

# **Plant Minerals, Deficiency & Disease**

## **70 Million Year Old Secret Rediscovered**

Nature's Simple Answer to Good Health

By Eric Cole & Peter Willoughby

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# Foreword

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**I** have always been interested in health and fitness. I maintain an exercise routine and try my best to stay in shape as many people do with their busy schedules and modern life. I try to follow the latest guidelines on proper nutrition: eating a balanced diet and consuming less nutritious foods in moderation or avoiding them, if I can.

Before I started my journey of discovery, I had an average knowledge of the basic food groups and the nutrients contained in them. I knew that in addition to fats, carbohydrates and proteins, the body also needs certain vitamins and minerals to stay healthy, keep it functioning and minimise health risks. However, my knowledge of what these specific vitamins and minerals are was only acceptable at best – until a friend of mine, Peter Willoughby introduced me to Pre-Historic Plant Derived Minerals.

Knowing my interest in health and nutrition, Peter encouraged me to try out these so-called plant derived minerals (the first time I'd heard of them), saying that these offer very helpful and effective health benefits and can reverse and minimise a wide range of health conditions from allergies and migraines to high blood pressure and diabetes. Peter is adamant that plant derived minerals saved his life. He has heavily researched them over many years and now has an in-depth understanding of their efficacy. He told me that since these minerals are plant-based, it means they are organic, safe, and considerably more effective than cheap synthetic minerals contained in tablets and capsules sold in our shops. I was shocked to discover these cheap minerals were in fact metallic, basically ground up rocks and clay that the body struggles to absorb. In high doses they could even be toxic. The second bombshell was discovering that vitamins are basically useless without minerals! In fact, every cell in your body need minerals to function properly, think about that for a moment...

The particular plant minerals Peter was telling me about are in fact pre-historic. Seventy million years old to be precise (dinosaur era). He said ancient civilisations used them, although it was only around the 1930s that their health benefits were proven to be scientifically sound and true. Of course, I listened to my friend only half-seriously, it was, after all, a sales pitch.

For friendships' sake, of course, I decided to try the minerals he talked about and took them as directed. From there began an incredible journey of discovery. A month after taking the mineral supplements, I started seeing noticeable changes in my body. From my late 40s I had started to suffer acute pain in my fingers. This was rather worrying; I couldn't even pick up a kettle with one hand. I often wondered what state my hands would be in when I reached my 50s and beyond. To my amazement, after a month of taking the plant minerals my pain was completely gone. So, I stopped taking them, and the pain started coming back. That was good enough for me. I said to myself "this stuff really works". I was hooked. At that point, I knew I was going to be a life-long consumer.

I realised my friend was right, and my curiosity got the better of me. I began researching plant derived minerals and started talking to people who knew of them and had been taking them. I also realised one other thing: Knowledge of plant derived minerals needs to be spread and shared to the public. These minerals can help not just the sick and those suffering from ailments, but also the millions of health-conscious individuals. My desire to write this book further increased when I learned from my research that like me, people generally know about the various nutrients that their body needs, but very few (even nutritionists and doctors) have any knowledge whatsoever about plant derived minerals. Even if they know the importance of minerals they rarely understand the critical import difference between metallic and plant derived sources.

Believing in the power and efficacy of these minerals, I started telling everyone about them, especially friends and family. I'm happy to report that just about all my friends and family now take them regularly with great results. I also feed them to my pets.

In the years that followed, I travelled to even more places, learning and researching about plant minerals and related topics, and meeting and talking to people who have had some experience one way or another. I listened to their success stories and about how their health had improved. They told me about their ailments and diseases that had been helped by plant minerals. It is with the extensive knowledge given to me by my friend Peter Willoughby, my years of research and my own personal experience along with the success stories people have shared with me that finally prompted me to write this book along with Peter.

This book is our contribution to the body of knowledge about plant derived minerals. And it is our hope that this will help millions of people to stay healthy and live longer happier lives.

# Chapter 1 – Our Earth and Minerals as the Source of Life

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**T**he Earth that we know now is considerably different from the Earth that it was at the beginning of time. Like most of the planets in this universe, our Earth used to be one solid mass of rocks, metals and gases. Light from the sun was faint; the terrain was like that of the moon's. It was all unimaginable heat in the day and freezing cold in the evenings. The gases in the atmosphere would have killed any life exposed to it.

But millions of years later, that old Earth was transformed into the present, liveable Earth. Land masses moved, and continents were formed. Movements of the Earth's plates created mountains, hills and volcanoes. Water and the cooling of the gases in the atmosphere made it possible for life to form.

Scientists explain that before animals and man, plants were the first signs of life on this Earth. There were plants everywhere – on land and under the seas and oceans. Untouched and safe from pollution, these plants thrived and were extremely nutritious. After all, they sprang from the soil rich in minerals from the rocks and metallic core of the old Earth.

## *The decline in the Earth's minerals*

Millions of years later, man would walk the surface of this Earth and the slow and gradual degradation of these mineral-enriched plants would begin. Natural factors like wind and rain erosion and competition from other plants, as well as man-made activities such as the use of fertiliser, commercial farming, logging, and the unstoppable construction of structures and buildings would change the natural landscape, destroy many of the Earth's flora and cause the depletion of surface minerals.

We have lost much of the Earth's top soil, and the layer of soil on which our plants now grow is severely lacking in minerals. When originally the old Earth's surface soil used to contain over 80 minerals, now we only have about 20 minerals. If we test the lower

layers, also forming the earth or volcanic ash, we will find only about 60 minerals. This significant decrease in our surface minerals has, of course, an apparent consequence on the organic molecules and subsequently, the nutrition that we get from the plants that serve as one of our major food sources. The vegetables and fruits that we grow in our farms and back gardens have lesser minerals in them, and therefore, lower nutritional content than before. This low soil fertility also impacts the nutrition that animals, our other food source, also get from the plants that they feed on.

Man-made activities such as agriculture have also impacted on the availability of minerals to us. Traditionally, our ancestors practiced low input but safe agricultural practices, but population boom and the growing demand for food, have led modern farmers to adopt new ways of farming, such as the use of chemical fertilisers and pesticides. Unfortunately, while this has resulted in increased yields, it has adversely affected the nutritional value of our foods. We now have more food available, but with a lesser nutrient content. Even food products that others purport to be “organic” are severely depleted of minerals because they came from plants deprived of the important minerals from the soil. “If it’s not in the soil, it’s not in the plants”.

The soil, which is our major source of minerals, is severely overused. Farmers may allow their lands to rest for a couple of years to allow it to rejuvenate, but it will be too short a time to restore or bring back the depleted minerals. In fact, it would require another million years for the Earth to produce the rich mineral content that our soils used to have. It does not help that man started using chemical fertilisers in the 1900s that have resulted in wide-scale mining of reserves of nitrogen, phosphorus and potassium. By using chemical fertilisers, we have also replaced the use of living compounds like manure and humus, which serve as natural food for beetles, worms, fungi, mould, algae, and other organisms that are essential for maintaining the health of our soils.

What is even more alarming is the fact that this case of mineral depletion is not unique to a particular race, group of people, country or continent. All over the world, we are losing a significant amount of our soil minerals every year. In both UK and the US, the amount of trace minerals has decreased by more than 50% at least since the start of this decade.

### *Why we need to pay attention to this decline*

But what’s the point of all this talk about the Earth’s mineral sources? The thing is, we cannot discount the role of minerals in our body related to health. How long we live is

dependent on our body's health, our lifestyle and activities. Conversely, our health is also determined by the nutrients we get from the foods that we eat. The more nutrients and minerals we consume, the healthier we can maintain and keep our bodies, and the longer we live.

So, this news of declining mineral sources we get from the plant-based foods that we consume is a cause for alarm. Over the last 60 years, research has shown that iron, one of the 'core essential minerals' that our body needs, has dropped 55% and magnesium by 22%. In fact, nearly every mineral that we get from plant and animal sources has decreased from 10 to 40% over the last five decades.

Minerals are not just part of the major nutrient groups that we need to regularly consume; they are also the building blocks of life, making up nearly 96 percent of our body – carbon (18%), hydrogen (10%), oxygen (65%) and nitrogen (3%). The remaining four percent of our body is made up of roughly 70 or so minerals in smaller amounts. Inorganic molecules that make up all forms of life on Earth are composed of minerals, and with the declining rate of minerals, humans, animals and plants will be lacking one of the vital components of life. The physical structure of animals and plants will be incomplete; humans will not be able to fully develop vital organs and tissues that are reliant on and dependent on the supply of minerals.

As the foundation of our cellular structures, minerals are essentially the key to our life. As we gain a heightened awareness and consciousness of our health, it is important that we also have a clearer understanding of the nutrients that appear or are missing from our food. Also, how the availability of these nutrients are linked to our Earth and the natural processes that impact the ability to produce these nutrients from our food sources.

### *What are minerals made of?*

To gain a better understanding of minerals and how they relate to our health and our lives, let us begin with the basics: what are minerals made of?

Most of the minerals that we know are inorganic (non-carbon) elements that come from the earth. They are homogenous metallic substances with a particular chemical composition, a crystal structure, and distinct colour and hardness. They are also known as hydrophobic or metallic minerals and contain various elements. The mineral silica, for example, is composed of silicon and oxygen, both of which are elements.

When these minerals are digested into the bloodstream, they undergo a number of biochemical processes that in turn affect and influence the body's functioning. However, it is not just us humans who depend on minerals; the functioning of more than 100 million life forms on this Earth is dependent on minerals.

### *Mineral classification*

There are about 115 minerals naturally occurring on the Earth and about 90 of these are recognised. Out of the 90, 64 are metallic solids, 6 metalloid, 4 non-metallic minerals, 5 liquid, and 10 gases.

*Metallic Solids:* aluminium, arsenic, barium, beryllium, bismuth, boron, cadmium, calcium, cerium, chromium, cobalt, copper, dysprosium, erbium, europium, gadolinium, gold, hafnium, holmium, lutetium, magnesium, manganese, mercury, molybdenum, neptunium, neodymium, nickel, niobium, osmium, palladium, platinum, plutonium, potassium, praseodymium, rhenium, rhodium, rubidium, ruthenium, samarium, scandium, silver, sodium, strontium, tantalum, technetium, terbium, thallium, thorium, tin, titanium, tungsten, uranium, vanadium, ytterbium, yttrium, zinc, and zirconium.

*Metalloid:* silicon, germanium, antimony, selenium, tellurium, and polonium.

*Non-metallic:* boron, carbon, phosphorous, and sulfur.

*Liquid:* cesium, francium, mercury, gallium, and bromine.

*Gas:* hydrogen, nitrogen, oxygen, fluorine, chlorine, helium, neon, argon, krypton, and radon.

While all these minerals were once available in abundance in the pre-historic times, this is not the case today, and possibly the reason why nutrition experts mistakenly think that only about 12 to 14 minerals are necessary for our health with only about 8 to 10 providing some form of benefit.

### *The link between minerals and our food sources*

Our travels around the globe have reaffirmed our belief that most of our world's population is mineral-deficient with people not consuming the full range of minerals they need on a daily basis. Because our food remains our main source of nutrients, and



plants derive minerals from the soil, the depletion of minerals in the Earth's surface also affects the minerals that our bodies consume. "If it's not in the soil, it's not in the plants, and it's not in you".

Plants, through their roots, draw minerals from the soil and the moisture. And while the Earth's surface was abundantly rich with minerals, this isn't the case today. Erosion and continuous cropping has caused our soil to lose more and more minerals over the years. Soil tests have revealed that it's now severely lacking in minerals, and if this is the case, then the plants can only digest so much – or so little – minerals, in turn affecting the amount of nutrients we get from our plant food sources.

We should understand that the survival and health of plants, our food sources, all depend on the health of the soil on which they grow and its ability to provide a steady supply of minerals. The minerals found in the soil, along with temperature, the amount of sunlight, humidity, and water determines the health and surviving ability of our plants.

As plants undergo their own metabolic processes, they also form substances such as sugars, starch, cellulose, acid, protein, etc. However, without the minerals from the soil, the plants would be unable to metabolise these substances. As such, a plant's growth can become very much stunted.

Even livestock is dependent on minerals. Cattle farmers would comment that several decades ago, their cattle survived from eating only the cow feed with no added supplements. Today's farmers tell us their cattle needs to be provided with additional supplements because they are malnourished, sickly or their growth is stunted – all because of the mineral deficiency in the soil that affects the nutrients available in the cow feed.

The use of artificial fertilisers has also killed most of the beneficial organisms and bacteria that make our soil healthy and are important for the development of organic complexes in our soil. Others say that fertilisers are good, but in truth, nitrogen fertilisers have caused the depletion of the soil's organic resources.

### *Minerals and our health*

As we have already mentioned, minerals and our health are closely intertwined. Minerals are the building blocks of life and are crucial nutrients that our body needs.

we like to call them “the spark plugs of life”. If we want to be healthy, then we should have our share of plant derived minerals.

Health is more than the absence of diseases; it is a holistic sense of well-being that covers both the physical and mental dimensions. In fact, having excellent health should be the goal of every one of us. A healthy body requires eating the right food and consuming the nutrients our body needs.

There is so much interest in anti-aging formulas and solutions these days. Many of those who were in the prime of their lives several years ago are now keen on remaining and looking young while living longer, healthier lives. This is why the interest in minerals is strong, because many anti-aging solutions boast of natural minerals that contain the secret to preserving youth. What they don't realise is the majority of these compounds contain cheap ineffective metallic minerals and not plant derived minerals.

Experts classify the minerals crucial to our health and well-being into two groups: major minerals, or those needed by our body at least 100 milligrams per day, and trace minerals or those we can consume for less than 100 milligrams per day. But while these two groups of minerals come from the same class, their recommended daily intake varies, as prescribed by the World Health Organization and the US Food and Nutrition Board.

There are seven types of major minerals: calcium, magnesium, potassium, phosphorus, sulphur, sodium, and chlorine. Trace minerals are varied, and each mineral is said to make up only less than one hundredth of one percent of our body weight.

Although, with more than a hundred minerals on this Earth, we have always wondered what could be their purpose for being? If only about 7 major minerals and a few dozen others are needed by the human body, what is the purpose of having more than a hundred minerals? If minerals are part of the building blocks of life, then could it be possible that the other minerals were only overlooked because they are not readily available or easily sourced from the plants and animals where we obtain our nutrition? We think, the answer to this is “Yes!”

Everyone is aware that the recommended calorie intake prescribed by nutrition experts is around 2,000 calories per day, but is it possible that these 2,000 calories can supply all the nutrients essential for humans to live a healthy life? It doesn't seem the case. We have tried challenging experts to supply us with a diet that totals 2,000 calories daily

and also supplies the entire established recommended daily intake (RDI) of essential nutrients, and no one has succeeded mainly because this cannot be done.

If minerals account for an important part of our existence, what would happen if we were significantly low in a number of minerals? Most likely, we would have less energy, feel tired and exhausted easily, suffer migraines and headaches, and generally have a bad temperament because we aren't feeling well.

Additionally, we have to understand that our body's capacity to access and absorb minerals is also dependent on our age. With old age, our bodies find it harder to absorb nutrients, and therefore we are more prone to diseases as our immune system slows down and weakens. It is more important during this time that we have increased minerals and vitamins in our body, especially ones that are easily absorbed.

It is our lack of awareness of the importance and value of minerals to our health and well-being that allows people to be resigned to a short life span. We find it incredulous that people expect to live until 70 or 80 years of age when they could, in fact, live longer if only they consumed the essential vitamins and minerals their bodies need.

But as mentioned, the availability of minerals that we need for our bodies to stay healthy is invariably linked to our food sources, plants that derive minerals from the soil. This in turn is dependent on the status of our soil, which is affected by both natural and man-made activities. The more overused our soil is, the lesser mineral content it possesses, and the lower mineral supply there would be available to plants and animals, and consequently to us.

If minerals are not available in our soil, then the nutritional value of our food sources is also diminished. This is the reason why many in this world are unhealthy today, and why there are more and more people getting sick every year, a phenomenon that is likely to continue as the minerals in our soils continue to diminish.

# Chapter 2 – The Soil and Carbon

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**T**he soil is where we anchor our discussion on minerals, and so it is here that we start. Soil is inanimate and passive and yet at the planetary scale, it is one of the most active organs of the Earth, nurturing human life and other organisms.

## *Soil and Carbon Dioxide*

Organisms live on and within the soil, from worms and beetles to fungi, bacteria and microbes to plants and animals. These organisms produce carbon dioxide as they breathe, and this gas becomes part of the soil's breath, entering the atmosphere to multiply ten times more than the amount of carbon dioxide produced by humans. It is simply astounding how such organisms can produce this amount of carbon dioxide!

The soil's supply of carbon is found on the top three feet, and about one-third of the carbon from the soil is from decomposing litter composed of fallen tree leaves, twigs, stems, seeds, etc. If our soils have the sufficient amount of minerals, the microorganisms on the soil will burn the carbon and release it. This adds to the carbon supply of the soil, which plants use during photosynthesis.

Photosynthesis is the process where cells in plants containing chlorophyll convert light from the sun to energy and synthesise organic compounds from other inorganic compounds such as carbohydrates from carbon dioxide and water. As carbohydrates are produced, oxygen is also released into the atmosphere. This process in plants converts toxic heavy metals (metallic minerals) into non-toxic substances (plant derived minerals) by attaching a hydrogen molecule to the mineral in a process called hydrogenation. **It is important to understand this process** as it shows you the difference between 'metallic' and 'plant' derived minerals.

Nature wants the plants to eat the metallic minerals in the soil, then you to eat the plants, it's that simple. You are not supposed to eat dirt, rocks and clay. Which is exactly what you are doing if you consume cheap supplements.

The roots of plants also produce carbon gases, whereas leaves use carbon dioxide during photosynthesis. Roots, like animals, emit carbon dioxide during respiration.

Carbon is also what gives the soil its colour. The carbon in humus, produced from decaying matter, makes the soil look dark, crumbly and spongy. It is known that the darker and spongier the soil, the richer it is in carbon, and therefore, the healthier is the soil in terms of growing plants.

This amazing interplay between the soil, the organisms and microbes that live on it, and the plants shows how one component thrives and benefits on what the other has to give. The microorganisms that nourish the soil and keep it healthy rely on the carbon supply of the soil to thrive. They die if the soil is unhealthy and there are not enough minerals, such as carbon.

### *The changing carbon in the soil*

Long before factories were created and before forests and tracts of land were cleared and transformed into farmlands, and later, into industrial areas, the global carbon cycle was balanced. The carbon dioxide (CO<sub>2</sub>) that flowed from the ocean to the atmosphere was the same as the one that flowed from the atmosphere to the ocean. The carbon dioxide used by plants during the process of photosynthesis was replaced by the carbon dioxide emitted by organisms and other micro-organisms when they expire.

Now times have changed and the rate of carbon dioxide in the atmosphere has become greater than the rate of carbon dioxide absorbed by our seas and oceans. The rate of greenhouse gases in our atmosphere has caused an imbalance in the regular circulation of carbon atoms in our Earth. It is unclear whether the carbon cycle can absorb the extra carbon dioxide, or where it will go.

There appears to be good arguments on both sides regarding global warming. On one side the earth is getting warmer because of human activity, on the other side it is merely due to natural warming and cooling cycles over thousands of years. Whatever the case, clearly, this needs to be monitored.

What I'd like to point out in this chapter is that a soil that is rich in organic matter will likely contain more soil carbon. But like two individuals where one remains fat and the other skinny no matter how much food is eaten, the soil's health is also affected by the rate of metabolism. If our soil is lacking in minerals, the result is unhealthy soil.

# Chapter 3 – Mineral Depletion in Our Food: A Research Report

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**T**his close link between our soil, minerals and our health is often ignored by experts: nutritionists, doctors, and even national leaders. Yet, studies have been conducted just to prove that indeed, the reduction in the minerals we consume or get from our foods can be easily traced to mineral depletion in our soils.

One such study was by two English experts, R.A. McCane and E.M. Widdowson. Their study traced the mineral depletion in foods in the United Kingdom from 1940 to 1991. The interest in this research topic began in 1926 when Dr. McCane analysed raw and cooked food (fruits and vegetables) to determine their total available carbohydrates. He analysed about 100 grams of vegetables, fruits, cereals, meals, seafood, as well as beverages, beers, sugar, preserves, sweets, meats, condiments and dairy products, in terms of their organic and mineral content.

Since the study aimed to determine the amounts of calcium, magnesium, potassium, phosphorus, iron, copper and sodium in the foods examined, it was found that only certain vegetables, fruits, and meat contained significant amounts of these minerals over the 51-year period. Generally, there was a substantial reduction in the amount of minerals contained in the foods examined, suggesting a significant mineral loss in the foods we consume.

The results of the analysis were published in 1940 in the Medical Research Council's Special Report No. 25 titled "The Chemical Composition of Foods." Dr. McCane's research served as the first in a number of efforts to identify and set standards for comparing and contrasting individual dietary intakes. The research was eventually updated in 1946 and 1960.

Succeeding editions of McCane's work would later be published. The 4<sup>th</sup> and 5<sup>th</sup> editions of his research were published in 1978 and 1991, respectively and were titled "The

Composition of Foods.” These were published with aid from the Ministry of Agriculture Fisheries and Food, and the Royal Society of Chemistry.

Despite the general trend that the study revealed, certain points of differences were also identified. For one, it should be noted that the 1940 results contained data from 1929, 1933 and 1936, while the latest edition released in 1991 contained data from 1987.

### Food Analysis

For one, the first edition looked at a number of variables including mineral content, the water content, protein, total nitrogen, and acid base balance, but it is only the first (mineral content) that was of high interest. The minerals that were considered were sodium, potassium, magnesium, calcium, phosphorous, iron, copper, nitrogen and chlorine. The analysis also involved recording pertinent information such as description of the food, its source, preparation and condition to facilitate better comparison of the food items.

The later editions of the research report already included other additional information like dietary fibre, energy values and the vitamin content of the food. It also sought to present a more comprehensive data as far as amino acid composition of the foods is concerned. Other minerals for analysis were included, such as zinc in the 1978 edition, and selenium, iodine and manganese in the later 1991 edition.

### Presentation of Information

While the same foods analysed in the 1940 edition were still analysed in the later editions, there were also some that were omitted or were added. For example, the later edition did not include the analysis of foods like artichokes, butter beans, celeriac, and endive, and instead added pepper, yam, plantain, okra, garlic and fennel. In fact, only a total of 27 vegetables from the original 28 raw vegetables and 44 cooked ones were included in the later edition of the report.

The change in ratios between minerals was also included in the analysis in the latest edition, such as that of calcium and phosphorous, sodium and potassium, magnesium and calcium, and iron and copper.

There were also noted changes in the cooking time of certain vegetables between data in the 1940 and in 1991. For example, 1991 data showed that broccoli is cooked for 15 minutes, while it was 45 minutes in the 1940 report.

Additionally, the 3<sup>rd</sup> and 4<sup>th</sup> editions also included the analysis of other “new” vegetables.

As far as other food products are concerned, the various editions also recorded the changes in the individual mineral content of 17 fruits selected and analysed from 1940 to 1991. In terms of meat products, only 10 items were found to be readily comparable, something that was attributed to the significant changes in the methods of butchering since the 1930s.

### Discussion of Results

Vegetables provide the best indicator when it comes to mineral depletion because in most cases the entire plant is harvested. Naturally, if the soil were depleted of minerals, the plant structure would show the lack of these minerals, easily evident in their health. It is for this reason that traditional farmers allow the soil to fallow or they move on to other tracts of land to allow for the nutrients and the minerals to naturally replenish. It is also the reason why modern farmers use fertilisers particularly nitrogen, phosphorous and potassium (NPK) to promote plant growth. In fact, NPK fertilisers have been added in the agricultural soils of the UK since the 1920s. Other fertilisers also commonly added are calcium and iron.

Furthermore, the base figures presented below should not be considered as a true representation of the mineral content of a particular vegetable. The author has stressed, for example, in the vegetable section of the 5<sup>th</sup> Edition, that any differences as a result of the method of cultivation of the crops are “small and inconsistent.” Likewise, the authors themselves have acknowledged that the nutritional value of the traditional foods has changed over the years, as a result of the new sources of supply of raw materials and new farming practices.

Despite these, a glaring fact remains: Mineral content in our vegetables has been severely reduced for more than five decades, from the 1940s to the 1990s. We suspect today’s analysis results would be even worse.

- **Sodium** - 49 Percent Loss
- **Potassium** – 16 Percent Loss
- **Magnesium** – 24 Percent Loss
- **Calcium** - 46 Percent Loss
- **Iron** - 27 Percent Loss
- **Copper** - 76 Percent Loss



The only exception in all these is phosphorous, which had shown an increase of 9% possibly due to the growing frequency in the use of fertilisers.

Furthermore, the data revealed the following individual mineral losses in the vegetables:

- **Sodium:** runner beans 6.5 to trace (almost 100 percent loss)
- **Potassium:** boiled spinach 490 to 230 (53% loss); potatoes 568 to 360 (36% loss)
- **Phosphorous:** boiled spinach 93 to 28 (70% loss); potatoes 0.15 to 0.8 (47% loss)
- **Magnesium:** carrots 12 to 3 (75% loss)
- **Calcium:** boiled broccoli 160 to 40 (75% loss); spring onion 125 to 35 (74% loss)
- **Iron:** boiled spinach 4 to 1.6 (60% loss); swede 0.35 to 0.1 (71% loss)
- **Copper:** boiled spinach 0.26 to 0.01 (96% loss); watercress 0.14 to 0.01 (93% loss)

The research also showed extremely significant changes in two of the UK's most frequently used vegetables, the old potatoes and the old carrots. The study found that over the 51-year period, the carrots exhibited significant losses in mineral content; 75% for magnesium, 48% for calcium, 46% for iron, and 75% for copper. The potatoes, on the other hand, lost 30% magnesium, 35% calcium, 45% iron, and 47% copper. Copper in tomatoes also significantly decreased, and it was found that **you would need to eat 10 times more tomatoes** in 1991 to get the same copper content in tomatoes back in the 1940s.

There was also substantial change in the ratio of between minerals from 1940 to 1991 as follows:

- Calcium to Phosphorous: 21:1
- Sodium to Potassium: 101:17
- Magnesium to Calcium: 48.1: 3.4
- Iron to Copper: 101: 30

In the 13-year period from 1978 to 1991, there was also substantial loss in the mineral content of vegetables as follows:

- **Sodium** –39 Percent Loss
- **Potassium** –16 Percent Loss
- **Phosphorous** –14 Percent Loss
- **Magnesium** –33 Percent Loss
- **Calcium** – 40 Percent Loss

- **Iron** – 6 Percent Increase
- **Copper** –72 Percent Loss
- **Zinc** – 59 Percent Loss

Seventeen fruits were also analysed from the period of 1940 and 1990 and results also showed the same significant loss of minerals.

- **Sodium** - 29 Percent Loss
- **Potassium** - 19 Percent Loss
- **Phosphorous** - 2 Percent Loss
- **Magnesium** - 16 Percent Loss
- **Calcium** – 16 Percent Loss
- **Iron** – 24 Percent Loss
- **Copper** – 20 Percent Loss
- **Zinc** – 27 Percent Loss

The difference in the rate of mineral loss between vegetables and fruits is because, unlike vegetables where the whole plant is taken, most fruits are harvested only from certain parts of the plant, commonly at the top. And yet, between and among the same and different kinds of fruits, the loss of mineral is substantial. For example, you would need to eat three more apples in 1991 to get the same iron you would otherwise have gotten from apples in 1940. The only fruits that retained the same values were blackcurrants, olives, and tangerines.

**As for meats,** 10 meat products were compared, including pork loin (grilled), rabbit, veal, filet, venison (roasted), tripe (dressed), sheep's tongue, ox tongue, grouse, goose, partridge, pheasant, and pigeon. Again, as with the other food items analysed, reduction of mineral content in the food products were also found.

- **Sodium** - 30 Percent Loss
- **Potassium** – 16 Percent Loss
- **Phosphorous** - 28 Percent Loss
- **Magnesium** – 10 Percent Loss
- **Calcium** – 41 Percent Loss
- **Iron** – 54 Percent Loss
- **Copper** – 24 Percent Loss

The mineral loss in the meat products could only be due to the fact that they fed on food sources that also contained significantly reduced amounts of minerals. There were no

results for copper in meat and meat products in 1940 as no data for this variable was available.

This study conducted by McCane and Widdowson is only the first in a number of other studies that were to be conducted in the later years with an attempt to determine the nutritional, not just mineral, content of our foods. We can see that as far back as the 1940s, soil mineral depletion has already been in existence. The results of their study also underscore the reality that not only is soil mineral depletion a reality, but that it is also happening at an alarming rate. In only just a matter of 50 years, we have lost substantial mineral content in our foods.

Just imagine now if this phenomenon will continue, what will happen to the health of our world's population?

# Chapter 4 – Minerals and Body Functions

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**D**r. McCane's reports in 1940 and 1990 clearly prove that mineral depletion has been occurring substantially over recent years, and if we were to conduct a similar test today, we would probably get similar results revealing even further mineral depletion. Obviously, this depletion will be reflected in the mineral content found in our bodies.

This is a serious issue for a world that is faced with the heavy challenge of feeding a growing population. But more importantly, governments and officials should accept that mineral depletion is real, and the nutrients that we get from the foods we eat grow less and less each year, especially in terms of the mineral content. And the fewer minerals we consume, the more vulnerable we are to sickness and disease, which in turn can have important repercussions on our health care industry.

If mineral depletion is real and is happening, what then can we do? Where can we source the additional minerals that our bodies need? One workable and realistic solution is mineral supplementation. This means taking dietary food supplements that contain the wide range of minerals and trace elements that our bodies need that we cannot get from our daily diet.

## *Mineral Supplementation*

Mineral supplementation is not new nor is it revolutionary. In fact, mineral supplementation is such a popular course of action in addressing the gaps in our mineral content that local pharmacies in countries worldwide even produce their own brands of mineral supplements. There are literally thousands of mineral supplement labels and brands available. Geritol, for example, was one of the first mineral supplements to gain the attention of the public because it was touted as one of the best sources of iron for "tired blood."

A quick examination of the minerals contained in commercial mineral supplements found in shops would show that there are at best about 14 minerals contained in these tablets and capsules. The most popular and highly advertised mineral supplements contained only 14 minerals, and these are mostly metallic minerals or heavy metals.

Metallic minerals can be toxic at high dosage and the body struggles to absorb them effectively.

### The structure of mineral supplements

The molecular structure of metallic minerals, also known as hydrophobic metals, is such that they repel water. Metallic minerals are, therefore, not water-soluble. Others are positively charged, and some neutral and therefore have no electrical charge.

Minerals from plants (water-soluble) are known as hydrophilic minerals. They are also sometimes called 'Plant Derived Minerals', because they have an affinity for water, they generally have a negative charge and their polar sides allow them to attract and bond with water. Of the two types of minerals, the hydrophilic minerals are known to be the most beneficial to all living things.

### **Metallic Minerals / Plant Minerals – What's the Difference?**

<b>Criteria</b>	<b>Metallic Minerals</b>	<b>Plant Minerals</b>
<i>Source</i>	Derived from ancient sea beds, ground up rock and soil	From plants grown in the soil
<i>Electrical charge</i>	Neutral or positive charge	Negative charge (they are water-soluble)
<i>Nutritional value</i>	Dead Minerals. Doesn't provide nutrition until assimilated, as not enzymatically alive. Digestion cycle is typically 15 – 21 hours	Provides instant nutrition as they are pre-digested by plants. Plant minerals are enzymatically active like minerals from raw fruit and vegetables
<i>Assimilation rate</i>	About 5-8% are assimilated	Nearly 100% are assimilated
<i>Size</i>	Typically 200 – 10,000 times larger than most plant derived minerals, so logically harder for cells to absorb.	The average plant mineral is 1/10,000 <sup>th</sup> the size of a red blood cell. This small size makes it easy for the body to absorb.

Metallic minerals are not so easily assimilated or absorbed into our bodies because they are metals, and doctors and experts believe that only about 5 – 8% is absorbed by the human body. This is because the hydrochloric acid in the human stomach cannot completely dissolve metals in the 15-hour digestive cycle. Any excess is released as part of the body waste. Plant derived minerals on the other hand; especially those that have not been altered by man-made chemicals are active living minerals and provide the most benefit. They give the balance that our bodies need and aid in our body's metabolism.

### Vitamins vs Minerals

But what about vitamins? Vitamins, like other nutrients such as carbohydrates, proteins and lipids, are parts of an element called carbon. Between minerals and vitamins though, vitamins are more popular and common to us. When we were children, our parents would remind us to eat fruits and vegetables to get our daily fix of vitamins. Yet, not everyone reminds us to eat our food in order to get our supply of minerals. This disparity in the public's popularity and knowledge of vitamins and minerals may stem from the fact that people are more aware of the health benefits of vitamins than minerals.

What is now known though is that our bodies can actually do more or tolerate a higher deficiency of vitamins than it can a deficiency of minerals. As the building blocks of life, a simple mineral deficiency can mean serious complications in our bodies.

Vitamins are organic molecules that serve as co-factors or co-enzymes, and as such, have catalytic functions. It can be broken down into basic elements: carbon, oxygen and hydrogen. Vitamins are generally classified into two groups: water-soluble and fat-soluble. Compared to minerals, our bodies need only relatively small quantities of vitamins in order to maintain normal growth, metabolism and well-being.

A popular vitamin deficiency is lack of Vitamin D which is usually common during winter months. Non-Caucasian people are most prone to this since their skin colour blocks most of the sun's UVB rays, and as such, their common sources of Vitamin D are dairy products. These people are often also lactose intolerant and drink very little milk. Among the other consequences of a vitamin D-deficient diet are constipation, rickets, poor teeth, convulsions and curvature of the spine.

Vitamin A deficiency, on the other hand, can cause dry skin, kidney and gall stones, and digestive problems. Deficiency in Vitamin B can result in chronic tiredness, loss of

vitality, and poor appetite, while deficiency in Vitamin C can result in shortness of breath, headaches, joint problems, and a lower resistance to infection (weaker immune system).

While the body needs more minerals than vitamins, both do complement and work harmoniously in maintaining the body's health and well-being. Minerals create a healthy environment where the rest of the nutrients, including vitamins, can function and perform their work. This healthy environment allows for the body to "heal itself".

### *The Mineral Spectrum*

So, if the body needs both vitamins and minerals, plant derived minerals in particular, what is the ideal mineral content that normalises the body's pH and therefore promotes good health? Experts suggest that a "complete spectrum of minerals" would mean at least 60 minerals – or more. But given the apparent mineral depletion in our soils, this would also mean including the rare earth minerals.

Rare minerals are just as necessary as the other minerals because they are known to stabilise acid levels in our bodies. Bacteria and viruses are known to thrive in environments with a high pH level, and rare minerals lower the pH level in our digestive systems, thus preventing bacterial and viral infections. The proper inclusion of minerals in the body also aid in the effective functioning of our intracellular fluids, and working with vitamins, enable the cells to better take in nutrients and release toxins as part of metabolism. With the complete spectrum of 60+ minerals, we can promote proper cell functioning, fluid balance, and better coordination and functioning of our muscles and nerves.

There are some companies that can provide very high-quality plant mineral products containing as many as 75 plant derived minerals. If buying from such a company, make sure they are plant minerals not metallic minerals or derived from sea salts etc.

### *Minerals and Toxicity*

The world is not only depleted of minerals, but to further aggravate matters, we also live in a highly polluted, highly toxic world. Alongside modernisation and development, we are also faced with a slew of problems: pollution, destruction of the earth's environment, depletion of our natural resources, and mutation of living organisms.

In America, approximately two billion pounds of toxic chemicals are emitted into the atmosphere every year, and about 1.5 billion pounds of pesticides and fertilisers are sprayed on to food crops. Just imagine how many toxins our bodies are absorbing! For example, the drinking water in the US has been found to contain more than 2,000 toxic chemicals that can cause cancer and diseases of the nervous system. More and more chemicals are seeping into our food every year: More than 100,000 chemicals are in use in all industries, and over 1,000 new chemicals are approximately added every year.

The human body itself contains its fair share of toxins, but couple this with the toxins from our external environment and we are dealing with a serious case of toxicity. While our body has been fashioned to tolerate minimal levels of toxicity, it cannot support severe exposure to toxins over a long period of time.

The body's capacity to tolerate and manage the toxins inside our body is a major reason why we need minerals. Minerals help in detoxifying the body. Detoxification happens when the body eliminates anything that is known to be toxic. While detoxification happens naturally, the presence of minerals can further aid detoxification and its absence, on the other hand, can render the process of detoxification incomplete.

So, the more minerals we consume, the more our body can detoxify and eliminate the toxins in our body. For example, a range of conditions may characterise normal detoxification: mild bowel or kidney movement, skin rashes, aches or pains. If our body contains the whole spectrum of minerals, these conditions as a result of detoxification would be more manageable. This capacity of the body to detoxify is also closely linked to our body's immune system. We are stronger and have more resistance against diseases when our body is able to effectively flush out anything that is not compatible with its regular functioning.

On top of this, our toxic lifestyle is further aggravated by other non-diet related toxic factors, such as stress in our work, problems in our relationships with others, etc. These emotional toxins can have actual physical effects on the body, such as headaches, insomnia or ulcers. These toxins must also be properly handled and flushed with minerals. When we have the right minerals that aid in the proper functioning of our brain, we are more alert, more ready and more positive in our outlook towards these emotional stresses.



## *Minerals and Enzymes*

There is also a lot of interest in enzymes and antioxidants as “miracle cures” for the body. Enzymes are important as they aid in the metabolic functioning of our body, but like vitamins, they need minerals to do their job properly.

Our pancreas, the organ that also produces insulin to control sugar metabolism, produces the body’s supply of enzymes. If our system lacks enzymes or the minerals that can aid in their production, the pancreas will be working double time to produce the enzymes needed by the food for facilitating digestion. An overworked pancreas, however, can mean serious health conditions, including high blood sugar problems, inflammation, higher toxicity, and digestion problems.

So, like vitamins, enzymes are partners of minerals in ensuring the better functioning of our internal system. Minerals perform best when they work with vitamins and enzymes. For example, vitamin C and iron can improve the absorptive capacities of the body. Calcium absorption is at its best when there is adequate supply of vitamin D in the body as well as magnesium.

Minerals also act as co-enzymes, working as catalysts or triggers in chemical reactions with vitamins. Iodine for example, better facilitates the production of thyroid hormones. Iron is responsible for aiding the production of red blood cells.

## *Mineral Intake*

Now, you may be asking, if mineral depletion is a pressing problem and mineral deficiency an equally important issue, which minerals should you be taking then? What minerals would you need to use? If you will need to take additional minerals, what would they be?

These are questions that are difficult to answer because after all, where do you find the minerals when the soil’s mineral supply is low or nearly depleted?

Another interesting question worth asking is, how did soil mineral depletion start? When exactly did we start gradually using up the minerals in our soils?

When the first settlers came to America in the early 1800s, many of them hardly stayed long in one place. They would move around every couple of years or so. A family, for example, would settle in one quiet town in the Midwest and keep a farm with a few

domesticated animals. After a few years, when the land would stop being productive and the harvest would not be the same as it was in previous years, the family would pack their stuff and their farm animals and move to another land that was richer and where they could start another farm. After a couple of years when the soil would stop giving the same rich, productive harvest, the family would move again. This is the pattern of the early American settlers.

So, what's the problem with this? The problem is that all this moving around and farming one tract of land after another contributed to the now global issue of mineral depletion of our soils. The land may be rich at the start, but growing plants and farming takes up a lot of minerals from the soil, and continuous planting and lack of fertilisation can easily deplete the soil of its minerals.

Eventually, the families would realise that the solution to their problem of moving around every time the soil becomes barren is to settle in an area close to a river. They found that in the bottomland, the land is replenished every time the river floods and overflows. New topsoil, together with silt and its additional materials, is brought forth. This is different from living in the prairie with no river or bottomland, and no new topsoil that will allow them to continue farming for the long term. By settling in the bottomland, a family can stay in the area for longer than a couple of years, farm, and not worry about their family starving because the land will continue to give them a good harvest.

This is the reason why ancient civilisations such as those in Egypt and Eastern Asia thrived and grew near the river because, aside from it being a channel for transport and trade, it also replenishes the soil near it when it overflows and floods during the wet, rainy seasons.

The only difference this story makes in our modern times is that land has become a prime commodity and with the growing population and commerce competing heavily for the use of land, there is no way for families to move around and start a new farm. Besides, the land we have now is already severely depleted of minerals to start with. One would think that when commercial fertilisers were introduced in 1908, mineral depletion would be reduced, but that's not what happened. Many of the commercial fertilisers we have on the market use only nitrogen, phosphorous, and potassium (NPK), and while these can help grow crops, these are not enough to replenish the vital minerals that are decreasing every year.

In fact, most fertilisers usually contain no more than 4 to 6 minerals. This is because it is difficult to obtain more than 6 minerals in the first place, plus of course it makes fertiliser production cheaper with higher profits. From the McCane's report, we learned that it would take about 12 or 13 minerals in the soil to grow juicy tomatoes. But even then, it is difficult to find tasty tomatoes. This is because the tomatoes lack minerals. When there are not enough minerals in a fruit or vegetable, the Brix factor, which refers to the sugar content, is also lowered.

This lack of sugar is the same reason why we need to eat more carrots or tomatoes these days to get the same amount of minerals that we would otherwise have gotten from them a few decades ago. All this, of course, is because of soil mineral depletion. Our plants now contain only roughly 16 to 20 minerals, on average, compared to hundreds years ago.

Furthermore, plants' capacity to produce other nutrients like vitamins and amino acids depend on the minerals they get from the soil. So, if the soil is depleted of important minerals, a plant is also unable to produce the other nutrients, therefore resulting in a stunted, unhealthy plant.

Part of the reason why our plants are unhealthy is because of our pesticides and insecticides, which, of course, links back to the lack of minerals on our soil. Insects and pests attack our plants because they are unhealthy, and they are unhealthy because they cannot get the important minerals from the soil. Scientists believe that if plants get the necessary minerals from the soil, they will not be rendered vulnerable and susceptible to insects and pests because they have fully functioning natural defences against them, and don't need pesticides and insecticides.

Animals, on the other hand, require more minerals. A research from The National Science Foundation showed that animals need at least 45 minerals, on top of 12 amino acids, 16 vitamins and 3 fatty acids, for them to be healthy. These days, however, animals only consume about 18 minerals, and this decrease in the mineral content also affects their capacity to absorb other nutrients like amino acids and fatty acids.

The human body needs even more minerals. Dr. Gary Price Todd suggested that at least 60 minerals are needed for the human body to stay optimally healthy. But with only 18 minerals available in most of our food sources, how and where do we get the remaining minerals we need?

Mineral depletion may not receive the same attention that other agricultural problems receive, but it is a serious issue that deserves due attention. We should learn from the lessons of the rainforests in Brazil. For the most part, the rich rainforests in Brazil remained untouched by man, and there flourished a diverse flora and fauna. The plants are deep-rooted, and they are able to draw minerals from as deep as 10 meters below the surface of the soil, allowing the leaves and branches of the trees and other plants to remain nourished. The wastes from animals were also rich in minerals, nourishing the soil and in turn, making the plants very healthy.

But for the past couple of decades, man has infiltrated these rainforests. Trees were cut down and agricultural farms had replaced large areas of the forestland and modern farming practices had gradually led to the depletion of the soil's rich mineral content.

# Chapter 5 – Getting to Know the Minerals and Their Role on Health

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**T**he campaign for a healthier lifestyle is getting stronger every year as more and more people are seeking ways to have healthier lives. People are looking both for nutritious *and* safe food produced with less fertilisers and chemicals as possible. Even with mineral supplements in the market, people are looking for those that contain organic ingredients rather than chemical ones. While many still seek medical advice and rely on physicians and doctors for treating most health conditions, many people are trying to look for ways to treat ailments and diseases with fewer drugs as possible. It cannot be discounted therefore the importance of mineral-rich foods in people's diets.

A well-balanced meal that provides the necessary nutrients that our bodies need plays a big part in our physical and mental health. Correct nutrition not only nourishes the body and allows us to perform tasks and go about our daily activities, but it also influences our mind-sets and perspectives over these tasks and activities. When we are properly nourished, we are more energetic and active and more positive in our outlook in life. Also, minerals, as they work with other nutrients, strengthen our immune system, making us stronger and more able to combat diseases and viruses.

Here are more examples on how minerals work to maintain our body's well-being and health:

## Aluminium

Aluminium (Al) is the third most abundant element in the earth's crust, after oxygen and silicon. It is very common in plants and is found in most food we eat. Make no mistake, plant digested aluminium (a plant mineral) is good for health. Do not be confused (as many doctors are) with metallic aluminium which can be toxic.

There have been many studies connecting disease with metallic aluminium, even a possible connection with Alzheimer's disease. For that very reason, many people have

avoided aluminium cookware and products with METALLIC aluminium. However, they eat lettuce, potatoes, wheat, and tomatoes etc. that contain plant-derived aluminium on a daily basis.

The trace element, aluminium sulphate (plant derived), is known to aid digestion and promotes better absorption of other nutrients by the digestive system. Aluminium also aids in the proper functioning of our pancreas and helps brain function.

### Arsenic

Arsenic can be sourced from food products like bread, cereals, fruits, starchy vegetables, and fish and dairy products. It activates enzyme production and improves DNA synthesis in non-sensitised human lymphocytes. Again, don't confuse plant arsenic with metallic.

### Boron

Boron can be sourced from oxygen that contains borates. It is important for the development of the bones and joints, and promotes the absorption of calcium, magnesium and phosphorous. Boron also aids in the conversion of vitamin D to its active form, thereby promoting better absorption of calcium into the bones. Boron deficiency can lead to osteoporosis, reduced mental alertness and kidney stones.

The latter is a growing health issue as the number of people found to have kidney stones is on the rise. The condition is caused by an excess of salt in the body that eventually crystallises in the kidney because of dehydration.

### Calcium

Calcium, another mineral that aids in bone development, is found in most plants, and tissues and bones of animals, particularly mammals. It is the 5<sup>th</sup> most abundant mineral in the Earth and also the most abundant in the human body, with nearly 99% found in the bones and teeth, and a small 1% in the blood, lymph and cell membranes.

Calcium works to make bones stronger and more rigid, and in order to do so, this mineral should be in water-soluble form when it reaches the small intestine to make absorption easier. Therefore, calcium works with other minerals and enzymes so that it can be properly broken down into its usable form. Calcium deficiency, like boron, can lead to osteoporosis and other diseases involving the bones.

High amounts of calcium are most needed by infants and young children as it is during the childhood years when the bones are developing. Dr. Steven Abrams of the Children's Nutritional Research Centre in Texas advised that young children should get extra amounts of calcium between 5 to 10 years of age, as this is the bone forming stage, lasting right up to before puberty (about 15 years old when bone forming activity stops).

Our supply of calcium as well as our body's capacity to absorb it is directly proportional to our age, and so the higher our bone mass in our early years, the lesser the chances of us getting osteoporosis later in life. As we age, we also become less active and this also hastens bone loss, so it is important that we pack up on calcium while we're young in order to have higher bone density.

Among older individuals, mature women especially, osteoporosis and bone density are also closely linked with pregnancy and menopause. Menopausal women, for example, registered a higher gap in the intake of supplements because of decreased oestrogen in the body. This weakened capacity to absorb minerals leads to bone density loss, and therefore increasing the chances of osteoporosis. In fact, it was found that post-menopausal women could lose about 1% of their bones every year unless they maintain a strict regimen of mineral supplements, especially calcium.

But how bad can osteoporosis really be? Osteoporosis is more than the weakening of bones in the body. The weakened bones occur mainly because the rate at which the old bone deteriorates is faster than the rate at which new bones are developed. And this is why osteoporosis is often known to lead to the breaking of bones and fractures, which, in turn, can render people bed-ridden and more vulnerable to viruses and infections due to lack of activity.

Weakened bones also limit people from engaging in more physical activities, and the lack of exercise and physical movement can make other parts of the body stagnate. Arteries can become clogged with fat because of lack of exercise, and can lead to heart disease.

Osteoporosis is most common in men, although it develops later among men than women. Regardless, with aging, we are unable to produce new bones faster because of the lack of oestrogen and testosterone, and therefore are more prone to osteoporosis. This is why it is advised to consume as much plant-derived calcium as we can in order to develop a higher bone density to stave off osteoporosis later in life.

In addition to osteoporosis, other conditions that can be linked to calcium deficiency include slow blood clotting, poor blood circulation, muscle twitching, brittle fingernails, growth retardation, rickets, migraines and headaches, lack of sex drive, haemorrhages, cysts and sores.

### Iron

Iron is an important component of haemoglobin, a substance that facilitates the flow of oxygen into our cells. As such, iron works with enzymes in aiding the processes of cell division, DNA growth, protein metabolism, thyroid hormone production, and in other processes important for a stronger immune system. It is stored in the bone marrow and liver.

A common condition that is the result of a lack of iron in the body is anaemia, a blood disease. Other conditions that can be traced to iron deficiency are hair loss, eye inflammation, itching, fatigue, poor memory, heart palpitations, dull hearing during menstruation, asthma, swollen ankles, pains in the shoulder joints, cold hands and feet.

### Copper

Copper is a mineral that works closely with iron and is most important in food digestion. It works with enzymes in promoting cellular production and in the formation of connective tissues and collagen in the body. It has also been known to be an anti-cancer agent. Iron also assists hair and skin growth.

A deficiency in copper may lead to nerve problems, heart disease, hair loss, vulnerability to colds, pernicious anaemia, skin and respiratory problems.

### Cobalt

Cobalt is an important component of vitamin B12, and can be found in our muscles, bones, liver and kidneys. Cobalt is important for DNA production and synthesis, red blood cell production, formation of myelin sheath and the maintenance of our nerves.

A deficiency in cobalt, like iron, can lead to pernicious anaemia, nerve problems, nausea, bleeding gums, and dementia.



### Fluoride

Most people know industrial fluoride (fluorosilicic acid) as an important ingredient for dental health and disinfecting water. It is fluorosilicic that is added to water supplies. However, according to the World Health Organization (WHO), there is no discernible difference in tooth decay between countries that fluoridate their water and those that do not.

There have been over 34 human studies and 100 animal studies linking fluoride to brain damage. Fluoride studies have shown that toxicity can lead to a number of health problems including; Muscle Disorders, Thyroid Disease, Arthritis, Dementia, Genetic Damage, Disrupted Immune System and Increased Infertility.

However, naturally occurring plant-derived fluoride works with calcium in keeping the bones and teeth strong. Safe and natural fluoride can be derived from meat, fish, cereals and fruits. The lack of fluoride in the body can cause tooth decay, dermatitis, and other bone abnormalities.

### Germanium

Germanium is important in the oxygenation of cells and tissues. It promotes an improved immune system, facilitates detoxification, and promotes wound healing. It is also known to prevent rheumatoid arthritis and can lessen the chances of developing food allergies.

### Magnesium

As one of the major minerals, magnesium is found in our tissues, bones and muscles. It works to activate about 300 enzymatic reactions, and aids in other body functions and processes including protein synthesis, DNA production and the flushing out of ammonia from the body.

Deficiency in magnesium leads to increased irritability, weakness, overall tiredness, convulsions, nerve problems, uncontrolled muscle movements like muscle cramps, tremors, involuntary eye movements, irregular heartbeat and palpitations, hypoglycaemia, hair loss, and swollen gums, among others.

In fact, there are more than a dozen body conditions and ailments associated with the lack of or inadequate supply of magnesium in the body. These would include, in

addition to those mentioned, heart attack, atherosclerosis, cell degeneration, necrosis, angina, ischemic heart disease, calcification, cardiac dysrhythmias, mitral valve prolapse, hypertension, diabetes, osteoporosis, migraine, headaches, pre-menstrual cramps, kidney stones, asthma, energy deficiency, toxemia in pregnancy, candida infection, allergies, chronic fatigue and anxiety. It can also worsen HIV infection.

### Molybdenum

This mineral is found in our liver, kidneys, bone and skin. As a transition mineral, it forms oxides and is an important ingredient of enzymes and the substances, xanthine oxidase and aldehyde oxidase that produce uric acid. It aids in the metabolism of carbohydrates and iron utilization. It is also known to help flush out alcohol in the body.

A deficiency in molybdenum can cause headaches, anaemia, nausea, vomiting, and increased likelihood of oesophageal and stomach cancers.

### Nickel

This mineral is originally considered as toxic, but if derived from plants, it is safe and beneficial. Among its role in maintaining health includes aiding in DNA manufacture and synthesis, development of protein, metabolism of glucose, and functioning of hormones.

Nickel deficiency can lead to decreased growth, dermatitis, and liver and reproductive system conditions.

### Silicon

Silicon is found in the bone, blood vessels, cartilage, skin, and hair. Along with calcium, it works in the development and growth of bone crystals, formation of cartilages and connective tissues, and maintains the elasticity of the arterial walls.

Lack of silicon supply in the body can lead to increased chances of atherosclerosis, hypertension, bone disorders, and Alzheimer's disease. In its metallic form, silicon is found non-toxic.

### Sulphur

A non-metallic mineral, it is one of the major minerals needed by the human body. It is an ingredient of collagen and keratin, substances that are known to shape and strengthen the connective tissues, bones, teeth, skin, nails and hair.

It works with nitrogen, carbon, hydrogen and oxygen in protein building and development, and is also an important component of our muscles, skin and organs. It also helps in facilitating proper blood clotting and enzyme production.

Sulphur is also known to prevent and treat insulin deficiency and is therefore consumed by many diabetics. In fact, Type 2 diabetes patients have been found to have significantly improved after consuming a large amount of sulphur from six months to a year.

As an ingredient of cystine, sulphur is also known to treat arthritis. It also promotes skin growth and regeneration, wound healing, and prevents skin disorders such as psoriasis and eczema.

### Potassium

Potassium works hand in hand with sodium. Potassium is necessary for regulating water balance in the body and promotes improved digestion. Because it controls water content in the body, it aids in the normal functioning of the nerve cells in impulse conduction, and of the skeletal and cardiac muscle cells in muscle contraction. It also facilitates bowel movement and improves the functioning of the urinary system.

### Sodium

Sodium, along with potassium, regulates the water balance in the body. Deficiency in both minerals can lead to gout, digestive problems such as constipation and indigestion, paralysis, hypotension, convulsions and stomach ulcers.

### Phosphorous

Phosphorous is another major mineral that can be found abundantly in all plant sources, although plant-derived phosphorous has significantly decreased now because of the mineral depletion in our soils. About two pounds of phosphorous and a good dose of calcium can make our bones and teeth stronger and more rigid.

Phosphorous also regulates and controls our appetite and therefore prevents us from overeating. Experts believe that overweight and obesity are largely due to reduced supply of phosphorous in the body. People who suffer from phosphorous deficiency tend to eat more since they are trying to satisfy a craving that can otherwise be addressed by adequate supply of phosphorous in the body. This overeating leads to overweight or obesity, a condition that requires even more minerals in order for the body to satisfy the hunger pangs, all creating a never-ending cycle of overeating.

Moreover, obesity also contributes to increased amount of toxins in the body, and as such, the body will need even more minerals in order to detoxify and flush out the toxins. Studies have shown that people have experienced gradual weight loss by simply consuming the whole range of minerals needed by the body on a daily basis. This is because minerals aid in the process of detoxification and in the digestion of food. Improved digestion also means we are less sluggish and more energetic, less constipated and therefore, have a better outlook in life.

### Manganese

Our cells need manganese in order for them to properly function. As a trace mineral, it is found in our bones, liver, kidney and heart. It works with enzymes in order to facilitate various bodily functions and processes including energy production and metabolism of glucose. It also functions in glycogen storage, digestion of protein, and the synthesis of DNA and RNA.

It works also with other “bone nutrients” like vitamins B1, E, calcium and phosphorous in keeping the bones and heart muscles strong. A lack of supply of manganese in the body can lead to a number of conditions such as nervous system problems, problems in blood clotting, glandular dysfunction, dizziness, and poor muscle coordination.

### Selenium

Selenium is an important antioxidant for the body. It is a component of glutathione peroxidase, an enzyme that metabolises free radicals from unhealthy fats. It is therefore important in red blood cell production and in the maintenance of the cell membrane.

Selenium promotes normal liver functioning, aids in protein synthesis, helps in detoxification of toxic and metallic minerals like arsenic and mercury, and promotes healthy eyes, hair and skin. It is also known to enhance the male sexual reproductive capacity and is also good for preventing arteriosclerosis.

### Chromium

Another mineral that is necessary for enhanced metabolism especially of sugar is chromium. As an insulin regulator, chromium promotes the improved functioning of the thyroid and adrenal glands and promotes good circulation.

Deficiency in chromium results into problems in sugar metabolism, diabetes, weakness, depression, hyperlipidaemia, and fatigue.

### Iodine

The body needs iodine, as it is an integral component of thyroxin and triiodothyronine, thyroid hormones that impact the rate of metabolism of the human body. Iodine increases and improves the functioning of the thyroid gland, which is essential in protein manufacture, synthesis of fats, and absorption of carbohydrates.

### Chlorine

Chlorine is often thought to be a disinfectant and this kind of chlorine (activated form of chloride) has no nutritional value, but organic chlorine that is derived from all food sources is highly beneficial to the body. Chlorine works as an electrolyte and is needed by the body to produce hydrochloric acid, which is important for digestion.

Chlorine found in hydrochloric acid helps the digestive system in breaking down food particles and converting them into chyme, which is then transported into the upper intestine for final digestion.

As a natural disinfectant, chlorine is also known to keep the stomach clean of parasites and anaerobic bacteria. It also helps in flushing out toxins from the liver. A lack of chlorine in the body can result to alkalosis, diarrhoea and excessive sweating.

### Vanadium

Vanadium is a trace mineral that is found in small amount (100 mcg) in our blood, bone and organ tissues. It induces the production of reduced glutathione content in the liver and works with enzymes in metabolising blood sugar and fats, development of our bones and teeth, and in the production of hormones.

While there have been no identified conditions associated with deficiencies in vanadium in humans, lack of vanadium in other animals was found to cause infertility, iron metabolism problems, weak bones, and poor cartilage formation.

### Zinc

There are about 3 grams of zinc in the body, and the highest concentrations are found in the sperm and prostate (for men) and in the red and white blood cells.

Zinc is needed in more than 200 enzymatic processes and reactions, primarily to support and aid in cell division, and in the synthesis of carbohydrates, fats and proteins for tissue growth and repair. It is also an antioxidant that aids in flushing out free radicals from the body.

Zinc deficiency can result to problems in hormone activation and foetal growth, low milk production for mothers, and poor production of brain neurotransmitters. It can also affect the release of vitamin A, a nutrient that improves eyesight and maintains the health of the eyes.

### *Other minerals the body needs*

According to the Recommended Daily Intake (RDI) chart, the following is the recommended intake of the mentioned major minerals:

Calcium	1000 mg	Iron	18 mg
Phosphorous	1000 mg	Iodine	150 mcg
Magnesium	400 mg	Zinc	15 mg
Selenium	70 mcg	Copper	2.0 mg
Manganese	2.0 mcg	Chromium	120 mcg
Molybdenum	75 mcg	Chloride `	3400 mg
Sodium	2400 mg	Potassium	3500 mg
Boron	20 mg	Fluoride	10 mg
Nickel	1.0 mg	Selenium	400 mcg

This RDI was developed in the 1940s by the US National Academy of Sciences. In 1941, the Food and Nutrition Board revised it. The RDI provides the minimum amount of nutrients needed by the body of various life stage and gender groups in order to stay healthy.

You will notice then that both the Board and WHO recommend at least 18 minerals for the body. However, our work on minerals has shown us that the body needs more than these 18 major minerals. Given the mineral depletion in our soils, the changing lifestyle of people, not to mention our changing dietary habits, we think that we need to consume at least four times the indicated amount in the RDI chart.

After all, if minerals are the building blocks of life and there are over a hundred minerals in the earth, why should we limit ourselves to just 18 or so minerals? The reason we have over a hundred minerals is that they perform certain functions and their presence is indicative of their purpose in our lives and in keeping our bodies healthy and working properly.

This is why we believe we need to take more than these recommended 18 minerals. Given the decreased mineral content in our food sources, we need to take additional mineral supplements that can provide the remaining minerals our bodies need. If you can consume more than 18 minerals –as much as 70 minerals! – Then this could spell a great difference in your health.

While it is important that we consume the major minerals we mentioned, there is no harm in consuming other lesser-known trace minerals. Look for mineral supplements that can supply both major and minor minerals. These should be minerals in plant-derived forms such as *boron, barium, beryllium, bismuth, bromine, carbon, cerium, caesium, cobalt, dysprosium, erbium, europium, fluorine, gadolinium, gallium, holmium, indium, iodine, iridium, lanthanum, lithium, lutetium, neodymium, niobium, osmium, palladium, praseodymium, rubidium, samarium, terbium, thallium, thorium, vanadium, ytterbium and yttrium.*

It is apparent that we need more minerals in our food. Diseases and ailments occur because of a poor or weak immune system which can be traced back to a lack of minerals in the body. Degenerative diseases such as Alzheimer's disease and cancer, considered to be the major maladies plaguing more and more people these days, we believe are due to significant deficiencies in minerals. Conversely, research suggests that the consumption of minerals broad-spectrum plant minerals with MSM (Methylsulphonylmethane), Glucosamine and Chondroitin sulphate can reduce or minimize the chances of acquiring degenerative conditions in humans and animals. A full spectrum of minerals can improve body processes and function, improve our body's natural defences against diseases, and contribute to a better and healthier well-being.

# Chapter 6 – In-Depth: Minerals, Heart Disease and More

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**T**he depletion of minerals in the Earth's soil has increased the demand for mineral supplements. Indeed, where else can we get the minerals that our bodies need if the soil and our food sources cannot provide them? A study showed that with the increase in the use of dietary supplements, it is expected that there would be a general improvement in the health of the world's population over the coming years. In the US, this could mean \$Billions in healthcare savings.

## *Heart Disease*

The study, which was commissioned by the Dietary Supplement Education Alliance (DSEA), also found that heart diseases take up a major portion of the medical costs and is the cause of nearly one million deaths every year in the US. Data from the Centre of Disease Control and Prevention showed that annually over 700,000 people die due to heart disease. The age-adjusted death rate was 241 per 100,000 populations. In the world, coronary heart disease has been killing over 7 million every year.

Further data showed that heart disease was projected to cost over \$270 billion, including services, medication and productivity losses.

Coronary artery disease is the number one reason for heart attacks which causes about 47% of cardiac deaths. This happens because the arteries are blocked and narrow, effectively preventing the flow of blood. This can lead to angina or chest pains, which occur when the heart is not getting enough blood. This condition can be due to a number of factors, some of which cannot be controlled, and some controllable.

Age, for example, plays an important factor. As we age, our chances of getting heart disease also increase. In fact, more than 80% of those with heart disease are people who are 65 years or older. Gender is also another uncontrollable factor. Men, for example, are more likely have heart disease than women. They also tend to get it earlier than



women. Another uncontrollable factor is our genes. People with a history of heart disease in their family have higher chances of getting it than those who do not. Race is also a determinant of one's likelihood of getting heart disease. It was found that African Americans, Mexican Americans, American Indians, native Hawaiians and Asian Americans are more susceptible to heart disease than Caucasians. Diet, obesity and diabetes are the associated factors.

Controllable factors, on the other hand, are primarily dependent on diet and physical activity. Studies found that people who have more excess body fat especially around the waist area have higher chances of developing heart disease and stroke. This is because excess body weight forces the heart to work double-time, pump blood harder than usual, which in turn raises the blood pressure and blood cholesterol and triglycerides levels.

Triglycerides are substances that serve as storage of fat and transport it in other places in the human body. A high triglycerides level is often associated with a high total cholesterol level, specifically high LDL but low HDL levels.

High blood pressure, an associated factor, is due to poor nutrition that leads to corrugations inside your arteries. Artery walls become rougher, preventing the smooth flow of the blood. Subsequently, your heart then works double time to pump blood, causing it to become thicker and stiffer. High blood pressure is known to trigger stroke, heart attack, congestive heart failure, and even kidney failure. This, coupled with other unhealthy lifestyle habits, increases your risk of having heart disease.

Another controllable risk factor is smoking. Studies have found that smokers up to four times more likely to develop heart disease than non-smokers. In fact, smoking is one of the major causes of sudden cardiac deaths among patients diagnosed with heart disease.

Excessive alcohol drinking is another risk factor, and can raise your blood pressure, and consequently trigger heart attack or stroke. It is also known to increase your triglyceride levels and has been found to also cause other body conditions like cancer and obesity. Untreated alcoholism has been known to trigger suicide and accidents that are otherwise preventable. But there are studies that disprove the general knowledge that alcohol is bad. Experts agree that a moderate amount of alcohol is accepted, this means, about 1 ½ ounces for women and 3 ounces for men on a daily basis.

Sedentary people are also more likely to develop heart disease than active individuals who maintain an acceptable level of physical activity every day. Regular and moderate physical activity not only strengthens one's muscles and bones, but it also works out the heart muscles and improves circulation. And the more vigorous your physical activity, the more benefits it can bring to your body.

Another lifestyle-related factor is stress. In worst-case scenarios, unmanaged stress can lead people to depression. But simple everyday sources of stress can cause people to binge on unhealthy food, overeat, and drink more alcohol than usual or chain smoke. As a trigger of these other risk factors, it is crucial that we are able to handle stress properly. Stress management techniques are available, including practicing yoga and breathing and relaxation techniques. Nutrition experts also found that omega-3 fatty acids and Saint John's Wort can help us fight off stress and manage mild depression.

Indeed, experts are spot-on when they say that heart disease is the number one killer of this generation. The US has lost more people from heart disease than has been lost in all wars since the signing of the Declaration of Independence. With the increasing number of heart disease patients and victims every year, it is high time to find a way to prevent more deaths.

Our research over the years has shown us that minerals are one simple solution to our problem of heart disease. People have reported how they feel incredible changes in their body after only 6 months of using plant mineral supplements.

It also helps to have a good understanding of the structure of our cardiovascular system, how the heart works and how all these risk factors inhibit or prevent the heart from effectively performing its job. Our arteries have three layers. The inner layer, also called intima, is slippery and smooth, allowing the blood to flow through it efficiently. This layer protects the middle layer called media. The media is more muscular and because it is connected to the brain, it performs certain reactions depending on our brain triggers. For example, it contracts when we are depressed, angry or anxious, and expands / opens up when you perform physical activity, thereby allowing more blood to flow through it. The outermost and third layer is the adventitia. It holds the artery together like a wrap.

However, with risk factors like high blood sugar, smoking, and high blood pressure, nicks and corrugations form on the ordinarily smooth inner layer. The body then uses cholesterol to repair these nicks, but if the body produces more bad cholesterol (LDL)

than HDL, an inflammatory reaction happens and blood clot forms. The clot is what blocks the artery, leading to a heart attack or stroke.

The lesson? Our bodies need appropriate minerals in order to keep the arteries clean.

### ***Osteoporosis and Joint Diseases***

Joint and bone diseases are as common as cardiovascular diseases, although many would argue that the former are not as life threatening as the latter. However, they are also equally serious, can be extremely painful, and can be a major deterrent in our mobility. It is a condition that is even more challenging especially because joint diseases typically strike in old age.

According to the Arthritis Foundation of America, over 46 million Americans suffer from joint disease, mostly arthritis, with more than half of them over 64 years old. This is because as we age, not only do we lose bone mass and our bones grow weaker, but the cartilage that protects our joints break down, causing our bones to rub together, resulting to pain, stiffness and decreased mobility. Unlike heart disease, which is known to affect men more, joint disease is more common in women. Other forms of joint disease among older patients are osteoarthritis, rheumatoid arthritis, and bursitis.

### ***Osteoarthritis***

Aside from age, one of the other common risk factors associated with osteoarthritis is obesity. Heavy or obese people, because they weigh so much more, tend to put more pressure on their knees and hips, which can eventually lead to injuries and breakdown of the body's cartilage.

Another factor is overuse or injury. While physical activity is recommended in order to stay healthy, accidents and overuse of our muscles and bones can also cause bone and joint disorders. For example, people with routine, repetitive motions are more likely to develop osteoarthritis than those who perform a variety of physical movements throughout their day. Fractures and injuries acquired in the past can also make you more susceptible to osteoarthritis.

Some studies have also found that genetics is also a risk factor. Genetically caused osteoarthritis is known to afflict the hands and feet.

### *Rheumatoid arthritis*

This condition is a rare form of arthritis that affects about one percent of Americans. It is described simply as an inflammation of the lining of the joints. Treatment is oriented towards managing pain. The disease starts with inflammation in the joints of the fingers, hands and wrists, and is coupled with other symptoms like fatigue, stiffness, and muscle pain. More intense cases are characterised by inability to sit for long periods of time.

### *Arthritis*

Arthritis is one of the most common joint and bone diseases, and one of the number one causes of disability in the US, according to the Centre of Disease Control. Studies project that by 2040, about 25 million Americans afflicted with this disease will have difficulty in their mobility.

John Kippel, President of the Arthritis Foundation, expressed that this condition, affecting about half of those aged 65 years and older, is increasing in the US. More data from the Centre for Disease Control and Prevention plots an increase of 40% people diagnosed with this condition by 2030. More and more cases will also involve younger individuals, as young as 45 compared to the normal average of 65 years old.

But it is not only arthritis among adults that is the problem. Experts also see an increase in the number of juvenile rheumatoid arthritis cases, a kind of autoimmune disease where a child's antibodies attach the synovial cells around the joints.

Because arthritis is one of the most common joint conditions to afflict populations, experts have developed a range of medications, including supplements aimed to help manage the discomfort as a result of this condition. Glucosamine and Chondroitin are two supplements known to help in the production of more cartilage and also lubricate the joints. While Chondroitin is naturally found in the body's cartilage, it works effectively well when mixed with other minerals and nutrients.

Another mineral that can help alleviate joint pain is Bromelain. Flax seed oil is also known to lessen the inflammation of the joints. Vitamin D can reduce the rate of bone cartilage loss, while at the same time help in Calcium absorption, another important mineral for making the bones and teeth stronger.

Because arthritis is linked to obesity, one of the ways to manage this condition is to commit to a weight loss program. A few pounds off can ease off the pressure on your bones and muscles.

### *Osteoporosis*

Osteoporosis, as we have mentioned in the previous chapter, is a condition where the bones mass is reduced, and bone tissues deteriorate, thereby increasing chances of bone fracture. Osteoporosis afflicts the wrist, hip and spinal column. Fractures that result out of this condition can be particularly debilitating. It also takes time to heal and in other cases, difficult or near to impossible to treat.

Women are more likely to develop osteoporosis because of their genetic make-up and body structure. For one, they have less bone tissue than men and tend to lose bone mass faster because of their small body frame. Menopause, which is unique only to women, also exacerbates the condition. These, coupled with the lack of exercise, can make women lose bone mass faster than men. Caucasians and Asians have been found to be more prone to develop osteoporosis, as well as those with a small frame or who are naturally thin-boned.

Medicines for certain chronic diseases can, as a side effect, also reduce bone mass and density. These include medications for thyroid disorders, rheumatoid arthritis, seizure, and gastrointestinal conditions. If you have been diagnosed with any of these conditions, it is always best to do a bone density test and seek out the advice of your doctor on how you can combat such side effects of your medication.

Lifestyle factors that increase your chances of developing this condition include inactivity, smoking and excessive alcohol drinking. It is important therefore that you perform the necessary amount of moderate exercises to keep muscles and bones healthy. Weight-bearing exercises such as walking, jogging and dancing can help improve the strength of our bones and promote bone tissue production.

Mineral density or bone density testing is also crucial especially for older women. The National Osteoporosis Foundation recommends that women aged 65 years and older and men 70 years and older should undergo bone density testing. Also included are menopausal women and those with a history of fractures. The testing is usually done every two years.

### **Retro Achilles bursitis**

This condition is characterised by the swelling of the bursa, the area behind your heel just below the Achilles tendon. A common cause of this condition is unfit shoes that cause the repeated rubbing of the bursa against the shoe lining. People suffering from this condition are advised to rest the affected area, although a number of mineral and nutrients like Glucosamine, Chondroitin, and vitamin D have also been known to help alleviate the discomfort.

### ***Diabetes***

Diabetes is a disease that strikes both children and adults, but out of the two, more crucial is diabetes in children. An associate professor of paediatrics at the John Hopkins University, Dr. Alan Lake noted that he has seen an increasing number of children diagnosed with diabetes – from two in a year to two in a month. According to him, this means increased number of teens and young adults also developing serious heart disease.

Type 2 Diabetes is one of the most common forms of diabetes, affecting about 17 million Americans. It develops when the body is unable to produce enough insulin to control the blood sugar level, therefore leading to sustained high blood sugar levels. It may also result from a failure of the body to effectively use the insulin that it produces.

Diabetes is not a stand-alone condition. It is known to also result into or increase the chances of heart disease, and at the same time, can be further aggravated by lifestyle-associated conditions like obesity.

In a study by researchers from Tufts University, it was found that more than adequate supply of calcium and vitamin D in the body could lessen the risk of diabetes by one-third. Women who receive more than the recommended total daily intake of calcium (1,200 mg) have 21 percent less chance of developing diabetes than those with an intake of only 600 mg or less per day.

### ***Obesity***

Obesity, compared to the others, may not seem life threatening by itself, but it has been known to trigger or cause a range of more serious health conditions like diabetes and heart disease.

A report released by the group, “Trust for America’s Health” revealed that one-third of the children in the US is overweight and that the obesity rate in the country has tripled since the 1970s. More specifically, about 17 percent of children are obese, placing them above the 95<sup>th</sup> percentile for weight in relation to their height and age, and another 17 percent are overweight or over the 85<sup>th</sup> percentile.

What is even more important to note is that obesity is much harder to manage and outgrow especially if it happens to children and teenagers. Given the increasing number of obese children these days, it is safe to assume that we have about 50 percent elementary children and about 80 percent teenagers who will remain obese or overweight for most of their lives.

Child obesity can also be traced to a mother’s nutritional condition while pregnant. Because of our transformed diets, more pregnant women end up heavier than usual in their pregnancy, raising the risk of developing gestational diabetes. This, in turn, could mean that they are likely to have children born with built-in weight conditions.

Obesity among children can also be traced to the parents’ views and attitudes towards food and weight. As you know, children are easily influenced by their adult role models. Studies showed that parents who are not mindful of their eating habits and are overweight or obese also have children who are obese or overweight. A study from the New England Journal of Medicine, for example, found that children under the age of 10 with obese parents are twice as likely to grow into obese adults. Furthermore, the longer a child remains obese or overweight (obese by age 10 to 14), the more likelihood (at least 80% chance) of him/her remaining obese as an adult.

Another condition associated with obesity is arthritis, as mentioned also in the earlier section. The extra weight –more than our body frame can tolerate and carry – eventually destroys the cartilage tissues protecting the bones and serving as a shock absorber, leading to osteoarthritis.

With the increasing number of conditions affecting more of the world’s younger population, experts have warned about the youth having a shorter life span. The case of obesity and overweight in children is only the tip of the iceberg.

It is therefore important to commit to a serious weight loss program in order to prevent the string of other complications arising from obesity. A lifestyle that involves moderate and regular physical activity for children is encouraged. At the same time, be mindful of activities that can put a lot of strain and pressure on your bones and joints in order to

prevent injuries. Remember that previous injuries like fractures increase one's vulnerability to bone and joint diseases. Stick to a diet that provides low to moderate amount of sugar.

Stay away from processed food products that are rich in artificial sweetening like soft drinks. **Avoid Aspartame at all costs** as the most recent independent research in Europe demonstrates that ingestion of small amounts of aspartame leads to the accumulation of significant levels of formaldehyde (bound to protein) in organs (liver, kidneys, brain) and tissues. Read labels carefully on foods and drinks

Formaldehyde causes gradual and eventually severe damage to the neurological system, immune system and causes permanent genetic damage at extremely low doses.

It is true that a balanced, nutritious diet, proper stress management, and a healthy lifestyle can change your life and do great wonders for your overall well-being. But couple these with supplements that provide the needed plant minerals we cannot get from our diet, and you get a healthier body that enables you do to more things.

Furthermore, we have learned that while many of these conditions tend to afflict us as we age, there is no better time than now to start taking care of our bodies. The earlier we change our lifestyles and take our mineral supplements, the more time our bodies can perform effectively and produce the needed natural nutrients that can keep at bay these body afflictions.

The body is an amazing bio-machine and it can repair itself from even the deadliest of conditions and diseases. However, just like a house builder, the body needs the 'sand and cement' (Vitamins and Plant Minerals), to keep everything together and standing strong. Without these, everything falls apart.

It's never too late to start the repair process and never too soon to begin prevention, so why not start today?



# Chapter 7 – In-Depth: Echoing the Call for More Minerals in the Diet

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**W**e have mostly talked about the importance of the major minerals, but there are also “lesser known” trace minerals that are as beneficial to the body as the major minerals. These include iron, iodine, manganese, zinc, selenium and chromium. It is unfortunate that a big portion of the medical profession has yet to recognize and accept the fact that we need more than these recommend minerals.

Many of our bodily functions depend on and are aided or facilitated by minerals. Minerals aid circulation of the blood and nutrients. Our mental health relies on adequate mineral supply. The functioning of our organs is improved by ingesting the proper minerals. It is important that our body is getting the complete, full spectrum of minerals that can enhance our immune system and improve our body’s ability to fight off diseases. This full spectrum can also do wonders for our mind, sharpening our thought processes, improving our memory, and making us more positive in our outlook about life.

## *Minerals and Our Overall Health*

We have discussed in the previous chapter some of the major diseases and conditions that are prevalent among the majority of the world’s population and which can be traced to the absence or lack of plant minerals in the body.

Conditions such as high blood pressure cause the heart to work double time, requiring more nutrients and oxygen to keep it functioning. Minerals help the organs better utilize the oxygen it needs. Likewise, minerals help in balancing the nutrients and toxins that our body absorbs. Too much salt intake, for example, causes the body to use up more water than usual, and the kidneys will, in turn, be working extra hard in order to flush out the excess water and salt. As such, the kidneys need more minerals in order for them to continue functioning effectively.

These two conditions are also intertwined, showing us that every single process or condition of the body causes or affects other internal processes. In the process of flushing out the excess water and salt, for example, our systolic pressure will go up since more blood (oxygen) must be carried to our kidneys. With high blood pressure and faulty kidneys due to lack of nutrients (minerals), the body will end up storing the excess water and salt, depositing it the ankles and legs, leading to swelling in these areas.

So, if we can only supply our body with the full spectrum of minerals, our organs will be able to perform effectively their functions and carry out the necessary processes our body needs in order for it to stay healthy and in good shape.

### *Mineral and Vitamin Deficiency*

We have mentioned that because vitamins are more popular and common among people than minerals, mineral deficiency and trace element deficiency are therefore more likely to occur than vitamin deficiency.

It is especially more common among those with low-calorie diets, the elderly and pregnant women, those who take maintenance drugs for certain ailments, vegans and vegetarians. And because much of our plant food sources are dependent on the nutrients from the soil, those whose foods are sourced from areas where mineral depletion is high can also suffer from mineral deficiency. The soil in parts of China and New Zealand, for example, is lacking in selenium (as compared to Alaska), and despite a well-balanced diet, it is also very likely for people from these areas to have selenium deficiency.

As you can see, sub-optimal intake of minerals is a mix of factors. In fact, to easily determine the imbalance in our diets when it comes to minerals, one only needs to compare our daily mineral intake of 1.5 grams to the total intake of other nutrients like carbohydrates, proteins and fats, totalling to about 500 grams. It is distinctly obvious that mineral intake is only a very small percentage, taking up only about 0.3 percent of our total daily intake of nutrients. Yet, we know that without minerals, the synthesis and absorptive capacity of the other nutrients would be at a significant low.

It does not help that many dietary and medical experts are limiting people from taking the full spectrum of minerals, emphasizing that the RDI indicates just the right kind and amount of minerals for the body. What they forget is that we are not receiving the right

kind and amount of nutrients from our food products mainly because of the mineral depletion in our soils.

The situation with our diet further worsens as many of our foods become superficial as a result of over-processing and over-cooking. The process of canning, for example, kills the natural enzymes in food, considerably reducing the already low mineral content.

So, while supplementation seemed like a perfectly good alternative in the past, it has now become a compulsory course of action. Supplementing our daily diet replaces the lost and lacking minerals in our food, providing the much-needed mineral supply that our bodies need.

### *Supporting the call for an improved, mineral-rich diet*

There are so many other researchers and experts who have studied our food, effectively linking mineral deficiency in the soil to the nutrition (or lack of) we get from our food sources.

Another such expert who echoed Dr. McCane's findings about the lack of minerals and nutrients in our food products was Dr. David Thomas who reported on the mineral deficiency of foods in the UK.

His findings, published twice (1940 and 2002) by the Food Commission pointed out that the continuing decrease in the mineral content of food items like meat, vegetables and dairy products could have significant health repercussions on the UK population. His data showed a nearly half decrease in the iron content of meat, with some meat products' mineral content falling as far down as 80 percent. Magnesium in food has decreased by 60 percent, copper by 90 percent in many dairy products, and calcium by 70 percent in cheese samples that were studied.

Dr. Thomas' findings also showed a substantial increase in the cases of children diagnosed with asthma, adult diabetes and hyperactivity, conditions that can be traced to a deficiency in minerals. Data from the Centre for Disease Control showed that in 2005 alone, more than 9 million children in the US take prescription drugs for no lesser than three months for conditions like diabetes, obesity, and attention deficit hyperactivity disorder. It is a sad fact that not only are these grave health conditions afflicting the adult generation, but that they are slowly making victims out of children – all because we lack the right kind and amount of minerals that our body needs.

# Chapter 8 – In-Depth: The Other Nutrients

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**W**e chose to write this book about minerals because firstly there is widespread misunderstanding of the difference between toxic metallic minerals and health giving plant minerals. Secondly, minerals are the building blocks of life and yet, it is one of the nutrient groups that receive the least focus and attention. The continuing depletion of minerals in our soil makes it doubly important for us to pay attention to minerals, their importance in our health, and what we can do to make up for the decreasing mineral supply in our diet.

This is not to say that the other nutrients – vitamins, fibre, proteins, etc. – are not important. For example, vitamins, even when they rely on minerals in order for them to perform their functions, must be included in your daily diet. So, in this chapter, we will talk more about these other nutrients, what they do in the body, and how they work with plant minerals in keeping us healthy.

## *Antioxidants*

The modern world especially is full of free radicals; toxins that make us age, weaken our immune systems, and make us more vulnerable to diseases and ailments. Our body produces natural antioxidants, substances that protect our cells from the damage that these free radicals cause.

What exactly do these free radicals do to our body? As you know, our body is made up of millions of cells, which are comprised of molecules. Molecules, in turn, are made up of atoms. An atom's structure is such that it has a nucleus, neutron, proton and electron. Atoms can be positively or negatively charged. Atoms are generally bound together by chemical bonds, but when weak bonds split, hydrogen ions are formed. These are called free radicals. Because they are unstable, free radicals usually react with other stable molecules to secure their electrons. When this happens, the other molecule turns into another free radical and there begins a chain of molecules turning into free radicals, which eventually destroys the structure of the cell.

Because the body naturally produces them, free radicals should be generally harmless. They are, for example, used by the body to fight off or neutralize viruses and bacteria. However, external, environmental factors such as UV radiation from the sun, herbicides and pesticides, and even alcohol and cigarettes can trigger the production of unnaturally high free radicals in the body.

If the body does not have sufficient antioxidants to fight off these free radicals, cell damage can occur. More free radicals will form over time at an alarmingly fast rate as we age. These free radicals are one of the reasons behind the increasing number of cancer cases every year.

Hence, we need antioxidants to fight off and stop the production of free radicals. But more than preventing cancer, numerous studies on cell culture have shown that antioxidants can slow down the aging process, and prevent the development of other diseases such as heart disease, stroke, rheumatoid arthritis, Alzheimer's disease, and even depression.

Where can we get these antioxidants? They are found in nutrients from the food we eat – from vitamins and enzymes that aid in the chemical reactions in the body.

### ***Vitamins***

Vitamins are molecules that function as co-enzymes. Compared to the other nutrients (carbohydrates, proteins, etc.), they are needed in relatively smaller amounts but are still important in the daily diet. The RDI chart provides the recommended vitamin intake on a daily basis.

Vitamin A	5,000 IU	Vitamin C	60 mg
Vitamin D	400 IU	Vitamin E	30 IU
Vitamin K	80 mcg	Vitamin B1	1.5 mg
Vitamin B	21.7 mg	Vitamin B3	20 mg
Vitamin B6	2.0 mg	Folic Acid	400 mcg
Vitamin B12	6.0 mcg	Biotin	300 mcg
Vitamin B5	10 mg		

## Vitamin A

This vitamin is stored in the liver and works to keep the eyes, mucous membranes, soft tissues, gums, skin and bones healthy. This is also called the “eye” vitamin because it promotes excellent vision especially at night. As an antioxidant for the skin, its other form, retinol, is used in many anti-aging and beauty products to reduce the appearance of wrinkles as well as prevent skin cancer. Vitamin A works with other nutrients like choline, zinc, and vitamins C, D, E, and F.

Insufficiency in Vitamin A can lead to child blindness, allergies, increased fatigue, and migraine. It can be sourced from animal sources. Beta-carotene found in plants like dark green leafy vegetables, carrots, and potatoes is a form of Vitamin A.

## Vitamin B1

Vitamin B1 is nourishment for the brain, promoting learning and facilitating the proper functioning of the nervous and circulatory systems. As a brain nutrient, it has been found to treat and prevent certain mental conditions such as dementia and bipolar disorder. This vitamin typically partners with vitamins B5 and C, and folic acid.

Deficiency in vitamin B1 can result to fatigue, nervousness, depression, and irritability.

## Vitamin B2

This vitamin promotes body growth and nourishes the hair, skin, and eyes. Vitamin B2 works with vitamins B6 and C and niacin. People who have insufficient supply of vitamin B2 are more prone to skin disorders, vision and growth problems, baldness and indigestion.

## Vitamin B3

Like vitamin B1, vitamin B3 is good for the nervous and circulatory systems. It also aids in digestion and in sugar metabolism. It works well with vitamins C and the B-complex. Deficiency in vitamin B3 can result in nervousness, poor circulation, headaches, high blood pressure and fatigue.

### Vitamin B5

This vitamin aids in stress management, digestion and metabolism of food, production of steroid hormones and cell formation. It partners with vitamins C and the B-complex. Insufficient supply of vitamin B5 can lead to stress, fatigue, arthritis, hair loss, and hypoglycaemia, among others.

### Vitamin B6

Like most of the vitamin B-complex, this vitamin is good for cell formation, the nervous system, and the metabolism of fatty acids. It also nourishes the muscles, skin, and promotes the production of antibodies. In a study by Japanese researchers, it has been found that consuming more than 1.1 milligrams of the vitamin on a daily basis can significantly reduce the chances of developing colon cancer.

Vitamin B6 works well with the mineral, potassium. Inadequate supply of vitamin B6 can result in heightened stress, depression, insomnia, weight gain, hypoglycaemia, and clogging of the arteries.

### Vitamin B12

This vitamin is good for the nervous system, helps in iron absorption, stimulates bone and muscle growth and improves appetite. Vitamin B12 works with the B-complex group, vitamin C, and calcium and potassium. Individuals with lacking supply of vitamin B12 can suffer from fatigue, anaemia, stress and considerable loss of stamina.

### Vitamin C

Also known as ascorbic acid, ascorbates (the substance in this nutrient) are needed by the body to facilitate chemical reactions in plants and animals. However, as humans do not produce this, it can be sourced from plants and animals.

This vitamin was introduced to the world when Dr. Linus Pauling published his book, “Vitamin C and the Common Cold” in 1971. Over the years, it has grown to become the number one vitamin supplement being sold in the market and consumed by the world’s households.

Like vitamin A, it is used widely in beauty and anti-aging products because it has been known to reduce the appearance of wrinkles, sunspots, and can counter the effect of UV

radiation. It also works with vitamin D in keeping the bone, gums, teeth and hair healthy. Vitamin C is a universal vitamin, meaning that it works with all vitamin and minerals, including bioflavonoids.

Insufficient supply of vitamin C can make one more vulnerable to coughs and infections, blood and skin disorders, allergies, bruising and scurvy. The recommended daily intake of vitamin C is 90 milligrams, but most people exceed this one, which is encouraged. Consuming 1,000 mg of vitamins C every day, for example, can be healthy for your kidneys.

### Vitamin D

Vitamin D is crucial in bone formation, as well as in maintaining the immune system and improving cell defence. It also improves the absorption of calcium and phosphorous and promotes mineral homeostasis. Vitamin D works well with minerals like calcium, phosphorous, choline, as well as vitamins A, C and F.

The best source of vitamin D is sunlight, but many studies suggest that people receive significantly low levels of vitamin D in their body, making them more vulnerable to infectious and autoimmune diseases. A deficient supply in vitamin D can also lead to softer bones and teeth, gum disease, weakness of the muscles, nervousness and arthritis. A research from the Harvard School of Public Health also revealed that children receiving less than 200 IU of vitamin D daily are more at risk to lung disease.

Vitamin D, along with vitamin C, has been known to work wonders even in the early times. Long before antibiotics, the cheapest and most convenient cure for tuberculosis and rickets was Vitamin D. Patients were simply exposed to sunlight.

### Vitamin E

Vitamin E is a good antioxidant that promotes circulation and the nervous system. It nourishes the lungs, skin, hair, and is known to be good for the prostate. It works with vitamins A and the B-complex, and the minerals, selenium and manganese.

Low supply of vitamin E can make one vulnerable to heart disease, stroke, atherosclerosis, cholesterolemia, and menopausal and prostate problems.



## Vitamin F

Vitamin F is a form of fatty acid that is composed of two kinds: linoleic and alpha-linoleic acids. These fatty acids promote growth, improve hormone balance and strengthen the immune system. As fatty acids, they also help regulate cholesterol level and are important precursors of prostaglandin, a compound that produces metabolic effects in our tissues.

## Vitamin K

Vitamin K promotes improved blood clotting. Its first form, also known as vitamin K1, is called phyloquinone, which is synthesised by plants. The second form, vitamin K2, is synthesised by bacteria. Both forms of vitamin K work well with vitamin D, calcium, and strontium.

## Vitamin P

Vitamin P is a water-soluble nutrient, also known as bioflavonoid. It is composed of substances including hesperidin, myricetin, nobiletin, rutin, quercetin, and tangeritin. Vitamin P was discovered in citrus fruits and is responsible for giving fruits its yellow and orange colours.

Vitamin P is known to improve our resistance to infections and prevent the oxidation in vitamin C. Bioflavonoids are also components of co-enzymes that facilitate the various metabolic reactions in our body. More recently, it has been found to help prevent heart disease. Doctors often recommend CoQ10, a form of vitamin P.

## *Amino Acids*

Amino acids are fundamental components of proteins, with each protein being comprised of at least 20 different amino acid. Amino acids, in fact, comprise much of who we are, from our genes to our organs. And this is what makes protein an important nutrient for the body. Without protein (and amino acids), our body tissues will not properly grow and develop. Along with minerals, amino acids are responsible for many of the body's functions and processes. Deficiency in protein is most evident in malnourished children with their swollen tummies and minimal body fat/muscle.

The body produces natural amino acids, but it also recommended taking in supplements that are produced synthetically. If you're taking amino acid supplements,

make sure to look for those that contain at least 16 amino acids. The RDI chart recommends 0.6 grams per pound of body weight for adults.

### *Fibre*

Fibre is one of those lesser-known “nutrients” that may be difficult to categorise as a nutrient in and by itself. Instead, it can be found as a component of most food sources, and structure-wise is a form of indigestible carbohydrates.

Fibre is predominantly found in all food sources, including vegetables, fruits, grains and legumes. But like any nutrient, not all fibre is the same. For one, fibre can be categorized based on its source or origin. When you eat grain, you get cereal fibre. Fibres are also typically non-soluble in water, meaning that it does not dissolve in water, although there is also such a thing as water-soluble fibre.

The main function of fibre in the human body is to aid digestion and the cleansing process, and therefore is crucial to preventing colon cancer. It has also been known to prevent other conditions like diabetes, diverticular disease, constipation, and even heart disease. In fact, researchers from Harvard found that high intake of fibre can reduce the risk of coronary heart disease by 40%.

The RDI chart recommends that adults consume about 21-38 grams of fibre daily, and children about 19 grams per day. However, there is a big discrepancy from this recommendation to what is the reality. An average adult eats only about 15 grams of fibre, less than 5 – 10% of what is recommended. Similarly, our consumption of carbohydrates is also tied with the rate of fibre we should consume. For every 2,500 calories consumed each day, you should be getting about 35 grams of fibre, and for every 1,700 calories, there should be about 24 grams of fibre. A child that consumes 1,300 calories a day should receive at least 18 grams of fibre from their diet.

The best sources of fibre are found in carbohydrates-rich food, such as cereals, nuts, legumes, dried peas, beans and lentils. Insoluble fibre, on the other hand, can be found in whole wheat, grains, barley, brown rice, and whole grain cereals.

### *Biotin*

Biotin works with the vitamin B-complex group in the synthesis of fats and proteins. It also promotes cell production. A deficiency in biotin can lead to muscle pain, depression, dry hair and eyes, and exhaustion.

### *Choline*

This nutrient metabolises protein and fat and helps in nerve impulse transmission. Like biotin, it works with the vitamin B-complex group. A person lacking in choline is more prone to high blood pressure, liver ailments, tinnitus, and atherosclerosis.

### *Folic acid*

Folic acid is important in the synthesis of protein and in promoting growth and reproduction of our cells and tissues. It also helps in the absorption of vitamin B12. People with a deficiency in folic acid may suffer from fatigue, stress, and menstrual problems.

### *Inositol*

Another lesser-known nutrient, Inositol helps in fat and cholesterol metabolism. It nourishes the hair, brain, and eyes. It works with the vitamin B-complex as well as vitamin C and the mineral phosphorous. Insufficient supply of Inositol in the body may lead to constipation, skin and hair problems, weight gain (due to inefficiency in metabolising fat) and atherosclerosis.

### *PABA*

This substance is a common ingredient in most sunscreens and sun blocks and therefore serves as good protection from UV radiation, preventing skin cancer. It also helps in protein metabolism. PABA works with vitamins A, C, D, E and phosphorous. People who don't receive as much PABA as recommended are more prone to having grey hairs, skin tags and suffering from fatigue.

## Chapter 9 – In-Depth: Toxic Minerals vs. Plant Derived Minerals

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**W**e have talked about the major minerals and a few of the trace minerals. But there is also another group of minerals worth discussing as well: metallic minerals. These metallic minerals are often thought to be toxic metals, therefore unhealthy and with no clear beneficial effect on the body.

Let me tell you though that this is not true. Yes, it is true that heavy metals are known to be toxins, can contribute to the production of free radicals, and therefore cause illnesses. Just take for example the case of mercury or lead found in paint and batteries that are known pollutants as well as poisonous to humans and animals.

What you should know, is that most of the mineral supplements you find in the shops are in fact, metallic based or come directly from the earth. Of course, plant derived minerals are naturally non-toxic, hydrophilic and negatively charged, but with metallic mineral supplements, what makes them unsafe is too much of them.

### *Metallic Minerals*

Attending various health food exhibitions, we've had the chance to meet with a number of medical and nutrition experts – nutritionists, health practitioners, medical doctors and chiropractors. We also meet regularly with health food and supplement manufacturers and product formulators. When asked if they would eat food that they know contains aluminium, lead or nickel, the immediate answer was NO !!

But are these “toxic minerals” really toxic and bad for the health?

There are important differences between plant-derived and metallic minerals. Aluminium, for example, is a metallic mineral, sourced from the earth, and used in manufacturing kitchen and cooking utensils. Now, this form of metallic aluminium is toxic and harmful, but even the plants that we grow, because they derive minerals from

the soil, are also likely to contain aluminium. However, aluminium from plants has had its molecular structure transformed ready for human consumption. So, in plant derived form you have 'healthy aluminium' and you will find it in abundance in the green leafy vegetables you are already eating.

A good example of a reputable product containing healthy aluminium is one called 'Sizzling Minerals'. This product contains the full spectrum of pure Plant Derived Minerals. Just as our food sources contain these so-called toxic minerals, then so does plant-derived Sizzling Minerals. These in fact contain "healthy plant minerals" like aluminium, cadmium and mercury. The exact same substances you will find in fully mineralised green leafy vegetables. It is interesting that Sizzling Minerals are basically made from Pre-Historic vegetation which still contains all those amazing minerals from 70 million years ago. Maybe, this is why dinosaurs were able to grow so big because they ate nature's original 'super food'.

The Plant-derived Trace Mineral complex in Sizzling Minerals has been used by humans since the 1930s and has not reported any toxic reactions or side effects from people's use of it. A medical expert, Dr. Gary Price Todd from Waynesville, North Carolina, studied these minerals, gathering records and data from his patients spanning a period of five years. The groups were asked to consume about three ounces of the minerals every day, coupled with three grams of vitamin C and several vitamin supplements.

The study particularly looked at the levels of aluminium, cadmium, lead and mercury in the hair specimen of the patients as hair level tests are considered one of the most accurate in showing toxin levels in the body. Results from the study revealed that after three months, while levels of aluminium, lead and cadmium increased slightly, mercury levels in the body remained unchanged as it was before intake of the plant minerals.

After four to six months, the levels of all four toxic minerals had considerably decreased. In another testing group, the levels of aluminium, cadmium and lead likewise decreased after a period 16 months. In this group, no mercury was traced either before or after the intake of the plant mineral complex.

The study simply suggests that this significant decline in the levels of these toxic metallics in the body is the process of mobilisation (because of the plant minerals) from the storage sites like the bones and teeth.

In his paper, “Toxic Mineral Elimination by Mineral Substitution”, Dr. Todd suggested that the plant mineral complex served as an agent in detoxifying and flushing out toxic metallic minerals in the body by converting them into an inert form before being excreted.

### **Aluminium as Toxic**

So now let us go back again to aluminium, a classic example of a mineral that has always been viewed as toxic and yet in reality is something that we have unconsciously been consuming from the food products that we eat every day.

Aluminium usually bonds with hydrogen in the form of sulphate, and the Sizzling Minerals are rich in sulphate. Naturally occurring aluminium sulphate minerals (also called alums) are typically used in styptics and antiseptics, and yet on the other hand, aluminium hydroxide is a popular ingredient in foods we eat as a food additive.

Aluminium sulphate is also known to aid in digestion and in the absorption of nutrients, promotes gastric and pancreatic secretion and is a good diuretic, therefore helping flush out toxins. If this is the case, why then is aluminium regarded as a toxic metal? What makes the other form of aluminium more beneficial than the one that is also used in make-ups, deodorisers and cleaning agents?

What most experts fail to understand is that aluminium is one of the most abundant minerals in the world and therefore present in the gases we breathe, in the plants and animal food sources that we eat, in the water we drink, in the seas and oceans. There is simply no escaping aluminium because it can be sourced anywhere and everywhere! And yet there are governments that do not seem to acknowledge this, such as one country in the Scandinavian Region that prohibits the consumption of more than 2 mg of aluminium every day. How can you do that when this mineral is everywhere?

The fact is that there is simply no escaping aluminium and if indeed it were truly poisonous, then we would all have died from all the aluminium we’ve been getting from our food. Case in point is a food analysis study published in the A & L Laboratory Agronomy Handbook. The data was gathered from tests on plant petals, vines and fruits to determine the parts per billion (PPB), also known as the micrograms per litre (MCG/L), measurements indicating aluminium content.

The results are found below.

<b>Plant or Food</b>	<b>Aluminium in PPB</b>	<b>Plant or Food</b>	<b>Aluminium in PPB</b>
Bananas	97,000	Peas	45,000
Coffee	97,000	Pepper	75,000
Pineapple	100,000	Potatoes	100,000
Oil Palm	98,000	Root Crop	140,000
Asparagus	90,000	Tomatoes	90,000
Beans	165,000	Corn	140,000
Brussels Sprouts	65,000	Mint	140,000
Celery	190,000	Peanuts	75,000
Cucumber	90,000	Small grains	135,000
Head Crops (lettuce)	90,000	Soybeans	75,000
Leaf Crops	50,000	Wheat	140,000
Melons	65,000		

The results show that these basic crops all contain a substantial level of aluminium in them. These results are further reinforced by another Japanese report that also presented an analysis of over 2,000 foods – ranging from fish, fowl to meal, nuts, fruits, berries and vegetables to beverages – and their aluminium content.

In the report, a glass of skimmed milk, for example, has the same amount of aluminium as the recommended adult weekly dose. Three ounces of Bancha Green Tea has as more aluminium than five gallons of milk.

<b>Plant or Food</b>	<b>Aluminium in PPB</b>	<b>Plant or Food</b>	<b>Aluminium in PPB</b>
Round Herring Sardines	34,000	Bologna	1,900
Scallops	6,900	Pork Products	2,400
Shrimps	1,300	Liver Paste	1,100
Condensed Skim Milk	670	Green Asparagus	610
Skim Milk Powder	1,200	Turnip	1,200
Cheddar Cheese	2,000	Pumpkin and Squash	1,500
Sugukina	3,600	Royal Fern	19,000
Radish	1,500	Eggplant	13,000
Apricot	1,000	Avocadoes	390
Figs	1,600	Sencha Tea	100,000
Chili Powder	6,000	Bancha Tea	332,000

Curry	23,000	Oolong Tea	247,000
Cocoa	17,000	Allspice powder	7,300
Clove Powder	14,000	Black Pepper	8,100
Horseradish Powder	3,900	Cinnamon Powder	7,900
Sage Powder	64,000	Nutmeg	113,000

If you add up the amount of aluminium a healthy eating person is probably consuming it becomes obvious that plant derived aluminium is not only harmless but beneficial.

To further prove the point that such minerals exist in our daily foods and yet are still safe, we would like to point to a spectrographic test conducted by the Coors Analytical Laboratories in Colorado. The test looked at the mineral content of a number of popular food items and were found to contain the following...

<b>Broccoli</b>	<b>Grapes</b>	<b>Almonds</b>	<b>Apples</b>	<b>Carrots</b>	<b>Tomatoes</b>
Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Arsenic
Boron	Barium	Barium	Arsenic	Barium	Barium
Calcium	Boron	Boron	Barium	Boron	Boron
Chlorine	Calcium	Calcium	Boron	Bromine	Bromine
Copper	Chlorine	Chlorine	Calcium	Calcium	Calcium
Iron	Chromium	Chromium	Chlorine	Chlorine	Chlorine
Magnesium	Copper	Copper	Copper	Copper	Copper
Manganese	Iron	Fluorine	Fluorine	Fluorine	Iron
Nickel	Lithium	Iron	Iron	Iron	Lithium
Phosphorous	Magnesium	Magnesium	Lead	Lithium	Magnesium
Potassium	Manganese	Manganese	Magnesium	Magnesium	Manganese
Silicon	Nickel	Nickel	Manganese	Manganese	Nickel
Sodium	Phosphorous	Phosphorous	Nickel	Nickel	Phosphorous
Strontium	Potassium	Potassium	Phosphorous	Potassium	Potassium
Sulphur	Rubidium	Rubidium	Silicon	Phosphorous	Selenium
Titanium	Silicon	Silicon	Sodium	Rubidium	Silicon
Zinc	Sodium	Strontium	Sulphur	Silicon	Strontium
	Strontium	Sulphur	Titanium	Sodium	Sulphur
	Sulphur	Titanium	Vanadium	Strontium	Titanium
	Titanium	Zinc	Zinc	Sulphur	Zinc
				Titanium	
				Zinc	



All six food products contain aluminium in them! It is apparent that all plants contain aluminium and good aluminium is one that is plant-derived. If it is not plant-derived, chances are that it is positively charged, and therefore not easily absorbed by the body. Plant-derived minerals come from plants that converted hydrophobic metallic minerals to hydrophilic (water-soluble) one through the root system during photosynthesis. It is the same process for arsenic, nickel and all the other metallic minerals that are converted to plant derived minerals ready for animal and human consumption.

During photosynthesis, the process of converting of light into chemical energy by plants, the metallic mineral is digested by the plant, therefore converting it into a form that makes it possible for the human body to easily assimilate or absorb.

### *Plant derived minerals*

Nutrition experts know little about plant derived minerals. Often plant derived minerals are grouped with metallic minerals from the oyster shells, calcium carbonate, limestone or sea salts.

But again, we would like to make the distinction between these actual raw metallic minerals and the plant-derived form of these minerals. Dr. Todd stressed that the human body cannot absorb metallic minerals; rather, we are designed to eat plants containing these minerals, and not the soil from which these plants grow.

He further explained that our bodies are similar to electric generators. The electrical conductivity between our cells is necessary to enable cellular functions but this cannot be transmitted if minerals are inadequate. As our cells live and die on a daily basis, we need to understand the ways that we enable the transmission and production of our cells, and this is through adequate mineral supply in our bodies.

As early as five decades ago, experts noted that metallic minerals cannot be assimilated or absorbed by the human body, hence the creation of synthetic, chelated minerals. This would mean using amino acids or proteins wrapped around metallic minerals to enable faster and easier absorption into our body. But the fact remained that these are still metallic minerals with a low absorption rate.

From the word itself, plant derived minerals are minerals one gets from consuming plants and crops – from tomatoes to broccoli to fruits like oranges and apples. And yet, they are different from metallic minerals. For one, plant derived minerals are smaller in

size and molecular weight. They are also attached to a hydrogen molecule making them water-soluble and easily absorbable by the human body.

These minerals are also enzymatically alive as the plant has digested them while it was growing. This pre-digestion, experts say, breaks down the plant minerals into their cellular level form making them able to perform more effectively because of their small size. Also, because they are pre-digested, the minerals are naturally bio-acidic, making it easier for the body to absorb certain minerals like calcium and iron.

This is the case for Sizzling Minerals, which were found to be particle-sized. A scale that compares the size of plant derived minerals from granules of soil-based particles, it was found that hydrophilic minerals are smaller than those of clay, silt and hydrophobic metallic minerals. Even bacteria are larger than hydrophilic plant derived minerals! A plant mineral is about several thousand (or in some, a hundred thousand or a million) times smaller than the smallest metallic mineral. On average, they are less than 0.00001 micron, which is about 1/10,000<sup>th</sup> the size of a red blood cell. In fact, if these plant minerals were to be pumped through a filter with a pharmaceutical grade of .01 micron, they wouldn't pass. Only water, which is slightly bigger than hydrophilic minerals, can pass through the filter.

And so, it is the relatively small size of these minerals and the fact that they are water-soluble that makes it easier for the body to absorb these minerals. Furthermore, the small size of these plant derived minerals gives them more surface area. About 1,200 milligrams of a plant-derived mineral would have a total surface area of about 55 acres of land (about trillions of tiny charged minerals), and when these minerals come in contact with hydrochloric acid in the stomach, their ability to be assimilated is improved.

The scale also showed the weight of the minerals, measured in terms of atomic mass units (AMU) or Dalton. Evidently, the weight of hydrophilic minerals is less than that of other metallic complexes, hence the distinct difference between metallic minerals and plant-derived minerals.

It is easy to understand now what makes plant derived minerals different from metallic minerals, and more importantly, what makes them healthy and safe minerals. Their small size reduces them to a cellular level that allows them to work much more effectively than larger-sized minerals. Because they have already been pre-digested by the plant, there is no additional work required from the human body to digest them.

Plant derived minerals are negatively charged, making absorption and assimilation easier. Add in also the fact that they are water-soluble.

In this form (negatively-charged and water-soluble), plant minerals are considered non-toxic. This is what makes plant derived minerals different from metallic minerals. Two grains of free iodine can kill, but in its plant-derived form, iodine is beneficial and healthy for humans. The same is true for other toxic metallic minerals like aluminium, mercury and nickel. As long as they have been digested by a plant, (they have bonded with a hydrogen molecule to make them negatively-charged), they are definitely good for the body!

Just imagine what can happen if we continue to limit ourselves to certain minerals only. Going back to the Japanese report we mentioned earlier. It is not surprising that the report showed only about 28 combined minerals from most of the foods analysed. This is clear evidence of the mineral deficiency in the world! Had this test been done hundreds of years ago, we would have found the full spectrum of minerals. And yet, even more important to note is that the list also includes “toxic minerals” like aluminium, and if we are going to take out these metallic minerals because they are supposedly toxic, then we are reducing even more the number and amount of minerals we take into our body! How and where then can we get the nutrition that our body needs?

# Chapter 10 – Healthy and Safe Eating

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**I**deally, the best source of minerals would be from natural sources – the plants and animal sources from which we get our daily nutrition. But as already mentioned at the beginning of this book, it is almost impossible to get the full spectrum of minerals that our bodies need, much more adequate and sufficient supply of mineral, because our soil is overused and practically depleted of minerals.

At the same time, even if we get minerals from our food sources, our modern processes of food storage and preparation also take away a considerable portion of whatever minerals are available in our food sources. And so, supplementation has become necessary, a *must* if we are to get the right kind and amount of minerals that we need.

Even more, it is not enough that we simply supplement; we need to have a supplement regimen that provides us the full spectrum of plant derived minerals. This is because, as discussed, the more minerals you have, the more effectively and efficiently can the other nutrients like vitamins and enzymes function.

## *Best 10 Sources of Minerals*

### Spirulina

Spirulina is algae found in most tropical countries. It is naturally digestible and is known to improve the immune system, cholesterol reduction and mineral absorption. This food is recommended for those with unstable glucose levels because it is rich in protein. It is also rich in other nutrients like linoleic acid, vitamin B-12, iron, amino acids, nucleic acids RNA and DNA, protein and chlorophyll.

### Colostrum

Colostrum is a thick, yellowish fluid that is found in the breast milk of mothers just a few days after they have given birth. It is rich in protein and antibodies, making it the perfect nutrition for babies to help them fight off infection. Colostrum can also help

burn fat and build leaner muscles. It has healing properties and can increase stamina and one's vitality. Another source of colostrum is milk from a cow that has been organically fed.

### Chlorella

Chlorella is a water-grown alga rich in chlorophyll as well as protein, carbohydrates, the vitamin B-complex, vitamins C and E, amino acids, and rare trace minerals. It is also one of the most edible forms of grown algae and is considered a complete food.

### Fish Oil

Fish oil is rich in omega-3 fatty acids and vitamin D. Omega 3 also contains EFA which is needed for producing new cells and prostaglandins, substances that serve as chemical messengers and regulators of the processes in the body. Vitamin D, as discussed, promotes calcium and magnesium absorption.

### Maitake

A form of mushroom, maitake is an adaptogen in that it aids the body in adapting to stress and normalises body functions. It has also been found to help stop the growth of cancerous tumours, kill HIV and improve the immune system. It also helps in diseases like diabetes, fatigue, obesity and high blood pressure.

### Green Papaya

This fruit is an excellent source of minerals and vitamins, particularly vitamins A, C, B and E. It also aids in the metabolism of protein, carbohydrates and fats, at the same time, helps in digestion and in improving the supply of energy in the body.

### Garlic

Garlic is rich in sulphur and protects the body against infection by improving immune function. It can also regulate blood sugar, lower blood pressure and improve circulation.

## Green Tea

Green tea is considered as a miracle worker and has been a medicine in China for more than a thousand years now. In fact, its popularity is what spawned Western medical experts to study its health benefits. In 1994, the Journal of the National Cancer Institute presented an epidemiological study that showed that drinking green tea could reduce chances of oesophageal cancer by 60%.

Likewise, researchers from the University of Purdue have found that green tea can also inhibit the growth of cancer cells. It can also lower cholesterol level and improve the ratio of good to bad cholesterol.

Green tea is also rich in antioxidants that help fight the body against free radicals. It can improve the immune system, regulate blood sugar, relieve mental fatigue and help in weight loss. Because it has caffeine content, one of the disadvantages of drinking green tea is that it can induce insomnia.

## Royal Jelly

Royal jelly is a milky substance sourced from nurse bees. It is derived when honey and pollen are combined and refined by the nurse bees. It is rich in amino acids, enzymes, vitamins A, C, D, E, and has antibiotic and antibacterial properties. It can help fight off liver disease, pancreatitis, insomnia, stomach ulcers, kidney diseases, and bone fractures. It also improves the immune system.

## Red Yeast Rice

Red yeast rice is produced from fermented rice with a strain of red yeast. It is considered as a traditional medicine in China and Japan, used to treat digestive conditions and promotes good circulation of the body. Red yeast rice in supplemental form has been found to help balance the ratio of good to bad cholesterol, therefore helping lessen the risk of heart attack or stroke.

## ***Other nutrients***

### Liquorice

Liquorice is considered to be one of the world's oldest medicines almost as old and ancient as green tea. It is useful in treating colds, asthma, sore throats and wounds. A

substance in liquorice called glycyrrhizin acid is also known to kill a virus that causes sarcoma, a form of cancer. It can also stop the growth of SARS virus, Japanese encephalitis, chronic hepatitis and HIV.

## Fat

Fat belongs to a more general group called lipids, and structure-wise is composed of carbon, hydrogen and oxygen. The best sources of fat are animals, though animal meat that contains fat should be trimmed first before cooking. In poultry, for example, the skin is the part that is most rich in fat and should therefore be removed or at least, avoided when eating.

Hamburger patties and ground meat should be fresh and cooked with as little fat or oil as possible. Most fat-rich food is calorie dense and therefore, is very likely to contribute to high cholesterol and obesity. Limit your total daily fat intake to a maximum of about 30% of your total calories.

As much as possible, cut down on margarine and all forms of hydrogenated fats (polyunsaturated fats). These stop the body from effectively synthesising prostaglandins and can alter the metabolism of our cells. Remember that mutations in our cell production and metabolism are the usual cause of cancer and can also trigger heart attack and stroke. A good alternative is butter and food sources that are rich in mono-unsaturated fats like olive oil and peanut oil.

## Eggs

A common misconception is that eggs raise your cholesterol level. Eggs that have been cooked without breaking the yolk sack do not increase one's cholesterol. However, it is also true that eggs can also be fatty, so it is recommended not to eat more than three or four egg yolks a week. If you can avoid scrambled eggs or omelettes, the better as the manner by which they are cooked promotes the development of free radicals.

## Vegetable Oil

Vegetable oil is healthier than animal fat. These can be sourced from vegetable seeds, such as sunflower. A tablespoon of fresh safflower oil a day is recommended to supply you your dose of fatty acid.

## Sea Salt

There are several forms of salt available on the market. The most common are sea salt and the regular table salt. Between the two, sea salt is preferred. A minimal amount of sea salt is enough to enhance the flavour of your food.

## Fruits and Vegetables

One of the essentials of your diet is fruits and vegetables. A healthy diet is composed of at least two servings per day of dark yellow or green vegetables or fruits such as spinach, broccoli, sweet potatoes, pumpkin, squash, apricots, and watermelon. These are good sources of beta-carotene, a nutrient that promotes good eyesight and prevents cancer.

A serving of anything from the cabbage family a day – broccoli, cabbage, turnips, cauliflower, or Brussels sprouts - is also recommended. Eat also as many onions and garlic as you can. Apples are also recommended. The saying “an apple a day keeps the doctor away” is certainly true, as it has been found that apples can fight off and prevent Alzheimer’s disease. This is because apples contain quercetin an antioxidant that has been found to protect the deterioration of brain cells in an experiment in rats, and therefore may also hold true for humans. Apples are also rich in fibre, and regular consumption of the fruit can prevent colon cancer. Nutrition experts also recommend that you eat the skin of the apple, as it is rich in antibodies that help in fighting off diseases.

Not all plants are equal, so it is always recommended to look for foods that grow from trees. Trees have deeper roots than cereal or root crops and therefore can draw more minerals from the soil. Foods like nuts and fruits contain a fuller spectrum of minerals than root crops.

If you can, eat about two or more fruits every day. Make sure to wash the fruit thoroughly to wash off any residues of pesticides or insecticides. Eat your vegetables raw or lightly steam to avoid overcooking and reducing the nutrient content.

## Seeds and Grains

Seeds and grains are also important sources of fibre. These would include foods like peas, peanuts, sunflower seeds, wheat, pumpkin seed, and beans. Other seeds like mung bean and alfalfa are also added to salads to make them more palatable.



Nutrition experts also recommend cooking or preparing a mixture of beans (different kinds of beans) because each bean contains a mix of amino acids, and a combination of beans will therefore give you a wide range of amino acids and proteins in a dish.

If you're growing your vegetables in your garden, it is best to grow soybeans and then pick them when they're full. They can be frozen and still retain their delicious flavour when cooked and eaten.

### Meat

Meat is a good source of protein and fat, and therefore you should have at least one serving of meat a day. Still meat, as a source of fat, can be unhealthy so make sure to trim the fat before cooking. Some people also like to eat pork or beef liver, as it is a good source of vitamin D and A. However, we would advise against it since the liver is the main organ that is in-charge of detoxification and may contain cholesterol and toxins. Also, just imagine all the toxins that have gone through the liver of the animal that you may also be eating. Instead, get your vitamins A and D from other healthier options.

There are some people who do not eat meat, and in order to get their daily dose of protein, they may eat vegetables and nuts. If you're a health-conscious individual and cutting down on your fat, prepare your food with as little fat as possible, such as opting for baked chicken instead of fried chicken.

### Fish

Fish is another good source of protein and a number of minerals. Eat at least two or three times a week and go for baked or broiled fish rather than fried. There are also "healthier" kinds of fish that are good for your heart. These are tuna, salmon, trout, sardines, cod, haddock and mackerel.

### Dairy

Dairy is a good source of vitamin D and calcium and should be consumed one to two times a day. However, make sure not to consume homogenised milk because, according to Dr. Todd, the fat particles in the milk may pass into the bloodstream without proper digestion and this can cause allergic reactions.

Other dairy products that are also good sources of vitamin D and calcium are cheese and yogurt. Go for hard cheese as it has less fat and more protein.

## Water

Most people do not consider water as a nutrient, but water is one of the best medicines that have been around since the beginning of time.

Experts recommend drinking eight glasses of water every day. In order for water to properly perform its function of improving circulation and cleansing the body, you should double the recommended 8 glasses, especially for those aged 19 to 40 years old. In fact, RDI chart recommends 3.7 litres (one gallon) of water every day for this age group. Low water intake results in dehydration and consequently, lowered attention and decreased concentration by as much as 13%.

The cleanest water is that sourced from pure spring or wells that have not been contaminated by seepage of fertilisers, pesticides or industrial wastes. However, clean waters are quite difficult to find these days, and so most water companies use water filters to clean the water they supply to households and commercial establishments. This is also the reason why chlorine is popularly used as a water disinfectant or cleaning agent. A whole house type water filter will remove as much trace of chlorine from your water as possible. It is always good to have one of these filters to get rid of any contaminants before drinking, especially chlorine and fluoride.

This is because drinking fluoride or chlorine-saturated water is harmful. In many tests where a 200-pound man would bathe or swim in a pool with chlorine for 30 minutes, it is highly likely that he would have already absorbed 4-5 pounds of chlorine into his body.

Similarly, we also do not advocate drinking distilled water for long periods of time because consuming distilled water on a daily basis can also be dangerous. Distilled water has been highly “cured” or treated to remove distilled minerals and when it enters your body, the water’s natural tendency is to leach minerals from your bones. For short, non-regular periods of time though, distilled water is acceptable as it helps in absorbing toxic substances and then eliminating them during excretion process. Fasting using distilled water is also dangerous because it contributes to the loss of electrolytes such as sodium, potassium, chloride and trace minerals like magnesium. As a result, there is higher risk of heart palpitations and high blood pressure. Distilled water can also leach minerals off your food and decrease nutritional value, so best not to prepare your food using distilled water.

Avoid artificial sweeteners (especially aspartame) and too much processed food. Cut down on products that use white sugar and white flour and where too much salt has been added. Reduce your fat intake by cutting down on fried foods as much as possible, but make sure to also still get your adequate amount of fat.

Be careful also in choosing materials to you prepare your food. While microwave ovens are handy and convenient, we do not recommend using microwaveable plastics and would prefer using microwaveable glass or ceramic. Also try to avoid storing food in plastics and Styrofoam containers as much as possible because the toxins used to make plastic or Styrofoam may contaminate the food.

Eat foods rich in fibre and drink up as many as 12 – 16 glasses of water per day to help the body flush out toxins. Most of all eat fruits and vegetables that will strengthen the immune system and help the body fight off free radicals that may cause serious diseases like cancer.

# Chapter 11 – Hope of a Healthy World

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**T**he world has made it possible for us to have convenient and easy access to any and all information we need. If anything, this quick access to information has made this world's generation the most informed. It has also made us even more conscious of our health and more proactive about it. It is no wonder then that many, if not all of us, strive to buy products that are intended to keep us healthy and deliver good results with the least harmful side effects.

This also makes the issue of mineral depletion in our soils more pressing than ever. If this depletion continues, the countries of this world will be hard-pressed to take care of their sick populations, trying to build more hospitals and improving investments in health care because of the growing number of people afflicted with new diseases. Concurrently, we also need to think about how the world's booming population impacts the use of our soil and mineral depletion. With more and more people seeking space, pressure on our soil will increase, our lands will be overused, and we will lose minerals at an alarmingly fast rate. The consequence is, of course, more sick people because of the absence of minerals that could have otherwise made the body more resistant to diseases and sickness.

We should put pressure on our governments to recognise and address this issue of mineral depletion and mineral deficiencies. Steps must be taken, and necessary guidelines must be set in order to prevent and remedy the situation. At the same time, we need to increase the public's awareness of this issue, its gravity and how it can severely impact the human population.

It is unfortunate that medical institutions and health organisations continue to turn a blind eye to this problem of decreasing mineral supply, much more the inadequate emphasis they put on the role of minerals in human health. Maybe this perpetuation of the status quo has something to do with the fact that these medical institutions and health organisations make big money from many of the drugs administered to treat the sick. Is this all part of their business strategy?

### *Perpetuating the Drug Industry*

We believe that modern medicine and drugs are important, if not crucial. Modern medicine and drugs have after all healed much of the world's diseases and saved millions of lives. But even then, there has always been mistrust of the medical world. Doctors themselves are not gods and mistakes do happen, and doctors often take care not to admit to any error or mistake on their part because it can have serious repercussions on their career: loss of a patient's trust, a lawsuit, and job sanctions.

At the same time, medical and pharmaceutical companies are reaping massive profits as they produce one synthetic chemical drug after another even though about 150,000 people in the US alone die from prescription drug use. Pharmaceutical companies spend millions advertising the efficacy of the drugs they manufacture to the public, and we are all being spoon-fed through advertising the wonders of drug after drug.

And while pharmaceutical companies attest to the testing and quality standards in their processes, how can we be assured that indeed all drugs are safe? There have been cases of people taking certain drugs and finding out that they are not suitable for the conditions for which they were prescribed. We are never sure if drugs have been tested on the right class of people with the disease for which the drug is intended.

This is why minerals are important, because if we receive the full spectrum of minerals and other nutrients our body needs, then we would have better natural defence from diseases and would not have to rely so much on synthetically produced drugs. We would not need to worry about whether our drugs are safe and have been properly tested.

### *Reiterating Mineral Depletion*

Our generation is not exactly to blame for the mineral depletion in our soils. It has been going on for nearly 100 years now, but it is true that our modern ways of living have aggravated and hastened the process.

Dr. Alexis Carrel who received the Nobel Prize in Medicine in the early 1900s said that our soil is the basis of human life and in it lays the hope of a healthy world. The fertility of our soil determines how healthy or unhealthy the world will be because it is the soil that nourishes plants and from which humans and animals derive much of their nourishment. Minerals from the soil facilitate the metabolism of all living organisms,

just as diseases are formed when there is an imbalance in the mineral substances in the air, water and soil.

As more minerals are depleted, our soils lose the ability to produce nutritional foods that will in turn provide the necessary nutrients that our bodies need. Our diet and health will be severely compromised.

And yet if this is true, we wonder why there had been no discussions about the topic of mineral soil depletion at the Earth Summit in Rio de Janeiro, Brazil. The summit noted the main causes of mineral depletion in our soils: water cycle and soil erosion, inappropriate farming techniques and overuse of land from farming activities, and fertilisers and pesticides. We also have tests that showed the extent of mineral depletion in our soils around the globe for the past 100 years.

- US and Canada – 85% loss
- South America – 76% loss
- Asia – 76% loss
- Europe – 72% loss
- Australia – 55% loss

Why is this information not widely circulated? Even more, why does no one seem to pay any attention?

### *Nourishing the Body with the Full Spectrum of Minerals*

We have been consuming the full spectrum 70+ mineral daily for years. We have talked to many individuals who have been trying to consume as many minerals as they can as well. Getting the right kind and adequate amount of minerals means a sharper mind, improved natural defence, better ability to fight off the ageing process, and enhanced sense of well-being in general.

Many people tell us of their experience after consuming the full spectrum of minerals sourced naturally from plants. We are not going to put testimonials in this information and research book, even though we could compile a massive list of them. It would be much better for you to talk personally to people, so they can share their experience with you. All we can say is, prepare to be amazed.

We have explained earlier that while plants do not produce minerals, they draw such nutrients from the soil, so it is important that our soils remain rich in terms of minerals.

We truly believe that despite the advancements in the medical field, our pharmaceutical companies and food manufacturers will never be able to produce enough synthetic drugs or food products to provide the full range of plant minerals we need. They would also never be able to replicate or duplicate plant minerals.

But if our soils are overused and severely depleted of minerals, where can we get the full spectrum of minerals? We have talked about natural food sources, but if these are also lacking in their mineral content, what are the other ways we can get the minerals we need? Our answer would be Sizzling Minerals, pure full spectrum plant derived minerals sourced from 70-million-year-old pre-historic organic vegetation.

An organic vegetate is an organic shale comprised of plants that grew some 70 million years ago and can be found in the central west of the US. The plant is thought to have grown when the topsoil of the earth contained more than the current mineral content. It has been subsumed under a layer of sandstone, effectively protecting it from natural and man-made factors that would have leached out the minerals. Since its discovery, it has been mined under the supervision of the Federal Bureau of Land Management.

Before harvest, the vegetate is composed of small impressions of leaves, stems and berries, and once mined, is placed in food grade tanks. Pure reverse osmosis water is used to draw out the 75 or so pure plant derived minerals and trace elements, and hence, is considered to be one of the most complete sources of the full spectrum of plant minerals.

The plant mineral complex is also used as ingredients in high quality animal feed, meal replacement drinks, healthy snack bites, supplements, cosmetics and bathroom products.

Tests from New Zealand had shown that feeding animals with the minerals had been highly beneficial, further reinforcing the idea that even animals are mineral deficient. Furthermore, the derived minerals have been known to improve plant growth when used as soil fertiliser or plant foliate. If you want vegetables twice the usual size and ten times tastier simply add plant mineral powder to the soil.

Other studies done on plants also prove the efficacy of this plant-derived mineral complex. In Japan, farmers attested that they have experienced substantial improvements in their yield and in the Brix or sugar content of their vegetables by using 40 grams of powdered plant minerals on their plants. The mineral powder was

added to 1,000 litres of water and used on the plants as a soil mineraliser and fertiliser. From a Brix content of 8, it rose to 14 the first year the mineral was used.

Another one of the reasons why organic vegetate minerals work is because it is acidic, meaning that it raises the acidity level in the stomach and intestine, therefore promoting enhanced food absorption. A high acid level in the stomach also curtails the growth of anaerobic bacteria and viral replication. This is the same thing as sulphur does to the body. Sulphur helps in the utilisation and metabolism of calcium. Middle-aged women who used to be calcium-deficient but started using the Sizzling Minerals eventually were found to have high calcium content in their body.

There are many other things that the Sizzling Minerals can do for our body and in the long-term, our health. In our travels around the globe, we have talked to people who have been taking plant minerals and the significant changes in their body because of this. We have also conducted numerous trials, tests and observations to see how effective this product is, and to compare its effects among groups that are non-takers and takers. We can say that if we are looking for the best alternative source of minerals, then this is the perfect product because of its low pH, being water-soluble which makes absorption into the bloodstream easier, and most of all, its full spectrum of over 70 minerals, the most complete you can get.

### *Our Future and Minerals*

We need minerals not just for the short-term (i.e., for treating certain body conditions), but also for our long-term survival. A Nobel Laureate winner, Dr. Linus Pauling said that every sickness, condition or diseases might be attributed to a lack of minerals in the body. We need minerals to keep our body's natural defence up, to strengthen our immune system and enable it to perform its job of fighting off bacteria and viruses effectively. But without minerals though, how do we do this? How do we keep our bodies strong and resistant to diseases?

Right now, the issue of mineral depletion might not seem much of a serious problem to many and even to governments and international health organisations. After all, despite the continuing depletion of minerals in our soil, there still are some minerals that our plant food sources can draw from the earth. But let's look ahead and think of the future, 30 or 50 years from now. What is going to happen? When we have completely used up or extracted every trace of mineral in our soils, where do we get then the minerals that we need in order to survive?



## Chapter 12 – Titbits, Observations and More

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**A**bout five million people are said to be dying every day around the world from heart disease, about one million from malaria, and five thousand from tuberculosis. The reality is harsh: Despite the creation and introduction of new drugs and medical procedures, the world also encounters a whole new strain of bacteria or viruses that cause new diseases and ailments every year. Even now, there is no mainstream medicine way to completely cure or eradicate cancer, just ways to prevent or stall its development. There is no miracle anti-HIV tablet or capsule.

We therefore need to slow down and think well and hard about our health, our life and our survival. Even with the increasing number of health-conscious individuals, the majority of the world's population still go through life taking it easy and disregarding the simple things that can be done to improve their health and overall well-being. It is only when we find ourselves sick, bed-ridden and unable to go about our daily activities that we feel helplessness and a strong dose of regret.

We have talked already of the essential minerals and other nutrients that our bodies need, the best food sources from which we can get these minerals, and even about the plant derived Sizzling Minerals that can supply the full spectrum of minerals. But as we have mentioned in the earlier chapters of this book, taking care of our health is not limited or exclusive to only one part or component. It is not simply about sticking to a diet plan, or just avoiding unhealthy habits. It is a holistic goal that also involves a holistic approach.

And so, this section will tell you about the other tiny things that we can do in our diet, change in our lifestyles, and even improve in the way we know and understand things so that we can achieve the goal of a healthy mind and body. In this section, we hope to share with you titbits of information and knowledge gained from observations and stories of people on how they were able to better improve their health.

## *Foods and Supplements*

### *Banana: The Perfect Fruit*

Few people know this, but bananas are considered the world's perfect fruit. It is rich in vitamins and minerals and can cure and prevent several diseases and ailments. In fact, in our research on minerals and foods, we found that bananas surpass all other foods in terms of minerals and nutrient content.

In the earlier chapters of this chapter, we have mentioned a few tests and analyses done on food to determine their mineral and nutritional content. In all the years that we have studied and read up on fruits and vegetables, we have not found any that contain the amount of minerals that a piece of banana contains. In fact, bananas contain 32 minerals! This is because the roots of a banana tree go deep into the subsoil, allowing them to draw more minerals from the soil. Oh, and they are loaded with healthy aluminium.

Bananas contain three general forms of sugar: sucrose, fructose and glucose and are instant sources of energy. If you eat two bananas, you will have enough energy to sustain you through a 90-minute workout.

The nutrients found in bananas also make it a secret cure for many common ailments and body conditions.

- ***Depression.*** Surveys among those suffering from depression showed that the patients are relatively better and happier after eating a banana. A form of protein that bananas contain, tryptophan, is used by the body to produce serotonin, a hormone that is associated with relaxed and positive emotions.
- ***PMS.*** The cheapest and surest way to cure pre-menstrual syndromes especially cramps is banana! The vitamin B6 in the fruit regulates blood glucose level, making you less grumpy and less focused on the pain before menstruation.
- ***Anaemia.*** Bananas are rich in iron, which in turn triggers the production of haemoglobin, an important form of red blood cell.
- ***High blood pressure.*** Bananas are also known to help regulate and lower high blood pressure, owing to their high potassium but low salt content.

- **Constipation.** Problems with bowel movement, like constipation, can be resolved by eating bananas. They are rich in fibre and function as a natural laxative.
- **Hangover.** There are a number of household remedies for hangover, but the most natural and easiest way is a banana milkshake sweetened with honey. Bananas can calm the churning of the stomach, the minerals in the fruit can replenish the low blood sugar, and the added dose of honey can soothe the system.
- **Heartburn.** Bananas can give soothing relief because of their natural antacid effect on the body.
- **Morning sickness.** Again, the sugar content in bananas can replenish low blood sugar and minimise morning sickness.
- **Mosquito Bites.** An insect bite cream is the typical cure for the itchy feeling from insect bites. However, one natural cure is the banana skin. Rubbing the affected area with the inside of the banana skin can soothe the irritation and reduce the swelling.
- **Seasonal Affective Disorder.** Tryptophan from the banana can soothe depression and abrupt mood swings of those suffering from seasonal affective disorder (SAD).
- **Smoking.** One of the challenging things in quitting or trying to quit smoking is dealing with the withdrawal effects. Sometimes, withdrawal symptoms can be so strong that it can simply drive one to smoke again. Bananas are rich in vitamins B6, B12, potassium and magnesium, which are known to help those who are trying to quit smoking to better handle and recover from the effects.
- **Stroke.** A research from the New England Journal of Medicine showed that including bananas in your daily regular diet could reduce your chances of stroke by 40%.
- **Warts.** A natural way to remove warts is banana skin. Simply place it on the wart with the yellow side out. Hold it in place with a bandage or surgical tape. Let it stay for three days, changing the banana skin daily to remove the wart.

Bananas are indeed the secret perfect fruit. In more ways than one, they are healthier and pack more minerals and nutrients than apples. They have four times the protein,

double the carbohydrates, triple the phosphorous, and five times vitamin A and iron and contain the most amount of potassium than you can find in any other fruit or vegetable.

A simple tip in eating your banana: Do not put it in your refrigerator. It is best to leave them at room temperature to slow down the decay or rotting process. An extra bonus information: If you're ever needing a shoe polish, rub the inside of a banana skin on your shoes and then wipe with a dry cloth and you get instant shine!

### ***Eggs: The Mistaken Source of Cholesterol***

We have briefly mentioned eggs in the previous chapter, but we would like to discuss a bit more about this food that has been dubbed as the "breakfast of champion dieters." A study from the Louisiana State University among 152 overweight adults revealed that after letting them consume a breakfast comprising of two eggs daily for two months, the participants of the study lost 65% more weight than the control group who consumed a breakfast with the same number of calories but lower protein.

Furthermore, according to Dr. Nikhil Dhurandhar, two eggs with 12 grams of protein are enough to satisfy one's appetite by 50% making one feel full and reducing lunch intake by 164 calories.

### ***Sugar: The Big Secret***

Sugar can be tricky. Some see it as the villain especially those who are fond of pastries, cakes, and other forms of sweets. But sugar has always been an important nutrient for those on the go, such as athletes who need energy for their daily workout and practice routines. What makes sugar unhealthy is the manufactured form found in most processed sweet products, energy bars and sports drinks. Dr. Martin Mills of the Committee for Responsible Medicine explained that high fructose corn syrup (HFCS) found in most of these energy bars and sports drink supplies the body with a type of sugar that it cannot process in large amounts.

HFCS can be processed by the muscles but not by the liver, making it difficult to metabolise and flush out in the end. This is why experts recommend that HFCS be consumed only if you are performing strenuous exercises; otherwise the HFCS in a 32-ounce sports drink are too much fructose or sugar for the muscles to handle. Those that cannot be digested or metabolised are converted into fat cells. The absences of leptin and insulin secretion, which send a trigger to your brain to tell your stomach that you

are full, also contribute to overeating and over drinking. In the end it can be inefficient to athletes or to anyone consuming it because it is packed with calories but no real nutrients, and the added work involved in processing it only stresses the body and makes muscle recovery (if you are working out) longer.

### *Oxygen for Cleansing*

Cleaning and detoxification are an important process. Even while we strive to stay healthy and eat safe and clean food, it is not always 101% clean and safe. It cannot be helped that we sometimes want to eat a fatty hamburger, processed food, and binge on chips. This kind of diet can cause food to putrefy in our intestines. Also, remember that when our system metabolises and digests our food, not everything is absorbed or broken down into usable form for the body and that excess in the process of digestion is turned into waste that must be eliminated.

Over time, our diet (or unhealthy diet in this case) can strain our digestive system especially the intestines because it is the primary route to the excretory organs, and a poor diet can turn the intestines into a toxic dump.

While water is effective in detoxification, the key to intestinal cleaning is oxygen (also a component of water). But there are products in that market – oxygen supplements - that have been specifically designed to cleanse the stomach, and one such is Oxy-Gen, a product by the makers of Sizzling Minerals.

If an oxygen supplement is not available, a natural way to facilitate cleaning of the intestines is to perform at least 30 minutes of anaerobic exercise every day.

### *Brazil Nut for Memory*

Brazil nuts are a natural way of fighting Alzheimer's. Chinese researches found in an experiment done among 2,000 older men and women that those with adequate (or more than adequate) supply of selenium in their diet had better memory than others receiving less than the recommended intake for this mineral.

Selenium produces antioxidants that help the brain deal with stress and manage DNA damage. Brazil nuts are rich in selenium, although it can also be derived from cremini mushrooms and beets.

### *Red Pepper for Migraine*

Cayenne pepper is an excellent remedy for migraines and headaches. Researchers at the Seattle Bastyr University found that capsaicin, the substance in chili that gives it its heat, can cut-off neuron transmitters in the brain that are known to cause headache.

The trick is to dissolve ¼ teaspoon of cayenne powder in 4 ounces of warm water. Dip a cotton swab into the solution and apply it on the inside of your nostrils. It might burn for a little bit but as the heat subsides, the headache goes away too.

### *Chocolate for the Teeth*

We've always been advised to brush our teeth after eating dessert. All those sweets can cause tooth cavity, but there's new information that can change the way you see sweets and your teeth. Researchers from Tulane University conducted an experiment where molars were treated with fluoride (ingredient in toothpastes) and theobromine, a compound that gives the bitter taste in dark chocolate. Results showed that the molars treated with theobromine turned out to be harder and more resistant to cavities.

Apparently, theobromine also has a number of other health benefits. An article from the American Journal of Clinical Nutrition noted that theobromine could be used as a treatment for circulatory problems like arteriosclerosis, angina pectoris and hypertension.

### *Saturated Fat*

Remember when we said that not all fat is bad? Saturated fat is one of the "good guys." It does have some advantages especially when eaten in perfect moderation and from the right sources. For one, get your saturated fat from whole, natural foods and vegetables. Monosaturated fats from vegetables are perfect, and can be sourced from canola, olive oil, peanut oil, avocados, olives and other nuts and seeds.

Fats contribute to calories and calories are not technically bad. It is simply all about moderation and eating the right food. For example, in terms of dairy fat, you can get your daily dose from milk, cheese and sour cream from flavours you want, not necessarily based on their fat content. A research from Cornell University found that people are more likely to eat more calories anyway when they eat fat-free foods, so might as well stick to regular non-fat ones. Another is fat you can get from eating a beef fat rib eye steak. You might have second thoughts if you're worried about your

cholesterol count, but this food is known to produce CCK, a hormone that helps you feel satisfied and full, so you are likely to eat less on your next meal. Chicken fat is high in cholesterol, but if you're getting roasted chicken breast, you can eat the chicken skin as it gives you your daily dose of selenium.

A pat of butter on your vegetables isn't too bad, too as it can help your body better absorb the nutrients from the vegetables you're eating. Egg yolk fat, contrary to what most people think, does not increase your risk of diseases, though it is still advisable to keep your consumption of egg yolks to three or four a week.

### *Health Check and Whatnots*

#### *Lower LDL and Fatty Acids*

Remember what we said about good and bad cholesterol? Our good cholesterol is HDL and the bad one is LDL, and if anything, we should strive to keep our LDL levels at a low. One way to do this is to drink milk and eat fish. Researchers from the UK have found that consuming these food products can lessen the chances of developing a metabolic syndrome, which can be a precursor of a heart attack.

In the study, it was found that those who consumed a minimum of 16 ounces of milk a day were 60% less likely to have the syndrome than those who drank less milk. Calcium can help regulate blood pressure levels and the fatty acids in milk can reduce any damage that LDL particles can have on our arteries.

#### *Check for pesticide use*

The heightened interest of many consumers in clean and safe food has propelled many food manufacturers, growers and farmers to work on growing their food in the safest and cleanest ways possible. This includes less use of pesticides and fertilisers on crops. Regardless of how a crop was grown or where it was sourced, it is always smart and wise advice to wash your fruits and vegetables properly to wash off any pesticide or insecticide residues, dirt, or other particles that can cause allergies or toxic problems.

#### *Careful with Pharmaceuticals*

According to an article from the Palm Beach Post, traces of pharmaceuticals were found in the waterways. Furthermore, an investigation from the Associated Press also revealed that traces of drugs have been found in drinking water supplies. More studies

should explore these, of course, but we believe that this is something worth paying attention to. Humans after all are not the only ones who consume water, and if indeed this were true, a lot of marine and aquatic life would be severely affected.

These drugs or pharmaceuticals could find their way into the bodies of fish and could cause reproductive problems. Already, the razorback sucker and male fathead minnow have been found with lower sperm counts and damaged cells. Walleyes and male carp have become feminized fish as they were found to start producing egg yolk proteins, something that only the females produce. Some female fish species were found to have developed male genital organs. These may be attributed to the positive findings of drugs and pharmaceuticals, such as antihistamines, anti-hypertension drugs, antibiotics, and analgesics, finding their way into our drinking water and into our seas, oceans, rivers and lakes.

This also has serious repercussions on land-based animals and even plants. In recent studies of soil fertilized with livestock manure or sludge from wastewater plants, researchers found that soil organisms (earthworms) and plants had absorbed traces of compounds including antibiotics.

Right now, over a hundred drugs have been detected in our surface waters around the globe. Sudeep Chandra of the University of Nevada noted that this is enough information to confirm that contaminants like pharmaceuticals are making their way into our organisms, plants, animals, and eventually humans.

### *Other Titbits*

- To help you burn more fat, add some exercise to your regimen. Researchers found that overweight adults who worked out for 90 minutes every week and performed light physical activity such as cycling on a stationary bike lost 2% of their total body fat in six weeks.
- If you're fond of tortillas and nachos, find one that's made out of blue corn. A study published in the Journal of the Science of Food and Agriculture showed that blue corn has lower glycaemic index and therefore does not lead to high blood sugar levels easily. It also has fewer carbohydrates, 20% more protein, and an extra gram of fat, all good for circulation. The blue colour of the corn is also due to anthocyanin's, natural antioxidants that can help prevent cancer.



- Men might find flaxseed helpful in fighting off prostate cancer. In a study conducted by researchers from Duke University among prostate cancer patients, it was found that eating 3 tablespoons of flaxseed every day for one month slowed down the growth of cancer cells by 50%. Flaxseed is rich in omega-3 fatty acid, which can inhibit cancer cell formation.

A lot of our food and their internal structures have changed over the years. For example, the classic Food Pyramid was based on the dairy industry and was based on the richest sources of essential nutrients thought to be needed to be healthy. It was also based on the nutrient density of the food, which is the basis of a food's highest nutritional value.

However, this food density has been greatly altered and reduced over the years. Just as it is important for us to take care and be extra careful in the food we consume and in how much we eat (remember: eat in moderation), it is also important that we keep track of the kinds of food we eat, the minerals contained in them, and exactly how many minerals there are in our food products. With the continuing mineral depletion, it is entirely possible that we are consuming calories with no significant nutrients.

A healthy and active lifestyle is also essential. For one thing, most people forget the value of a good night's sleep. Experts say that sleeping does not only allow our body to rest and recuperate, but the dreams that we have while we're asleep also influence and shape our thoughts and sub-conscious. And sleep is tied to a healthy lifestyle including a good diet. We cannot sleep well if we're tired, hungry or sick. Eating a good and nutritious meal is a start to allowing our body to rest through sleep.

Finally, supplements are important. We have said in the previous chapters that because it is impossible for us to get the full spectrum of minerals in our diet, it is important to supplement so we can get the right kind and amount of nutrients that we need. Because of the reduced mineral content in our foods, daily supplements have become as important as our everyday meals. Take supplements as much as you can. They will provide you with the minerals and nutrients that your body needs but you may find it hard-pressed to find in your food.

There are many things that define a long and fulfilling life, but you would have to agree that it all starts with keeping your mind and body healthy.

# Chapter 13 – The Minerals We Should Get

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**N**o matter how much food you eat, supplements you take or even regardless of how healthy you are, you will always need minerals. As we have repeatedly said in this book, minerals are the building blocks of life, so you will need them if you want to maintain your body's health, vigour and wellbeing.

We have also mentioned Sizzling Minerals. With Sizzling Minerals you can get five times more plant minerals than you get from an ordinary supplement being sold in your local pharmacy or supermarket. You can't get any purer and more natural than Sizzling Minerals, the world's first effervescent full spectrum plant derived supplement.

## *Sizzling Minerals: The Organic Vegetate*

As mentioned before, the organic vegetate has been around since the prehistoric times and is mined from underground. The vegetate from which the minerals are sourced look like hard peat moss and is actually a mass of plants that grew in the rainforests. The mass that comprises the vegetate is approximated to be about 600 or more plants, shrubs or horsetails. Many of these plants are already extinct today.

The vegetate, once mined, is placed in large food tanks and is covered with contaminant-free water. The substance is allowed to sit for days after this, and during this time, the minerals are slowly "leached" or drawn out of it and mixed in with the water.

Once the gravity of the mixture is at 40,000 mg per quart, the liquid is slowly drained off and passed through a series of filters as small as .02 micron. The liquid minerals may be concentrated to as much as 220,000 milligrams per litre. Since the plant has an unpleasant taste, the water is removed through spray drying until only the pure plant mineral residues are left. The residue, which appears like Kosher powder, contains all 75 minerals derived from the organic pre-historic vegetate.

## *Vigilance Against Mineral Depletion*

We are fortunate that we have this natural, plant-based resource from which we can get our minerals. But this does not mean that we have to be complacent. We need to still address the crucial problem of mineral depletion in the world's soils. The alarming rate at which we are losing minerals and the apparent disregard to this issue by the concerned authorities should be a signal to us that the world is at great risk of a severe deficiency in terms of nutritional value in our foods in the future.

If this depletion continues, our grandchildren and maybe, great grandchildren are in danger of being malnourished and unhealthy as our soils are unable to grow foods that will contain no more than seven minerals a hundred or so years from now. And again, to paint a bigger picture, the sicker our society becomes, the greater the cost and strain on our nations as the cost of hospitalisation increases. We would need more investments as far as our healthcare is concerned.

We are sharing the truth with you that we are consuming less than the actual minerals that our body needs. We must let others know and let them share this with their friends, neighbours, family and peers too so that they can read up and study more about the mineral depletion problem. Finally, when are all well-informed of this issue, we can press those concerned to listen to us, to pay attention to our call for necessary actions to solve this continuing and ongoing problem of mineral depletion.

We may not be able to save every life with plant minerals, but we can make a concerted effort to help ensure humanity's survival, as well as the health of our plants, animals, and the living organisms relying on our healthy soils and the nutrients they draw from it. Thousands and millions of years ago, the earth may have been pure and pristine, rich and abundant in natural resources, in minerals that nourish living things. Plants, animals and humans once enjoyed this abundance. This is not the case anymore today. Because of man's own activities, we have aggravated and fast-tracked beyond the regular terms the deterioration of our natural environment and used up at an alarming rate the nutrients and richness of the earth. It is time for us to reverse our actions and start doing something to bring back the health of the earth.

To be healthy is to live a certain dream: the dream of a long and pain-free life, the dream of a life where you can do the things you want, unencumbered by age, sickness, disease or physical disability. You can only have this when you have the full spectrum of minerals that your body needs. We believe that once these minerals get into the bodies of people, mineral health will greatly improve. We will be able to tell the

difference between a body that is merely healthy and one that is exceptionally healthy because of the complete spectrum of minerals it receives. And we will be able to show what these plant derived minerals can do for the body and convince others to consume them regularly.

Sizzling Minerals are not synthetically produced in a lab; they come from natural sources formulated by Mother Nature. Let us then share this information to our friends, families, and colleagues. Teach them that we need to start getting our complete spectrum of minerals.

Finally, as we end this book, we would like to thank everyone who shares this information with others, in the knowledge that it can change lives and promote super health to those who will listen.

Wishing you health, wealth and happiness...

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