

Vitamin E: A Cure in Search of Recognition

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Introduction

“Some doctors claim that vitamin E helps many heart cases, but the official view is that the substance has not been proved of value in treating heart disease.”

This statement could have been taken verbatim from any of a number of recent news media reports. But in fact, this particular quote is from a 1953 article in *Macleans Magazine* entitled “The Fight Over Vitamin E.”¹

Half a century later, it would seem that little has changed. “(W)e do not support the continued use of vitamin E treatment and discourage the inclusion of vitamin E in future primary and secondary prevention trials in patients at high risk of coronary artery disease.”²

This statement is from a 2003 analysis that looked at studies employing daily treatment dosages between 50 and 800 IU. Yet since the 1940s, clinicians have been reporting that vitamin E dosages between 450 and 1,600 IU or more are required to effectively treat cardiovascular disease. I would enjoy seeing a meta-analysis of the work of Drs. Wilfrid and Evan Shute, who treated coronary thrombosis with 450 to 1,600 IU; angina with 450 to 1,600 IU; and thrombophlebitis with 600 to 1,600 IU of vitamin E daily.³ The recent *Lancet* meta-analysis did not include them. There is nothing capricious about either study selection or dosage choice. Researchers and analysts know full well that high dosage will obtain different results than low dosage. Statistical analysis of meaningless studies will rarely enable a meaningful conclusion.

Double Standards

Countless comedians have made fun of the incompetent physician who, when called late at night during a life-threatening disease crisis, says, “take two aspirin

and call me in the morning.” Now it’s no longer funny. Recently, one of the largest pharmaceutical conglomerates in the world ran prime-time national television commercials that declared: “Bayer aspirin may actually help stop you from dying if you take it during a heart attack.” The company also promotes such use of its product on the Internet.⁴ This statement appears after a century of widespread aspirin consumption. Cardiovascular disease remains the number one killer of men and women and there are over a million heart attacks annually in the U.S.A. alone.

If you produced a TV ad that said that megadoses of wheat germ oil, or the vitamin E in it, could save your life by preventing a heart attack, not only would people disbelieve you, you’d also be subject to arrest for breaking federal law. Foods and vitamins may not be advertised as treatments for specific diseases. “All statements of nutritional support for dietary supplements must be accompanied by a two-part disclaimer on the product label: that the statement has not been evaluated by FDA and that the product is not intended to ‘diagnose, treat, cure or prevent any disease.’ ”⁵

Yet even traditional nutrition textbooks acknowledge the extensive scientific proof of successful treatment of intermittent claudication with vitamin E. “This therapy helps reduce the arterial blockage,” says *Nutrition and Diet Therapy, 7th Edition*, a standard dietetics work.⁶ Unless there be something absolutely unique about arterial real estate between the knee and the ankle, would not vitamin E also help “reduce the blockage” in other arteries? This is rationale the Shutes used when, 65 years ago, they employed vitamin E to successfully treat circulatory diseases in thousands of patients, using daily dosages as high as 3,200 IU. For that achievement, they were praised by their patients and ostracized from the ranks of orthodox physicians.

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By 1971, it was increasingly clear that the Shutes had gotten it right. Intermittent claudication, now regarded as a reliable sign of peripheral arterial disease, was shown by double-blind study to be diminished 66% with the use of vitamin E. The dosage administered was 1600 mg/day.⁷

A Torrid History

1922 was the year the USSR was formed and "Little Orphan Annie" began. Trumpeter Al Hirt and future heart transplant pioneer Christiaan Barnard were born. Alexander Graham Bell died. And vitamin E was discovered by H. M. Evans and K. S. Bishop.⁸

In 1936, Evans' team had isolated alpha tocopherol from wheat germ oil and vitamin E was beginning to be widely appreciated, and the consequences of deficiency better known. *Health Culture Magazine* for January, 1936 said, "The fertility food factor (is) now called vitamin E. Excepting for the abundance of that vitamin in whole grains, there could not have been any perpetuation of the human race. Its absence from the diet makes for irreparable sterility occasioned by a complete degeneration of the germinal cells of the male generative glands. (T)he expectant mother requires vitamin E to insure the carriage of her charge to a complete and natural term. If her diet is deficient in vitamin E...the woman is very apt to abort...It is more difficult to insure a liberal vitamin E supply in the daily average diet than to insure an adequate supply of any other known vitamin."⁹

That same year, 1936, the Shutes were already at work employing tocopherol from wheat germ oil to relieve angina symptoms.¹⁰

Since the word "tocopherol" is taken from the Greek words for "to carry offspring" or "to bring forth childbirth," it is easy enough to see how Evan Shute and other obstetricians were drawn into the work. As early as 1931, Vogt-Moller of Denmark successfully treated habitual abortion in human females with wheat germ oil

vitamin E. By 1939 he had treated several hundred women with a success rate of about 80%. In 1937, both Young in England and the Shutes in Canada reported success in combating threatened abortion and pregnancy toxemias as well. A. L. Bacharach's 1940 statistical analysis of published clinical results "show quite definitely that vitamin E is of value in recurrent abortions."¹¹ In 1940, the Shutes were curing atherosclerosis with vitamin E, and by 1946, thrombosis, phlebitis, and claudication.

Yet when the MDRs (Minimum Daily Requirements) first came out in 1941, there was no mention of vitamin E. It was not until 1959 that vitamin E was recognized by the U.S. Food and Drug Administration as necessary for human existence, and not until 1968 that any government recommendation for vitamin E would be issued. That year, the Food and Nutrition Board of the US National Research Council offered its first Recommended Daily Allowance: 30 IU. It has been as low as 15 IU in 1974. In 2000, it was set at 22 IU (15 mg) for all persons, including pregnant women. This is somewhat odd in view a 70-year established research history showing how vital vitamin E is during gestation. It is another curious fact that today, when the public has been urged to increase its consumption of unsaturated fats, the official dietary recommendation for vitamin E is substantially lower than it was 35 years ago. "The requirement for vitamin E is related to the amount of polyunsaturated fatty acids (PUFAs) consumed in the diet. The higher the amount of PUFAs, the more vitamin E is required."¹²

One reason the RDA was lowered is that "dieticians were having difficulty devising diets of natural foods which had the recommended amount (30 IU) of vitamin E."¹³ There are about 39 IU of vitamin E in an 8-ounce cup of olive oil. A full pound of peanuts yields 34 IU. Professor Max K. Horwitt, Ph.D., who spent 15 years serving on the Food and Nutrition Board's RDA

committees, said in an interview that "The average intake by adults, without supplements, seems to be about 8 milligrams of alpha-tocopherol per day, or 8 tocopherol equivalents. This is equivalent to 12 International Units (IU)."¹⁴ So it might be said that, in the end, the accommodation was not to raise the bridge but rather to lower the river.

Vitamin E is the body's chief fat-soluble antioxidant. It is a powerful one indeed, when you consider that 22 IU is presumed adequate to protect each one of the tens of trillions of body cells in a human being. Even though there has been a veritable explosion in antioxidant research since 1968, the RDA for vitamin E has been decreased.

Postal Fraud

"Any claim in the labelling of drugs or of foods offered for special dietary use, by reason of Vitamin E, that there is need for dietary supplementation with Vitamin E, will be considered false." (United States Post Office Department Docket No. 1/187 (March 15, 1961))

On October 26, 1959, the US government charged an organization known as the Cardiac Society with postal fraud for selling 30 IU vitamin E capsules through the mail. Specifically, the charge was "the operation of a scheme or device for obtaining money through the mails by means of false and fraudulent pretences, representations or promises...that Respondent's product 'E-FEROL 30 I.U.' (containing vitamin E) is therapeutically effective and beneficial in the treatment of heart and cardiovascular diseases for any person so afflicted; that Respondent's said product will prevent heart disease; that "It (vitamin E) is the key both to the prevention and treatment of all those conditions in which a lack of blood supply due to thickened or blocked blood vessels or a lack of oxygen is a part or the whole story of the disease"; that "Vitamin E seems to be a natural anti-thrombin in the human blood stream...It is the only substance preventing the

clotting of blood which is not dangerous"; that the book "Your Heart and Vitamin E" tells you "What Vitamin E is and Does, How It Treats Heart Disease, Its Success In Circulatory Diseases, Your Foods' Deficiency in Vitamin E"...That "It (the book) explains medical facts in everyday language concerning the help that is available for sufferers from diseases of the heart and blood vessels such as Coronary Heart Disease, Angina Pectoris, Phlebitis, Buerger's Disease, Diabetes, Strokes, etc."¹⁵

A four-day hearing before the Hearing Examiner in Washington, D.C. generated sufficient testimony to fill "four volumes totalling 856 pages. Seventy-six exhibits were received in evidence. . . for the consideration of the Hearing Examiner. His Initial Decision covers forty-two pages."

It is an oddity of history that, at the height of the Cuban Missile Crisis, the United States of America found both the reason and the resources to prosecute such a case as this.

"The record here shows that the consensus of medical opinion is that Respondent's claims are false and that this is the universality of medical opinion on the subject. Numerous tests and experiments have been conducted to attempt to substantiate the claims made by Respondent that Vitamin E is efficacious for treatment of a number of conditions but these have failed to substantiate the claims. It appears perfectly clear from the testimony of the expert witnesses that Respondent's claims and representations are devoid of scientific support. . . The Hearing Examiner correctly found that the Respondent intends to deceive by its false representation and that actual fraud under established law is proven. . . A fraud order shall issue forthwith forbidding the delivery of mail and the payment of money orders incident to such scheme, to the Respondent, its agents and representatives, all in accordance with 39 U.S.C. 259 and 732."¹⁵

After this, all mail addressed to the

Cardiac Society was returned to the sender, with "Fraudulent" stamped on the envelope.

Dosage and Utility

Vitamin E has many clinically important and seemingly unrelated properties. In their books¹⁶⁻²¹ the Shutes discuss a number of them.

1) Vitamin E strengthens and regulates heartbeat, like digitalis and similar drugs, at a dose adjusted between 800 to 3,000 IU daily.

2) Vitamin E reduces inflammation and scarring when frequently applied topically to burns or to sites of lacerations or surgical incisions. Internally, vitamin E helps to very gradually break down thrombi at a maintained oral dose of between 800 IU and 3,000 IU.

3) Vitamin E has an oxygen-sparing effect on the heart, enabling the heart to do more work on less oxygen. The benefit for recovering heart attack patients is considerable. 1,200 to 2,000 IU daily relieves angina very well. My father, diagnosed with angina, gradually worked up to 1,600 IU over a period of a few weeks. He never had an angina symptom again. In this, he had the identical success that thousands of Shute patients had.

4) Vitamin E moderately prolongs prothrombin clotting time, decreases platelet adhesion, and has a limited "blood thinning" effect. This is the reason behind the Shutes' using vitamin E (1,000-2,000 IU/day) for thrombophlebitis and related conditions. The pharmaceutical industry and the medical profession are well aware of vitamin E's anticoagulant property and that "very high doses of this vitamin may act synergistically with anticoagulant drugs."²¹ However, this also means that vitamin E can, entirely or in part, substitute for such drugs but do so more safely. Perhaps this is best summed up by surgeon Edward William Alton Ochsner, M.D. (1896-1981) who said, "Vitamin E is a potent inhibitor of thrombin that does not produce a hemorrhagic tendency and therefore is a safe

prophylactic against venous thrombosis."²³

5) Vitamin E is a modest vasodilator, promotes collateral circulation, and consequently offers great benefits to diabetes patients.²⁴ The Shutes used a dose of about 800 IU or more, tailored to the patient. For this, among other reasons, Evan Shute, author of over 100 scientific papers, was literally judged to be a fraud by the United States Post Office Department. The 1961 court decision said, "Vascular degenerations in a diabetic are not effectively treated in the use of vitamin E in any dosage. . . vitamin E has been thoroughly studied and there is no doubt whatsoever as to its lack of utility."¹⁵

This statement was premature to say the least. The "thorough study" of vitamin E was not quite completed by 1961. Thirty-eight years later, a crossover study of 36 patients who had Type I diabetes, and retinal blood flows that were significantly lower than non-diabetics, showed that those taking 1,800 IU of vitamin E daily obtained normal retinal blood flow. The patients with the worst initial readings improved the most. "(V)itamin E may potentially provide additional risk reduction for the development of retinopathy or nephropathy in addition to those achievable through intensive insulin therapy alone. Vitamin E is a low-cost, readily available compound associated with few known side effects; thus, its use could have a dramatic socioeconomic impact if found to be efficacious in delaying the onset of diabetic retinopathy and/or nephropathy."²⁵ Vitamin E also works synergistically with insulin to lower high blood pressure in diabetics.²⁶

Quantity and Quality

The most common reason for irreproducibility of successful vitamin E cures is either a failure to use enough of it, or a failure to use the natural form (D-alpha, plus mixed natural tocopherols), or both. For example, in an oft-quoted negative study,²⁷ researchers who gave 300 milligrams

of synthetic vitamin E to patients who had recently had a heart attack saw no beneficial effect. Such failure is to be expected. You can set up any experiment to fail. The Shutes would have used only the natural form, and four times as much.

Natural vitamin E is always the dextro-(right-handed) form. On the other hand, "synthetic vitamin E is a mixture of eight isomers in equal proportions containing only 12.5% of d-alpha tocopherol. One mg of dl-alpha tocopherol has the lowest vitamin E equivalence of any of the common vitamin E preparations."²⁸ There may be other differences. "Vitamin E derived from natural sources is obtained by molecular distillation and, in most cases, subsequent methylation and esterification of edible vegetable oil products. Synthetic vitamin E is produced from fossil plant material (coal tar) by condensation of trimethylhydroquinone with isophytol."¹² While personal philosophy is the only possible basis for a decision to conduct a study using only the synthetic form of a vitamin, the use of low dosage is generally explained away by alleging doubts about safety.

Safety

The most elementary of forensic questions is, "Where are the bodies?" Poison control statistics report no deaths from vitamin E.²⁹ There is a reason for this. Vitamin E is a safe and remarkably non-toxic substance. Even the 2000 report by the Institute of Medicine of the National Academy of Sciences, which actually recommends against taking supplemental vitamin E, specifically acknowledges that 1,000 mg (1,500 IU) is a "tolerable upper intake level...that is likely to pose no risk of adverse health effects for almost all individuals in the general population."³⁰ The Shutes observed no evidence of harm with doses as high as 8,000 IU/day. In fact, "toxicity symptoms have not been reported even at intakes of 800 IU per kilogram of body weight daily for 5 months" according to the

Food and Nutrition Board.³¹ This demonstrated safe level would work out to be around 60,000 IU daily for an average adult, some 2,700 times the RDA!

In addition to an awareness of anticoagulation medications, "Dr. Shute advises starting with small doses for patients who have rheumatic heart disease. He starts with 90 IU and very slowly works up the dose. The reason for this is that if too much is given at the beginning the increased strength of the heartbeat may create some difficulty. The same applies to heart failure. The initial dose should be small and gradually increased. If this is done the final dose can safely reach 800 to 1200 IU."³¹

Safety in the Elderly

A Columbia University study reported progression of Alzheimer's disease was significantly slowed in patients taking high daily doses (2,000 IU) of vitamin E for two years.³² The vitamin worked better than the drug selegiline did. The patients in the Alzheimer's study tolerated their vitamin E doses well. Perhaps the real story is that 2,000 IU per day for two years is safe for the elderly.

Safety in Children

Children using anti-epileptic medication have reduced plasma levels of vitamin E, a sign of vitamin E deficiency. So doctors at the University of Toronto gave epileptic children 400 IU of vitamin E per day for several months, along with their medication. This combined treatment reduced the frequency of seizures in most of the children by over 60%. Half of them "had a 90 to 100% reduction in seizures."³³ This extraordinary result is also proof of the safety of 400 IU of vitamin E per day in children (equivalent to at least 800 to 1,200 IU/day for an adult). "There were no adverse side effects," said the researchers. It also provides a clear example of pharmaceutical use creating a vitamin deficiency, and an unassailable justification for supplementation.

Safety In Infants

Overexposure to oxygen has been a major cause of retrolental fibroplasia (retinopathy of prematurity) and subsequent blindness in premature infants. Incubator oxygen retina damage is now prevented by giving preemies 100 mg E per kilogram body weight. That dose is equivalent to an adult dose of about 7,000 IU for an average-weight adult. "There have been no detrimental side effects" from such treatment, said the *New England Journal of Medicine*, Dec. 3, 1981.³⁴ Nevertheless, the 1989 (sixth) edition of the textbook *Nutrition and Diet Therapy*⁶ advised that "healthy persons stand the chance of developing signs of toxicity with the megadoses that are recommended in these studies." (p. 225) That incorrect statement was dropped in the book's next edition. Instead, the 7th edition (1993) said under "Toxicity Effects" that "Vitamin E is the only one of the fat-soluble vitamins for which no toxic effect in humans is known. Its use as a supplement has not shown harmful effects." (p.186)

Immune Function

Worst Pills, Best Pills, a monthly newsletter published by Public Citizen, Ralph Nader's "Health Research Group."³⁵ contained this statement by editor Sidney M. Wolfe, M.D.: "You should not take dietary supplements. These products have not been tested or shown to be effective for any use, and their safety is unknown. The only exception to this advice is an inexpensive vitamin or mineral preparation." (p. 80) On page 77, the doctor presents a JAMA study³⁶ alleging that a mere 200 mg of vitamin E is somehow detrimental to patients over the age of 60 with respiratory tract infections.

But there are other studies that Public Citizen might do well to present to its readership. Emanuel Cheraskin, M.D., writes: "The effect of daily vitamin E supplementation (800 IU alpha tocopherol for 30 days)

on immune responses of 32 healthy subjects (60+ years old) was examined in a placebo-controlled, double-blind trial in a metabolic research unit. The data suggest that vitamin E supplementation improves immune responsiveness in healthy elderly."³⁷ In a second study, "using a double blind protocol, immune response was studied in a group receiving vitamin E (800 mg per day) versus placebo. The increased immunocompetence was matched by blood vitamin E levels which jumped from 1.1 to 3.1 mg%. No such change in blood vitamin E occurred in the control group (1.1 to 1.0 mg%)."³⁸

A recent and perhaps even more important study looked at patients with colon cancer "who received a daily dose of 750 mg of vitamin E during a period of 2 weeks. Short-term supplementation with high doses of dietary vitamin E leads to increased CD4:CD8 ratios and to enhanced capacity by their T cells to produce the T helper 1 cytokines interleukin 2 and IFN-gamma. In 10 of 12 patients, an increase of 10% or more (average, 22%) in the number of T cells producing interleukin 2 was seen after 2 weeks of vitamin E supplementation." The authors concluded that "dietary vitamin E may be used to improve the immune functions in patients with advanced cancer." That improvement was achieved in only two weeks merits special attention.³⁹ Note that the doses in these positive studies were four times the dose used in the negative JAMA study cited by Dr. Wolfe.

Hypertension

Recent research has indicated that vitamin E normalizes high blood pressure.⁴⁰⁻⁴² In some hypertensive persons, commencement of very large vitamin E doses may cause a slight temporary increase in blood pressure, although maintained supplementation can then be expected to lower it. The solution is to increase the vitamin gradually, along with the proper monitoring that hypertensive patients should have anyway. High blood pressure has been called the

“silent killer,” and nearly one-third of adults have it. It is all too frequently unrecognized and untreated.

Nearly half of all deaths are due to cardiovascular diseases, and often the first symptom is death. Advocating daily supplementation with several hundred IUs of vitamin E would be good public health policy. Yet vitamin E, for decades lampooned as a “cure in search of a disease,” remains virtually the “silent healer” for as much as the public has been advised of its benefits.

In 1985, Linus Pauling wrote: “The failure of the medical establishment during the last forty years to recognize the value of vitamin E in controlling heart disease is responsible for a tremendous amount of unnecessary suffering and for many early deaths. The interesting story of the efforts to suppress the Shute discoveries about vitamin E illustrates the shocking bias of organized medicine against nutritional measures for achieving improved health.” (10, vii)

Dr. Pauling would have appreciated this comment from a recent Harvard Health Letter: “A consistent body of research indicates that vitamin E may protect people against heart disease. . . The data generally indicate that taking doses ranging from 100 to 800 IU per day may lower the risk of heart disease by 30%-40%.”⁴³ Over half a century ago, the Shute brothers and colleagues showed that, with even higher doses than those, and with an insistence on the use of natural vitamin E, the results are better still.

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Notes

A bibliography of selected books and papers by Wilfrid and Evan Shute is posted at http://www.doctoryourself.com/biblio_shute.html.

Evan Shute's autobiography, *The Vitamin E Story*, was reviewed by Andrew Saul in *J Orthomol Med*, 2002; 17/3: 179-181 and is also posted online at <http://www.doctoryourself.com/estory.htm>