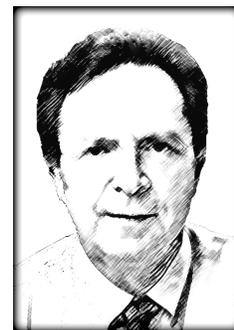


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Both Fish and Omega-3 Capsules Show Promise in Preventing Alzheimer's Disease

Taking omega-3 fish oil capsules can help people with very mild symptoms of Alzheimer's disease, but relatively low doses don't benefit people with more advanced stages of the disease. Meanwhile, a separate study found that eating a Mediterranean-style diet, which is typically high in fish, can significantly reduce the risk of Alzheimer's disease.

Yvonne Freund-Levi, MD, of the Karolinska Institute, Stockholm, Sweden, and her colleagues treated 174 men and women with Alzheimer's disease. Eighty-nine patients received 2.3 grams daily of omega-3 fish oils, consisting of 1.7 grams of docosahexaenoic acid (DHA) and 0.6 grams of eicosapentaenoic acid (EPA), and 85 patients received placebos for six months. For an additional six months, both groups of patients received fish oils.

Overall, the fish oils did not influence the rate of cognition decline. However, in patients with very mild cognitive impairment, fish oil supplements led to slight improvements in mental function. The benefits were noted in the treatment group during the first six months and, later, in the placebo group after it was given fish oils during the second six months.

"In many trials of supplementation with purified omega-3 fatty acids, EPA has been the predominant acid (over DHA)," wrote Freund-Levi and her colleagues. "In our study, 2.8-fold more DHA than EPA was given. The reason for this was data on deficiency of DHA in Alzheimer's disease-affected brains."

The researchers attributed the benefits to the anti-inflammatory effect of omega-3 fish oils.

Meanwhile, Nikolaos Scarmeas, MD, and his colleagues at Columbia University, New York City, analyzed the risk of Alzheimer's disease in 1,984 elderly subjects, of whom 194 had been diagnosed with the disease.

Those who strictly adhered to a Mediterranean-style diet, with fish, vegetables, and olive oil, were 68 percent less likely to develop Alzheimer's disease, compared with people who did not follow such a

diet. People who ate somewhat of a Mediterranean-style diet were 53 percent less likely to develop Alzheimer's disease.

Reference: Freund-Levi Y, Eriksdotter-Jonhagen M, Cederholm T, et al. Omega-3 fatty acid treatment in 174 patients with mild to moderate Alzheimer's disease: omegAD study. *Archives of Neurology*, 2006;63:1402-1408. Scarmeas N, Stern Y, Mayeux R, et al. Mediterranean diet, Alzheimer disease, and vascular mediation. *Archives of Neurology*, 2006; 63:epub ahead of print. □

Perspectives...

Maintaining an Acid-Alkaline Balance

When I first heard, years ago, that acidic foods could somehow contribute to disease, I thought the idea was pretty far fetched. It struck me as a particularly odd prohibition against eating certain foods. Recently, I became a believer. It turns out that acid and alkaline foods do have a bearing on health, but that the science has often been misunderstood or misrepresented. (See the article that follows.)

The body functions best at a neutral or slightly alkaline pH. The problem has nothing to do with whether foods are acidic or alkaline per se. Rather, it's about whether foods have an acid or alkaline effect after digestion and when they reach the kidneys.

Because the body strives to maintain a neutral pH, acid-yielding foods trigger the release of calcium and magnesium from bone and ammonia from the protein in muscles. The calcium, magnesium, and ammonia neutralize the acid, but they do so at a serious price: both bones and muscles weaken, over the long term setting the stage of osteoporosis and age-related loss of muscle mass and strength.

The principal acid-generating foods are animal proteins, grains, dairy products, and any food with a lot of added salt. The salt yields both sodium and chloride, which shift the body toward an acidic pH. Large amounts of animal protein release sulfuric acid

Continues on next page

through the metabolism of sulfur-containing amino acids, also contributing to an acidic pH.

Potassium bicarbonate, which is sold by prescription, can reduce acidity. Some other mineral supplements, such as those in citrate and carbonate forms, can also reduce acidity.

But the biggest alkaline effect comes from eating lots of fruits and vegetables. Even citrus fruits and tomatoes, which are acidic, have a net alkaline yield. That's because fruits and vegetables are rich in potassium and bicarbonate, both of which produce an alkaline pH. Eating 35 percent of your calories as fruits and vegetables is enough to maintain alkalinity – and help preserve your bones and muscle. – JC

Acid-Yielding Eating Habits Can Compromise Magnesium Levels

A lack of magnesium and calcium can contribute to many serious health problems including arrhythmias, osteoporosis, migraine, and fatal heart attack. The body's levels of these essential minerals are strongly influenced by dietary levels – and by whether the overall diet produces an acid or alkaline load. (See "Perspectives.")

Ragnar Rylander, PhD, Thomas Remer, PhD, and their colleagues at the University of Goteborg, Sweden, studied 85 men and women, most in their sixties. The researchers measured the subject's urine levels of magnesium, calcium, potassium, and acidity over 24 hours.

Rylander and Remer found that both magnesium and calcium losses in the urine were highest when urine was the most acidic. The loss of magnesium was not influenced by magnesium intake. "Magnesium deficiency could thus, apart from insufficient intake, partly be caused by the acid load in the body," wrote the researchers.

They also noted that "the Western diet induces a chronic low-grade metabolic acidosis."

Reference: Rylander R, Remer T, Berkemeyer S, et al. Acid-base status affects renal magnesium losses in healthy, elderly persons. *Journal of Nutrition*, 2006;136:2374-2377. □

L-Theanine Supplements Help Buffer Body and Mind Against Stress

L-theanine, an amino acid (protein building block), is known to increase the brain's alpha waves, leading to a greater sense of relaxation and focus. Green tea is rich in L-theanine, which may account for many of the tea's remarkable health benefits. In new research, supplemental L-theanine has been found to reduce both psychological and physical responses to stress.

Kenta Kimura, PhD, and colleagues at Nagoya

University, Japan, asked 12 male college students to work on a stressful math problem for 20 minutes on four different occasions. They were given L-theanine before or during two of the math tests, and a placebo or nothing during the other tests.

The L-theanine supplement consisted of 200 mg of Suntheanine green tea extract dissolved in a glass of water.

During the math tests, the participants' heart rate and salivary immunoglobulin A (s-IgA, an indicator of stress) were elevated, compared with their resting nonstressed states. They also felt more stressed, based on a psychological test.

When the subjects took L-theanine, their heart rates and s-IgA levels were lower compared with placebos, and they experienced less psychological stress as well. The timing of the L-theanine supplement made no difference in the results.

"The main findings in this study were that the acute stress responses elicited by the mental arithmetic task were reduced by the oral administration of L-theanine," wrote Kimura. "Moreover, this effect of L-theanine was consistently observed not only in the subjective perception of stress but also in physiological stress responses such as heart rate and s-IgA."

L-theanine increases brain levels of several neurotransmitters, including serotonin, dopamine, and gamma aminobutyric acid.

Reference: Kimura K, Ozeki M, Juneja LR, et al. L-theanine reduces psychological and physiological stress responses. *Biological Psychiatry*, 2006; epub ahead of print. □

Nucleic Acid Supplements Reported Helpful in People with IBS

Researchers reported earlier this year that nucleic acid supplements, which have been sold in health food stores for some 30 years, can improve the healing of gut injuries, such as those caused by nonsteroidal anti-inflammatory drugs. Now, a separate team of researchers has found that nucleic acid supplements may reduce symptoms of irritable bowel syndrome (IBS).

Christine P. Dancey, PhD, and her colleagues at the University of East London treated 37 people who had been diagnosed with IBS. Their symptoms included abdominal pain, diarrhea, bloating, flatulence, constipation, urgency to have a bowel movement, and feelings of an incomplete evacuation.

The subjects were given either a proprietary 500 mg capsule containing nucleic acids or placebo three times daily for 56 days. This was followed by a four-week washout period (no supplements) and a reversal of the supplement and placebos for an additional 56 days, so everyone in the study took

nucleic acids or placebos during the study.

All of the measured symptoms of IBS improved by an average of 4 to 6 percent when the subjects took nucleic acid supplements, according to a daily diary kept by the subjects. The greatest benefits were in symptoms of abdominal pain and feelings of incomplete evacuation.

The supplement contained nucleic acids, fructooligosaccharides, amino acids, and B vitamins.

Animal studies have found that nucleic acid supplements reduce diarrhea in infants and increase intestinal villi height in animals, a sign of a healthier digestive tract.

“Dietary sources of nucleotides are nucleoproteins and nucleic acids, and these are found to varying degrees in many foods – [including] lamb, liver, mushrooms...all are rich in nucleotides,” the authors wrote.

Reference: Dancy CP, Attree EA, Brown KF. Nucleotide supplementation: a randomized double-blind placebo controlled trial of IntestAidIB in people with irritable bowel syndrome. *Nutrition Journal*, 2006;5:16-24. □

Chromium Supplements Reduce Weight Gain Caused by Anti-Diabetes Drug

Sulfonylurea-class drugs, such as glipizide (Glucotrol), are commonly used to treat type 2 diabetes. Glipizide works by increasing insulin secretion, but weight gain is a common side effect of the drug. Thus, while glipizide can lower blood sugar, it increases the number one risk factor for type 2 diabetes.

In a recent study, William T. Cefalu, MD, of Louisiana State University, Baton Rouge, found that pairing glipizide with chromium picolinate blunted the weight gain associated with the drug.

Cefalu and his colleagues treated 37 diabetic patients ranging from 25 to 75 years of age. All were given glipizide with placebos for three months to establish a baseline. Some of the patients were then given 1,000 mcg of chromium picolinate with glipizide, while others continued taking placebos with glipizide for six months.

Patients taking glipizide plus placebos gained an average of almost five pounds of body weight, along with substantial increases in body fat and abdominal fat. In comparison, people taking glipizide and chromium picolinate gained only two pounds.

Patients taking glipizide and chromium picolinate also benefited from significant increases in fat-free body mass, lower blood-sugar levels, and improved insulin function (also known as insulin sensitivity).

Cefalu and his colleagues wrote that “we

observed an attenuation in weight gain with chromium picolinate supplementation over time, not weight loss.”

They also noted that, at the start of the study, all subjects’ blood chromium levels were barely detectable. By the end of the study, patients who had taken chromium picolinate had increased their blood levels by 20 times.

Numerous other studies have found that chromium picolinate can improve insulin function.

Reference: Martin J, Wang ZQ, Zhang XH, et al. Chromium picolinate supplementation attenuates body weight gain and increases insulin sensitivity in subjects with type 2 diabetes. *Diabetes Care*, 2006; 29:1826-1832. □

Prenatal Vitamins Associated with Lower Risk of Brain Cancer in Children

Over the past several years, studies have found that mothers who take multivitamins are less likely to have children who develop brain cancer. The latest study along these lines confirms the benefits of prenatal supplements.

Greta R. Bunin, PhD, of the Children’s Hospital of Philadelphia, Pennsylvania, and her colleagues analyzed the supplement habits of 315 women whose children developed brain cancer before the age of six, comparing them to 315 women whose children did not develop cancer. The mothers and children were from the United States and Canada.

Women who took multivitamins around the time of conception had children who were 30 percent less likely to develop brain cancer.

Folic acid from foods was not associated with a reduced risk. However, when Bunin and the other researchers factored in supplemental folic acid, the risk of brain cancer decreased by 50 percent.

Taking calcium supplements around the time of conception or during the third trimester was also associated with a lower risk of brain cancer in children, but the benefit was not considered statistically significant.

Both groups of mothers consumed similar amounts of cured meats, which have been previously associated with brain cancer in children. In this study, a combination of cured meats (which contain nitrates and nitrites) and low vitamin C was associated with a 50 percent increase in brain cancer.

Reference: Bunin GR, Gallagher PR, Rorke-Adams LB, et al. Maternal supplement, micronutrient, and cured meat intake during pregnancy and risk of medulloblastoma during childhood: a children’s oncology group study. *Cancer Epidemiology, Biomarkers and Prevention*, 2006;15:1660-1667. □

More research summaries on next page

Quick Reviews of Recent Research

• CoQ10 benefits may be limited by ACE inhibitors

In a review of 11 clinical trials of coenzyme Q10 and heart failure, American researchers noted a modest improvement in heart function, as evidenced by increases in ejection fraction (that is, the heart's ability to pump blood). Patients not taking angiotensin-converting enzyme (ACE) inhibitor drugs had substantially greater improvement from CoQ10 supplementation, with dosages ranging from 60 to 200 mg daily. The researchers noted that CoQ10 enhances heart function but that "its effectiveness may be reduced with concomitant use of current standard therapies."

Sander S, et al. *Journal of Cardiac Failure*, 2006; 12:464-474.

• Ginkgo supplements equal to drug in Alzheimer's

Italian researchers treated 60 patients diagnosed with mild to moderate Alzheimer's disease. The patients were given 160 mg of Ginkgo biloba extract (EGb 761), 5 mg of the drug donepezil, or placebos daily for 24 weeks. Their cognitive function was assessed using several standard clinical tests. Both ginkgo and donepezil led to comparable improvements in cognitive scores, but placebos did not.

Mazza M, et al. *European Journal of Neurology*, 2006;13:981-985.

• Lutein and zeaxanthin protect against cataract

Australian researchers investigated the risk of specific types of cataract relative to dietary intake of lutein and zeaxanthin in 2,322 subjects. People with high dietary intake of lutein and zeaxanthin had a 42 percent lower risk of nuclear cataract, the most common type. Lutein and zeaxanthin intake did not appear to influence the risk of cortical or posterior subcapsular cataract.

Vu HTV, et al. *Investigative Ophthalmology & Visual Science*, 2006;47:3783-3786.

• Pycnogenol® helpful in diabetic complications

Italian researchers used Pycnogenol, a natural complex of antioxidants to treat 30 patients with diabetic microangiopathy, comparing them to 30 untreated patients. Microangiopathy is characterized by microcirculatory disease, including vasoconstriction (narrowing of blood vessel walls and reduced circulation) and capillary filtration (leakage of blood through the walls of tiny blood vessels contributing to edema). The dosage of Pycnogenol was 50 mg three times daily for four weeks. Using laser doppler techniques to measure microcirculatory changes in the patients' feet, the researchers found that Pycnogenol supplementation led to significant improvements in microcirculation. Capillary blood

flow improved by 34 percent when the patients were lying down and by 68 percent when they were standing.

Cesarone MR, et al. *Angiology*, 2006;57:431-436.

• Fish oils may lower risk of kidney cancer

Swedish researchers tracked the health of more than 61,000 women over an average of 15 years. They found that women who consumed the most "fatty" omega-3-rich fish (such as salmon, herring, sardines, and mackerel) had a 74 percent lower risk of kidney cancer. No benefit was found from the consumption of lean fish (such as cod, tuna, and fresh-water fish).

Walk A, et al. *JAMA*, 2006;296:1371-1376.

• Extra-virgin olive oil improves heart risk factors

A team of Spanish and other European researchers asked 200 young men to consume about one ounce of olive oil daily for three weeks. They were given three different types of olive oil, including virgin olive oil, which is particularly high in antioxidant polyphenols; refined olive oil, which is low in polyphenols; and a mid-range blend of the two olive oils. The virgin olive oil yielded the most significant changes in markers of cardiovascular risk, including an increase in the "good" high-density lipoprotein (HDL) cholesterol, an improvement in the ratio of total cholesterol to HDL cholesterol, and a reduction in markers of free radicals. Triglyceride levels decreased slightly in response to all three oils.

Covas MI, et al. *Annals of Internal Medicine*, 2006;145:333-341.

• Prebiotics may block intestinal infections

Prebiotics, such as fructooligosaccharides (FOS), are known to provide "food" for normal gut bacteria. A team of Canadian and American researchers found that prebiotics may also protect against disease-causing bacteria in the gut, chiefly by preventing those bacteria from attaching to the gut wall.

Shoaf K, et al. *Infection and Immunity*, 2006: epub ahead of print.

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