

Do Dietary Supplements Really Increase Mortality? by Dr. David Seaman

In an article scheduled to appear in the Feb. 26 issue of *DC*, I provide the raw data on cardiovascular protection with statin use in the JUPITER trial.¹ While it was publicized that heart attacks were reduced by 50 percent, the raw data demonstrates only a 1 percent reduction if everyday math is applied. The subjects in JUPITER were also described as being "thin," even though the average BMI was 28.

Whenever I look at studies like JUPITER, I look at the raw data and also consider the health status of the patient population that is being treated or studied. This approach is also useful when considering the recent studies appearing in the October 2011 issues of the *Archives of Internal Medicine*² and *JAMA*³ that looked at supplements in relation to mortality and prostate cancer, respectively. The media reported that multivitamins will increase mortality and vitamin E / selenium will cause prostate cancer, which has led many to be concerned. The actual studies tell a slightly different story.

The Archives Study

The *Archives* study focused on dietary supplement use in 38,772 older women living in Iowa. The study began in 1986, when the average participant was almost 62 years old, and the women were tracked until Dec. 31, 2008, by which time 15,594 women had died, which is 40 percent of the initial group. The supplement use was self-reported and deaths rates were compared between **supplement users** and nonusers.



The average BMI of participants throughout the study was 27. (Incidentally, I would have to gain 40 pounds of fat to reach a BMI of 27, so these were overweight women.) Excess body fat is associated with low-grade inflammation and metabolic syndrome, which has been defined as a free-radical and inflammatory state since at least 2002.⁴ We also know that within our population in general, almost 45 percent of men and women age 60 and older have metabolic syndrome.⁵

Why are body weight and the metabolic syndrome an issue? Because the only real way to control both of these problems is to eat properly and exercise regularly; they cannot be fixed by supplementation alone. And since each represents an inflammatory state, the addition of iron and antioxidants may help to induce a pro-oxidant state, which would not likely lead to greater longevity. In other words, I am not surprised that taking multivitamins did not increase longevity in this group.

But how bad was the reverse situation? Here are the raw data:² Regarding heart disease, 1,864/12,769 women who were taking multivitamins died during the 20 years of this study, which is 14.6 percent of

the study group. A total of 3,782/2,5475 non-multi-users died (14.8 percent). In other words, slightly more of the non-users died, which is contrary to the scary news reports most of us heard.

Regarding **cancer**, 1,749/12,769 or 13.7 percent of women who were taking multivitamins died. In contrast, 3,094/25,475 or 12.1 percent of non-multi users died of cancer. So, there was a greater percentage death rate in users of multivitamins.

The authors did some additional adjustments for age, energy intake, and several other lifestyle variables such as smoking, physical activity, body mass index, diabetes and hypertension; however, the increased chance of death was represented by hazard ratios, most of which were 1.10 or less, which on a practical level are small and do not remotely warrant the scares that were generated in the press.

The JAMA Study

For the vitamin E, selenium and **prostate cancer** study, the numbers are similar.³ Approximately 35,000 men were followed from 2001 to 2011, of which 8,696 received placebo, 8,737 received vitamin E, 8,752 received selenium, and 8,707 received vitamin E and selenium. Here's who developed prostate cancer during that time:

- Placebo: 6.08%
- Vitamin E: 7.09%
- Selenium: 6.56%
- Vitamin E / selenium: 6.37%

We were not given the same level of detail regarding the nature of the participants in the prostate study compared to Iowa study discussed above. However, we do know that the men in this study were 50 years or older, and we know that in general, approximately 35 percent of men between the ages of 50 and 60 have the pro-inflammatory and pro-oxidative **metabolic syndrome**.⁵

According to the information provided in the vitamin E / selenium study, it appears that the only lifestyle changes made by the subjects during the 10-year study period was the addition of a placebo or the nutrients. So, I am personally not surprised at the outcome of this study, either. Why should anyone expect that the addition of 1-2 nutrients would reduce the expression of prostate cancer that is multifactorial and associated with the metabolic syndrome, free radicals and chronic inflammation? Moreover, the maximum increased risk of prostate cancer in subjects taking vitamin E or selenium was only 1.01 percent, which is clinically irrelevant.

Take-Home Points

My impression of these two studies? Antioxidants vitamins and mineral supplements cannot combat the pro-inflammatory state created by an unhealthy diet and a lack of appropriate exercise. It would be great if they did, but this contrary fact has been known for a long time. Thus, studies like this do not bother me, because my interest is not in giving unhealthy people antioxidants with the hope that they will magically prevent diseases with multiple overlapping causes. I focus on achieving measurable goals that are associated with less disease expression. The following are examples of reasonable goals that should be pursued:

- Get to an appropriate BMI
- Get serum 25(OH)D over 40 ng/ml
- Get hsCRP below 1.0 mg/dl
- Get fasting blood sugar below 100 mg/dl, preferably 80 mg/dl

Supplements can help in this process. For example, a short list of supplements shown to be helpful in reducing chronic inflammation includes vitamin D, probiotics and anti-inflammatory spices, such as ginger and turmeric.

References

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