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Healthy Foods, Rich in Many Different Nutrients, Are Still Your Best Medicine

It's easy to focus too much on individual vitamins and minerals and, in doing so, to forget that wholesome and natural foods provide hundreds of beneficial nutrients. Three recent studies provide timely reminders of the health benefits of foods.

Chris I.R. Gill, PhD, of the University of Ulster, Northern Ireland, and his colleagues studied the effects of watercress, a leafy vegetable related to broccoli and cauliflower. Gill and his colleagues asked 60 men and women, half of whom were smokers, to eat a bowl containing 85 grams (3 ounces) of raw watercress daily for eight weeks.

The watercress significantly boosted the subjects' blood levels of lutein and beta-carotene. Their rate of DNA damage, a risk factor for cancer, decreased by 17 percent by the end of the study, and the smokers benefited slightly more than did the nonsmokers.

The study "provided important evidence that supports the hypothesis that consumption of watercress, a cruciferous vegetable, can reduce cancer risk in humans via a decrease in DNA damage," wrote Gill.

In a separate study, Julie K. Collins, PhD, of the South Central Agricultural Research Laboratory, Lane, Oklahoma, and her colleagues investigated the effects of watermelon juice on arginine levels.

Watermelon is high in citrulline, an amino acid that the body can convert to arginine, another amino acid (protein building block). Arginine is the precursor to nitric oxide, a natural compound that lowers blood pressure, enhances insulin function, and improves erectile function in men.

Collins' subjects – 23 in all – consumed three cups of watermelon juice daily, six cups daily, or none at all, with each phase lasting for three weeks.

People drinking three cups of watermelon juice daily had a 12 percent increase in their blood levels of arginine. When they consumed six cups of the juice daily, their blood levels of arginine went up by 22 percent.

Watermelon juice is also a rich source of lycopene and related compounds, which may reduce the risk of prostate cancer.

In the final study, Carlotta Galeone, PhD, of the Mario Negri Institute of Pharmaceutical Research, Milan, Italy, and her colleagues analyzed the results of eight previous studies on onion and garlic consumption and the risk of cancer. The studies included 9,057 cases of cancer and 17,418 subjects who had not been diagnosed with cancer.

People consuming the largest amounts of onions and garlic had relatively low risks of cancer. High intake of onions was associated with more than an 80 percent reduced risk of developing cancer of the mouth, esophagus, larynx, ovaries, and prostate. Garlic was associated with a lower risk of these and other cancers, but the benefits were not as great as with onions.

References: Gill CIR, Haldar S, Boyd LA, et al. Watercress supplementation in diet reduces lymphocyte DNA damage and alters blood antioxidant status in healthy adults. *American Journal of Clinical Nutrition*, 2007;85:504-510. Collins JK, Wu G, Perkins-Veazie P, et al. Watermelon consumption increases plasma arginine concentrations in adults. *Nutrition*, 2007;23:261-266. Galeone C, Pelucchi C, Levi F, et al. Onion and garlic use and human cancer. *American Journal of Clinical Nutrition*, 2006;84:1027-1032. □

Perspectives...

Are Antioxidants Really Dangerous?

I have to admit it – supplement bashing has become as annoying to me as sand flies.

The latest negative study, published in the February 28 *Journal of the American Medical Association*, found that antioxidant supplements increased the risk of death. But the study actually said much more about bad research than about antioxidants.

The researchers first looked at 747 studies of people taking antioxidants. They quickly excluded

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405 studies because no deaths occurred in them, as well as more than 300 other studies for various reasons. They ended up with 68 antioxidant studies in which at least one person died.

When the researchers crunched their data, they found that people taking antioxidants had a higher risk of “all-cause” death, meaning that they died because of any number of factors, including accidents and being gravely ill to begin with.

The 68 studies selected for had a lot of problems. The antioxidants included vitamins A, C, E, beta-carotene, and selenium for the treatment of many different conditions. The dosages were all over the map, and the treatments ranged from just one day to several years.

The researchers’ analytical technique, called meta-analysis, works well when multiple studies are relatively consistent. But a meta-analysis is worthless when it tries to cover too much ground, as this study did.

Another flaw was that the meta-analysis omitted many important analyses of antioxidant studies. For example, a 1996 study found that vitamin E supplements reduced nonfatal heart attacks by 77 percent, but increased the number of fatal heart attacks slightly more than did placebos. When the researchers re-checked their data, they found that the fatalities in the vitamin E group occurred among people who didn’t take their vitamin E. The lesson was obvious: vitamin E can reduce the risk of heart attack, but it doesn’t help if you don’t take it.

Unfortunately, the meta-analysis didn’t incorporate these salient observations. They relied only on original, incomplete, and uncritiqued data.

Using simple arithmetic, I compared 405 antioxidant studies in which no one died against the 68 in which at least one person died in either the antioxidant or placebo groups. Granted, this wasn’t a scientific comparison, but I calculated that you have an 83 percent lower risk of death while taking antioxidants.

I’m still taking my antioxidants. I think you should too. –JC

Coenzyme Q10 Supplements Show Some Promise in Treating Tinnitus

Coenzyme Q10, a vitamin-like nutrient, may help some people with chronic tinnitus, often described as a ringing or buzzing in the ear.

Birgit Mazurek, MD of the Charité University in Berlin, Germany, and her colleagues asked 20 patients, each of whom had tinnitus for at least three months, to take 100 mg of CoQ10 three times daily for 12 weeks.

Although CoQ10 did not help the patients

overall, it did benefit those who had low levels of the nutrient at the beginning of the study. In this subgroup of seven patients, symptoms of tinnitus decreased by 36 percent.

Mazurek wrote that “patients with a low CoQ10 level before treatment and with a significant increase in the CoQ10 level afterward showed a decrease of the total tinnitus score and of all its dimensions, except for the emotional distress.”

During CoQ10 supplementation and for several weeks afterward, the patients in the subgroup felt that the tinnitus became less intrusive. They also had fewer perceptual difficulties, cognitive distress, and sleep problems because of tinnitus.

CoQ10 plays essential roles in energy production and was the basis of the 1978 Nobel prize in chemistry. It has been successfully used in the treatment of chronic heart failure and cardiomyopathy and in slowing the progression of Parkinson disease.

Reference: Khan M, Gross J, Haupt H, et al. A pilot clinical trial of the effects of coenzyme Q10 on chronic tinnitus aurium. *Otolaryngology – Head and Neck Surgery*, 2007;136:72-77. □

Could Excess Copper Predispose Women to Post-Partum Blues?

Nearly all women have mild symptoms of depression after giving birth, and 10 to 20 percent of women experience a period of full-blown depression. But intriguing new research suggests that high levels of copper may predispose some women toward post-partum depression.

Although copper is an essential nutrient, high levels can suppress zinc, another essential nutrient. Elevated copper levels have previously been associated with a variety of symptoms, including depression, behavioral problems, and fatigue.

John W. Crayton, MD, and William J. Walsh, PhD, of the Pfeiffer Treatment Center, Warrenville, Illinois, compared copper and zinc levels in 78 women with a history of post-partum depression, 146 women who were depressed but had no history of post-partum depression, and 28 women who had never been depressed.

Copper levels were significantly higher among women who had a history of post-partum depression, compared with depressed women who had never experienced post-partum depression as well as nondepressed women. Women with a history of post-partum depression averaged blood copper levels of 131 µg/dl. That level was about 15 percent higher than in other depressed women and 19 percent higher than in nondepressed women.

Although zinc levels were essentially the same among the three groups of women, the higher copper

levels among women with post-partum depression significantly increased their copper-zinc ratio.

Copper is involved in the production of some neurotransmitters and in the conversion of dopamine to norepinephrine. Crayton and Walsh noted that elevated copper levels may “result in altered levels of brain dopamine and norepinephrine” in women with post-partum depression. They also pointed out that high copper levels might be used to identify women at greatest risk of post-partum depression.

Reference: Crayton JW, Walsh WJ. Elevated serum copper levels in women with a history of post-partum depression. *Journal of Trace Elements in Medicine and Biology*, 2007;21:17-21. □

High-Dose Selenium Gives Gravely Ill Patients a Fighting Chance to Survive

Giving critically ill patients a single nutrient – selenium – can significantly reduce their risk of death, according to a study by German researchers.

Matthias W.A. Angstwurm, MD, of Ludwig-Maximilians University of Munich, and his colleagues treated 249 patients with severe systemic inflammation, sepsis, or septic shock with either selenium or placebo. The selenium was provided intravenously in the form of sodium selenite. After the first dose of 1,000 mcg, the patients received 1,000 mcg of selenium by continuous intravenous drip each day for two weeks.

Sepsis is a bacterial infection of the blood, which often triggers an overwhelming inflammatory response and septic shock. The death rate for patients with these conditions ranges from 28 to 50 percent.

Overall, mortality over the next 28 days decreased by about 20 percent among patients receiving selenium, compared with the placebo group. After some patients were excluded because of withdrawals or violations of the study protocol, Angstwurm and his colleagues calculated that people receiving selenium were 25 percent more likely to survive over the next 28 days compared with the placebo group.

Previous research had shown that sepsis and septic shock are associated with a significant increase in free radical levels and low antioxidant reserves. Selenium is an essential constituent of glutathione peroxidase, one of the most powerful antioxidants made by the body.

Reference: Angstwurm MWA, Engelmann L, Zimmermann T, et al. Selenium in intensive care (SIC): results of a prospective randomized, placebo-controlled, multiple-center study in patients with severe systemic inflammatory response syndrome, sepsis, and septic shock. *Critical Care Medicine*, 2007;35:118-126. □

Diets Rich in Folate and Supplements Can Reduce Risk of Cleft Lip

Diets rich in folate, as well as folic acid supplements, are well known for their ability to prevent spina bifida, a serious birth defect involving malformation of the spine. Accumulating research strongly supports the B vitamin’s role in preventing cleft lip and cleft palate.

In cleft lip, the upper lip is separated below the nose. In cleft palate, tissues forming the roof of the mouth fail to properly form.

Allen J. Wilcox, PhD, of the United States National Institute of Environmental Health Sciences, Durham, North Carolina, and Norwegian researchers investigated the dietary and supplement habits of 572 women who gave birth to children with cleft lip, cleft palate or both. They then compared these women to 1,022 others who had normal births. All of the women were Norwegian.

Women who took 400 mcg or more folic acid early during pregnancy were 39 percent less likely to have infants with cleft lip, with or without an associated cleft palate.

“The lowest risk of cleft lip was among women with folate rich diets who also took folic acid supplements and multivitamins,” Wilcox reported. In this group, women had a 64 percent lower risk of having infants with cleft lip, with or without an associated cleft palate.

However, folic acid did not appear to protect against cleft palate alone.

Folate is rich in leafy green vegetables, such as dark lettuces and spinach. Folic acid, a synthetic form of the vitamin, is widely available as a single supplement or in multivitamins.

Reference: Wilcox AJ, Lie RT, Solvoll K, et al. Folic acid supplements and risk of facial clefts: national population based case-control study. *BMJ*, 2007;334:464-469. □

Vitamin E Absorption Differs Between Heart Patients and Healthy Subjects

People with coronary heart disease seem to absorb natural vitamin E much more readily compared with healthy subjects. The vitamin also reduces some key risk factors associated with heart disease.

Daniel Teupser, MD, PhD, of Leipzig University Hospital, Germany, and his colleagues compared the effects of vitamin E supplements on 12 patients with coronary heart disease and 12 healthy subjects. Teupser gave the subjects 100 mg (149 IU) of vitamin E for three weeks, followed by 200 mg (298 IU) daily and 400 mg (596 IU) daily, each for three weeks.

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Quick Reviews of Recent Research

• **Surgery increases risk of vitamin B1 deficiency**

American researchers identified 32 cases of Wernicke encephalopathy, caused by an extreme deficiency of vitamin B1, following bariatric surgery. The surgery is commonly referred to as "stomach stapling" and is becoming increasingly common as a treatment for obesity. In most cases, vomiting was an early sign of risk. Wernicke encephalopathy is characterized by three symptoms: confusion, ataxia, and abnormal eye movements. The symptoms tend to develop four to 12 weeks after surgery, but treatment with multivitamins can reduce its risk.

Singh S, et al. *Neurology*, 2007;68:807-811.

• **Smoking impacts balance of good vs bad bacteria**

Considerable research has investigated health-promoting and disease-causing bacteria in the gastrointestinal tract, but less research has focused on bacterial competition at other sites. American

researchers investigated the species of bacteria found in the nasal passages and part of the oral cavity in 20 people before and after they stopped smoking. Smokers had very high levels of disease-causing bacteria, which may partly explain their greater risk of respiratory infections. After the subjects stopped smoking, their levels of disease-causing bacteria decreased significantly.

Brook I, et al. *Archives of Otolaryngology Head and Neck Surgery*, 2007;133:135-138.

• **Kiwifruit reduces DNA damage, maybe cancer risk**

Researchers from New Zealand investigated whether dietary and exercise advice or the specific consumption of kiwifruit might lower levels of DNA damage, which is linked to cancer risk. Although the 12 subjects improved their eating habits and physical activity, only the consumption of kiwifruit led to significant increases in the repair of DNA damage in white blood cells. The researchers wrote that a "prescription" of daily kiwifruit might help lower the risk of cancer.

Rush E, et al. *Nutrition Research*, 2006;26:197-201.

• **Vitamin D may protect against wintertime flu**

More than 25 years ago, a researcher proposed that a "seasonal stimulus" associated with solar radiation might explain the wintertime increase in influenza epidemics. In light of that idea, American and Canadian researchers recently noted that vitamin D has profound effects on the immune system, stimulating the production of powerful infection-fighting compounds. During colder months, when ultraviolet sun exposure is reduced, vitamin D production declines, increasing susceptibility to the flu. The researchers noted that ultraviolet rays, either from the sun or artificial sources, as well as cod liver oil (which is rich in vitamin D), reduce the incidence of viral respiratory infections.

Cannell JJ, et al. *Epidemiology and Infection*, 2006;134:1129-1140.

Vitamin E Absorption...

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After taking 100 mg of vitamin E daily for three weeks, the heart patients' blood levels of vitamin E increased significantly – by 59 percent. By the end of the study, after they had been taking 400 mg of vitamin E daily, their blood levels had doubled.

In contrast, the healthy subjects' blood levels of vitamin E increased significantly – by 54 percent – only after they took 400 mg of vitamin E daily.

Teupser also investigated how well vitamin E was absorbed into the subjects' low-density lipoprotein (LDL), very low-density lipoprotein (VLDL), and high-density lipoprotein (HDL) forms of cholesterol. Vitamin E can protect against the free radical oxidation of cholesterol, which is an early step in the development of heart disease.

In the heart patients, vitamin E levels in LDL, VLDL, and HDL cholesterol increased significantly, boosting their protection against oxidation. In the healthy subjects, vitamin E levels increased significantly in the LDL, but only modestly in the VLDL and HDL.

In addition, levels of fibrinogen, a blood-clotting factor, decreased by 25 percent when the heart patients took 400 mg vitamin E daily. Levels of C-reactive protein, a marker of inflammation, also declined by 55 percent among the heart patients.

Reference: Leichtle A, Teupser D, Thiery J. Alpha-tocopherol distribution in lipoproteins and anti-inflammatory effects differ between CHD-patients and healthy subjects. *Journal of the American College of Nutrition*, 2006;25:420-428. □

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Post Office Box 30246 • Tucson AZ 85751-0246 USA

Editor and Publisher: **Jack Chalem**
Copy Editor: **Mary E. Larsen**

Medical and Scientific Advisors:

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