Special Report:

Americans Eat Tons of Vitamins; Medicinal Claims Still Unproven

I. Controversy Flares

Vitamins are a hot-button item. Consumers gobble down more than 4 billion dollars worth each year.

This feeding frenzy was captured in a memorable *Time* magazine (April 6, '92) photo that shows a young woman spooning up vitamin pills from a soup bowl. The frenzy is being stimulated by vitamin makers and sellers, by some scientists who study vitamins, and also, surprisingly, by some usually level-headed journalists, including New York Times science reporter Natalie Angier:

"Long consigned to the fringes of medicine and accorded scarcely more credibility than crystal-rubbing or homeopathy," wrote the Pulitzer prize-winning Angier (March 10, 1992), "the study of how vitamins affect the body and help prevent diseases is now winning broad support and respect among mainstream medical researchers."

New Studies Discount Antioxidants' Benefits

Just when it seemed vitamin boosters' beliefs about antioxidants — vitamins A (beta carotene), C, and E — were about to be confirmed by science, the *New England Journal of Medicine* (*NEJM*) published two careful studies that significantly deflate, but do not wholly disprove the claims:

One study was on Finnish men — pack-a-day smokers — who had just been diagnosed and treated for lung cancer. The men were divided into four groups: one group took 50 mg vitamin E per day; one took 20 mg beta carotene; one took both; one took a placebo containing no vitamins. Neither the men nor their doctors knew which treatment they were getting.

Five to eight years later, the vitamin E turned out to have had no useful effect. But, "unexpectedly," the Finnish researchers say (*NEJM*, April 14), men taking beta carotene had an 18% higher incidence of new lung cancers, and an 8% higher chance of dying either due to the cancer or heart attacks than men taking the placebo.

"[T]his trial," the researchers write, "raises the possibility that these supplements may actually have harmful as well as beneficial effects."

The second study, centered at Dartmouth, was on antioxidant vitamins' ability to prevent the growth of precancerous polyps in the colon, in men and women who continued on page 3

Megadoses Are Questionable

The problem with this emotionally weighted assessment, of course, is that vitamins' essential role in nutrition and health was established many decades ago. Serious medical researchers have been studying them rigorously ever since then. It is only the value, if any, of huge amounts, called megadoses, that was — and still is — in question.

The new focus on vitamins is being driven by a no-holds-barred campaign, in which the vitamin industry charges that the U.S. Food and Drug Administration (FDA) is promulgating new rules to prevent people from buying their products. The FDA chief, Dr. David Kessler, has categorically denied this.

The *Vitamins* issue divides Americans as deeply, and almost as passionately, as Abortion:

Aficionados believe, as one wrote earlier this year to the *Wall Street Journal* (Feb. 2), that "the lives and well-being of millions of us are at stake" in FDA efforts to limit vitamin sales. Opponents argue that there is as yet no convincing scientific evidence to show that large doses of vitamins are essential for health. Given this lack of proven benefit, they add, the risks of megadosing — real and potential — argue against their use on grounds of safety (and also cost).

Little or no common ground exists between these opposing perspectives.

What is new, and true, is that a lot of science — good science, published in very reputable professional journals — continued on page 3

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Follow Up...

Better not to be born?: We described, in June, a new film "Burden of Knowledge" that focuses on families in which a mother-to-be declines diagnostic amniocentesis or an abortion, even though there is a strong chance her baby will be afflicted with spina bifida or some other severe congenital illness. Our view is that it is not a contradiction to love and respect handicapped people who live among us, on the one hand, while trying to prevent the conception or birth of future such children on the other. You can honor and respect war heroes, we said, without starting more wars.

A co-producer of the film, Bob Drake of Cinemen Productions, in Hanover, N.H., writes to challenge our view:

"It is one thing to honor and revere war heroes," he says.

"It is quite another to endorse the notion that the world would be a better place if our War Heroes had not been born."

We think this rejoinder is a non sequitur.

Drake also rephrases, critically, our proposition:

It is ... important to ask ... whether it is contradictory to love and respect handicapped people on the one hand, and to allow the conception or birth of others who will be similarly handicapped. It could be contradictory to allow such births, but I would think that would only be so in those cases where the predictable handicap would leave us with a person who would be better off dead [Emphasis in the original].

The problem with Drake's re-formulation is that we posited a voluntary choice, ultimately for the mother, of whether to try to prevent such a birth, while he, by using the word allow posits social control — and thus eugenics. We have no problem joining him in opposing this. But we don't think it's a likely non sequitur.

"For some reason," Drake writes, "prenatal testing advocates seem to think that there is a significant difference between telling the living disabled that the world would be better off with them dead and telling them that the world would be better off if they had never been born. Rational as this distinction may be, it is not surprising to me that the disabled community has difficulty accepting it whole heartedly."

Distinction Is Clear

It's good that Drake sees this as a rational distinction. But he and the handicapped might see it more clearly if he didn't confuse the propositions: People who favor testing and volun-

tary abortion of high-risk fetuses are not — or should not be — devaluing the handicapped by saying the world would be better off with them dead. Nor are they saying the world would be better off if they had never been born. They are not passing a negative judgment on the handicapped people who are here, in life, now. They rather are saying, given a choice for the future, it would be better — perhaps much better — to bring non-handicapped babies into the world.

We can understand why some, including Drake, will see this as a slippery slope argument. But, having acknowledged a "rational" distinction between honoring the handicapped among us, and trying to prevent others from being born, we think he would contribute more by clarifying it, rather than obscuring it, as he unfortunately does in the film and in his letter.

Drake and his co-producer Wendy Conquest, of Dartmouth, are on the right track. There's no need for them to blink.

Gene Tests Prompt 'Gene Wars': Development of genetic tests and therapies to correct inherited defects has been fraught with controversy (PROBE, June). One participant in the Boston conference we covered last spring, physician Robert Cook-Deegan, M.D., of the Institute of Medicine, in Washington, D.C., has written an informative, insider's view of the politics that underlie — and sometimes almost overwhelm — the Human Genome Project.

In his The Gene Wars, Science, Politics, and the Human Genome (New York: Norton, 1994), Cook-Deegan covers the background and history of genomic research from a policy wonk's perspective. One fascinating revelation:

The proposal to make the ethical, legal, and social implications of this work an integral part of the program did not come from bioethicists or others outside the research field. Rather, Cook-Deegan reports, it came from DNA Nobelist James Watson, Ph.D.:

"The decision to commence a program to anticipate the ethical, legal, and social implications of genome research was made by Watson alone, without conferring with anyone at the National Institutes of Health," Cook-Deegan writes.

Readers seeking perspective on the Human Genome Project will find Cook-Deegan's book immensely informative.

Correction

Henry Thoreau published Walden in 1854, not in 1800, as we wrote last month.

Subscription Rate Raised

The annual subscription price for PROBE (12 issues) has been raised to $60.

This is the first increase since PROBE started three years ago. Current subscribers may renew for one additional year at the charter rate of $53 by mailing a check before September 15 to POB 1321, Cathedral Station, York, N.Y. 10025-1321.
Nutritionist Victor Herbert, M.D. — who is also an attorney — reaches deep into the realm of psychiatry in trying to explain why health gurus are so effective in convincing people to pop huge numbers of costly, worthless, and potentially dangerous vitamin pills.

"A majority of the gurus of questionable health practices are in fact sociopath/psychopaths," as delineated by the American Psychiatric Association in its Diagnostic and Statistical Manual III, (DSM III), Herbert says. They are like the protagonist in the play and movie "Six Degrees of Separation."

That is:

They are glib and superficial, egocentric and grandiose, and have little sense of remorse or guilt. They are, in short, con men and con women par excellence, Herbert says. And they are dangerous.

Because they are charming — and often charismatic — these con artists are welcome, voluble guests on TV and radio talk shows, Herbert says. They may be outright liars. But some also are true believers, he quoted his quack-busting colleague, psychiatrist Stephen Barrett, M.D., of Allentown, Penn., as saying.

In a discussion of these gurus in the magazine Nutrition Today (May/June, 1994), Herbert cites the DSM III, which says that 3% of American males and 1% of females are sociopaths or psychopaths. Herbert’s view is that these guileful, guilt-free charlatans are in large part responsible for the success of the multibillion-dollar alternative health movement. How to fight them?

With science.

Unless there are reputable scientific studies to support a guru’s claim, don’t believe him or her, Herbert says. Testimonials like “It certainly is effective and safe, and I have a thousand patients that prove it!” are worthless, he warns. Unfortunately, talk show hosts and their audiences are regularly gulled into believing these unsubstantiated claims.

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now is being done on vitamins. Evidence is accruing from people who have been followed for several or more years. It indicates that some vitamin megadoses — daily doses that are ten or more times higher than the amounts required nutritionally for health — may have important medicinal benefits in preventing or treating heart attacks and other major illnesses.

But none of this is as yet scientifically proven.

Do these new findings mean that consumers should now change their diets, and swallow hands or spoons full of vitamin pills to bolster their health? The scientific answer is no. But science does now support an approximate doubling of dietary intake of one vitamin for a large segment of the population — women of child-bearing age (See Box, p. 6). For a second vitamin and another large group — men and women at high risk of heart disease — the scientific answer now is maybe: Daily megadoses of vitamin E may protect them against heart attacks.

II. Nutritional Uses Are Clearcut

To understand these new uses of vitamins and the controversy swirling around them, it can be helpful to recognize that people ingest vitamins at several different dosage levels:

As their name indicates, vitamins are natural substances — biochemicals — that have been shown scientifically to be vital for health and life. Some, like niacin, are made in the body. But most vitamins are obtained, naturally and normally, in the foods we eat; sunlight causes the body to produce vitamin D.

Major and continuing scientific efforts are made to define the usual or normal intake for the dozen or so recognized vitamins. This is the amount of each one that is needed for healthy living, without signs and symptoms of vitamin deficiency. Historically, three agencies — the National Research Council (NRC) of the National Academy of Sciences, the FDA, and the U.S. Department of Agriculture — have set these standards, based on their experts’ reading of the research literature.

For decades, the central standard has been NRC’s Recommended Daily Allowances (RDAs), which last were updated five years ago. The RDAs are designed to provide maximal amounts of each vitamin (and mineral) for specific age and sex groups, such as children, young men, and breast-feeding women. The RDAs also provide extra stores of each vitamin that will suffice for several months or longer. The RDAs, if maintained, will guarantee that almost everyone is getting enough vitamins.

Studies . . .

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already had had a colon cancer surgically removed (NEJM, July 21). Some of these patients took 25 mg beta carotene daily. Others took 1 gram vitamin C and 400 mg vitamin E daily. A third group took all three vitamins. The fourth group received placebos. Again, neither doctors nor patients knew who got what.

After four years, there was no evidence that any of the vitamins, alone or in combination, reduced users’ risk of new polyps or cancers in any way whatsoever.

"The lack of efficacy of these vitamins argues against the use of supplemental beta carotene and vitamins C and E to prevent colorectal cancer," the researchers conclude.

The studies’ authors and the Journal’s editors stress that neither report is the last word on the subject. The studies may be flawed; other studies may later show benefits.

But the burden is on the advocates and neutral scientists to prove these supplements’ value if the public is to be urged to take them.
Is It Megadose Time?

We asked three very knowledgeable experts for a brief status report:

<table>
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<th>Question</th>
<th>Harvard Researcher Walter C. Willet, M.D.</th>
<th>FDA Commissioner David A. Kessler, M.D.</th>
<th>Mount Sinai Vitamin Researcher and Critic, Victor Herbert, M.D.</th>
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<td>1. Is there, today, scientific evidence that would justify a public health recommendation for daily megadoses of vitamin E or any other vitamin?</td>
<td>The best evidence does actually relate to vitamin E. But I don’t think we’re yet in a position to recommend that. It may be rational for [some] individuals to take vitamin E supplements, particularly if they are at high risk of heart disease. But they should do so realizing that we don’t have final proof yet.</td>
<td>FDA reviewed all the available evidence [last year and] ... concluded that there were insufficient data to show that vitamin E or other vitamins, per se, would reduce the risk of cancer .... FDA is making every effort to keep abreast of new developments, and to move expeditiously to develop health claims as warranted by the scientific evidence.</td>
<td>No. In fact, it would probably do more harm than good.</td>
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<td>2. Can you foresee such a development?</td>
<td>It may be quite possible that we may have sufficient evidence to make recommendations regarding vitamin E and other supplements in a few years. But that’s in the future.</td>
<td>Nope. All the science is against it.</td>
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<td>3. How would such a development change current patterns of marketing, consumption, and monitoring of vitamin products?</td>
<td>I’m certain that it will — it already has!</td>
<td>We have no way of predicting ... A decision to use a health claim ... is voluntary and manufacturers have the choice of using or not using FDA-authorized claims.</td>
<td>It means that scam sells, science sucks — and a lot of the public would get hurt!</td>
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— and so will not suffer vitamin deficiencies, the NRC says.

The FDA recently has promulgated a modestly different standard, based on the RDAs, that it calls Reference Daily Intakes (RDIs): These are average values, in contrast to the RDAs’ maximal values, that people in each of just five groups — infants, young children, older children and adults, pregnant women, and breast-feeding women — need to sustain their health. Many RDIs thus are fractionally lower than the comparable RDAs, in recognition of the fact that, for example, a physically tiny person, or one who leads a sedentary life may need less of some vitamins to stay healthy than a linebacker or a figure skater.

Roughly speaking, then, RDAs and RDIs are normal and normative levels. They are set in large part on the basis of careful observations and animal and human experiments.

Abnormally low levels of most vitamins have been linked to specific symptoms and sicknesses. Too little vitamin C, for example, produces a syndrome of rotting gums, swollen joints, and aching muscles called scurvy, which formerly afflicted many British sailors. When vitamin C was provided — in the form of lemons and limes — these symptoms quickly cleared up, for which reason these sailors came to be called “limeys.”

Rickets Is Rebounding

Deficiency in vitamin D, due to too little exposure to sunshine or inadequate consumption of vitamin-enriched milk and other external sources, causes the bone-twisting disorder in young children called rickets. While this crippling malady is common in the Third World, it had been largely eliminated in the U.S. But rickets is again being diagnosed by American doctors, due to the hunger and malnutrition that now afflict many poor families. Some deficiency diseases, such as pernicious anemia, a vitamin B<sub>12</sub> deficiency, may be caused by one’s inability to absorb enough of the vitamin from the gut into the body, rather than by a dietary shortfall. Most such cases can be cured with vitamin supplements, in the case of pernicious anemia.
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mia, by vitamin B6 injections.

The discovery of the link between vitamin deficiency and various diseases led in this century to the development of both natural and synthetic vitamin supplements. Most deficiencies can be prevented or corrected by using supplements, and this has been the major medical concern with vitamins — at least until recently.

Overdoses Can Be Risky

But, based on the principle that If some is good, more must be better! many people take vitamin C and other vitamins in dosages that are hundreds and even thousands of times higher than what science says is their bodies need for health. Some vitamins, dangerous, even deadly, poisoning has resulted.

Some vitamins dissolve in water, including the B vitamins and vitamin C, and most of the excess amounts are often but not always flushed out quickly in the urine. Other vitamins, particularly A, D and E, are soluble in fat, not water, and so are not dissolved by body fluids. They tend to remain in the body for long periods of time. Excess A and D, particularly, can cause severe and widespread symptoms, and in some cases death. Vitamin E appears to be much safer.

Most Americans obtain nutritionally adequate amounts of vitamin E from nuts, cereals, soybean products, and other foods; the NRC says vitamin E deficiencies are extremely rare. So there is little or no nutritional need for supplements.

Multivitamins May Help

Healthy dietary practices and the use of vitamin supplements to prevent deficiencies are pretty simple and straightforward:

Since tests to disclose deficiencies are costly, most doctors don't order them unless their patients experience signs of weakness or illness that appear to be caused by a lack of one or more vitamins. But as a safeguard, many Americans take a one-a-day vitamin capsule that provides the RDA or RDI amounts of most vitamins and essential minerals — such as iron and cal-

Expert Makes a Case Against Antioxidants

The case for megavitamin supplements is largely unproven (See main story). But the comfortable view has been that, at worst, they do little harm.

Some scientists and doctors beg to differ — a few of them insistently.

One of the most insistent and aggressive critics is internist-nutritionist Victor Herbert, M.D., of Mount Sinai and the Bronx Veterans Affairs medical centers, in New York City.

He agrees that the so-called antioxidant vitamins — A (beta carotene), C, and E — often do break down dangerous free radicals, such as hydroxyl (OH) in the body. But, he says, these same vitamins — and particularly vitamin C — can also have exactly the opposite, pro-oxidant effect — which is hazardous.

New Definition Offered

These vitamins are "mis-characterized" when they are described solely as "antioxidants," or fighters against harmful free radicals, Herbert argues, in an article scheduled for the August issue of the American Journal of Clinical Nutrition. "They in fact are redox agents, antioxidants in some circumstances (often so in the physiologic quantities found in food), and pro-oxidants (producing billions of harmful free radicals) in other circumstances," such as ingestion of vitamin supplements.

Herbert is particularly worried about the interaction of vitamin C, which 40 million Americans take in amounts far in excess of the Recommended Daily Intake, and iron. Most Americans obtain the supplemental iron in foods, particularly iron-enriched store bread.

Six percent of Americans are iron deficient, and so will benefit from iron supplements, Herbert says. But 12% have been found to have more iron on board than they need. Federal studies have shown, he notes, that iron overload is associated with increased risk of cancer.

Men's Risk Higher

Based on their genetic inheritance, Herbert explains, about 10% of white Americans and possibly as many as 30% of blacks have high body iron levels. Men may be at higher risk of this because women off-load iron when they menstruate.

High body stores of iron, Herbert says, make vitamin C "violently" pro-oxidant. The reason: Ferrous iron reduces hydrogen peroxide to generate hydroxyl. In this process, the ferrous iron is converted to ferric iron. But vitamin C converts ferric iron back to ferrous iron, and re-triggers the radical-releasing cycle. Herbert and several colleagues wrote recently in the journal Stem Cells (vol. 12, pp. 289-303, 1994):

"Supplements of vitamin C provide a constant supply of new reduced ascorbic acid [vitamin C], thus turning a sole cycle of iron-dependent OH generation, in situations of localized iron overload, into a series of cycles, i.e., ascorbate-driven repetitive free radical generation by iron."

Thus, contrary to vitamin boosters' claims, Herbert says, free radicals generated by iron excess cause mutations in DNA, and promote rather than prevent cancer.

The combination of high iron and vitamin C can also cause heart attacks, Herbert adds, noting epidemiologic and laboratory findings: Oxygen radicals convert "harmless" LDL cholesterol into oxidized LDL, the "bad" cholesterol that damages coronary arteries, causing heart attacks.

To reduce this risk, Herbert's public health proposal, now pending at the U.S. Food and Drug Administration, asks that vitamin C supplements be labeled to advise consumers not to take them until their iron status has been determined.
Folic Acid Needed To Prevent Birth Defects

One major new public health recommendation on vitamins has been made recently. Based on a large series of research studies and resultant strong endorsement by nutritionists, physicians, and other health experts, the U.S. Public Health Service (PHS) now recommends that all women of child-bearing age consume 0.4 mg of folic acid, a B vitamin, daily. The reason:

If taken during a critical several-week period before and after conception, this dose of the vitamin will significantly lower women’s risk of having babies with severe neurologic birth defects. These deficiencies include lack of most of the brain (encephaly), and imperfect closure of the spinal column (spina bifida), which can cause a wide range of serious problems, including incontinence.

The folic acid RDA and RDI for pregnant women in fact are 0.4 mg. But for nonpregnant women they have been less than half as high, 0.18 mg. The RDI has now been raised to 0.4 mg. Since the critical period in which the higher amount is needed starts before conception, and since many women are not aware they are pregnant until several weeks after it happens, the PHS and its scientific advisors decided that all women who might become pregnant should be regularly getting 0.4 mg of the vitamin daily.

Americans ordinarily ingest about half this amount in liver, orange juice, chocolate, and vegetables in their diets; women could guarantee themselves the full 0.4 mg intake by eating, say, several bowls full of kale or spinach each day. But common sense says most won’t.

How then to supply it?

One current proposal is that folic acid supplements be added to enriched flours and breads, or other common foods. But some scientists and FDA officials are reluctant to do this, because the supplement would be of no value to the majority of Americans who consume these products — children, males of all ages, and older women. What could be worse, experts say, is that too much folic acid — on the order of 1 mg per day — may conceal the symptoms of pernicious anemia, a dangerous vitamin B<sub>12</sub> deficiency.

The proposal to require folic acid supplements in foods is currently under debate. But some foods, for example breakfast cereals, are already fortified with it. Women of child-bearing age also can protect themselves by taking supplements. Many one-a-day products, and particularly those labeled specially for women, now contain 0.4 mg folic acid.

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cium — as well. Some of these ingredients may be nutritionally useful; others certainly are not.

Many multi-vitamin products, for example, contain a B vitamin called pantothenic acid. This vitamin is, however, abundant in meat, grains, and vegetables and virtually the only people deficient in it, according to the NRC, are malnourished war prisoners and Asian peasants.

Clearly, the cost — and the profit — in adding pantothenic acid to multi-vitamin preparations are a waste of consumers’ money. Some nutrition experts go so far as to say that multi-vitamin products, while relatively cheap, are a waste of money for virtually all Americans who eat normal diets. On the other hand, alcoholics, vegetarians, and other special diets may need these supplements.

III. Megadoses Pose Problems

If nutritional needs were all there was to it, there would be little to write about vitamins, and not much, either, to sell. But some people say that huge supplements make them feel better, in a general way. Scientific confirmation of this euphoric effect is lacking. Most people who consume large amounts of vitamins also believe that they are treating or preventing specific illnesses, including depression, heart disease, and cancer, as well as the common cold. They claim the vitamins protect their health.

This usage of large dosages of vitamins can be viewed as medicinal, as distinct from the nutritional use of the same vitamins in preventing deficiencies and sustaining normal, healthy function. This medicinal megadosing is a major and lucrative market for the vitamin industry, as can be seen by a quick trip to a drug store or health food store; dozens, even hundreds, of products can be found that contain doses far in excess of the RDA or RDI amounts.

Here, too, is where the battle between proponents and opponents of megadosing is joined. Consumer protection laws, and particularly the Federal Food, Drug and Cosmetic Act, say that if a manufacturer claims that a product will prevent or relieve illness, he must prove it, scientifically. What is more, if a product’s manufacturer makes a claim, such as “prevents rheumatism,” then the product is considered a drug and the claim must be proven to be listed on the label.

Claims Are Approved

Health claims also can now be made for foods and nutritional supplements. The FDA’s standard for approving a new nutritional claim for preventing or treating a disease is “significant scientific agreement among qualified experts” that the claim is valid. Under this standard, the agency currently approves 0.4 mg folic acid to prevent birth defects (See adjacent Box), as well as the sale of calcium to prevent the bone-wasting disease osteoporosis. But FDA currently rejects claims that so-called anti-oxidant vitamins — vitamins A (beta-carotene), C, and E — prevent cancer, heart disease, and other illnesses.
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certain), C, and E — will prevent cancer, heart attacks or other diseases.

This is why bottles of megadose vitamin C, E, and other vitamin pills sold at health food or drug counters almost never carry labels that state any medical uses. The scientific evidence that would fulfill FDA’s requirement for scientific proof simply is lacking.

The FDA, in the past, tried to ban medicinal, megadose sales of unproven vitamins in the same way it bans other drugs with unproven claims. But Congress, responding to a massive campaign by vitamin consumers and the vitamin industry, then re-classified vitamins as nutritional supplements, thereby preventing FDA from banning them as drugs.

Contradiction Exposed

This leaves an essential contradiction: Most megadoses are sold as nutritional supplements, but are taken for medicinal purposes. The vitamin industry gets around the law by describing the alleged benefits of these products in brochures, books, tapes and other forms that are sold separately — ostensibly independently — from the vitamin products.

Conservative nutritionists long have said that the megadosing movement is nothing more than a commercial scam: ill-gained profits for the industry, costly urine for the consumer.

But the evidence now accruing strongly suggests that megadoses of at least one vitamin — vitamin E — can prevent some heart attacks, and may also prevent the severe chest pain associated with this decision. - D.R.Z.

IV. Will Vitamin E Help the Heart?

Current theories hold that vitamin E in megadoses (like vitamins A and C in similarly large amounts), is an antioxidant: It blocks the formation in the body of highly toxic forms of oxygen, called free radicals. These free radicals are believed to damage cells in and around the arterial walls, and stimulate the uptake of the "bad," or LDL (low-density lipoprotein) component of cholesterol into these cells — which then build up into plaques that constrict coronary blood flow.

If this theory, for which there is growing evidence, turns out to be right, then vitamin E’s protective effect may be ascribable to its prevention of LDL oxidation.

Another hypothesis: These vitamins have a blood-thinning protective value, as does aspirin.

A growing number of observational studies show the evidence that the vitamin protects blood vessel walls. The most dramatic, perhaps, were two epidemiologic reports from Harvard, published in the conservative New England Journal of Medicine (May 20, 1993). They cover 87,000 female nurses and 40,000 male pharmacists and other health professionals who were tracked by researchers — the women for eight years, the men for four. The subjects’ intakes of vitamins E, C, and the vitamin A precursor beta-carotene were recorded, along with other nutritional data, smoking habits (if any), and other health information.

Heart Attacks Studied

The long and the short of the studies, led by Harvard internist Walter C. Willett, M.D., was that the 20% of each group, men and women, who consumed the most vitamin E had an impressive and statistically significant 40% fewer heart attacks than did the 20% of men and of women who had the lowest vitamin E intakes. The researchers said:

"Although these prospective data do not prove a cause-and-effect relation, they suggest that among middle-aged women ... [and] men ... the use of vitamin E supplements is associated with a reduced risk of coronary heart disease."

The protective daily dose for women was 100 to 250 IU daily, most of it through supplements; no additional benefit could be detected in women who took higher doses of 600 or more IU per day. In the men, "the maximal reduction in risk was seen among [those] consuming 100 to 249 IU per day, with no further decrease [in heart attacks] at higher doses."

While the vitamin E turned out in these men and women to be highly protective, vitamin C was of no value. The vitamin A seemed to reduce risk only in men who were smokers.

The studies' authors note that these megadoses of vitamin E "appear" not to be toxic. But, they note, neither the vitamin's effectiveness nor its safety has as yet been established by rigorous scientific tests, in which neither doctors nor test subjects would know who is getting the vitamin, and who is getting an inert dummy medication (placebo) instead. An editorialist in the Journal notes that there are no studies on the long-term use of vitamin E megadoses. He advises his fellow physicians:

"Until they are done, please let's hold the vitamin E."

V. Debate Grows on What to Do

Consumers, of course, are not physicians. And vitamin E, like any other
drug, has its risks. But they are not great risks. And for most people, the potential benefits may outweigh the potential risks.

Until recently, he did not take megadoses of any vitamin, and took multi-vitamin products only when recommended by a doctor.

Following a heart attack three years ago, he started a regimen of several prescription drugs, plus aspirin, to prevent a recurrence. After the publication, a year ago, of the Harvard studies on anti-oxidants and heart disease, he started taking vitamin E. His cardiologist concurred with this decision.

— D.R.Z.

Disclosure

This writer takes a daily megadose of vitamin E.

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aspirin — which has been shown, more rigorously, to prevent heart attacks — is available without prescription. So anybody is free to take it, as half or more of the men in the Harvard study already do.

Clearly, lots of people are not waiting for science. Should you?

The question is not as simple as it seems. Three anti-oxidant vitamins are being touted for use against heart disease, on the basis of early and inconclusive studies. So, one could choose to take one, two, or even all three of these vitamins in megadosages.

If one is attentive to the evidence, it thus becomes very difficult to decide what to do. The vitamin industry, however, is not nearly as cautious.

The Council for Responsible Nutrition, a Washington, D.C. nutritional supplements industry group, issued a press release on the Harvard studies headlined "Vitamin E is Beneficial and Safe — A Public Health Recommendation for Supplementation is Justified." Of course, as reported above, the studies' authors said no such thing — and the editorial said flatly no.

As in the past, the vitamin industry is unwilling to wait for science before issuing its claims. A few of these claims may now be closer to validation than ever before.

In sorting them out, consumers need to put these claims to the twin tests of science and medicine: Does it work? Is it safe? A level-headed health professional should be able to provide some guidance. But, as has always been the case with vitamins:

Caveat emptor! — Let the buyer beware!

Note: Portions of this special issue on vitamins were published in Consumer Digest (May-June) — D.R.Z.

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