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Dear Friends,

It is always troubling to me when media reports of scientific research amplify the actual information to make a hyperbolic point that agrees with the writer, or promotes the view of the magazine or newspaper. It is even worse when the scientific authors draw conclusions that are not completely warranted by their data, displaying a bias of their own which is bound to be magnified by the media.

One such example is the recent hype about a meta-analysis (a study of studies) concerning vitamin E and the supposed potential for it to increase mortality when taken in high doses. No new research was reported in this review, but the authors conglomerated earlier studies, combined the results, and made overreaching conclusions that vitamin E supplementation was associated with a higher risk of mortality from all causes. Many hundreds of studies on vitamin E have reported a variety of benefits, a reduction of serious diseases, and no safety risks.

The conclusion in this current paper is not justified by the studies. All but one of the reports on doses lower than 400 IU showed either no effect or reduced mortality. Some reports on doses between 400 and 800 IU per day showed a slightly increased mortality, but this may not have been due to vitamin E.

Even leaving aside the issue of which studies used natural and which synthetic vitamin E, among all the studies on doses above 400 IU per day, only one reported with statistical confidence that their results were real, rather than due to chance, and this study showed significant benefit from vitamin E at 440 IU per day (the Polyp Prevention Study of 1994, showing 1/3 as many deaths in the vitamin E group compared to the control group).

On the contrary, we already have evidence that vitamin E in high doses from supplements is beneficial. The Nurses' Health Study of 87,245 subjects reported a 34 percent lower mortality in the group with highest vitamin E intake. For those subjects who took vitamin E supplements for more than two years, the mortality risk was reduced by 41 percent. These results are in accord with a large body of evidence in animals and humans, and theoretical evidence based on the physiological effects of vitamin E. To suggest that vitamin E is more dangerous than smoking is downright ludicrous.

The meta-analysis authors neglect to emphasize that a daily dose of 2000 IU of vitamin E is of benefit to patients with Alzheimer's disease. They further display their bias by failing to emphasize the clear benefits from vitamin E supplements below 400 IU. Combining studies with insignificant data, different time periods, designs, and subjects, and equivocal results does not show that vitamin E is unsafe. The real danger is in pooling data to draw erroneous conclusions that scare people away from taking vitamin E, thus depriving them of the real benefits of this valuable nutrient.

Real Benefits of Vitamin E

Lost in the hyperbolic media reaction to the negative conclusions of the meta-analysis of vitamin E are the many real benefits from taking this supplement, revealed in numerous studies of many kinds over many years. It is important to put all research into perspective, and carefully review every publication for both bias and honest misunderstandings. In some of the studies, the small increase in mortality could easily have been due to other causes, and in at least one, the vitamin E group had greater severity of their underlying illness than the control group.

The meta-analysis included some research that used synthetic **d,l**-alpha tocopherol, as opposed to **d**-alpha tocopherol, the natural form. While many studies have found benefits from both synthetic and natural alpha-tocopherol, a more valuable supplement is a mixture of tocopherols, including beta-, delta-, and, perhaps most importantly, gamma-tocopherol. Each of these has benefits, including protection from cancer and heart disease.

The long history of safety and benefits from vitamin E is not to be passed off too lightly, and these benefits have been shown in studies using either synthetic vitamin E or natural d-alpha tocopherol, not the preferred mixed tocopherols. We would be wise not to disregard these studies based on one review and no new research.

As early as the 1940s, vitamin E in large doses was reported to have clinical benefit in heart disease, and since then numerous other benefits have been reported. A new population study of 957,740 subjects over 30 years old, followed since 1982 showed that those who were regular consumers of vitamin E for under 10 years had a 40 percent lower risk of dying of amyotrophic lateral sclerosis (ALS, or Lou Gehrig's disease) compared to non-users or occasional users. Those who were regular users for more than 10 years had a 62 percent lower risk.

A finding from the Cancer Prevention Study of 991,522 US adults showed that regular consumption of vitamin E for more than 10 years was associated with a 40 percent reduction of the risk of bladder cancer. In this study, vitamin E use for less than 10 years was not associated with a reduction of risk.

So far, many indications suggest that it is wise to start supplements of vitamin E early in order to achieve the most benefits. While we do not want to take unnecessary risks, the evidence for vitamin E benefits far outweighs the supposed risks.

One reason that synthetic and d-alpha tocopherols are used in studies is that they are less expensive than natural, mixed tocopherols, especially those that are high in gamma-tocopherol. Although even the less expensive forms are often beneficial, nutritionally oriented physicians most often recommend the mixed tocopherols for patients. Gamma-tocopherol is more abundant in food than alpha-tocopherol, and taking alpha alone might deplete gamma.

Vitamin E and Health

Age-related macular degeneration, a leading cause of blindness in the elderly, is markedly reduced in subjects who take antioxidants (including 400 IU of vitamin E) and zinc. Macular degeneration is associated with increased mortality from heart disease and other causes of death, and therefore it is a reflection of systemic disease and other risk factors.

The Cambridge Heart Antioxidant Study showed that subjects taking 400 to 800 IU of vitamin E had a significantly reduced risk of recurrent heart attacks, even though the vitamin E group turned out by chance to have more severe disease at the start of the study (and a slight but not significant higher mortality). In the HOPE trial, mortality was unaffected by 400 IU of natural vitamin E for 4.5 years, but as we can see from the studies above, much longer times may be necessary to show results.

Vitamin E has a number of physiological benefits, including reducing platelet aggregation, preventing oxidation of LDL, inhibiting overgrowth of smooth muscle cells (involved in the initiation of vascular disease), and preserving endothelial cells. It reduces inflammation and CRP levels, associated with increased cardiac risk. In addition, 400 IU daily reduces claudication and relieves PMS symptoms.

As noted earlier, a dose of 2000 IU per day is helpful in slowing Alzheimer's disease progression. This flawed analysis does not alter the importance of vitamin E as part of a comprehensive dietary supplement program.

Vitamin D Update

After last month's article on vitamin D, it came up again at the recent meeting of the American College for Advancement in Medicine (www.acam.org). It appears that vitamin D is also protective against autoimmune diseases, including multiple sclerosis (MS), and possibly type 1 diabetes and inflammatory bowel disease, but most people do not get enough.

MS incidence is highest in geographical areas where sunlight exposure is lowest, and sunlight is the single best source of vitamin D (the action of ultraviolet light on cholesterol in skin cells produces vitamin D), although oily fish or fish oil supplements are good dietary sources, and small amounts are found in eggs and mushrooms.

In an animal model of MS (experimental autoimmune encephalitis, or EAE), treatment with a hormonal derivative of vitamin D stops the initiation and progression of the disease. It stimulates the production of neurological tissue anti-inflammatory substances. It also stimulates the death of inflammatory cells and blocks their entry into nerve tissue.

With high exposure to sunlight, production of vitamin D can reach 10,000 IU per day. An intake of 1000 to 2000 IU daily is needed to maintain healthy serum levels, and some estimates go up to 4000 IU, all levels that appear quite safe. The form that is added to milk, synthetic vitamin D2, is only one fourth as effective as the natural D3 form. Supplements are important for the elderly, whose production is inefficient, or for those avoiding sun or using sunblock.

Other benefits of vitamin D include protection from osteoarthritis, osteoporosis, some cancers, fibromyalgia-like symptoms, and hypertension.

Ask Dr. J

Q. My husband has had coronary bypass surgery and is having trouble building up his exercise program of distance running. Any suggestions?

TB, via email

A. This may be related in part to the medications he is taking, as some of them reduce stamina and lead to fatigue, such as beta-blockers. Cholesterol-lowering drugs inhibit the production of coenzyme Q10, an essential cofactor for cardiac and muscular energy production.

Bypass surgery is very traumatic, and recovery can be slow, but coronary patients have recovered sufficiently to run marathons after surgery. It is important for your husband to have optimal nutrition as part of the process, as well as his healthy diet and exercise program.

One of the most important supplements for the heart is the coenzyme Q10 (200-400 mg), as high doses have been found effective for a number of conditions. Complementing this with L-carnitine (2000-4000 mg) is helpful for heart muscle health, as it transports fatty acids into the mitochondria where energy is produced. In addition, magnesium (500-1000 mg) is helpful for the heart rhythm and blood flow.

I still recommend high doses of vitamin E (800-1200 IU), and vitamin C (4000-6000 mg or more). Other helpful supplements that I have written about before include L-arginine, niacin, fish oils, ginkgo biloba, garlic, policosanol (for cholesterol levels and arterial health), and D-ribose, a five-carbon sugar that helps heart muscle energy.

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In the Health News

- Coenzyme Q10 improves the functioning of patients with congestive heart failure, confirmed by a new study of severely diseased patients awaiting heart transplants. (Berman M, et al., Coenzyme Q10 in patients with end-stage heart failure awaiting cardiac transplantation: a randomized, placebo-controlled study. *Clin Cardiol.* 2004 May;27(5):295-9). Of the 27 patients who completed the study, those on coQ10 had improvements in a walk test, breathing, nighttime urination, fatigue, and their class of disease severity. They used 60 mg of coenzyme Q10, while much larger doses (200-600 mg) are likely to be better.

Diet and Disease

- The antioxidant flavonoid quercetin has beneficial actions in managing allergies and preserving vision. A new study shows that its antioxidant properties are particularly valuable in protecting brain cells. In culture, quercetin was even better than vitamin C in reducing damage to cells exposed to hydrogen peroxide (Study: an Apple a Day Really Does Keep Doctor Away, Reuters, Nov 16, 2004). Oxidative free radical damage is associated with brain aging as well as degeneration of other tissues. Other sources of free radicals are ultraviolet light, normal biochemical reactions, and stress. Red apples have the most of quercetin, particularly in the skins. Quercetin is also found in cranberries, blueberries, yellow or red onions, and cabbages.
- A combination of indole-3 carbinol (from cabbage and broccoli) and soy isoflavones (genistein) was more effective at reducing cancer cell growth than either alone (Auborn KJ, et al., Indole-3-carbinol is a negative regulator of estrogen. *J Nutr.* 2003 Jul;133(7 Suppl):2470S-2475S). Both nutrients induced cell death and reduced proliferation in estrogen sensitive tumor cells, but the combination was even better. Soy is not harmful as some suggest.

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Healthy Holiday Nog

Holiday season recalls the parties with overflowing egg nog full of cream and sugar, but a rich nog drink can be made with a healthy vegetarian recipe that is delicious. In advance, freeze 4 bananas without the skin. Put the bananas in a blender with 4-8 (depending on size) frozen strawberries, 2 cups of soy milk, rice milk, or coconut milk, and 1 cup of water. Add 3 Tbsp of either honey or maple syrup (this is optional, depending on how sweet you like it) and 1-2 tsp of nutmeg. You can also add 1/2 tsp of cinnamon. (If you like, you can add one or two organic eggs, but it will be rich and smooth without them.) Blend this all together until it is liquefied and creamy, and serve with a sprinkle of fresh grated nutmeg on top. If you want to be festive for the special occasion, you can add a tiny bit of rum in each glass at the time of serving; I leave the amount up to you.

From June to October, I see patients in Arlington, MA, and Amherst, NH. For appointments during this time, call **603-878-2256**. I also do phone consults.

From November to May, I see patients in New Smyrna Beach, Florida. Call **386-409-7747**.

My newest book is *The User's Guide to Heart Healthy Supplements*. You can order it from **QCI Nutritionals** at **888-922-4848**. *Dr. Janson's New Vitamin Revolution* and my other books are also available from QCI Nutritionals or health food stores. You can visit the QCI Nutritionals website at **www.qcinutritionals.com** for quality supplements at reasonable prices.

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