

The Nutrition Reporter™

© Jack Challem September 2006 Vol 17 No 9

The independent newsletter that reports vitamin, mineral, and food therapies



Omega-3 Fish Oils Lessen Feelings of Depression, May Reduce Risk of Suicide

Omega-3 fish oils can be helpful in treating depression, improving other mood disorders, and preventing suicide, according to three articles in a recent issue of the *American Journal of Psychiatry*. Publication of the articles reflects strong interest in the mood and behavioral benefits of omega-3 fish oils.

In one article, Hanah Nemets, MD, of Ben Gurion University of the Negev, Israel, and her colleagues tracked the health of 20 children between the ages of six and 12. The children received two 500-mg omega-3 capsules, two 1,000-mg omega-3 capsules, or placebos daily for four to 16 weeks. Their moods were tracked with periodic assessments using three standardized clinical tests.

Improvements among children taking the omega-3 capsules start to appear within two weeks. All three clinical tests indicated significant improvements by the end of the 16-week study. One test found that seven of the 10 children taking omega-3 capsules had more than a 50 percent reduction in depression-test scores. None of the children taking placebos had benefits of that magnitude.

In a second study, J. John Mann, PhD, of the New York State Psychiatric Institute, and his colleagues, analyzed blood levels of omega-3 and omega-6 fats in 33 patients with a history of depression. Previous studies have found high ratios of omega-6 to omega-3 fats in depressed patients.

The patients had been depressed for an average of 16 years, and most had not responded to treatments. Mann found that patients with low blood levels of docosahexaenoic acid (DHA), one of the principal omega-3 fats, was strongly associated with attempted suicide. In addition, a high ratio of omega-6 to omega-3 fats also corresponded to suicide risk. Seven of the 30 patients made at least one suicide attempt, and two attempts were fatal over the subsequent two years.

In the third article, Gordon Parker, MD, PhD, of the Prince of Wales Hospital, Sydney, Australia, and

his colleagues reviewed population studies on omega-3 consumption and mood, as well as treatment studies. "Deficits in omega-3 fatty acids have been identified as a contributing factor to mood disorders and offer a potential rational treatment approach," Parker wrote.

In the review, Parker cited studies that found seafood consumption reduced the risk of depression, bipolar disorder, and postpartum depression. Treatment studies, using on average 2 to 6 grams of omega-3 fish oils daily, were generally positive.

The omega-3s protect brain cells, enhance neurotransmission, promote the formation of connections between brain cells. However, the omega-3s and omega-6 fats compete against each other, and high omega-6 diets (such as Western diets) block normal utilization of the omega-3s.

References: Nemets H, Nemets B, Apter A, et al. Omega-3 treatment of childhood depression: a controlled, double-blind study. *American Journal of Psychiatry*, 2006;163:1098-1100. Sublette ME, Hibbeln JO, Galfalvy H, et al. Omega-3 polyunsaturated essential fatty acid status as a predictor of future suicide risk. *American Journal of Psychiatry*, 2006;163:1100-1102. Parker G, Gibson NA, Brotchie H, et al. Omega-3 fatty acids and mood disorders. *American Journal of Psychiatry*, 2006;163:969-978. □

Perspectives...

Herb-Drug Dangers...Or Obfuscation

I've just read, for the umpteenth time, another article on the "dangers" of herb-drug interactions. This one, published in one of the largest-circulation health newsletters in the United States, was titled "How to Avoid Dangerous Herb-Drug Interactions," with the subtitle of "Harmful Effects Can Occur When Taking Popular Supplements with Commonly Used Medications."

Let's put all this in perspective. Are there potential risks from mixing herbs with prescription

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drugs? Yes, there are. But there are far greater risks from prescription drugs alone and from taking two or more drugs, a very common situation.

An estimated 106,000 people die each year from medications prescribed in hospitals—where you would think the most rigorous controls would be in place. More than 2 million other hospitalized Americans experience serious reactions to prescription medications. God only knows how many people outside of hospitals have serious side effects or die from their medications.

Articles on the dangers of herb-drug interactions tend to overplay relatively rare problems. This particular article emphasized problems combining chile pepper extract, ginger, and green tea with drugs. Unknowingly, the author was attacking foods that are major components of many ethnic diets.

Many doctors would like to control all of the variables in a person's life to reduce the risk of negative interactions. But it's an impossible task. Go into almost any Mexican restaurant and you'll find meals with chile. Ditto for Asian restaurants and ginger and green tea.

Then there are the variables related to genetics, stress, nutritional deficiencies, and a host of other factors affecting what herbs or drugs do in our bodies.

Trying to control all these variables is an impossible task. Frightening people about rare problems with useful herbs (as condiments or traditional remedies) doesn't do a lot of good. The real solution, if physicians are willing, is two-fold: one, recognize the dangers that drugs pose by themselves; and, two, to evaluate patients as individuals in the overall context of their diets, meds, and lifestyles. —JC

Seafood Rich in Omega-3 Fish Oils Can Prevent Breakdown of Retina

Omega-3 fish oils aren't just good for your mood—they can also protect you from age-related macular degeneration, according to two studies published in the *Archives of Ophthalmology*.

In one study, Paul Mitchell, MD, PhD, of the University of Sydney, Australia, and his colleagues investigated the risk of age-related maculopathy (ARM) relative to omega-3 fat consumption from seafood. ARM, a general term describing degeneration of the macula region of the eye's retina, is the leading cause of blindness among the elderly.

Mitchell and his colleagues followed up on 2,335 people who were part of a larger group studied in the early 1990s. The middle-age and elderly subjects completed food questionnaires and had their retinas photographed.

People who consumed the most omega-3 fish

oils had a 40 percent lower risk of developing ARM in middle age. Those who ate fish at least three times a week were 75 percent less likely to develop ARM late in life.

In the other study, Johanna M. Seddon, MD and her colleagues at Harvard University, studied 222 twins with age-related macular degeneration (AMD) and 459 twins with no signs of eye disease. Seddon found that people who ate two or more servings of fish each week had a 45 percent lower risk of AMD.

Smokers had nearly double the risk of AMD, and former smokers still had almost the same degree of risk.

Overall, about one-third of the risk of AMD was attributed to smoking. One-fifth of the cases, Seddon estimated, could be prevented with high fish and omega-3 intake.

Reference: Chua B, Flood V, Rochtchina E, et al. Dietary fatty acids and the 5-year incidence of age-related maculopathy. *Archives of Ophthalmology*, 2006;124:981-986. Seddon JM, George S, Rosner B. Cigarette smoking, fish consumption, omega-3 fatty acid intake, and associations with age-related macular degeneration. *Archives of Ophthalmology*, 2006;124:995-1001. □

Intravenous Omega-3 Fish Oils Protect Against Liver Damage from Soybean Oil

A doctor's hunch about soybean and fish oils has led to the successful treatment of 22 infants with serious digestive tract disorders.

Long-term intravenous feeding can cause life-threatening liver damage, especially in infants. Mark Puder, MD, PhD, of Boston's Children's Hospital suspected that the reason was related to soybean oil, a pro-inflammatory omega-6 fat, used in commercial intravenous formulations. His studies with laboratory mice found that the standard intravenous solution, made with soybean oil, led to the accumulation of fat in the liver.

However, when Puder and his colleagues substituted a German product, called Omegaven, the animals did not accumulate fat or develop liver damage. Omegaven is made from omega-3 fish oils, which have an anti-inflammatory effect.

When another physician at the hospital placed a five-month old infant on the soybean-based formula, the baby soon developed liver damage. He turned to Puder for help. Because the Omegaven product is not approved for use in the United States, the doctors had to obtain permission to use it from the Food and Drug Administration.

According to Puder's report in *Pediatrics*, the child recovered and continues to remain healthy on intravenous feeding with Omegaven. The doctors

also described a second infant who recovered from liver disease after being switched from a soybean-based formula to Omegaven.

Puder and his colleagues have since successfully treated 22 infants with liver disease using the omega-3 fish oil formula.

Reference: Gura KM, Duggan CP, Collier SB, et al. Reversal of parenteral nutrition-associated liver disease in two infants with short bowel syndrome using parenteral fish oil: implications for future management. *Pediatrics*, 2006;118:e197-e201. □

Low Vitamin B12 Levels Linked to Thinking Problems, Nerve Degeneration

Low levels of a “functional” marker of vitamin B12 activity are associated with a variety of problems, including memory impairment and subtle signs of nerve damage.

Robert Clarke, MD, of the University of Oxford, England, and his colleagues studied 1,000 men and women who were 75 years of age or older. They measured the subject’s blood levels of vitamin B12 and holotranscobalamin, an important marker of vitamin B12 activity.

According to Clarke, 80 percent of the vitamin B12 in blood is not usable by most cells. The remaining 20 percent consists of holotranscobalamin (hotoTC), which is part of transcobalamin, the protein that transports the vitamin to cells.

Clarke found that hotoTC was a better indicator of functional vitamin B12 status than a direct measurement of the vitamin. People with the lowest hotoTC levels were three times more likely to suffer from impaired thinking processes.

Low levels of vitamin B12 were also associated with the absence of ankle tendon jerks. The lack of a tendon jerk (in response to a stimulus) is a sensitive indicator of peripheral neuropathy, a possible sign of vitamin B12 deficiency.

Overall, 13 percent of the subjects had low vitamin B12 levels that were associated with poor memory and depression. Only three people had antibody evidence of pernicious anemia, a more serious type of vitamin B12 deficiency.

Reference: Hin H, Clarke R, Sherliker P, et al. Clinical relevance of low serum vitamin B12 concentrations in older people: the Banbury B12 study. *Age and Aging*, 2006;35:416-422. □

Beta-Carotene May Protect Against Alzheimer’s in Some People

People inherit two copies of each gene, one from each parent. Those who get one or two genes for apolipoprotein E 4 (APOE 4) have a higher than normal risk of developing Alzheimer’s disease. But

genes are not fate. Alzheimer’s disease is the result of a complex combination of genetics, circulatory problems, brain injuries, and free-radical damage.

It turns out that beta-carotene, an antioxidant found in carrots and other vegetables, may protect people who inherit the APOE 4 gene.

Peifeng Hu, MD, PhD, and colleagues at the University of California, Los Angeles, School of Medicine analyzed data previously gathered from a seven-year study of active seniors. Of the 455 subjects, nine had two copies of the APOE 4 gene, and 97 had one copy of the problematic gene.

People with either one or two copies of the APOE 4 genes were less likely to experience mental decline if they had high blood levels of beta-carotene. In fact, they were 89 percent less likely to experience mental decline.

However, the benefit of beta-carotene did not extend to people with normal versions of the APOE gene—only to those with a genetic susceptibility to Alzheimer’s disease.

Hu wrote that the APOE gene is “one of the strongest biological predictors for Alzheimer’s disease.” However, the effect of the gene can be almost completely countered with beta-carotene.

Reference: Hu P, Bretsky P, Crimmins EM, et al. Association between serum beta-carotene levels and decline of cognitive function in high-functioning older persons with or without apolipoprotein E 4 alleles: MacArthur studies of successful aging. *Journal of Gerontology*, 2006;61A:616-620. □

Milk Thistle Extract May Be Useful in Preventing, Treating Lung Cancer

The herb milk thistle has long been used to enhance the liver’s ability to break down and “detox” harmful chemicals. Some animal studies have found that silibinin, one of the antioxidants found in milk thistle can inhibit the growth of tumors.

In the latest study along these lines, Rajesh Agarwal, PhD, of the University of Colorado Cancer Center, and his colleagues injected urethane into laboratory mice to induce lung cancers. The animals were then fed diets with or without silibinin, with the largest amount of the herbal extract amounting to 1 percent of the diet by weight, for 18 to 27 weeks.

After 18 weeks, the 15 mice in the silibinin group had only two large lung tumors, compared with 27 in the 15 untreated animals. That translated to a 93 percent reduction in large tumors among the mice fed silibinin.

The silibinin-treated mice also had 41 to 74 percent fewer cell markers for cancer proliferation. They had 89 percent less micro-blood vessel growth,

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Quick Reviews of Recent Research

• Case history: CoQ10 helps in ataxia

Several medical articles have reported benefits from high-dose coenzyme Q10 in the treatment of ataxia, a neurological disease characterized by the inability to coordinate muscular movements. Spanish researchers described the case of a 12-year-old girl with ataxia and cerebellar atrophy, the latter a degeneration of part of the brain. She was found to have decreased activity in mitochondrial cellular activities involving CoQ10. Treatment consisted of 2,500 mg of CoQ10 daily, divided into three daily doses. After three months of supplementation, researchers noted improvements in movement and fine-motor activities (e.g., handwriting). The CoQ10 dosage was reduced to 1,500 mg and then to 1,000 mg daily. After 16 months of supplementation, the girl was able to walk without aid and signs of cerebellar atrophy disappeared.

Artuch R, et al. *Journal of the Neurological Sciences*, 2006;246:153-158.

• Antioxidants may protect against eye disease

Retinitis pigmentosa is a serious eye disease that typically leads to blindness. It is caused by mutations in photoreceptor "rods," followed by the death of "cones" – both types of specialized eye cells. Considerable research points to free-radical damage in the cones. In a study with laboratory mice, American researchers tested several antioxidants to see if they might reduce damage to cones. Both vitamin E and alpha-lipoic acid protected cones, but vitamin C did not.

Komeima K, et al. *Proceedings of the National Academy of Sciences*, 2006;cgi/doi/10.1073/pnas.0604056103

• Folic acid may reverse precancerous condition

Oral leukoplakia is a precancerous condition most commonly found in smokers and alcohol abusers. In a study of 43 patients with leukoplakia, Italian researchers found that high doses of the

B-vitamin folic acid led to a 50-percent or more reduction in the size of lesions after six months. Patients were asked to take 5 mg (5,000 mcg) of folic acid every eight hours.

Almadori G, et al. *Cancer*, 2006; epub ahead of print.

• Choline needed to prevent DNA damage

Choline, an essential B-vitamin, is involved in chemical reactions that lead to the production of DNA and neurotransmitters. American researchers placed 51 men and women, ages 18 to 70 years of age, on diets with and without choline. The choline-deficient diet lasted for 42 days. During this time, two-thirds of the subjects developed liver and muscle problems. Immune cells from the subjects showed consistent signs of DNA damage.

da Costa KA, et al. *American Journal of Clinical Nutrition*, 2006;84:88-94.

• Chile peppers may help in diabetes and obesity

People often perspire after eating chile-containing foods, and some studies suggest that they may increase the burning of calories. Australian researchers placed 36 middle-age men and women on a bland diet for four weeks, followed by a chile-containing diet for a second four-week period. Insulin responses were lower in people eating the chile-containing foods, and the benefits were greater in overweight subjects.

Ahuga KDK, et al. *American Journal of Clinical Nutrition*, 2006;84:63-69.

• Methotrexate toxicity related to "folic acid gene"

Methotrexate, a drug used to treat rheumatoid arthritis, interferes with folic acid. In a study of 205 patients, Dutch researchers found that people with the normal MTHFR 677CC gene generally improved with methotrexate, but those with the MTHFR 1298C variation tended to experience drug toxicity.

Wessels JAM, et al. *Arthritis & Rheumatism*, 2006; 54:1087-1095.

Milk Thistle and Lung Cancer...

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a sign of reduced angiogenesis (that is, a reduction in the blood vessels that feed tumors).

"Silibinin inhibits lung tumor angiogenesis in an animal model and merits investigation as a chemopreventive agent for suppressing lung cancer progression," wrote Agarwal and his colleagues.

Reference: Singh RP, Deep G, Chittechath M, et al. Effects of silibinin on the growth and progression of primary lung tumors in mice. *Journal of the National Cancer Institute*, 2006;98:846-855. □

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THE NUTRITION REPORTER™

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