

The Effect of
Vitamin and Mineral Supplements
On The Body's Optimal Physical Performance

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THESIS

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By the undersigned signatures below, this committed recommends that this Thesis submitted by the above-named student, in partial fulfillment of the Promotion to the rank of VII Dan, as requested, be approved and accepted for such Promotion.

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ABSTRACT

Frank Galindo III: The Effect of Vitamin and Mineral Supplements On The Body's Optimal Physical Performance

From “snake oils” of yore to “super foods” of today, vitamin and mineral supplements have seen its ups and downs in acceptance even in today’s world of “modern” science.

While many physicians simply state that they “don't believe” in vitamins and mineral supplements because “you get all the nutrition you need from a balanced diet”, there is much evidence, whether investigative, scientific and even from practical application of remedies, that strongly support claims that vitamin and mineral supplements help alleviate, reverse, or even cure many ailments that modern pharmacology has been unable to successfully treat.

With the myriad of medications on the market today, the “one pill for every ill” mentality has soaked into the mindset of our population as a whole, and the nutritional aspect of healing has been lost by the wayside.

This thesis purports to bring to light some misconceptions surrounding the vitamin and mineral phenomena as well as misconceptions regarding “modern” medicine.

To the many students that I've been fortunate enough to encounter during my TaeKwon-Do tenure, who have inquired of me either direction, support and even clarification on the validity of vitamin and mineral supplements in their daily supplement regimen...thank you for your inquisitiveness and for your desire to weigh the evidence in making sound and healthy decisions regarding your nutritional needs in your daily eating habits.

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I. From Soil, to Supermarket...to Supper

Nutrition today is a highly overlooked aspect of our lives and is very often taken for granted, especially since the start of the Industrial Revolution and our accessibility to a plethora of foods in today's supermarkets. American's dependence on our once agrarian economy is no longer a way of life.

American farmers are world-leaders in food production especially since the introduction of mechanization, cultivation, harvesting and storing, and transporting of crops grown in the U.S.

Unfortunately, since this "industrial" farming has come into play, the nutritional value of our food has, for the most part, suffered.

"Nearly 95% of the world's daily caloric intake can be traced back to the soil and that's a problem, as soil depletion becomes more and more common.

Protein content in many crops has declined by as much as 50%, just as trace mineral content has decreased; conversely, toxic mineral content (aluminum, lead and cadmium) have increased."¹

Farmers do have exceptional means of harvesting, storing and transporting foods to supermarkets for easy availability to consumers. However, "How old is your food? How much nutritional value does it [still] hold? On average, it takes 5 - 7 days to transport fruits and vegetables from farm to market (supermarket); in the best of times, food is transported anywhere from between 1500 to 2000 miles to get to the supermarket and another several days before food is actually set out for purchase. Because of the transportation time frames and the additional shelving time, you can expect these food items to lose between 50% and 60% of it's nutritional value."²

These foods have also been "treated with larvicides, pesticides, herbicides, fungicides, and possibly modified genetically"³ to look more appealing but now contain chemicals that are more harmful to the human body than the nutritive value of these foods.

¹ Katie Melville, "How does nutrient depleted soil impact our food, and what we can do to fix it."

² Dr. Victor Zeines, DDS, MS

³ David Wolfe, World Authority on raw foods and superfoods.

But now, your food is at your home...from the supermarket. And what do we do with it? We store it for a later time when we decide to prepare it for actual consumption. Is it time for supper yet?

II. Chemistry: Friend or Foe?

At one time, nutrients in the soil were replenished by waiting for flood waters to bring either ocean or river silt, from rain runoff. The soil would have the necessary elements available for crops to grow with the proper nutrition from the soil. These days, we rely on chemical additives, namely “NPK” (Nitrogen, Phosphorus and Potassium) to “enrich” our soil. Our soil “needs approximately 52 minerals and elements to be properly fertile and we replenish only nitrogen, phosphorus and potassium...the rest are missing.”⁴

Firstly, what are vitamins? What are minerals?

“Vitamins are organic compounds (substances that contain the element carbon and are often bonded to hydrogen) that are essential for normal growth and metabolic functions in the body. They are required in small amounts and cannot be synthesized in sufficient quantities by the body, therefore they must be obtained through diet or through supplementation.”⁵ Minerals, on the other hand are naturally occurring inorganic solids (typically lack the carbon-hydrogen bond but may contain either carbon or hydrogen separately) with a definite chemical composition and a crystalline structure.”⁶ Minerals also must be added by foods or supplements.

At one time, in the late 1800's and up until the early 1900's, Naturopathy, Homeopathy, and even Electromagnetic Field Therapy were taught in major Universities in the United States. But, in 1911, the United States Supreme

⁴ Charlotte Gerson, Founder of the Gerson Institute

⁵ MedlinePlus

⁶Afzaal Chemist

Court ruled that John D. Rockefeller's Standard Oil Company, was deemed an illegal monopoly and was forced to break up. Rockefeller then approached Andrew Carnegie, a robber baron in the U.S. Steel Industry and discussed the evolution of "petrochemicals" and how these petroleum by-products, petrochemicals, could also be used to manufacture "pharmaceuticals" for medical use. They only had to overcome the popularity of the medical academia of the time, that is, the teaching of natural, herbal and traditional medicines at the medical schools across the United States. Long story short, the Carnegie Foundation "sent a man named Abraham Flexner, around the country's 155 medical schools and directed the schools to restructure the existing medical system to push aside the natural and traditional remedies [of medicine] in favor of Rockefeller pharmaceuticals"⁷ or lose funds provided by the big conglomerate foundations. Homeopathic and Naturopathic remedies then became a thing of the past.

III. Cooked Foods vs. Raw Foods

Remember our food...that we brought home from the supermarket? Is anyone hungry?

Thanks to the "discovery" of fire many moons ago, we now know to cook our food, or at least most of the food we eat. But, we have overlooked a very important detail: "cooking destroys the natural enzymes in the foods we eat and destroys the essential vitamins and minerals needed by our bodies for optimal growth and continued development. Food that is cooked, falsely triggers the body's immune system, and even if just lightly steamed, your food will lose the enzymes conducive to the body's proper functioning,"⁸ and leukocytes (white blood cells) will attack the "invader", that is, the cooked food. This can lead to leukocytosis (high white blood cell count due to infection or inflammation) since the leukocytes are "sent" to defend the body against the cooked food. Ideally, raw food should be a

⁷ Universe Inside You, "How Rockefeller monopolized medicine and created BIG PHARMA"

⁸ Dr. Victor Zeines, DDS, MS

MAJOR part of our diet, where **at least 51%, slightly over half of the food we eat, should be raw** in order for the body to take advantage of the active enzymes present that are beneficial to our bodies.

Note please, that the cooking mentioned above applies mainly to vegetables. Meats on the other hand, should be cooked for obvious reasons: to kill bacteria present in meats...read on.

It is safer to eat a rare steak than to eat a rare burger. Why? Because a steak cooked rare has a single surface exposed to bacteria (the meat was not “mixed”) and this increases the chances of adequately heating the meat to kill viable bacteria. Hamburger meat on the other hand, is ground and mixed, creating much more surface area exposed to bacteria that has been turned inside-out and/or outside-in by being ground, and therefore “hiding” bacteria inside the patty that would otherwise be exposed to heat when cooking. The internal temperature for burgers should ideally reach 160°F and for steaks 145°F seems to be sufficient.⁹

IV. Vitamins and Minerals

In the last 100 to 120 years, we had little to no vitamin nor mineral supplements as we do today. Supplements today are readily available in every supermarket, and there are plenty of “health food” stores and vitamin shops to provide us with all of the supplements that we would like to access.

Vitamins can be divided into two categories: Fat Soluble and Water Soluble.

The fat soluble vitamins are stored in the body’s fat tissue and in the liver. **Fat soluble vitamins** are not required for optimal development by any microorganisms (protozoans, fungi, bacteria, viruses, etc.) nor by many invertebrates (species that have no spinal column i.e. earthworms, butterflies, octopi, etc.).

⁹ Laura Cahn, Tasting Table. “A rare steak is safer to eat than a rare burger. Here’s why”

The four fat soluble vitamins are vitamins A, D, E and K. A brief synopsis of the purpose of each vitamin follows. Again, this is only a brief outline and by no means are the functions for each vitamin all-inclusive.

Vitamin A enhances vision, immunity, and reproductive systems and functions; it also helps with heart, lung and kidney functions.

Vitamin D helps bone density, immunity, muscle movement and helps reduce inflammation.

Vitamin E is a great antioxidant, smooth muscle function and aids in blood clotting.

Vitamin K aids in blood clotting, and assists in protein synthesis for healthy bones and tissues¹⁰

Water soluble vitamins: there are nine water soluble vitamins — the “B” vitamins (thiamine/B1, riboflavin/B2, niacin/B3, pantothenic acid/B5, pyridoxine/B6, biotin/B7, folate/B9, cobalamin/B12) and vitamin C. The B vitamins — in corresponding order to the listed water soluble vitamins above — B1 works to break down glucose, and maintain brain, nerve, and heart function; B2 helps combat inflammation of lips/mouth, and blood vessel maintenance of the eyes; B3 alleviates diarrhea, dermatitis and dementia; B5 aids in energy production and hormone formation; B6 is critical in red blood cell formation, combats anemia, convulsions and mental confusion; B7 helps metabolize protein, fats, and carbohydrates and critical for proper muscle function including heart muscle; B9 is vital for DNA and RNA synthesis; B12 is essential in manufacturing red blood cells and in maintaining the integrity of the spinal cord; and finally, vitamin C is necessary for collagen growth, wound healing, absorption of iron, strengthening blood vessels, an antioxidant and maintaining a healthy immune system.¹¹

Note the diversity of functions that these vitamins support; one vitamin, or mineral, may help promote many functions of the body necessary for optimal growth.

¹⁰Study.com, Fat-Soluble vitamins definition, characteristics and functions.

¹¹ National Library of Medicine, Biochemistry, water soluble vitamins

Minerals can also be divided into two categories: macro-minerals and trace minerals.

Minerals are basically essential nutrients that are needed by the body for varying bodily functions including nerve functions, body healing and regeneration, and even absorption of other minerals and/or vitamins into the body for optimal function.

There is said to be 102 total minerals that the body requires, in differing amounts, for optimal functionality.

The major minerals, or macro-minerals are needed in a much larger supply than the trace minerals, although both are extremely important in the well-oiled machine called the human body.

Macro minerals include sodium, chloride, boron, potassium, calcium, phosphorus, and magnesium, all of which the body needs in a much bigger supply than the micro minerals. Following is an outline of the function of the macro minerals.

Sodium: often seen in a negative light, has been, unbelievably so, found to be deficient in many more people than we realize. While the U.S Department of Health and Human Services recommends consuming less than 2300 mg of sodium daily, independent studies suggest that consumption of between 4000 mg to 5000 mg daily is more likely to prevent heart disease than in those who consumed less than 3000 mg per day. (This author tends to lean toward the higher end of the sodium spectrum than what the US Dept. of HHS recommends).

Chloride: symptoms of low chloride include dehydration, fatigue/weakness, fluid loss, difficulty breathing, vomiting or diarrhea due to fluid loss.

Potassium: regulates water balance, assists in healthy blood pressure, regulates muscle contractions including heart contractions (heart rhythm), aids in digestion, helps in regulating the body's pH balance (acidity vs. alkalinity).

****Sodium, Chloride and Potassium are the electrolytes that help maintain water balance and correct pressure between the cells and the surrounding fluids, where sodium and chloride are mostly responsible in regulating the**

“water pressure” in the fluids that surround the body cells, and potassium mostly regulates the pressure inside the body cells.

Boron: helps in the absorption of vitamin C, helps in bone health, and in maintaining testosterone and estrogen levels.

Calcium: the most abundant mineral in the body, helps in muscle movement, blood circulation and hormone secretion. A lack of calcium is highly linked to osteoporosis

Phosphorus: the second most abundant mineral in the body, phosphorus helps in tissue and cell repair and helps in filtering out waste.

Magnesium: this super macro-mineral helps in more than 300 biochemical reactions and must be introduced in to the body through diet and through supplements. Studies show that almost 50% of people do not get enough magnesium (which greatly aids in the body’s elimination process; constipation is quite a dilemma in the United States).¹²

The following list of the trace minerals will be discussed in general terms. The trace minerals are just as important as any mineral or vitamin, and deficiencies in trace minerals also affects the body in a negative manner.

Some trace minerals are:

Zinc, Iodine, Selenium, Copper, Manganese, Chromium, Molybdenum.

Other trace minerals include silicon, nickel, cobalt, and vanadium. This is not an all-inclusive list. From helping a developing embryo in child-bearing women, to reduction in joint/nerve pain; from aiding in the development of the body’s immune system to battling diabetes and even increasing athletic performance, the effect of the lack of these trace minerals can be felt by those who are deficient in any one of these substances. The addition of a supplement of the trace minerals can almost immediately rectify the deficiency.

The following food groups have been shown to provide **a portion** of the indicated vitamins and/or minerals necessary for optimal growth in a developing body:

¹² mareset.com, “What’s the difference between Micro and Macro Minerals?”

Dairy

Calcium, magnesium, phosphorus, potassium

Meats

Iron, copper, zinc, chromium, magnesium, potassium, phosphorus, sulfur

Fruits

Magnesium, manganese, potassium

Vegetables

Potassium, magnesium, iodine, selenium

Grains

Iron, copper, zinc, manganese, magnesium, molybdenum, chromium, phosphorus.

While many of our foods DO have amounts of the vitamins and minerals that our bodies need for optimal functionality, the soil is depleted of the necessary nutrients for the plants to be the most hardy and resistant to attack by insects, bacteria, fungus and etc.; and if the soil is deficient, then the plant is deficient and so it stands to reason that we, as consumers, are also running short on appropriate nutritional values.

The medical mentality so pervasive in our society today is basically the “one pill for one ill” line of thinking. Many people in our population feel that if their physician is not aware of these “remedies” or does not agree that vitamins and minerals can actually minimize or even eliminate many ailments, or that taking too much of a vitamin can actually hurt you, then these people will not venture to even try the actual remedy that their body needs. The train of thought is that one vitamin “treats” many ailments, and the truth is that the absence of such vitamins or minerals, trace or macro, actually causes the body to “go haywire” in aspect of proper functionality, just as seen in the recap above of the the different bodily functions that each vitamin supports.

There are many other supplements not discussed here but that deserve mention simply because they have been used in parts of the world for many decades, if not for several centuries, and that show great success in

either preventing and/or treating certain ailments. I will list some of these supplements and the body function that they have shown to help with, but the discussion of such supplements is beyond the scope of this paper.

Following is the list of such supplements which include but are not limited to:

Ashwaganda - circulation

Sea Moss - mineral supplement

Black Seed Oil - inflammation, lung support, blood sugar

Oregano - antibiotic

CoEnzyme Q10 - smooth muscle enhancer

N-AC (N-Acetyl Cysteine) - lung function

Turmeric - inflammation

DHEA (DeHydroEpiAndrosterone) - energy

Glucosamine, Chondroitin - cartilage building blocks

MSM (MethylSulfanyIMethane) - anti-inflammatory

Hyaluronic acid - lubricates joints, helps dry eyes

VI. Conclusions

With the advent and subsequent proliferation of Social Media, podcasts, encyclopedic-type information and other non-traditional methods of acquiring information at our fingertips, this author strongly believes that more open and diverse platforms of information are more readily available and easily accessible to anyone looking to determine the validity of most claims.

And as science and medicine continue to make strides in research, and as those proponents outspoken enough to divulge such unbiased research continue to make their findings available to the public, whether findings from prior research that has been hidden, or new research that supports new findings, the public will be in a position to make more educated decisions regarding their own health and well-being.

So, do vitamins and minerals actually help a person perform better, see better, develop better? Unequivocally and absolutely...YES! There is no other way to explain the decline of scurvy when those afflicted simply

added citrus to their diet (vitamin C); there is no other way to explain the improvement of an emotionally depressed individual who is suicidal when Niacin is introduced into their diet. There is no other way to explain the improvement of the thyroid gland when iodine becomes a daily supplement in one's daily routine.

When, by their own admission, less than 6% of graduating physicians receive any formal training in nutrition,¹³ and the general consensus in the medical community is that in order to be healthy, we must watch what we eat, trim up, lose weight to help our heart, our knees, our diabetes, etc., the medical world must take into account the validity of nutritional claims prevalent in the world today and at least explore the veracity of these claims and the positive impact that appropriate doses of vitamins and minerals have had on those of us who have tried this type of supplementation, with positive results. Yet the majority of physicians have little to no idea how to improve a patient's health through proper nutrition, and a whole other modality of viable treatment is overlooked.

The medical treatment of choice is a pill, whose side effects must be treated with...another pill, and another to combat the side effects of the secondary "remedy" and so it goes; soon enough, a patient winds up taking several medications for different ailments, and the original ailment is not even an issue anymore.

As the Greek scholar Hippocrates, the Father of Medicine said: "Let thy food be thy medicine and let thy medicine be thy food." Our modern-day physicians have little to do with allowing food to "be thy medicine" but rather have succumbed to "let this pill be my retirement."

Many physicians prescribe the latest "medicine" or "treatment" for their patients mainly because the pharmaceutical companies provide "incentives" for physicians to do so, although most physicians will adamantly deny that any "kickback" system is in place when using a

¹³ Andrew W. Saul, PhD

particular product, whether it be a medication, treatment or even a referral to certain other physicians.¹⁴

VII. The Remedy

How do we combat our “ailments” and continue to function properly, even into old(er) age? First and foremost, listen to your body! No one knows your body better than you do. If something doesn’t feel right, it more than likely isn’t right. A twinge at the hip, a soreness on the neck, a tiredness even when we “get enough sleep”...all these “symptoms” may be telling us something.

Find a physician who has some background in the nutritional aspect of treatment and who is willing to try some of the naturopathic remedies available today.

Pay attention to what you eat, drink, ingest. Is it a donut and coffee for breakfast, a hamburger for lunch, and take-home pizza for dinner? What does your urine look like? Is it cloudy, dark, or have an unusual smell? Are your bowels moving regularly or have your bowel habits changed? (Magnesium is a great supplement for an active, healthy digestive system, as is Sea Moss)

Do your lips or corners of your mouth crack easily? Are you hungry mid-morning? Could be that your water intake is less than you need.

Do your legs cramp easily? Do your fingers or toes tingle? Maybe you’re low in potassium.

See a physician for a Basic Metabolic Panel test to establish a baseline of your electrolytes and sugar levels; then adjust your diet accordingly if need be. You’ll find that many abnormalities can be easily addressed and rectified with a simple addition of a vitamin or mineral, or a diet change. And you’ll have the upper hand in catching an abnormal lab result early enough to treat and counter your ailment.

¹⁴ Amiee Anderson, Pain Management Nursing Assistant

The human body cannot function properly without the essential vitamins and minerals.

From DaVinci's "Vitruvian Man" to DeBakey's "Vascular Surgery" techniques, man has always looked for ways to improve one's health, development and function.

Read the labels for nutritional values, processed chemicals, dyes, preservatives and other substances that are foreign, or seen as foreign, to the human body and look for better choices...they are out there but it can take a little digging...dig on!

Your body can tell you many things about your health if you listen to it, review your findings, study your results and apply yourself to taking a proactive approach in maintaining a healthy attitude towards your next stages in life.

In the words of Dr. Sebi: "If nature didn't make it, don't take it."¹⁵
...TaeKwon!

¹⁵ Dr. Sebi, "b.healthyfreshfood"