

# Serious Dangers of Synthetic & Unnatural Vitamins

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Truly health-conscious consumers choose to avoid artificial, unnatural and synthetic chemicals, but often — and unknowingly — consume these in dietary supplements. Misleading information on supplement labels is the most common reason for confusion about these ingredients. Consuming these potentially dangerous chemicals is much more serious than once thought.

We should be concerned about taking synthetic vitamins and other unnatural nutrients because published research in the last few years concludes two important things: First, synthetic and other unnatural nutrients are mostly ineffective in preventing disease. Second, these chemicals may be dangerous to your health — some have been shown to increase the risk of death! Most of the studies show an increased incidence of cancer and heart disease, the reason for the increased risk.

This research should not be confused with the health-promoting roles of the natural versions of these nutrients found in natural foods. Decades of research and thousands of studies demonstrate the effectiveness of these natural food nutrients in successfully preventing and treating disease.

## **The Case of Vitamins C & E**

The most common synthetic compounds used in dietary supplement are the vitamins themselves. In fact, almost all vitamins on store shelves, and those used to fortify foods (even “natural” foods), are synthetic. One common exception is vitamin E, which is found in supplements as either synthetic or natural. But the so-called natural vitamin E is actually quite unnatural.

Synthetic vitamin E products are used in cheaper supplements as *dl-alpha tocopherol*. So-called “natural” vitamin E, *d-alpha tocopherol*, is common in many other supplements. However, even though this vitamin E is a natural form, it is very unnatural for two reasons. First, it’s in an isolated form without the rest of the naturally-occurring vitamin E complex. In nature, alpha tocopherol exists with seven other vitamin E compounds: three other *tocopherols* and four *tocotrienols*. Second, supplements of alpha tocopherol are usually very high, unnatural doses. Normally, consuming a full days worth of high vitamin E-rich foods would yield about 30-40 IU of alpha tocopherol, yet the typical dose in supplements is 10 times that, sometimes much more.

Almost all vitamin C in dietary supplements is synthetic, and as such is listed on the label as “ascorbic acid.” The dose also helps identify it as synthetic — it’s almost impossible to get much more than 100-150 mg of vitamin C from food into a tablet or capsule. The amount of vitamin C in a natural supplement, therefore, may be listed in the supplement facts panel as “vitamin C 100 mg” and will not list “ascorbic acid” (or any other of the many types of synthetic vitamin C).

A new study on vitamin C (Am J Clin Nutr; Jan 2008) showed adults taking the synthetic version had serious side effects. Doses of 1,000 mg of vitamin C a day impaired their energy systems (significantly hampering their endurance capacity), specifically by weakening the mitochondria of the cell (which burns fat and sugar). It also had significant adverse effects on the antioxidant system (a key immune regulator). Those who take vitamin C often take this amount or more, and it's almost always synthetic. Children may be even more vulnerable.

### **Two Types of Dietary Supplements**

High dose, synthetic and isolated dietary supplements – what I call HSAIDS – make up 98% of the products available to consumers. These unnatural supplements are one of two categories of dietary supplement, the other being truly natural supplements. It's the research on unnatural dietary supplements (the HSAIDS) that show both ineffectiveness and increased risk of death.

Truly natural dietary supplements are made from freeze-dried real food, or otherwise are not heated, and the nutrients they contain are natural doses without added synthetics. Fish oil (containing EPA/DHA), flax oil (containing alpha-linolenic acid), and vegetable or fruit concentrates containing many nutrients are common examples.

Unfortunately, most fruit and vegetable concentrates used in dietary supplements are dried with very high heat, destroying various nutrients. They don't supply much nutrient but are used in the supplement to make it appear natural, while all the nutrients listed on the label come from synthetic or other unnatural additions. These so-called "whole food" supplements containing fruit or vegetable concentrates have to be "spiked" with synthetic vitamins and other unnatural nutrients in order to list any appreciable amounts of nutrients. Read the supplement facts panel carefully.

Some companies even claim their products are made from real food with real vitamins when, in fact, they feed synthetic vitamins to yeast, then harvest the yeast to use in supplements. Unfortunately, the USDA is yet to address this issue, and the label information won't let you know the truth, unless the dose is high enough.

### **Other Vitamins**

Almost all the B vitamins on the market are synthetic. In this case, the dose is not such a good indicator. The common synthetic B vitamins are usually listed by one of various synthetic names (i.e., folic acid). The truly natural ones, on the other hand, are referred to as *active* B vitamins. The commonly used active B vitamins are listed on the label, and below:

#### Some common names of natural (*active*) B vitamins

Thiamine (B1):	Thiamine pyrophosphate; Thiamine triphosphate
Riboflavin (B2):	Riboflavin-5-phosphate; Flavin mononucleotide (FMN)
Niacin (B3):	Nicotinamide (adenine dinucleotide)
Pantothenic acid (B5):	Pantethine
Pyridoxine (B6):	Pyridoxal-5-phosphate
Folic acid:	Folinic acid; 5-methyl tetrahydrofolate
Cobalamin (B12):	Methylcobalamin; Adenosylcobalamin
Choline	Phosphatidylcholine

If you read the label and don't find these active names for the B vitamins, most likely they're synthetic. Some synthetic vitamins may convert to their active forms once in the body, but they require additional nutrients. For example, in order for the body to utilize synthetic folic acid additional vitamin C, niacin and vitamin B12 are required.

Vitamin A in its natural form is actually a large group of natural compounds. Natural vitamin A only comes from animal sources, and the truly natural dietary supplement forms usually are from fish oils. Synthetic forms, which don't contain any natural vitamin A compounds, are typically in a dry form (tablet or capsule). The synthetic form of vitamin A is significantly more toxic than the natural form. The most commonly used synthetic form is *vitamin A palmitate*.

Beta carotene is not vitamin A, but is a phytonutrient, some of which converts to vitamin A compounds in the body. However, this conversion is not very efficient. Most supplements that list vitamin A will also state, in parentheses, beta carotene. Those listing vitamin A without noting beta carotene are probably synthetic, unless some type of fish liver oil is listed somewhere on the label.

Vitamin D comes in two natural forms: Vitamin D2, called ergocalciferol, comes from plants. Vitamin D3, called cholecalciferol, is from animal sources, and is the active form, like the vitamin D obtained from sunlight. A variety of synthetic vitamin D compounds have been developed, the most common being calcitriol, doxercalciferol and calcipotriene. All vitamin D supplements can be toxic in high amounts, although one could not overdose on vitamin D from the sun.

### **Minerals**

All minerals are natural – they came from the sun in the early formation of the earth. What could make them unnatural as a supplement is their high dose. There have been numerous studies showing that high-dose minerals can be dangerous. For example, iron and copper can produce very dangerous free radicals. Beware of unnatural doses of minerals such as those that are five or 10 times above daily values. Also avoid minerals with the lowest bioavailability such the oxides and the chlorides.

One final note: Beware of *natural*. The use of the word *natural* has reached the level of abuse. Basically, the term has little meaning. A bottle of 100% synthetic vitamin C, for example, may be labeled “natural.” With no adequate legal definition, any company can use the word “natural” almost as it pleases. Ignore the word “natural” and look for key words on the label.

In summary, most dietary supplements contain synthetic vitamins and can be both ineffective and potentially dangerous to our health. Knowing how to read a label to avoid these common unnatural nutrients is the key for truly health-conscious consumers who wish to avoid them.