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Scientific Phytonutrition and the Standard American Diet: A Proposed Realistic Solution, Part I

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Most people have heard that diets high in fruits and vegetables can help them lose weight and reduce the risk of heart disease; cancer; diabetes; high blood pressure; cataracts; macular degeneration; osteoporosis; arthritis - even wrinkles. In fact, eight to 10 servings a day can cut cancer risk in half!

In 1998, the University of Naples studied an elderly population and found that those who lived the longest and were the healthiest ate more fruits and vegetables than those who died before their time. Therefore, it comes as no surprise that the USDA food pyramid advocates eating five to nine servings of fruits and vegetables per day for optimum health.

Food science has recently come to realize that there is much more to micronutrient nutrition than just vitamins and minerals. There may be well over 1,000 phytochemicals that have metabolic activity in humans. They include alkaloids; carotenoids; coumarins; flavonoids; isothiocyanates; polyphenols; and polysaccharides, just to name a few! Some serve as antioxidants fighting free radicals; some assist the liver in detoxification; and others modulate the immune system and hormone metabolism.

Further study has shown that the fruits and vegetables that come in rich, vibrant colors (like tomatoes; carrots; spinach; broccoli; blueberries; and raspberries) are much more potent and beneficial than the pastel-colored produce (like iceberg lettuce; bananas; celery; corn; and potatoes). Also, certain foods may contain greater quantities of antioxidants, fibers, probiotics and specific medicinal substances, the latter being especially true of many edible herbs and spices.

The Super Foods and the Standard American Diet (SAD)

As we have become more aware of the broad spectrum of health, antiaging, and disease-prevention of foods high in these micronutrients, a new name for them has arisen: "super foods."

The "SAD" fact remains that in spite of all the support from mainstream medical organizations (American Heart Association; American Diabetes Association), governmental health organizations (National Institutes of Health, National Institute on Aging, and the USDA), and officials (like the U.S. Surgeon General), few people eat the recommended minimum of two fruits and three vegetables daily. Even counting the "pale" foods like French fries, bananas and iceberg lettuce, few achieve the daily minimum. Very few enjoy the optimal nine servings daily. And of those who do, even fewer have a diet emphasizing fresh and organic phytochemical fruits and vegetables of deep, bright color!

The reasons for the SAD are deeply ingrained in our culture and lifestyle. We can no longer attribute it to ignorance. What is obviously needed is a "fast-food health food" that delivers much of the proven benefits of a diet rich in super foods but, like any other "fast" food, is extremely convenient, enjoyable, and economical.

This paper will briefly introduce many of the most beneficial super foods and their extracts.

The Super Greens: Spirulina, Chlorella, and Young Barley Greens

Super greens are those pigment-rich dark green plants and friendly photosynthetic algae that make up most of the very foundation of complex life on earth. They make life possible as the beginning of the food chain upon which other plants and the more complex animals all depend. As such, these contain all the essential building-block nutrients or precursors upon which all other life depends.

In the oceans and lakes, these super-foods are one-celled organisms called spirulina and chlorella. They are some of the oldest, most successful and resistant organisms, and provide most of the oxygen dissolved in water. On land, these foods are the young springtime sprouts or shoots of the seed-producing green grasses and the green herbs, an excellent example being young barley green shoots.

Spirulina is primordial, aquatic blue-green algae. It takes its energy directly from the sun and minerals in water that is highly alkaline, or commercial aqua farms where purity can be monitored. It grows so fast that spirulina accounts for up to one half of the oxygen on our planet! It contains over 100 vitamins; minerals; amino acids; enzymes; phytonutrients; high levels of easily absorbed natural cell protectors (antioxidants): chlorophyll; alpha and beta-carotene; and phycocyanin, the latter found exclusively in spirulina.

Approximately 65-70 percent of amino acid proteins are found in spirulina - for a greater level than in beefsteak. It is a natural treasure trove of organic vitamin B12, iron, chromium, selenium and essential fatty acids (GLA). It contains 50 times more blood-building iron than spinach, and 10 times more bone-building calcium than milk. Spirulina is the highest natural plant source of stamina-building vitamin B12, has more "good" fats (GLA /EFA) than evening primrose oil, and more vitamin E than raw wheat germ. It also supports and promotes the growth of friendly intestinal flora. "People have used foods like yogurt (containing probiotics) and spirulina throughout history. These foods improve immune system function and are a beneficial addition to our diet," says Judy van de Water, associate professor of rheumatology, allergy and clinical immunology at U.C. Davis.

Like all edible, dark green plants, spirulina is also highly alkalizing, meaning that it helps restore the acid-base balance; it helps neutralize the acidity caused by eating excess meats; starches; sugars; soft drinks; preserved foods; stress; excess exercise; environmental pollutants; drugs; alcohol; coffee; and tobacco. The algae is also rich in photosynthetic pigments that make it a great heavy metal detoxifier. Doctors Sklar and Schwartz of the Harvard School of Dental Medicine showed that an extract of spirulina's antioxidants prevented cancer in animals: "Spirulina increased antibody responses and the activity of natural killer cells, which destroy infected and cancerous cells in the body."[1]

Chlorella is the number-one-selling health food supplement sold in Japan. It is a unique single-celled freshwater green algae, containing high concentrations of chlorophyll; nucleic acids; amino acids; enzymes; antioxidant carotenes; and vitamins and minerals, especially zinc. (The latter is often deficient in athletes and vegetarians.)

There is as much chlorophyll in chlorella as there is in spirulina. This is the phytonutrient that makes plants green, deodorizes, detoxifies and promotes the body's natural healing. It has also been studied for its potential in stimulating tissue growth, and in stimulating red blood cell production. Perhaps most remarkable is the similarity between chlorophyll and the red pigment in blood. Indeed, chlorophyll is just a hemoglobin molecule with magnesium in the middle instead of iron.

Chlorophyll fed to laboratory animals reduces absorption of three dietary carcinogens: heterocyclic amines (found in cooked muscle meats), polycyclic hydrocarbons (found in smoked and barbecued foods), and aflatoxin (a toxin produced commonly by mold that infects grains and peanuts).[2] The chlorophyll forms complex compounds with the chemical carcinogens while they are still in the digestive tract, limiting their

absorption and distribution. Chlorophyll has also been found useful to treat some disorders of the pancreas and reduce fecal, urinary, and body odor in geriatric patients.

Chlorella is the most researched green product, resulting in numerous health benefits, including improved immune system function; heavy metal and pesticide detoxification; anti-tumor activity; and (because of the chlorella growth factor) enhanced white blood cell activity and quicker wound and ulcer healing![3,4] Chlorella, unlike spirulina, has a cellulose wall that humans cannot digest. It is therefore important that "cracked-cell-wall" chlorella be used.

"It (chlorella) is by far the best and most powerful of the nutraceuticals that provide your body with the proper nutrition to heal itself. ...There is nothing better for finally helping you feel the way you want to feel,"[5] says Michael Rosenbaum,MD,MSC, director of the Orthomolecular Health Medical Society.

Barley grass is considered the most nutritional of the green grasses. When the great herds of the plains survive the dry season or winter, nature provides them with the most nutritious of foods, young, green sprouting grasses. This is the only vegetation many herbivores eat. It supplies their sole nutritional support from birth to old age. But before green grasses undergo the reproductive cycle that creates the grains, they are in the grass stage and contain about the same vitamins and minerals as dark green vegetables.

When these grasses are harvested at a young age, they have a different chemical makeup than their adult counterparts.

For example, wheat grass has 32g of protein per 100g, while wheat flour has only 13g per 100g. Wheat grass has about 23,000 international units (IUs) of vitamin A per 100g, while wheat flour has none. As a result, the young grasses offer us much greater nutrition.

Barley grass juice powder, low-temperature, spray-dried from pure organic juice and not milled grass, is a powerhouse that brings you a wide spectrum of natural nutrients in natural proportion, as well as chlorophyll, live enzymes, and a unique and powerful antioxidant: 2"-0-glycosylisovitexin, reported to have antioxidant activity at least equal to that of vitamin E.

Green barley leaves contain a multitude of the body’s spark plugs: enzymes. Enzymes are the catalysts for essential chemical reactions and responsible for digestive processes, cellular energy, and antioxidant effects.

Despite their importance, most people do not get the enzymes they need, as heat destroys enzymes, and most of our foods, whether cooked at home or processed, are heated. The world's greatest expert on green barley is Yoshihide Hagiwara,MD, an associate professor at the department of environmental toxicology at UC Davis. He believes that there may be thousands of active enzymes in green barley, especially super oxide dismutase (SOD), a major detoxifying enzyme sometimes recommended in combating arthritis.

Young barley juice powder contains 13 times as much carotene as that of carrots, 55 times as much vitamin C as that of apples, and five times as much iron as that of spinach. Its potassium content works to balance the sodium in salt and so many other processed foods. Many people note a diuretic effect, similar to "water pills," frequently followed by the lowering of an elevated blood pressure. Recently, research has unveiled many other possible benefits of green barley leaves. Extracted compounds may have cholesterol-lowering effects, anti-inflammatory benefits, and anti-ulcer properties.

"It was clear to me that the leaves of the cereal grasses provide the nearest thing this planet offers to the perfect food," asserts Dr. Hagiwara. "For reasons of palatability, higher nutrient content, and favorable harvesting features, green barley stands out as the best among these."

References

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