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## HEALTH NEWS

### Vitamin C Report Stirs Controversy

On April 8, a team of British scientists issued a report stating that vitamin C could cause cell damage by reacting with iron to produce free radicals. The report, published as a letter in the journal *Nature*, was based on 30 human volunteers who were given 500 mg of vitamin C per day for six weeks. The scientists stated that, while vitamin C produces protective effects, it also has a dual activity that could cause DNA damage.



Based on a preliminary analysis of this report, here are a few scientific facts:

It is well known in the field of molecular biology that vitamin C produces both antioxidant and pro-oxidant effects in the body.

That's why no one should take vitamin C without also taking vitamin E.

After vitamin C is ingested, it functions as an antioxidant by transferring its own electrons to protect against free radicals in the body. Once it loses its electron balance, vitamin C degenerates into an oxidizing compound called dehydroascorbic acid.

Vitamin E has been specifically shown to regenerate oxidized vitamin C by freely donating its own electrons to dehydroascorbic acid. There are other antioxidants, such as cysteine, that regenerate dehydroascorbic acid back into vitamin C (ascorbic acid), but vitamin E is the best documented.

The preliminary response of the Linus Pauling Institute, named after the late scientist who championed the use of vitamin C, was to note that the type of oxidative injury the British scientists said that vitamin C prevents is 10 times more dangerous than the type of damage the scientists say that vitamin C causes. The Linus Pauling Institute also cited previous research showing that vitamin C prevented the type of oxidative damage that the British scientists say it caused.

Another preliminary rebuttal in the health newsletter *The Nutrition Reporter* pointed out that there are 20 different types of DNA damage that could have been measured, but that the British scientists looked at only two of them. *The Nutrition Reporter* poked many holes in the British study, and included the following comment:

"A study was just reported that 500 mg of vitamin C daily causes breaks in DNA, the complex protein that forms your genes. Gene damage makes people edgy because it can lead to cancer. But the headlines could just as well have stated that vitamin C supplements prevent DNA breaks. That's because the study found that vitamin C also reduced DNA breaks."

The British scientists now want to do additional research to determine exactly what dose of vitamin C can be taken without causing this kind of oxidative stress. The Life Extension Foundation has written a letter to these scientists suggesting that the daily addition of a 400-IU capsule of vitamin E might eliminate any oxidizing effects that were seen when vitamin C was administered alone.

This small study helps to validate the Life Extension Foundation's long-standing position that vitamin C should be taken with other antioxidants, such as vitamin E. Most vitamin supplement users take vitamin E and are protected against the type of damage observed by the British scientists. Antioxidants like N-acetyl-cysteine, grape seed extract, and green tea extract also have been shown to provide significant protection against the cellular effects of oxidized vitamin C.

While the British scientists stated that the daily intake of 500 mg of vitamin C prevented more DNA damage than it caused, the media's frenzy to attack vitamin C caused this important fact to be overlooked by most people. This incident of "vitamin bashing" will regrettably cause many people to stop taking a supplement that has been documented in thousands of studies to prevent degenerative disease.

The Life Extension Foundation has written this last-minute report to assure members that it is safe to take vitamin C. A more in-depth article on the interactions of vitamin C and vitamin E in the body will be published in a future issue of this magazine.

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