# *New York Times* Attacks Dietary Supplements
## Life Extension Foundation Responds

Controversies continue to arise as to whether healthy people should take dietary supplements. The latest example is a *New York Times* article (April 29, 2003) that attacks vitamin supplements as being useless and potentially dangerous.

A basis for this article was negative comments from an organization whose prior press releases indicate that they serve as a public relations front for big industry. Some of positions this organization has taken over the past few years include:

1) Beef Benefits American Diet
2) McDonald's® Food Not Harmful
3) Acrylamide (found in French fries) Does Not Boost Cancer Risk
4) Ground Beef Should Be Irradiated
5) Children Not More Vulnerable To Environmental Chemicals
6) Nothing Wrong With DDT
7) Risk Factors for Prostate Cancer Cannot be Modified
8) Dry Cleaning Chemical (perchloroethylene) Poses No Human Threat
9) Diesel Exhaust Emissions Pose No Risk To School Children
10) Eggs Are A Valuable Component of American Diet

It seems that whenever health risks are uncovered that hurt corporate profits; this organization jumps to the rescue with what would appear to be an unbiased scientific rebuttal. For instance, when estrogen/progestin drugs were found to be so dangerous that clinical studies were halted (to protect the lives of the participants), this organization issued a press release that helped deflect criticism against these hormone drugs.

Based partially on proclamations from this organization, the *New York Times* came to the conclusion that **"multivitamins have not been shown to prevent any disease and that it is easy to reach high enough doses of certain vitamins and minerals to actually increase the risk of disease"**.

The Life Extension Foundation intends to write a detailed expose about this blatantly unscientific *New York Times* article. The remainder of this response represents Life Extension's initial response to this unfounded attack on dietary supplements.

Some Scientific Facts

The consistency of evidence in the scientific literature shows that dietary supplements help prevent disease. This is not just the position of The Life Extension Foundation, but also of the world's two leading medical journals.

On June 19, 2002 for instance, the *Journal of the American Medical Association* (*JAMA*) reversed its long-standing anti-vitamin policy by advising all adults to take at least one multivitamin pill each day. According to the Harvard researchers who wrote the new *JAMA* guidelines, it appears that people who get enough vitamins may be able to reduce their risk of common illnesses such as cancer, heart disease and osteoporosis. The Harvard researchers concluded that sub-optimal levels of folic acid, vitamins B6 and B12 are a risk factor for heart disease and colon and breast cancers; that low levels of vitamin D contribute to osteoporosis and fractures; and inadequate vitamins A, E, and C may increase the risk of cancer and heart disease.

This was not the first time a prominent medical journal endorsed the use of vitamin supplements. The April 9, 1998 issue of the *New England Journal of Medicine* featured an article titled "Eat Right and Take a Multivitamin" that was based on a series of positive studies showing disease prevention benefits of dietary supplements.

One of the most prestigious journals in the world is *The Lancet*. In a study published in a 2001 issue of *The Lancet*, researchers at Cambridge University in England looked at serum vitamin C and how long people lived. People who had the lowest levels of vitamin C were twice as likely to die compared to those with the highest serum vitamin C levels. This study was based on the findings from

over 19,000 people. (*Lancet* (2001; 357:657-63))

The question for those who want to postpone death is do you want your blood to contain the lowest or highest levels of vitamin C. Since being in the lowest level doubles your risk of dropping dead, you should consume fruits, vegetables and supplements that are high in vitamin C.

A fascinating study published in the *American Journal of Clinical Nutrition* in August 1996 showed that over a nine-year period, people who consumed higher dose vitamin C and E supplements reduced their mortality risk by an astounding 42%. Based on the results of this 11,178 person study, if you take vitamin C and E supplements, your chances of dying over the next nine years is reduced by 42%.

Are you concerned about cancer? You should be. Cancer kills 1,500 American every single day. The older we grow, the more DNA mutations accumulate. Mutated DNA causes cells to lose their cell cycle regulatory control and cancer is often the result.

Data from the famous Nurses' Health Study conducted at the Harvard Medical School showed that long-term supplementation with folic acid reduces the risk of colon cancer by an astounding 75% in women. The fact that there are 90,000 women participating in the Nurses' Health Study makes this finding especially significant. (*Annals of Internal Medicine* (1998; 129:517-524)). The authors of this study explained that folic acid obtained from supplements had a stronger protective effect against colon cancer than folic acid consumed in the diet.

This study helps to confirm the work of Dr. Bruce Ames, the famous molecular biologist who has authored numerous articles showing that folic acid is extremely effective in preventing the initial DNA mutations that can lead to cancer later in life. This Harvard report, showing a 75% reduction in colon cancer incidence, demonstrated that the degree of protection against cancer is correlated with how long a DNA-protecting substance (such as folic acid) is consumed. It was the women who took more than 400 mcg of folic acid a day for 15 years who experienced the 75% reduction in colon cancer, whereas short-term supplementation with folic acid produced only marginal protection.

An article published in the December 25, 1996 issue of the *Journal of the American Medical Association* (*JAMA*) showed that 200 mcg of supplemental selenium a day reduced overall cancer mortality by 50% in humans compared to a placebo group not receiving supplemental selenium. This 9-year study, published by the American Medical Association, demonstrated that a low-cost mineral supplement could cut the risk of dying from cancer in half.

Many people still question whether they should supplement with folic acid and selenium. Based on the evidence showing that these supplements may dramatically reduce the risk of contracting cancer, it would appear that every American should take these supplements. They cost only pennies a day and have been shown to protect against the most feared diseases afflicting modern man.

One of the first human studies that substantiated the benefits of vitamin supplements occurred in 1992 when a study emanating from UCLA reported that men who took vitamin C lived 6 years longer than those who consumed the FDA's recommended daily allowance of 60 mg a day. The study, which evaluated more than 11,0000 participants over a 10-year time period, showed that vitamin C intake extended average life span and reduced mortality from cardiovascular disease by 42%. This study was published in the journal *Epidemiology* (1992; 3:3, pp. 194-202).

One pathological problem humans acquire as they age is that their body is unable to detoxify excess homocysteine. As homocysteine accumulates in the blood, the risk for heart attack and stroke sharply increases. In fact, the Americans Stroke Association reported that based on an analysis of 15 different studies, mild to moderate increases in homocysteine increased the risk of having a stroke by an astounding 86%. The April 9, 1998 issue of the *New England Journal of Medicine* carried an editorial that endorsed the use of folic acid to reduce the incidence of heart attack and stroke, but the FDA still refuses to accept that folic acid has any benefit other than preventing a certain type of birth defect.

Are you convinced that vitamin supplements can delay your date of death? If not, consider a study published in the *British Medical Journal* (Vol. 314, Issue 708, 1997) that evaluated 1605 randomly selected men in Finland aged 42-60 years between 1984 and 1989. None of these men had evidence of pre-existing heart disease. After adjusting for other confounding factors, men who were deficient in vitamin C had 3.5 times more heart attacks than men who were not deficient in vitamin C . The scientist's conclusion was, " vitamin C deficiency, as assessed by low plasma ascorbate concentration, is a risk factor for coronary heart disease."

Does vitamin C cause kidney stones? That's what some doctors still say, but a report from Harvard Medical School showed no increased risk of kidney stones when evaluating 85,557 women over a 14-year study period. This report, published in the April 1999 issue of the *Journal of the American Society of Nephrology*, showed that women who consumed 1500 mg a day or more of vitamin C were no more likely to develop kidney stones than women who consumed less than 250 mg of vitamin C a day. The study did reveal that women who consumed 40 mg or more of vitamin B6 were 34% less likely to contract kidney stones compared to women taking fewer than 3 mg a day of B6. So now that kidney stone risk has been ruled out, let's look at some of the human studies

showing positive benefits to vitamin C supplementation.

In the March 9, 1999 issue of the American Heart Association's journal *Circulation*, elevated homocysteine levels were shown to cause rapid onset of endothelial (arterial lining) dysfunction. This type of dysfunction reduces blood flow and can facilitate a lethal arterial spasm. Vitamin C inhibited arterial dysfunction by interfering with oxidative stress mechanisms. The doctors conducting the study stated that acute impairment of vascular endothelial function could be prevented by pretreatment with vitamin C.

A double-blind study published in the *Journal of the American College of Cardiology* (1998; Vol. 31, Issue 6, pp.1323-1329) compared the effects of nitrate drugs in people receiving vitamin C to a placebo group not receiving vitamin C. The doctors administered nitrate drugs to healthy people and patients with coronary artery disease and then measured vasodilation response and cellular levels of cGMP, an energy substrate that is depleted by nitrate drugs. At day zero, all participants were measured to establish a baseline. After 3 days of vitamin C administration (2 grams/three times daily), there was no change in either group. After 6 days of vitamin C therapy an impressive 42% improvement in vasodilation response was observed and a 60% improvement in cellular cGMP levels was measured in coronary artery disease patients receiving vitamin C compared to placebo. A similar improvement occurred in the healthy subjects taking vitamin C compared to the placebo group. The doctors concluded the study by stating, "These results indicate that combination therapy with vitamin C is potentially useful for preventing the development of nitrate tolerance."

Another study published in the *Journal of Clinical Investigation* (1998; July 1) looked at the effects of nitrate drug therapy on human patients. Tolerance development was monitored by changes in arterial pressure, pulse pressure, heart rate, and activity of isolated patients. All patients experienced the deleterious effects of nitrate tolerance. However, when vitamin C was co-administered with the nitrate drugs, the effects of nitrate tolerance were virtually eliminated. The most significant improvement was a 310% improvement in the arterial conductivity test. The nitrate drugs induced a dangerous upregulated activity of platelets, but this too was reversed with vitamin C supplementation. The doctors who conducted this study indicated that vitamin C may be of benefit during long-term, non-intermittent administration of nitrate drugs in humans.

Chronic heart failure is associated with reduced dilating capacity of the endothelial lining of the arterial system. Scientists tested heart failure patients by high-resolution ultrasound and Doppler to measure radial artery diameter and blood flow. Vitamin C restored arterial dilation response and blood flow velocity in patients with heart failure. The scientists determined that the mechanism of action was that vitamin C increased the availability of nitric oxide, an important precursor to cGMP. This study was published in the February 1998 issue of the journal Circulation.

Also in 1998, another aspect of vitamin C's effect on coronary artery disease was discovered. A study published in the *Journal of the American College of Cardiology* (1998; 41:5,980-6) showed that low plasma ascorbic acid levels independently predict the presence of an unstable coronary syndrome in heart disease patients. According to the doctors, the study's results showed that the beneficial effects of vitamin C in treating coronary artery disease may result, in part, by an influence on arterial wall lesion activity rather than a reduction in the overall extent of fixed disease.

The published research findings suggest that vitamin C may reduce mortality in coronary artery disease patients, and possibly eliminate the effects of nitrate tolerance in those taking nitrate drugs. While not recognized in the medical establishment as a therapy for coronary artery disease, there now exists an accumulated wealth of evidence that vitamin C has beneficial effects in the treatment of heart-related illnesses.

Mainstream medicine has historically ridiculed vitamin C supplementation. In today's modern world, conventional medicine says that only 200 mg a day of vitamin C is required, despite findings showing that high doses of vitamin C are required to produce optimal benefit. Meanwhile, the FDA continues to stick with its position that no more than 60 mg a day of vitamin C is needed.

The most frequently voiced criticism about supplemental vitamin intake is that it produces "expensive urine," since water soluble vitamins, such as vitamin C and the B vitamins are rapidly excreted into the bladder within hours of ingestion. It appears desirable, however, to have a bladder full of vitamins because certain vitamins inhibit chemicals that cause bladder cancer. In the September 1996 issue of the *American Journal of Epidemiology*, a study on the risk of bladder cancer in vitamin takers showed the following:

1) High intake of vitamin A and beta carotene was associated with a 48% reduction in bladder cancer incidence compared to the lowest levels of vitamin A and beta carotene intake.
2) People taking higher amounts of vitamin C had a 50% reduced rate of bladder cancer. Those who took 502 mg or more of vitamin C a day had a 60% reduction in bladder cancer compared to those who took no vitamin C.
3) For those who took multi-vitamin supplements for at least 10 years, the reduction in bladder cancer was 61% compared to people who took no vitamin supplements.
4) High intake of fried foods was associated with double the risk of bladder cancer.

Studies show that antioxidant supplements reduce the risk of cataract. One study in the *American Journal of Epidemiology* (Sept. 1996) evaluated 410 men for 3 years to ascertain the association between serum vitamin E and the development of cortical lens opacities (cataracts). The men with the lowest level of serum vitamin E had a 3.7 times greater risk of this form of cataract compared to men with the highest serum level of vitamin E.

While cataracts are usually treatable, a disease called wet macular degeneration is not. Those who eat spinach and collard greens have low rates of macular degeneration, and extracts from these vegetables thought to protect against this blinding disease are now available in dietary supplements that contain lutein and zeaxanthin.

A recitation of all the published studies that validate the disease reducing effects of nutrient supplements would consume thousands of pages. Based on the scientific studies presented in this abbreviated response, the *New York Times* statement that **"multivitamins have not been shown to prevent any disease"** is obviously false.

Can Vitamins Be Dangerous?

While ignoring thousands of studies that discuss the health benefits of dietary supplements, the *New York Times* described every study that indicated that excess intake of certain vitamins may be harmful.

The *New York Times* article was critical of supplemental iron because it contributes to iron overload disease and increased heart attack risk. For many people, this is true. Life Extension first warned against iron supplements in 1983 and the *New York Times* was correct in pointing out this fact.

Vitamin A was attacked based on studies indicating that excess amounts can increase bone fracture risk. Life Extension will address these studies later, but a major flaw in at least one of them is that the investigators did not ascertain the intake of bone protecting nutrients such as vitamin D. Failing to account for all the nutrients needed to maintain bone health renders these kinds of studies highly questionable. There is considerable evidence that vitamin A reduces cancer risk. By frightening people away from vitamin A supplements, the *New York Times* did a disservice to its readers

The *New York Times* described one aberrant study were folic acid caused increased narrowing of coronary arteries in patients who had "stents" implanted. What was ignored were all the other studies showing that folic acid protects coronary arteries by several well known mechanisms including reducing toxic homocysteine blood levels and guarding against endothelial dysfunction (arterial lining damage). The *New York Times* was particularly egregious in overlooking the findings of a six-month study showing that folic acid, vitamin B12 and vitamin B6 helped prevent recurrence of blocked arteries in patients who have undergone coronary angioplasty. This study was published in the August 28, 2002 issue of the *Journal of the American Medical Association*.

**Preliminary Conclusions**

There are contradictions in the scientific literature as to what degree of protection dietary supplements afford against disease. When any scientific study is conducted, there are many factors than can confound the findings. The result is a continuing controversy as to whether healthy people should take dietary supplements.

The Life Extension Foundation expends enormous resources to methodically review the published scientific literature in order to identify the proper doses of dietary supplements that are of practical value to those seeking to reduce their disease risk.

It is the position of The Life Extension Foundation that the *New York Times* article titled "Vitamins: More May Be Too Many" is largely baseless. Due to the huge circulation of the *New York Times*, the net result will be the needless deaths of tens of thousands of people who will perish from diseases that have been shown to be preventable by the proper use of dietary supplements.

taking any medication, or if you have or suspect you might have a health problem. You should not stop taking any medication without first consulting your physician.