

The Whole Food Difference

On March 20, 2006, the Wall Street Journal published an article entitled “The Case Against Vitamins”. The author states that *“every day millions of Americans gobble down fistfuls of vitamins in a bid to ward off ill health. They swallow megadoses of vitamin C, in hopes of boosting their immune systems, B vitamins to protect their hearts, and vitamin E, beta-carotene and other antioxidants to prevent cancer.*

It is estimated that 70% of American households buy vitamins. Annual spending on vitamins reached \$7 billion last year, according to industry figures.”

According to consumer research published in 2004, there is a similar interest in supplementation for pets with an estimated \$20-50 million in annual sales.

Unfortunately, as the Wall Street Journal article continues, *“But a troubling body of research is beginning to suggest that vitamin supplements may be doing more harm than good. Over the past several years, studies that were expected to prove dramatic benefits from vitamin use have instead shown the opposite. Beta-carotene was seen as a cancer fighter, but it appeared to promote lung cancer in a study of former smokers. Too much vitamin A, sometimes taken to boost the immune system, can increase a woman’s risk of hip fracture. A study of whether vitamin E improved heart health showed higher rates of congestive heart failure among vitamin users.*

And there are growing concerns that antioxidants, long viewed as cancer fighters, may actually promote some cancer and interfere with treatments”

At this point, if you're confused about the value of nutritional supplementation, you are not alone. The contradictory results between observational dietary trials and interventional supplementation trials is confusing and frustrating – especially when you are desperately searching the internet for something that will help your ailing pet and you are bombarded with so many supplements and so many miracle-cure claims.

Fortunately, there is an easy way to make sense of this apparent confusion.

The first hurdle is to understand the difference between an **observational study** and an **interventional study**. An **observational study** may begin with a large group of individuals with particular lifestyle habits such as diet or smoking. For the purposes of the study, these individuals are then followed for several years and detailed medical histories are maintained to keep track of medical conditions, chronic diseases, cancer, and ultimately, deaths. Also, blood samples are obtained on a regular basis throughout the study. For our example, we will look at a large group of people that regularly consume large amounts of fruits and vegetables when compared to the average adult. It has been found that this group has a much lower rate of cancer than the rest of the population and these individuals also have high amounts of beta-carotene in their blood. So, there appears to be an association between decreased risk of cancer and high levels of beta-carotene. This beta-carotene/cancer risk relationship appears in the news, and beta-carotene supplements appear on the shelves.

But here's the catch: The next step to investigate the association between beta-carotene and cancer risk, is to perform an **intervention trial** by providing purified beta-carotene as a supplement and observing the results compared to the general population. Unfortunately, as was shown in two large clinical trials with over 40,000 adults, the beta-carotene supplemented groups had significantly higher rates of cancer and death than those that were not supplemented. ⁱ

These examples illustrate the difference between eating foods and consuming isolated or synthetic food chemicals. Fruits and vegetables contain thousands of chemical compounds collectively called phytochemicals. Beta-carotene is just one of these compounds. As more research is done, we are gaining a much better understanding of the complex interactions of these chemicals within the body. What we know is that a single phytochemical consumed in isolation and in an unusually high amount that does not occur in food, can have an unbalanced and harmful effect on the body. To quote the Wall Street Journal article again, *“While vitamins from food sources are necessary and good for you, consumers today often scarf down vitamins at levels that are more like a pharmaceutical dose than something found in nature. In a test tube, high doses of a single antioxidant can turn bad, evolving into pro-oxidants – meaning they start to oxidize and create free radicals, causing the very problem you were trying to prevent.”*

At this point, it is easy to see that **the best source of nutrition or nutritional supplementation is going to be from whole foods or whole food concentrates**. More evidence of the importance of whole-food nutrition comes from the example of vitamin E.

A very popular vitamin supplement is vitamin E. Unfortunately, the vitamin E that is placed in supplement capsules, human and pet vitamins, and supplemented in pet foods consists of only alpha-tocopherol. Alpha-tocopherol is only one part of the whole vitamin E complex. The whole Vitamin E complex, as it occurs naturally in foods, consists of 8 closely related chemical compounds - there are 4 distinct tocopherols and 4 distinct tocotrienols. This is a critical distinction to understand. When observational dietary trials are performed, benefits are consistently shown with a diet high in naturally-occurring vitamin E. When blood samples of the study participants are analyzed, there are elevated levels of alpha-tocopherol in the blood. However, there is a similar response to alpha-

tocopherol supplementation that is seen with beta-carotene supplementation. In 2005, a large study (“meta-analysis”) looked at the results of 19 large clinical trials of alpha-tocopherol supplementation in over 135,000 individuals. The study showed that there was a higher risk of death from all causes in the people taking alpha-tocopherol and the greatest risk was for those taking 400 IU or greater.ⁱⁱ Again, this may seem confusing, but this is another case of a single chemical substance consumed in much higher amount than what is contained in any food, causing an unbalanced and undesirable effect on the body. Another example of this unbalanced effect is a recent study which has shown that when alpha-tocopherol is supplemented at high doses (≥ 400 IU/day), it will directly cause depletion of the other components of the vitamin E complex from the body.ⁱⁱⁱ And, these other compounds contained in food-based vitamin E have been shown to be much more potent inhibitors of cancers than alpha-tocopherol.^{iv}

The important take-home lesson is that the key to safe and effective nutritional supplementation is to use whole-food based supplements. These are supplements that are concentrated from foods that contain the complete naturally-occurring vitamin complexes and the naturally complex array of synergistic phytochemicals. At the [Veterinary Wellness Center](#), we utilize a line of whole food nutritional supplements produced by the Standard Process Company. Standard Process has been producing a line of whole-food-based nutritional supplements for people since 1929 and the same high quality ingredients contained in the human supplements are used in the production of the canine and feline nutritional supplements. Standard Process pioneered a low-temperature vacuum drying process over seventy-five years ago that preserves the naturally-occurring whole vitamin complexes and phytochemical synergy. More information about this innovative company and their whole-food philosophy can be found on the web at [StandardProcess.com](#)

Hopefully, this information clarifies some of the confusion about the different supplements that are available, why there appear to be contradictions in supplement research, and also explains why we recommend the specific supplements that we do.

ⁱ Michaud DS, Feskanich D, Rimm EB, Colditz GA, Speizer FE, Willett WC, Giovannucci E. Intake of specific carotenoids and risk of lung cancer in 2 prospective US cohorts. *American Journal of Clinical Nutrition*, Vol. 72, No. 4, 990-997 October 2000

ⁱⁱ Miller ER III, Pastor-Barriuso R, Dalal D, Reimersma RA, Appel LJ. Meta-analysis: high-dosage vitamin E supplementation may increase all-cause mortality. *Ann Intern Med*. 2005;142:1-11.

ⁱⁱⁱ Huang H Y, Appel, LJ. Supplementation of diets with alpha-tocopherol reduces serum concentrations of gamma and delta tocopherol in humans. *J Nutr*. Oct 2003 133:3137-3140

^{iv} Giovannucci E. Gamma-tocopherol: a new player in prostate cancer prevention? *Journal of the national Cancer Institute* December 20,2000 Vol. 92, No. 24, 1966-1967