

THE CONSUMER

# Another Supplement, Under the Microscope

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Not so long ago, antioxidant [vitamins](#) were hailed as nature's own weapons against chronic illness, powerful antidotes to horrid diets and failed exercise plans.

A parade of observational studies showed that people who consumed large amounts of vitamins C and E and beta carotene were usually healthier than those who ingested comparatively little. Almost overnight, it seemed, millions of consumers morphed into fervid pill poppers, and antioxidants were dolloped into an ever expanding variety of foods.

But recent and more rigorous research suggests that this silver bullet missed its mark. Most long-term prospective trials have shown that using antioxidant vitamin supplements does not prevent [heart disease](#) or [cancer](#), with the possible exception of prostate cancer.

In a study published last month in *The Journal of the [American Medical Association](#)*, researchers in Europe analyzed data from 68 large trials in which more than 232,000 adults were given antioxidant supplements.

In a subset of those studies, the scientists concluded, subjects taking vitamins A and E and beta carotene saw a slightly increased risk of death compared with those who did not take supplements. (Vitamin C had no effect on mortality, the team found.)

So are America's most popular vitamins actually harmful? Not likely, other experts say. Although antioxidant supplements have not been the cure-alls scientists had hoped for, there may yet be a place for them.

“A lot of researchers, including myself, were quite disappointed that the trials showed no benefit, particularly for vitamin E,” said Dr. Meir Stampfer, an epidemiologist at Harvard. “But I don’t think it closes the door on the antioxidant concept.”

The new study has garnered frightening headlines and vigorous criticism. Dr. Stampfer and others say its analysis is methodologically flawed, because it includes data from widely heterogeneous studies, excludes data from hundreds of others for unclear reasons and does not try to detail the causes of increased mortality among supplement users.

“It just seems implausible that antioxidants should be killing you by several different means,” said Dr. Jeffrey Blumberg, a [nutrition](#) professor at Tufts. “I don’t buy it.”

Dr. Andrew Shao, vice president of the Council for Responsible Nutrition, a trade group for the supplement industry, said, “Most of these patients already had disease, so the conclusions simply aren’t relevant to a healthy population.”

The study’s authors defended their methods. “Previous studies have included a select group of trials, risking cherry-picking, either good or bad,” said the lead researcher, Dr. Goran Bjelakovic of the University of Nis in Serbia. “Our systematic review is based on more trials and more participants, and hence is more powerful.”

Other studies of healthy adults taking antioxidants have also proved disappointing. After tracking nearly 40,000 women for a decade, researchers at Harvard found that those taking vitamin E were just as likely as others to suffer cardiovascular disease and cancer.

“There was no evidence of harm, but there was no benefit, either,” said Dr. Julie E. Buring, an author of the study. “It’s really too bad. Vitamin E had been incredibly promising.”

For a few consumers, it may still be promising. In the Harvard study, a subgroup of participants older than 65 who took vitamin E did have significantly fewer heart attacks and strokes than those who did not, although the finding may have been due to chance. Vitamin E and selenium have been strongly associated with a reduced risk of prostate cancer in a few studies.

“There still may be subsets of people who are very responsive to the benefits of antioxidants,” said Dr. Blumberg, who serves on scientific advisory boards for some supplement companies.

The essential premise behind antioxidant supplements remains intact, researchers say. Oxygen-free radicals, a normal byproduct of metabolism, damage cellular [DNA](#) unless antioxidant compounds remove them. Oxidative damage is characteristic of a wide variety of chronic diseases.

Still, faced with solid basic science but a litany of null results in the clinic, many scientists are calling for a change in tactics. Some theorize that a randomized clinical trial, the gold standard for medical research, may not be the best way to evaluate vitamin supplements.

“You just can’t do this kind of study with something like cancer, which can take 20 years to develop in an initially healthy person,” said Dr. Bruce Ames, a biochemist at the [University of California, Berkeley](#).

Moreover, cancer and heart disease arise from a powerful confluence of genetic and environmental influences. In hindsight, it was naïve of scientists and consumers to hope that the relatively short-term addition of one or two antioxidants would be enough to counteract decades of poor diet and inadequate exercise, not to mention the genome.

Antioxidants remain essential to health. That much has not changed.

But for most of us, the time has come to let go of the notion that high-dose supplements provide a magic wand against disease. The good news is that a diet rich in fruits and vegetables contains literally thousands of antioxidant nutrients. Prevention begins in the kitchen.