

FEATURES

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Too much of a good thing

Recent studies suggest that vitamin E is not the magic elixir scientists once thought it was. In fact, when taken in high doses it could be hazardous — and the same may be true for other anti-oxidants as well

BY JANE E. BRODY
NY TIMES NEWS SERVICE, NEW YORK

About three decades ago at a scientific conference on aging, just about every presenter was taking vitamin E, a nutrient with anti-oxidant properties that, it was thought, would slow the cellular ravages of age.

In subsequent years, many reports from observational and case studies suggested that vitamin E in daily doses far greater than recommended could help to stave off heart disease and stroke, various common cancers, dementia and Alzheimer's disease, cataracts and macular degeneration, respiratory tract infections and a host of other serious and sometimes fatal health problems.

The logic was that an anti-oxidant like vitamin E protects cells from the damaging effects of free radicals, which are byproducts of metabolism and exposure to cell-damaging agents like sunlight, radiation and chemotherapy.

Ever hopeful for a magic elixir, millions of health-conscious Americans began self-dosing with amounts of vitamin E dozens of times greater than the recommended daily intake for this fat-soluble nutrient.

If only all those hopeful forecasts had turned out to be true. Just as a well-designed clinical trial disproved the notion that postmenopausal hormones could keep women heart-healthy, controlled clinical trials of vitamin E have found this supplement wanting, as well. The same is true of another anti-oxidant, vitamin C.

RISKS VERSUS BENEFITS

Recent studies have even suggested that at the high doses many people consume, vitamin E could be hazardous. In November 2004, the American Heart Association warned that while the small amounts of vitamin E found in multivitamins and foods were not harmful, taking 400 International Units a day or more could increase the risk of death. The highest recommended dietary allowance for vitamin E is 28.5 IU, for women who are breast-feeding.

No one knows whether other anti-oxidants, taken as supplements or as concentrates in gourmet beverages, will meet a similar fate, because they have not been rigorously studied. And given the length, cost and difficulty of conducting the needed studies, chances are that these other anti-oxidants will never be properly investigated. So you may never know whether spending a fortune on pomegranate juice or the like is worth it.

Some vitamin E enthusiasts object that the clinical studies used what they consider the wrong form of the vitamin, saying that each of the vitamin's eight forms has its own biological activity. But the kind of vitamin E used in most studies, alpha-tocopherol, is the most active form in humans, according to the National Institutes of Health's Office of Dietary Supplements.

Here, then, is what we now know about vitamin E from recent randomized, controlled clinical trials, the gold standard of research if the right questions were investigated.

Cardiovascular disease. An early hint of no benefit to the heart came from a 2001 University of Pennsylvania study of 30 healthy men, which found that at doses of 200 to 2,000 IUs, vitamin E did not prevent oxidation of blood fats that can damage arteries. Four years later, the Heart Outcomes Prevention Evaluation trials, which looked at nearly 10,000 patients 55 and older with vascular disease or diabetes, found no heart benefit from taking 400 IUs of vitamin E daily for an average of seven years. In fact, those taking the vitamin were more likely to develop heart failure, which prompted the heart association warning.

A few months later came a report on healthy

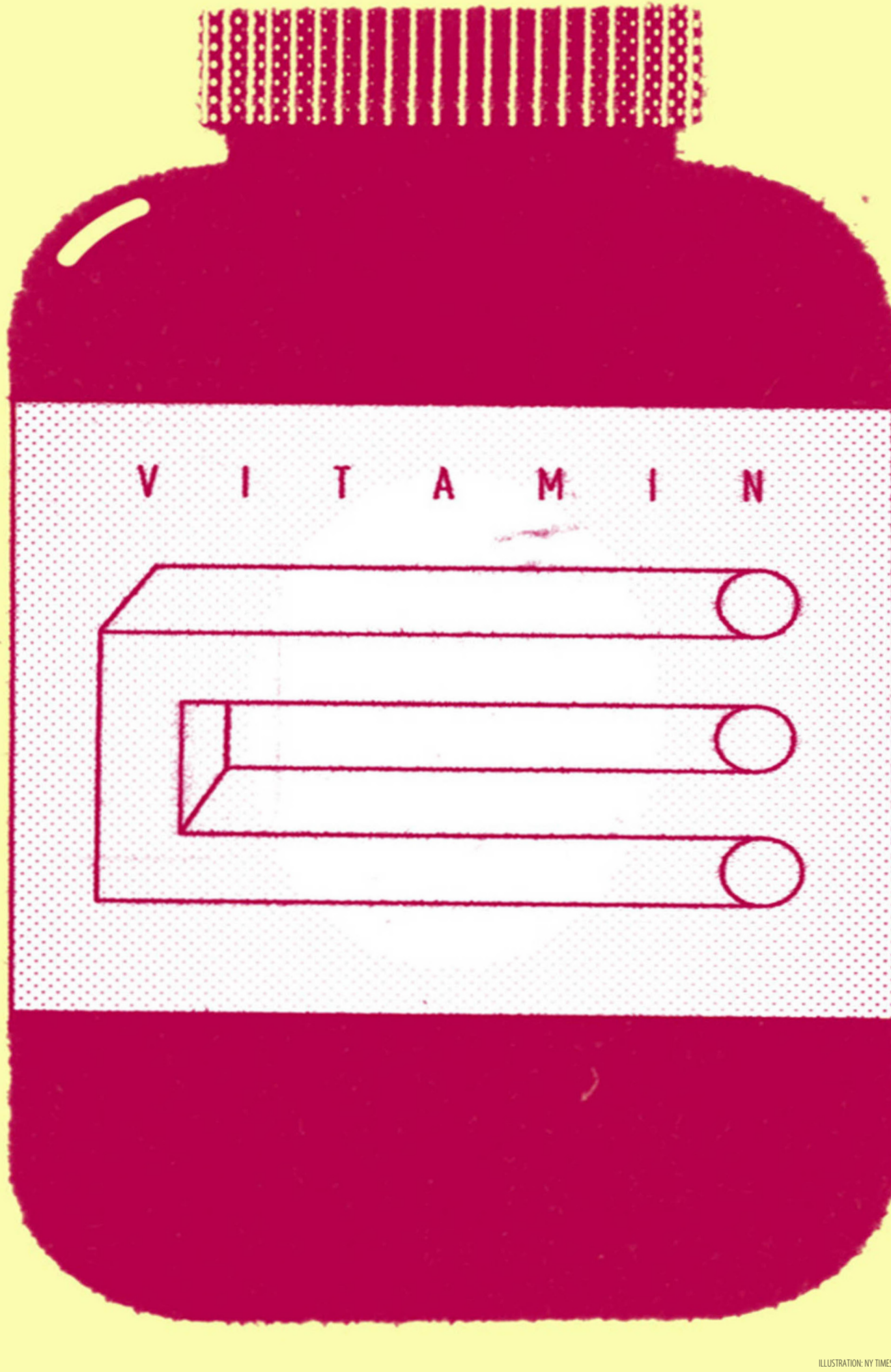


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women. The Women's Health Study, of nearly 40,000 women 45 and older who were followed for an average of 10 years, found no overall benefit in taking 600 IUs of vitamin E every other day for major cardiovascular events (heart attacks and stroke) or total mortality. There was, however, a 24 percent reduction in cardiovascular deaths.

A fresh report on men was released last November. In it — the Physicians' Health Study — 14,641 men 50 and older were followed for up to eight years. It was found that 400 IUs of vitamin E every other day had no effect on the incidence of major cardiovascular events, including cardiovascular deaths.

The bottom line of all these reports was that supplements of vitamin E could not be relied upon to protect against heart disease and stroke.

Cancer. The Heart Outcomes trials also looked at cancer and found no differences in cancer incidence or deaths during the seven-year follow-up that could be attributed to vitamin E.

Likewise, the Women's Health Study found no significant effect of the vitamin on total cancer incidence or cancers of the breast, lung or colon, nor any effect on cancer deaths.

Still, hope lingered that vitamin E alone or in combination with the mineral selenium or vitamin C would protect men against prostate cancer. No such luck. In the Jan. 7 issue of the *Journal of the American Medical Association*, two major reports seemed to have offered the final word on this question.

UNINTENDED CONSEQUENCES

The Select trial (an acronym for the Selenium and Vitamin E Cancer Prevention Trial) followed 35,533 men from 427 locations in the US, Canada and Puerto Rico for more than five years. It found no benefit, but did find a "statistically nonsignificant increased risk of prostate cancer" in the group taking 400 IUs a day of vitamin E. Selenium alone offered no benefit, and neither did selenium combined with vitamin E.

The second study, a continuation of the Physicians' Health Study, found that among male doctors who took 400 IUs of vitamin E every other day and 500mg of vitamin C every day, there was no decreased risk of developing prostate cancer or cancer in general.

For lung cancer, a 2007 study financed by the National Cancer Institute found that smokers who took vitamin E supplements had a somewhat higher risk of developing the disease.

Other diseases. An independent review of studies by the Cochrane Collaboration published last year found no reliable evidence for the ability of vitamin E to prevent or treat Alzheimer's disease or mild cognitive impairment, not even at doses of 2,000 IUs a day.

And while vitamin E is part of complex formulations that have been found to slow the progression of macular degeneration, no one can say if the vitamin has played any role in the benefits seen with these products.

There are possible risks as well, since vitamin E diminishes the clotting tendency of blood and may result in ugly bruises from small bumps.

Simply put, there is no quick fix. The best chance for leading a long and healthy life comes not from any pill or potion but from pursuing a wholesome lifestyle. That means following a nutrient-filled but calorically moderate diet rich in vegetables, fruits and whole grains (many are good sources of vitamin E); not smoking; exercising regularly; maintaining a normal body weight; and driving and riding safely. Here's to your health.

[SCIENCE]

Birth defect in brain linked to eating disorder

New research suggests that one in every hundred women have damaged neural wiring that increases vulnerability to anorexia

BY DENIS CAMPBELL
THE GUARDIAN, LONDON

Thousands of girls are predisposed to develop anorexia because of the way their brains developed in the womb, a major study revealed on Sunday.

The report's authors say schoolchildren could be screened at the age of 8 to identify the signs that make them more vulnerable to risk factors such as the size-zero fad and the cult of the super-thin celebrity. Eating disorder charities said the findings, which will be revealed at a conference at the Institute of Education in London this week, could revolutionize the treatment of anorexia.

"Our research shows that certain kids' brains are made in a way that makes them more vulnerable to the more commonly known risk factors for eating disorders, such as the size-zero debate, media representations of very skinny women and bad parents," said Ian Frampton, one of the authors, who is an honorary consultant in pediatric psychology at London's Great Ormond Street hospital.

Frampton and his colleagues conducted in-depth neuropsychological testing on more than 200 people in the UK, US and Norway who suffer from the condition. Almost all of those who took part in the study were girls and young women aged between 12 and 25 who were being treated for anorexia at private hospitals in Edinburgh and Maidenhead that are part of the Huntercombe Group.

They found that around 70 percent of the patients had suffered damage to their neurotransmitters, which help brain cells communicate with each other, had undergone subtle changes in the structure of their brains, or both.

LUCK OF THE DRAW

One in every few hundred girls may be affected in this way, according to Frampton, who said the condition was random and not the result of poor maternal diet or environmental factors, such as widespread use of chemicals.

Imperfect wiring in the brain's insular cortex

that may lead to dyslexia, ADHD or depression in other children produces what he calls "an underlying vulnerability" among some young people that makes them more likely to develop anorexia nervosa in later life.

Previously, scientists believed that being chronically underweight caused changes in a person's brain. This new research is significant because it suggests that the opposite process explains the origins of anorexia. "These findings could help us to understand this beguiling disease that we don't know how to treat," added Frampton.

"Arguments that social factors such as girls feeling under pressure to lose weight in order to look like high-profile women in the media contain logical flaws because almost everyone is exposed to them, yet only a small percentage of young people get anorexia.

"Those things are important but there must be other factors, involving genetics and science, that make some young people much more vulnerable

than others."

Between 2 percent and 3 percent of children and young adults develop an eating disorder. Anorexia is the rarest of them. About four women in every thousand develop it. Cases among men are rare but not unknown. It can lead to serious health problems and prove fatal. Karen Carpenter, the 1970s pop star, died in 1983 at the age of 32 from a heart attack brought on by the condition.

THE WAY FORWARD

In recent years, the fashion industry has come under pressure to protect the health of its models following widespread anger about the size-zero trend and the deaths of two models. On the eve of a photographic shoot in November 2006, Brazilian model Ana Carolina Reston died from complications arising from anorexia. It was reported that she had been living on a diet of apples and tomatoes. It followed the death that summer of Uruguayan

model, Luisel Ramos, who died of heart failure at the age of 22 after not eating for several days in an attempt to stay thin.

Susan Ringwood, chief executive of the leading eating disorders' charity, Beat, welcomed the latest research.

"It could pave the way for the first drugs to be developed to treat eating disorders, similar to the way that anti-depressants help rebalance the brain of people with depression," she said. "And it will help parents understand that they aren't to blame. Parents always blame themselves when their child develops an eating disorder. But what we are learning more and more from research in this area is that some people are very vulnerable to anorexia and that is down to genetic factors and brain chemistry, and not them trying to look like celebrity models or suffering a major traumatic event early in their lives.

"This research is a key missing part of the jigsaw of our understanding of anorexia."