounts of sulfur.

Sodium and potassium regulate water balance and aid in digestion. If it were not for these two minerals we would bloat or swell up with water or we would dehydrate, dry out or die.

Phosphorus is an extremely important essential major mineral, but it receives little attention from many nutritionists because, supposedly, it's abundantly available in all foods. Our bodies contain about two pounds of phosphorus which, when tied to calcium, helps give strength and rigidity to bones and teeth. It also controls energy release. Phosphorus has more functions in the body than any other mineral.

Some people are able to lose weight naturally after they begin to consume a full spectrum of 70 or more minerals on a daily basis. Minerals aid digestion, and people don't eat as much when they digest their foods better. Better digestion means less constipation, more energy, less sluggishness, more motivation, better attitude, etc. Minerals can help to make it happen!

Our body is made up of about 100 trillion cells, each one bustling with activities that depend on magnesium. Magnesium is essential to all living creatures and has electro-chemical, catalytic and structural functions. In fact, next to potassium, magnesium is the most plentiful mineral inside each cell. Magnesium is closely related to calcium in regulating and controlling nerve impulses, especially the heart beat. Magnesium helps deliver energy by activating the production of a special substance called adenosine tri-phosphate which extracts energy from the foods we eat and delivers it to each and every one of those billions and billions of cells in our bodies, whether they are in the heart, lungs, kidneys, brain, blood or bone. Magnesium is one of the most important major minerals.

Chlorine is another one of the major minerals! Chlorine's intended use from Mother Nature was not to

disinfect our water or swimming pools, but to help digest our foods. Chlorine is found in virtually all of our foods. As a part of hydrochloric acid, chlorine rallies the digestive juices of the stomach to help digest proteins. A combination of hydrochloric acid and powerful digestive enzymes gobbles up food particles, mashing them into a semi-fluid pulp called chyme, which is squirted into the upper intestine for final digestive breakdown. Here is something of importance relative to chlorine. Chlorine in water is entirely different than chlorine in food. The chlorine used to disinfect water is an activated form of chloride with absolutely no nutritional value and the chlorination of water may, in fact, cause some serious health problems.

The previous review of some of the more recognizable minerals is important, but we must think about some of the rare earth minerals most people don't recognize. Just because few, if any, tests or studies have been conducted, they should not be overlooked. I truly believe these "unheard of" minerals play a very important part in overall good health. There are about 15 rare earth minerals and they are all available in a good plant derived mineral supplement.

According to our government, the trace elements that are required for human health are iron, iodine, copper, manganese, zinc, molybdenum, selenium and chromium. My experience with minerals over the last twenty years has basically proven we need many more minerals than those proposed by our government. I believe all of the rare minerals are extremely important for protracted health. However, they are not available from 99% of the mineral supplements on the market today!

Minerals initiate, regulate and control every organ and function in our bodies. Heart and blood pressure stabilization is directly related to minerals. Although other factors play a part in high blood pressure, minerals are the key to regulation. When the body or any organ becomes stressed out, it will require more nutrients and oxygen to keep it going. Minerals help the body better utilize the oxygen it receives. When stressed, the heart has to pump blood more forcefully to supply enough blood to the organ that needs it. The stronger the heart is required to pump the higher the systolic blood pressure will be. The diastolic pressure may also go up. To get a true reading, medical professionals require you to be relaxed or at rest. The blood pressure in a relaxed or rest state is called "basal" blood pressure. People in the hypertension state usually have the average systolic pressure above 140 and the diastolic pressure above 90.

When a person takes in excessive amounts of salt, the body may have to remove the excess to avoid poisoning. The body will need to collect more water because the salt has to be dissolved in liquid. The kidneys will have an additional workload in order to get rid of all the excess salt and water. This means the kidneys will need more energy and nutrients, especially minerals to keep them functioning properly. During the salt and water elimination process the systolic pressure will go up because more blood has to be pumped out of the heart. If the kidneys cannot perform properly due to a lack of nutrients, even when the blood pressure is raised, the body stores the salt water and the ankles or legs will swell. Also, all the excess body tissue, especially fat, will require more energy to feed the extra fat in the body.

Mineral-insufficiency and trace-element-insufficiency problems are actually more likely to occur than are vitamin-insufficiency situations. Those at increased risk of such insufficiencies include people who eat low-calorie diets, the elderly, pregnant women, people on certain drugs (such as diuretics), vegetarians and those eating foods from areas where the soil is extremely deficient in certain minerals. The soil of Alaska, for example, is very rich in selenium, while the soil in certain parts of China and New Zealand is very poor in selenium. Thus, you can eat foods from those areas, eat a perfectly "balanced" diet, take the average mineral supplement, and still develop severe mineral deficiencies or trace-element deficiencies that can only be averted through dietary change and supplementation with a complete spectrum of minerals.

Sub-optimal intake can be due to factors other than soil depletion. These factors are as diverse as the effects of acid rain and the over-refining, over-processing of foods.

Our vulnerability to even minute dietary imbalances in minerals can be appreciated by comparing, to begin with, our daily mineral intake (about 1.5 grams) with our total intake of carbohydrates, proteins and lipids (about 500 grams). Thus our mineral intake represents only about 0.3 percent of our total intake of nutrients, yet minerals are so potent and so important that without them we wouldn't be able to utilize the other 99.7 percent of foodstuffs and would quickly perish.

There has been a strong tendency on the part of some dietetic and medical professionals to discourage people from taking more than the RDA's (Recommended Daily Allowances) daily values of minerals which can be obtained, they say, in the typical American and European diet. Unfortunately, numerous studies have shown repeatedly, that many, possibly most, people on earth are not getting the RDA's for the minerals in their daily diets. Again, this is because most of our raw foods lack minerals and even become more superficial when they are over processed and over cooked. A lack of minerals can place stressful situations upon our resistance to disease. Supplementation, therefore, seems advisable.

As you've already heard, plants can make vitamins and naturally from our mineral experience during the last twenty years, I believe we should be using plant minerals. However, as stated previously, plants cannot make minerals! So, where do we get them? One source could be mineral supplements. We have studied the effects of our minerals for nearly twenty years. We have received thousands of phone calls and letters from our mineral users who proclaim great and unusual benefits from the minerals. FDA and FTC regulations do not permit us to publish information from personal testimonials since you may experience nothing close to the results reported by other persons. However, our trial and error tests and observations of the reactions of thousands of people have convinced us that nothing is more beneficial than a complete spectrum of pure plant derived minerals, especially minerals with a low pH and lots of sulfur. Sulfur aids in the utilization of calcium. It is my opinion that we may not require nearly as much calcium as assumed if we supplemented our diets with a complete spectrum of minerals which come from plants.

Have I captured your attention since the beginning of this article? If so, maybe you can help answer this question. Just how important are minerals for good health? And, do minerals prevent disease? Let me recite a now famous statement from Dr. Linus Pauling, two time Nobel Laureate. Although the following has never been formally published anywhere, I once personally attended a seminar given by Dr. Pauling in which he said, in his opinion, "one could trace every sickness, every disease and every ailment to a mineral deficiency". If his statement is true, and I believe it is, then The Root of All Disease could be a lack of minerals!

Nearly everybody, especially many so-called nutritional experts, misunderstand or don't appear to know anything about plant derived minerals. They group plant derived minerals with metallic minerals which come from oyster shell, calcium carbonate, limestone, soil and clay and sea salts. Supposedly too much of some of these metallic elements have toxic effects on the body. Again, according to Dr. Todd, the human body is not designed to absorb or assimilate and use metallic minerals. The health food industry recognized the metallic mineral absorption problem, of no more than 8%, in the mid 70's. Chelated minerals were developed in the laboratory. This process involved wrapping amino acids or protein around metallic minerals to help the body metabolize them. This did help the problem because these added dissolvers did increase the assimilation to about 40%. However, chelated or not, the fact remains, they are still metallic minerals.

We all know about toxic metals (toxic minerals) and most people have been led to believe the so-called toxic minerals are bad regardless of their source. This is not necessarily true. Let's take aluminum as an example. Aluminum, as found in the earth is a metallic mineral. It has always bothered me to learn that so many of our supposed leaders, intellectuals, doctors and nutritionists know so little about the element. It has been criticized beyond belief. For example, it has been suggested although not proven that metallic aluminum may be extremely harmful. But what about aluminum from food? Did you just have a knee jerk reaction? You're probably asking yourself, "Did this stupid fellow say foods contain aluminum?" Don't be surprised because the answer is yes!

In the first place, all aluminum which comes from food is preassimilated by the plant, and it is naturally tied to hydrogen in the form of sulfate. Plant derived minerals are naturally rich in sulfate. Naturally occurring aluminum sulfate minerals are called alums which are used in styptics and antiseptics. We all know aluminum hydroxide is used extensively as food additives throughout the world. Therefore, if the aluminum you get from plants is harmful, why have you lived so long, and why is it used in food processing or as ingredients in deodorizers, antacids, and face makeup and nearly without exception in many municipal water systems throughout the world? Alum sulfate increases stomach acidity and improves digestion and the absorption of nutrients, stimulates gastric and pancreatic secretion and has a mild diuretic effect. Incidentally, the World Health Organization estimates that the average adult dietary aluminum intake ranges between 10 and 15 milligrams (mg) daily. See if you agree after you hear what I'm about to say!

Aluminum is one of the most abundant minerals on earth, second only to silica. It is in virtually everything we touch, most of the air we breathe, most water we drink and in most food we eat. I am particularly alarmed to learn government officials in some countries either are not aware of or want to suppress the fact that aluminum is also one of, if not the most abundant minerals in many of our foods! The country of Sweden says it is unlawful to consume more than 2 mg of aluminum per day, regardless of the source! We spoke to several well-known laboratory and food chemists about Sweden's legal limits. Needless to say they all had a belly lurching laugh over this. Can you imagine an entire country, in this advanced age, being so uninformed about food? Apparently, the U. S. government is aware of aluminum in food because the U. S. does not have an established limit. If we did, we would have a hard time staying alive. This makes me wonder what foods the Swedish people eat.

We were able to obtain copies of the results of lab tests for aluminum in certain plant foods. The results came from the A & L Laboratory Agronomy Handbook used by many agronomists worldwide. The page headings state "Plant Analysis Guide Nutrient Sufficiency Ranges." I understand the tests are made on plant petals, vines or even the fruit or nut, depending on the type of plant bearing the food. The amounts are listed in parts per billion (PPB). Before I go any further, let me say that PPB and MCG/L (micrograms per liter) are

considered one and the same. The test results have a low amount and a high amount which were obtained from different tests on the same food or plant species. Here is what we learned from these tests.

Plant or Food Aluminum in PPB

Bananas 97,000
Coffee 97,000
Asparagus 90,000
Beans 165,000
Celery 190,000
Cucumbers 90,000
Potatoes 100,000
Tomatos 90,000
Soy Beans 75,000

I suppose you are surprised as I was the first time this was brought to my attention. I was even more astounded recently when I was made aware of a book published by the Japanese FDA (JFDA), listing the minerals in every conceivable food. (This book is available. Contact your local bookstore and ask for ISBN #1-56959-904-1). The categories in this book include many species of fish, all edible animal meats, nuts and berries, fruits, vegetables, and all types of beverages. All total, there are more than two thousand listings and every one contained aluminum. Many also contain arsenic and lead. The amounts in this book are relative to micrograms per only three and one-half ounces (3 ½ oz.) of each item.

JFDA Aluminum Amounts in (3 ½ oz) Foods Plant or Food Aluminum in MCG

Round Herring Sardines 34,000
Shrimp 1,300
Condensed Skim Milk 670
Cheddar Cheese 2,000
Radish 1,500
Figs 1,600
Cocoa 17,000
Pork Products 2,400
Green Asparagus 610
Turnip 1,200
Eggplant 13,000
Sencha Tea 100,000
Bancha Tea 332,000
Oolong Tea 247,000
Nutmeg 113,000

It is interesting to note that a glass of skim milk contains as much aluminum as one half ounce of pure, plant minerals which are leached with only pure, contaminant free water. And what about the teas? Today everyone is touting the benefits of tea. Note, that three ounces of Bancha Green tea contains more aluminum than one quart of pure plant derived minerals which are leached with pure, contaminant-free water. The most interesting fact is all of the consumables listed contain minerals which are negatively charged by Mother Nature. All metallic minerals, including those "washed in" minerals from the sea, have a natural positive charge from Mother Nature. This zeta potential is easily verifiable and indisputable.

The way I calculate the amounts listed on the JFDA Report, people allowed no more than 2 mg per day could not eat more than one thin slice of a banana each day. People allowed 4 mg could eat no more than a very small portion of a potato each day. And what about salads? Apparently, plant derived aluminum is not harmful, don't you think?

I had the opportunity to speak to many people while participating in a National Health Foods show in Anaheim, California in early 1995. I directed a simple question to more than forty people on an individual basis. Several had a PhD in food chemistry, at least eight of them were certified nutritionists, two were medical doctors, four were chiropractors and the balance were health food store owners. My question to each was "would you eat food if you knew it contained aluminum, arsenic, lead or nickel?" Without hesitation each person replied "absolutely not!" I was shocked to learn that so many supposedly well-schooled nutritional people were unaware that these minerals can be found in nearly all the foods we eat.

Nearly all plants contain aluminum, and if your mineral supplement contains little or no aluminum, it is not plant derived. If it is not plant derived, it is also not negatively charged. Therefore, it probably is not very well

assimilated or absorbed. According to food chemistry, plant derived minerals are 100% absorbable, so comparing colloidal metallic minerals to plant derived minerals would be like comparing sawdust to oatmeal. Pure plant derived minerals are the result of plants converting hydrophobic metallic minerals to hydrophilic (water soluble) minerals through the root system by a process known to science as assimilation through plant synthesis. By this process the metallic mineral is assimilated or digested by the plant, therefore it can be more easily assimilated by the human body. This side steps the normal digestive time of from 15 to 21 hours as required for the small amount of metallic minerals actually utilized.

Plant minerals like those obtained from tomatoes, broccoli, potatoes, oranges or any other food grown from the earth are different than metallic minerals. Their size and molecular weight is much smaller than metallic minerals and in most cases the plant minerals are attached to an additional molecule even though they possess the same name.

Dr. Ranville of the Colorado School of Mines particle-sized plant-derived minerals. The results are available to anyone upon request. Basically Dr. Ranville found the plant derived minerals to be anywhere from 10,000 to 200,000 smaller in size than metallic minerals which can be scooped out of the earth. These minerals are only slightly larger than a water molecule. The small size and water solubility is one of the reasons so many nutritionists believe plant minerals are much easier to assimilate or absorb than metallic minerals. The small size of a plant mineral gives it much more surface area. Therefore, the Hydrochloric Acid in the stomach comes in contact with considerably more surface area allowing for much more and possibly 100% assimilation.

The average plant derived mineral is less than 0.00001 micron in size which could conceivably be 1/10,000th the size of a red blood cell. It has been calculated that the plant derived minerals in just one teaspoon would have a total surface area of approximately 55 acres. That's billions of tiny electrically charged minerals. And tests have proven all plant minerals have a natural negative zeta potential or natural negative electrical charge.

In order for minerals to be quickly and properly absorbed through the intestinal membrane, they must be negatively charged. When you eat plants or a plant's fruit you are eating plant derived minerals in an already combined and electrochemically neutralized form. These negatively charged, water-soluble minerals from plants are non-toxic in reasonable dosage. For example, iodine in plant derived form is one of the elements for good health. And this is really interesting; if you drank even 2 grains of free iodine, it would kill you. But in its plant derived form, iodine is not only harmless, it is beneficial. The same is true for plant derived arsenic, lead, aluminum and other minerals considered toxic in their metallic form.

According to science, the surface of the earth has changed significantly since its inception. One of these changes apparently occurred approximately 70 million years ago in an area of the United States which is now known as Emery County, Utah. Supposedly, a glacier or other causes of earth movement buried a large quantity of vegetative matter which may have been a dense growth or a washed in bog of numerous plants which is believed to have accumulated over a 600-year period. Today, The Rockland Corporation controls three leases, which encompass 800 acres of humic shale. They opened the original Rockland Mine in 1986. The company opened the new Rockland Mine in 2002 and it produces a much stronger composition of plant derived minerals than the original mine. On average, the humic shale is about 30 feet thick, providing reserves of approximately 30 billion metric tons which is sufficient to produce at least 1 trillion gallons of liquid minerals. Basically, this humic matter is a prehistoric deposit of plants which was or still is under great pressure from the earth. All of the moisture has been compressed out of the humus (referred to as humic shale) and what remains is nothing more than prehistoric plant derivatives.

According to scientists, humic shale was formed about 70 million years ago when earth's fertile, mineral-rich soils produced lush green forests and wholesome, succulent, wild fruits and vegetables. This was the era when the soils near the earth's crust contained at least 84 minerals. The numerous mineral elements available at the time may explain why the plant eating Brontosaurus reached a body weight of 70,000 pounds, yet had a mouth no larger than a horse.

The prehistoric deposit of humic shale was discovered in 1926. By 1930, trial and error tests revealed that minerals could be extracted from the humus with water through a natural leaching process. Continued tests over the years also revealed that the humus contained numerous minerals, which came from prehistoric plants rather than normally recognized metallic minerals which come from ground up rocks and soil.

Chances are good you and your family lack minerals so daily mineral supplementation may be advisable. I would recommend you consider adding minerals to your family's daily diet, especially to the daily regimen of the young girls. Of course, always check with your own personal health care practitioner before starting on a regimen of dietary supplements. This goes for both adults and children alike. I'm convinced osteoporosis can

be prevented if an adequate amount of full spectrum minerals are consumed at a young age. Ask your doctor whether he agrees with me. And while you think about all this, you might recall, according to Dr. Linus Pauling, "The root of all disease" may be directly related to a lack of minerals.