

Putting limits on vitamin E: The potent antioxidant may do more harm than good

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Vitamin-fortified foods and dietary health supplements can ease health worries. But what kinds of vitamins are right for you? And how much of them should you take, and how often?

A research group from Tel Aviv University has done the most comprehensive and accurate study of clinical data on Vitamin E use and heart disease to date, and it warns that indiscriminate use of high-dose Vitamin E supplementation does more harm than good. Their results were recently reported in *ATVB*, a leading journal of cardiology, and discussed in the journal *BioFactors*.

"There were so many conflicting reports about Vitamin E and its effect on various diseases, particularly heart disease, that we wanted to set the record straight," says Prof. Dov Lichtenberg of TAU's Sackler School of Medicine.

"Our new study shows that some people may be harmed by the treatment, whereas others may benefit from it. Now we're trying to identify groups of people that are most likely to benefit from the effects of Vitamin E," adds study co-researcher Dr. Ilya Pinchuk. The TAU research team also included decision analyst Dr. Moshe Leshno of the Sackler Faculty of Medicine and the Leon Recanati Faculty of Management and Dr. Yedidya (Didi) Dotan, whose PhD thesis is the basis for this analysis.

A longer life without it?

Applying a very different approach than any previous study, the team of researchers put their heads together to draw definitive conclusions about Vitamin E. In their publication in ATVB the Tel Aviv University researchers evaluated the results of the prominent studies measuring the health benefits of Vitamin E but reached varying conclusions. There have been many previous publications on the subject. Analysis of the results of all these past publications together revealed that subjects who did not take a Vitamin E supplement enjoyed more quality-adjusted-life-years (QALY), a standard parameter used in medicine to assess the effect of medical interventions.

"To explain the meaning of this parameter," says Dr. Pinchuk, "consider a participant who was healthy during the first 10 out of 20 years of the study, but then suffered a stroke and became dependent on others throughout the following 10 years. The QALY during the first 10 years of healthy life is 10, but after the stroke the quality of life is only half of what this person had before. Therefore, the second decade is considered the equivalent of merely 5 years of healthy life and in sum a person's QALY is 15.

The researchers examined data from more than 300,000 subjects in the US, Europe and Israel. "Our major finding," says Dr. Pinchuk, "was that the average quality-adjusted life years (QALY) of Vitamin E-supplemented individuals was 0.30 less than that of untreated people. This, of course, does not mean that everybody consuming Vitamin E shortens their life by almost 4 months. But on average, the quality-adjusted longevity is lower for vitamin-treated people. This says something significant."

Overturning earlier studies

In the BioFactors article, the TAU researchers defined "the real challenge as being able to identify who is likely to benefit taking Vitamin E." They also explored the first hypothesis of the oxidative theory of atherosclerosis published more than 20 years ago, which was the basis for the widespread use of antioxidants today. At first, this hypothesis raised great enthusiasm that anti-oxidants like Vitamins E and C and flavonoids could be used to prevent disease or its progression. In this respect, the new findings are very disappointing.

"We've now concluded that going to the grocery or to a health food store to buy Vitamin E supplements, for the most part, won't do you good. In some cases it can do harm," says Dr. Pinchuk. "A doctor wouldn't prescribe anti-hypertension drugs to the whole population, only to those with low blood pressure. It seems this is true for antioxidants, too. When you give them to everybody, you may be doing more harm than good. Some people may benefit from it, but more may be harmed."

The researchers are now building sets of criteria that detail under what conditions [Vitamin E](#) supplements should be taken. They are also investigating the chemical mechanisms of [antioxidants](#) in general to better understand how they work.

Provided by Tel Aviv University

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