

# Sustainable Health

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## Path to the Garden: The Truth About Vitamins and Anti-Oxidants

Some headlines over the last six months may have you scratching your head.

**No Protective Effect On Cancer From Long-Term Vitamin E Or Vitamin C Supplementation, Trial Shows;**

**Long-Term Use of Nutrient Supplements May Increase Cancer Risk;**

**Folic Acid Supplements Linked To Higher Risk of Prostate Cancer, Study Shows;**

**Multivitamins No Cancer, Heart Help, Study Says**

What gives? Vitamins and antioxidants have become daily staples for legions of health conscious consumers, promoted by health care professionals (alternative and mainstream alike), countless magazine articles, even TV ads. But to review these headlines and the studies they report, one has to wonder if we've all been led down the wrong path?

In a word, yes. But the wrong path isn't the one most easily taken after reading these headlines, the path leading one to conclude that there is no benefit and in fact may be some harm in swallowing all those pills. "See, I told you so. You've just been throwing your money away to produce expensive urine" chants the naysayer's chorus. Perhaps so, if all those supplements you've been swallowing are the majority of what is out there—*chemically synthesized, fractionated*, vitamins, minerals and antioxidants. Let's try a different path; one I like to think of as the garden path.

First though, let's go back in time to when vitamins and their healing effects were first theorized. The earliest discoveries were not about vitamins at all in fact; nobody really knew about such things. The discoveries were about *food*. This is our first path marker. As early as 1500 B.C., Greeks and Romans used Goose liver to treat night blindness. In 1757, a doctor in the British Navy, James Lind, recognized that only *fresh* fruits and vegetable cured Scurvy, something to which sailors at sea had no access. About that time, an Italian doctor, Marzari, made the connection between refined corn in the diet and Pellagra, a disease characterized by the 4 "D's", dermatitis, diarrhea, dementia, and death. In the next century, Cod Liver Oil was found to cure rickets in children living in sunless, crowded, industrial cities, and a Dutch physician found that he could induce symptoms in birds, similar to Beriberi, by feeding them refined rice. Then, he was able to reverse the symptoms by feeding the birds the bran and the germ that had

been removed in refining. In the early 1900's, these observations led a Polish Biochemist, Dr. Casimir Funk to isolate a substance in rice husks that could prevent Beriberi. He thought, incorrectly, that the substance was an amino acid (the building blocks of protein) hence he called it a *Vitamine*, from vita (life) and amine (amino). And so the vitamin theory was born. About the same time, F.G. Hopkins, a British biochemist, was experimenting with feeding laboratory animals totally refined diets only to discover that the animals were unable to reproduce, and eventually became ill and died, while animals fed an unrefined, unprocessed diet, thrived. Path marker #2. In 1929, Funk and Hopkins won a Nobel Prize in Medicine for their discoveries.

Those markers take us down the garden path. Look around, imagine it's summer and the garden is full and alive with beets, broccoli, kale, cabbage, carrots, peppers, tomatoes, spinach, etc. Now let's talk about what is a vitamin? A vitamin is a large group of chemically related compounds that work together and potentiate the individual compounds' effects. Take a beet for example. There are 145 *known* compounds in a beet. In a best-selling multi-vitamin tablet there are just 21 of those compounds, synthetically produced. How could the action of 21 chemically formulated compounds work in your body in the same way as 145 natural compounds that by design, work together? Of course they can't.

Synthetically produced vitamins versus food—chemistry vs. biochemistry—something dead and inert vs. something possessing live enzymes and a life force. Are they comparable? Are they equal in action when put into a live body? We only have to go back to the earliest beginnings of nutrition inquiry to see that food taken apart, fractionated as it were, had deleterious health consequences. Right from the beginning we knew that there were foods that could prevent or cure disease, and that when we messed with those foods, when we took them apart, changed them from the form in which they occur in nature, bad things happen; animals can't reproduce, they die, people get diseases of deficiency. Nothing has changed in the biochemistry of food other than the ways we have interfered with it. It is science, industry, profit motive, and hubris that have taken us down the wrong path.

Let's look at a couple of examples. For many years, bottles labeled vitamin E in the stores contained only Alpha Tocopherol. Vitamin E in nature contains, alpha, beta, delta, and gamma Tocopherols, and also four types of Tocotrienols (according to present knowledge). Tocopherols and Tocotrienols are not the whole E Complex. They are parts; parts that are known for their antioxidant effect. In fact, their purpose is to act as an antioxidant for the E Complex itself. Similarly, in this country, the only thing that can be sold as Vitamin C is ascorbic acid, synthesized in a lab by boiling corn syrup with Sulphuric acid. But true Vitamin C *Complex* is made up of many other things—bioflavonoids, rutin, Vitamin K Complex, tyrosinase, selenium and copper-- and the ascorbic acid, like the tocopherols and tocotrienols in E, is the antioxidant for the C Complex. Therein lies part of the problem; these antioxidant elements are there for the plant's benefit; we're supposed to be consuming vitamin- and antioxidant- rich food, not synthetic pieces of vitamins! Knowing the biochemistry *isn't* important, but realizing that most of what is being sold out there as anti-oxidants and vitamins are chemically synthesized, fractionated, very poor imitations *is* important. These imposters are not benign; they can and do have negative health consequences, which is part of what is reflected in those attention-grabbing, media headlines of late (the rest is poor study design and bad interpretation, but that's another story). No scientist disputes that diets rich in

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fresh fruits and vegetables reduces disease risk; it's only the effort to simulate nature in the lab that is failing.

When a vitamin, or an anti-oxidant is chemically synthesized and fractionated it is debilitated. The body is forced to deal with what has essentially become a drug, albeit less dramatic in perceived impact. Ascorbic acid will never, can never, have all of the physiological benefits that C powerhouses, broccoli or kiwi fruit have for our body. For one thing, vitamins in food unlike their synthetic counterparts are bound to enzymes, which are essential to how a vitamin functions in the body. The body has to work hard to handle these foreign chemicals. While initially, one can have a drug-like effect from the synthetic or fractionated vitamin, over time, the body must donate all the missing synergistic components to the imposter, using up your body's tissue reserves of those compounds. This often leads to more deficiencies.

With a synthesized product the body is forced to deal with a foreign substance. While an initial dose may alleviate a symptom, as a drug will, the continued use of fractionated and synthetic nutrients will create a toxic load, or an imbalance that the body then has to handle. It may or may not be able to do this without creating the symptoms of toxicity or deficiency, again reflected in some of the study results. What's missing in all this industry-sponsored nutrition is an appreciation for, an understanding of, the body as a functional organism rather than as a machine. It's a bit of scientific arrogance to say the least to think that our bodies aren't smart enough to know the difference between a nutrient dense whole food and a synthetic imitation of food. Needless to say, pumping in a fake version of the nutrient is likely to give you unexpected results.

Does this mean we shouldn't use supplements? Not exactly, and here's why. Aside from the reality that most people don't eat enough fruits and vegetables, most of us are losing the war waged against fresh, whole, nutrient- rich food. We refine (strip nutrients), overcook (kill enzymes), pick before fully mature (stunt nutrient development), pasteurize (kill live components), genetically modify (who knows?), apply toxins (poison ourselves), and deplete the soil of nutrients through chemical farming (grow nutritionally deficient food). Long before clinical disease can be diagnosed, subtle and not-so-subtle changes in function (symptoms) are happening in the body, almost all attributable to nutrient deficiencies, because nutrients are, after all, the "stuff" that makes us. So most of us can benefit from supplements but in most circumstances, only those made from whole, organic food or herbs that gives the body exactly what it knows how to use in order to restore, rebuild and repair. The label should list the foods from which the product is derived.

Aside from the lesson that we all need to get back to the garden, we cannot afford to overlook both the limitations of science in what we don't know, and the influence of economics in deciding what gets studied and what gets produced.

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