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Researchers Find that the “Cure” for Wrinkles May Be as Simple as Eating a Healthy Diet

To save your skin, the standard advice is to avoid lengthy exposures to sunlight and to not smoke tobacco. The reason is that both generate large numbers of destructive molecules called free radicals, which break down and age skin cells.

You would also be wise to eat a healthy diet, rich in vegetables and olive oil, and limit intake of some other fats and sugary foods, according to a new international study of 453 people, ages 70 and older, in Australia, Greece, and Sweden.

Mark L. Wahlqvist, MD, on Monash University, Australia, and colleagues analyzed the diets of Greeks living in Greece, Swedes living in Sweden, Greek-born Australians, and Anglo-Celtic Australians. Wahlqvist's team also used microphotography to determine the degree of actinic, or sun-related, damage, to skin on the back of the subjects' hands. They then related specific dietary habits to the degree of skin damage.

The researchers found that people eating diets with large amounts of olive oil, beans, fish, vegetables, and whole-grain cereals had significantly less skin damage from the ultraviolet rays in sunlight. Other protective foods included eggs, yogurt, green leafy vegetables (e.g., dark lettuces and spinach), eggplant, asparagus, onions, garlic, nuts, cherries, and apples.

In contrast, people who ate a lot of full-fat milk (as opposed to skim milk, cheese, and yogurt), red meat (especially processed deli meats), potatoes, sugary soft drinks, and sweet pastries were more likely to suffer skin damage.

Wahlqvist explained that the epidermal layer of skin contains 25 percent unsaturated fats, which are highly sensitive to free-radical oxidation from sunlight, tobacco smoke, and air pollution. Although overall fat intake was associated with an increase in skin damage, olive oil consumption stood out as being protective. Olive oil is a monounsaturated fat highly resistant to oxidation, and it also contains small amounts of antioxidant nutrients, such as

vitamin E and polyphenolic flavonoids.

The protective effect of fish might be due, in part, to its content of other good fats, the omega-3 fatty acids.

Wahlqvist also pointed out that polyphenolic flavonoids, a large family of antioxidants found in vegetables and fruit, "appear to be partially responsible for many of the protective effects against oxidative stress of the skin."

Based on the subjects' diets, high intake of vitamin C, vitamin A, magnesium, and zinc were among the individual protective nutrients.

Earlier research by Lester Packer, PhD, of the University of California, Berkeley, showed that skin contains a diverse group of antioxidants, which probably bolster the body's first-line defenses against environmental insults.

Reference: Purba M, Kouris-Blazos A, Wattanapenpaiboon N, et al. Skin wrinkling: can food make a difference? *Journal of the American College of Nutrition*, 2001;20:71-80. □

Perspectives...

Conflicting Studies on St. John's wort: Enough to Leave You Feeling Depressed

Confused by the latest contradictory "study of the month" to make headlines? You're far from alone.

In April, newspapers and television stations widely reported a new study, published in the *Journal of the American Medical Association*, which found St. John's wort of no benefit in depression. That was the latest in a string of contradictory studies on vitamin E, vitamin C, and garlic.

One or two negative studies should not negate all previous research. After all, few lines of research in science are completely consistent.

But there's a reason why, with every new study, we suddenly stop hearing about earlier research. Few reporters have the time or knowledge to explain the

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limitations of a particular study or to provide a context for it. As a consequence, too many news articles on health topics simply relate the latest research as if it had been conducted in a vacuum, without connecting it to relevant studies.

The *JAMA* study found that St. John's wort was only slightly better than placebo when used to treat major (severe) depression. The key word here – major – is the one most reporters completely missed. I can't think of a single practitioner who recommends St. John's wort for major depression – it generally doesn't work for the most serious cases.

Despite the fact that the overall response to St. John's wort was very low, there were "significant differences in remission rates," with the herb being three times better than the placebo. This bit of detail, buried deeply in the article, was downplayed by the researchers and ignored by health reporters.

In mild to moderate depression, double-blind studies have shown St. John's wort to be at least as good, if not more effective, than Prozac, Zoloft, and Tofranil. It also has fewer side effects compared with these high-priced drugs. The *JAMA* study should have been reported in this context. —Jack Challem

Vitamin B1 Supplements May Help in Controlling Hepatitis B Infections

Chronic hepatitis B, a serious infection of the liver, can lead to cirrhosis, liver cancer, and death. However, supplementation with vitamin B1 (thiamin) daily can fight the infection and normalize liver enzyme levels, according to a report of three case histories.

Amy Elizabeth Wallace, MD, and William Brinson Weeks, MD, of the Dartmouth Medical School, New Hampshire, described the case histories and the rationale for using vitamin B1 to treat hepatitis B.

Each of the three male subjects had antibodies to hepatitis B, indicating an infection, and also had elevated levels of aminotransferase, showing an active liver infection. During their conventional treatments, the three men also received vitamin B1 supplements.

"While patients were on thiamin treatment, their aminotransferase levels fell from abnormally high to normal levels; these levels increased when thiamin was subsequently withdrawn," Wallace and Weeks wrote. "In the two cases in which pretreatment and posttreatment liver biopsies were performed, both biopsies showed decreased inflammation after extended thiamin treatment."

In addition, levels of DNA from the hepatitis B virus fell to undetectable levels while the men received vitamin B1, a sign that viral replication

had stopped.

Wallace and Weeks offered three reasons why vitamin B1 might help in chronic hepatitis B infections. First, the vitamin has some direct antiviral properties. Second, it may reduce iron levels, thus preventing further injury to the liver. Third, populations deficient in vitamin B1 have a higher incidence of hepatitis B infection.

Reference: Wallace AE, Weeks WB. Thiamin treatment of chronic hepatitis B infection. *American Journal of Gastroenterology*, 2001;96:864-868. □

Ginger Supplements Ease Morning Sickness in Pregnant Women

Ginger, the aromatic spice used in many meals and desserts, has a long history as a folk medicine for upset stomachs, motion sickness, and morning sickness. But like many traditional remedies, it's considered unproven by conservative physicians.

Now, however, a well-controlled scientific study has confirmed the benefits of ginger. Teraporn Vutyavanich, MD, and her colleagues at Chiang Mai University, Thailand, conducted a double-blind study with 63 pregnant women. All of the women were in the first trimester of their pregnancies, and nearly all were suffering from nausea and vomiting.

Vutyavanich gave 31 of the women 1 gram of ginger root daily for four days, while 32 women took placebos. After four days, only 37.5 percent of the women taking ginger were still nauseous and vomiting. In contrast, 65.7 percent of the women taking the placebo were still experiencing morning sickness.

Overall, 87.5 percent of the women taking ginger felt they had improved, whereas only 28.6 percent of those taking the placebo reported improvement.

Reference: Vutyavanich T, Kraissarin T, Ruangsri RA. Ginger for nausea and vomiting in pregnancy: randomized, double-masked, placebo-controlled trial. *Obstetrics and Gynecology*, 2001;97:577-582. □

Coenzyme Q10 Found Helpful in Neurological Disorder

Researchers have discovered that a deficiency of coenzyme Q10, a vitamin-like substance produced in the body and found in foods, can cause some types of ataxia, a neurological disorder that affects coordination. Although the condition is relatively rare, its successful treatment with CoQ10 supplements adds credence to its clinical use in heart, muscle, and energy disorders.

Salvatore DiMauro, MD, of the Columbia University College of Physicians and Surgeons, New York, studied six patients diagnosed with hereditary ataxia. Typically, such patients have difficulty with

arm and leg movements and balance. They often have difficulty speaking as well.

Several years ago, DiMauro and his colleagues accidentally discovered that a patient with ataxia was deficient in CoQ10. As a consequence, they decided to study six patients who had ataxia without an obvious cause. In all six patients, muscle levels of CoQ10 were only 26 to 35 percent of normal. DiMauro gave the patients supplements of CoQ10, ranging in dosages from 300 to 3,000 mg daily.

All of the patients improved by an average of 25 percent over the course of a year. They gained strength, developed better coordination, and suffered fewer seizures. Five of the patients who had been confined to wheelchairs were able to walk with some assistance, such as with a rolling walker, after taking CoQ10 supplements.

CoQ10 plays a critical role in the transfer of electrons in cells, which is necessary to produce energy. Some cardiologists have used CoQ10 supplements to treat cardiomyopathy and heart failure, diseases of the heart muscle. CoQ10 also functions as an antioxidant—significant because some types of ataxia are known to be exacerbated by high levels of free radicals.

Reference: Musumeci O, Naini A, Slonim AE, et al. Familial cerebellar ataxia with muscle coenzyme Q10 deficiency. *Neurology*, 2001;56:849-855. □

Patients with Poor Blood Flow in Legs Have Low Vitamin C Levels

Patients with intermittent claudication typically cannot walk long distances without developing severe pain in calf muscles. The pain results from poor blood flow and is a sign of more general cardiovascular disease. People with the condition have an increased risk of heart attack and stroke.

A new study, however, has found that patients with intermittent claudication frequently suffer from low levels of vitamin C and high levels of inflammation-causing substances in their blood.

Michael Langlois, MD, and his colleagues at Ghent University Hospital, Belgium, compared 85 patients with intermittent claudication, 106 patients with hypertension but no leg problems, and 113 healthy subjects.

Overall, patients with intermittent claudication had about half the blood levels of vitamin C, compared with the healthy subjects and people with high blood pressure. Fifty-two percent of the patients with intermittent claudication had very low blood levels of vitamin C, and 14 percent were found clinically deficient in the vitamin.

In addition, patients with intermittent claudication had almost twice the blood levels of C-reactive

protein, an inflammation-causing substance strongly linked to cardiovascular disease. People with the highest levels of C-reactive protein were 68 percent more likely to be deficient in vitamin C.

Reference: Langlois M, Duprez D, Delanghe J, et al. Serum vitamin C concentration is low in peripheral arterial disease and is associated with inflammation and severity of atherosclerosis. *Circulation*, 2001;103:1863-1868. □

Vitamin E and Oats, But Not Whole Wheat, Protect Against Dietary Fats

High-fat meals are known to cause “endothelial dysfunction,” a pronounced constriction of blood vessels that reduces blood flow. Not surprisingly, endothelial dysfunction increases the risk of cardiovascular disease.

However, taking vitamin E supplements or eating a bowl of oatmeal (containing 3 mg of beta-glucan) can prevent a change in blood flow when consumed with a high-fat meal.

David L. Katz, MD, and his colleagues at the Yale University School of Medicine, Conn., used ultrasound to measure blood flow in 50 healthy, nonsmoking men and women before and after consuming a high-fat (and high-sugar) meal. The meal consisted of a milk shake made with ice cream, coconut cream, and pasteurized eggs, which provided about 50 grams of fat. On average, the high-fat meal resulted in a 13 percent decrease in blood flow in the forearm.

Then, on three different occasions, the subjects were also given capsules with 800 IU of vitamin E, a bowl of oatmeal cereal, and a bowl of whole-wheat cereal along with the high-fat meal. Both the vitamin E supplements and the oatmeal blocked any reduction in blood flow. However, the whole-wheat cereal did not.

Reference: Katz DL, Hawaz H, Boukhalil J, et al. Acute effects of oats and vitamin E on endothelial responses to ingested fat. *American Journal of Preventive Medicine*, 2001;20:124-129. □

Genistein May Enhance Effect of Radiation in Cancer Therapy

In an original approach to “integrative” medical research, scientists have found that genistein, the principal antioxidant isoflavone in soybeans, can boost the cancer cell-killing effect of radiation therapy.

Gilda G. Hillman, PhD, of the Karmano Cancer Institute, Wayne State University, Detroit, tested the effects of photon radiation, neutron radiation, and genistein on prostate cancer cells. Radiation therapy

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Quick Reviews of Recent Research

•Organic better than conventional apples

In a five-year study, researchers compared organic, conventional, and integrated (a combination of organic and conventional) farming practices in growing apples. All three approaches yielded similar quantities of apples. Organic farming resulted in higher soil quality, created less environment impact, was more profitable, and produced sweeter apples than the other approaches.

Reganold JP, et al. *Nature*, 2001;410:926-930.

• Carotenoids important in eye health

American researchers dissected and analyzed carotenoid levels in 200 eyes donated to an eye bank. Virtually all eye tissues contained measurable levels of lutein, zeaxanthin, and their metabolites. In addition, small amounts of beta-carotene, alpha-carotene, and lycopene were also identified in eye tissues. The presence of these carotenoids in the eyes suggests that they have diverse functions, from those as antioxidants to regulators of cell growth.

Bernstein PS, et al. *Experimental Eye Research*, 2001;72:215-223.

• Pycnogenol® may benefit psoriasis

Two genes, calgranulin A and B, are overly expressed (active) in psoriasis and some other skin disorders. In cell-culture experiments, researchers found that Pycnogenol® influenced the expression of a variety of genes in skin cells. Of particular interest, Pycnogenol® decreased the activity of calgranulin A and B by 22 times. Pycnogenol® is a complex of antioxidants derived from the bark of French maritime pine trees.

Rihn B, et al. *Phytotherapy Research*, 2001;15:76-78.

Genistein, Radiation...

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is one of the conventional treatments for prostate cancer, whereas research suggests that high-genistein diets can reduce the risk of this type of cancer.

In the cell-culture experiments, all three approaches inhibited the growth of prostate cancer cells. Neutron radiation was more effective than proton radiation in killing prostate cancer cells.

However, pretreating the cells with genistein and then exposing them to neutron radiation had the greatest anticancer effect, inhibiting DNA synthesis, cell division, and growth.

Reference: Hillman GG, Forman JD, Kucuk O, et al. Genistein potentiates the radiation effect on prostate carcinoma cells. *Clinical Cancer Research*, 2001;7;382-390. □

• Vitamin E reduces LDL oxidation

Researchers asked 48 men and women, ages 45-69, to take either natural vitamin E (271 IU), vitamin C (500 mg), both supplements, or placebos daily for three years. Vitamin E and a combination of vitamin E and C made the subjects' low-density lipoprotein (LDL) cholesterol less prone to oxidation. Such oxidation is an early step in the development of cardiovascular disease. By itself, vitamin C had no effect on LDL oxidation.

Porkkala-Sarataho E, et al. *Arteriosclerosis, Thrombosis and Vascular Biology*, 2000;20:2087-2093.

• Lycopene improves male fertility

Researchers gave 4 mg of lycopene daily to 30 infertile men for three months. Sperm numbers and activity improved in 20 of the patients. After the trial, six of the men's partners became pregnant.

Kumar R, et al. Meeting of the Indian Association of Urologists, New Delhi, January 2001.

• Eating fish benefits older hearts

In a six-year study of 348 subjects, researchers found that seniors who ate fatty fish, such as salmon and tuna, were 44 percent less likely to suffer a fatal heart attack, compared with people who ate little or no fish.

Mozaffarian D. 41st Annual American Heart Association Conference on Cardiovascular Disease Epidemiology and Prevention, San Antonio, Texas, March 2001.

• Vitamin E blocks process leading to blood clots

"Adhesion molecules" encourage white blood cells to stick to blood vessel walls, which contributes to cardiovascular damage. In a cell-culture study, researchers found that vitamin E prevented a specific type of adhesion molecule, VCAM-1 (vascular cell adhesion molecule-1), from sticking to blood vessel cells.

Zapolska-Downar D, et al. *Biochemical and Biophysical Research Communications*, 2000;274:609-615.

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