

The Nutrition Reporter™

© Jack Challem July 2012 Vol 23 No 7



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

Both Omega-3 Fish Oils and Vitamin D Might Help Prevent Alzheimer's Disease

The reigning stars of nutrition continue to be the omega-3 fish oils and vitamin D, mainly because of the vast amount of research supporting their health benefits. Now, two new studies point to the possible role of these nutrients in reducing the risk of Alzheimer's disease.

Alzheimer's disease is caused in large part by deposits of beta-amyloid protein in the brain, which interfere with how brain cells communicate with each other. Because it's not usually feasible to measure beta-amyloid in the brains of living people, Nicklaos Scarmeas, MD, of the Columbia University Medical Center, New York, and his colleagues analyzed blood levels of the substance and the dietary habits of 1,219 "cognitively healthy" people over the age of 65 years. In addition, Scarmeas looked specifically at 10 nutrients to see which were associated with beta-amyloid and Alzheimer's disease.

He and his colleagues reported that only one nutrient – the omega-3s – stood out as being significantly protective.

People who consumed one extra gram of omega-3s – above and beyond the average amount consumed by people in this study – had 20 to 30 percent lower levels of beta-amyloid in their blood. The finding would suggest that they also have lower levels of beta-amyloid in their brains and are at a lower risk of developing Alzheimer's disease.

Meanwhile Cedric Annweiler, MD, PhD, of Angers University Hospital, France, and his colleagues tracked 498 people with an average age of 80 years. Their vitamin D intake was estimated based on a food-consumption questionnaire, and none had been taking vitamin D supplements.

After seven years, the study's participants were divided into three groups: those who did not develop dementia, those who developed Alzheimer's disease, and those who developed nonAlzheimer's types of dementia (e.g., those caused by vascular disease).

Overall, people with the highest intake of vitamin D were 77 percent less likely to develop Alzheimer's disease. In addition, women who consumed the least vitamin D had a higher risk of Alzheimer's disease. There was no difference in vitamin D intake between people who developed nonAlzheimer's dementia and those free of any type of dementia.

Reference: Gu Y, Schupf N, Cosentino SA, et al. Nutrient intake and plasma b-amyloid. *Neurology*, 2012: epub ahead of print. Annweiler C, Rolland Y, Schott AM, et al. Higher vitamin D dietary intake is associated with lower risk of Alzheimer's disease: a 7-year follow-up. *The Journals of Gerontology, Series A, Biological Sciences and Medical Sciences*, 2012: doi 10.1093/gerona/gls107. □

Perspectives Statin Drugs – Energy Zappers

Most of the nutritionally oriented physicians I know are wary about the dangers of statin drugs, of which Lipitor is the best known. These drugs reduce cholesterol levels, although elevated cholesterol is at best a symptom and not a cause of heart disease. Some 30 million Americans take statins, enabling drug makers to rake in more than \$34 billion a year for treating a symptom, not a cause.

Statins work by inhibiting an enzyme involved in cholesterol production, but the same enzyme is involved in the body's production of coenzyme Q10, a vitamin-like substance involved in breaking down food for energy. If you can't make or get enough CoQ10, your body can't make any energy. CoQ10, by the way, was the basis of the 1978 Nobel Prize in Chemistry.

The latest report, in the American Medical Association's June 11 *Archives of Internal Medicine*, described a controlled study in which 1,016 men and women took one of two different statin drugs or placebos daily for six months. The drugs increased fatigue and post-exercise fatigue in both men and

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women. However, women were affected to a greater degree, and the higher dose (with greater cholesterol-lowering effect) of Zocor had a huge impact on their energy levels. Four of every 10 women taking the drug reported lower energy levels and more post-exercise fatigue, and two of every 10 women said both their fatigue and post-exercise fatigue were considerably worse.

It's not like the drug companies haven't known about these dangerous side effects of statins. In 1990, Merck (the maker of Zocor) was granted two patents (#4,929,437 and 4,933,165) for combining the company's statin drug with CoQ10. One of my medical advisors, Peter Langsjoen, MD, has published extensively on the dangers of statins and how CoQ10 can counter them.

If you're concerned about elevated cholesterol, there are plenty of safer ways to reduce it. You could exercise more, cut back on sugary and carb-rich foods, or take plant sterol (phytosterol) supplements, which reduce cholesterol absorption. There's no reason why millions of people need to damage their health with statins. —JC

Coenzyme Q10 and Selenium Combo Lowers Heart Death Risk

Taking a combination of vitamin-like coenzyme Q10 (CoQ10) and selenium significantly reduces the risk of death from cardiovascular diseases and improves other markers of heart health.

Urban Alehagen, MD, PhD, of Linköping University, Sweden, and his colleagues gave either a combination of CoQ10 and yeast-bound selenium supplements or placebos to several hundred men and women who ranged from 70 to 88 years of age when the study began. The daily doses were 200 mg of CoQ10 and 200 mcg of selenium.

After five years, Alehagen analyzed data from the 228 people who completed the study. "Long-term supplementation of selenium/coenzyme Q10 reduces cardiovascular mortality," he and his colleagues wrote. The difference in mortality was striking – people taking CoQ10 and selenium were about half as likely to die from cardiovascular disease during the study, compared with people taking placebos.

In addition, echocardiography showed better heart function among people taking the supplements, as well as lower levels of a marker of heart disease.

Alehagen used the two supplements together because both have shown benefits in reducing heart disease risk, and selenium is needed by the body to regenerate CoQ10. In addition, the combination "was based on observations that the intake of these

micronutrients is suboptimal...in order to be efficient, a selenium supplementation should be combined with Q10," wrote Alehagen.

Reference: Alehagen U, Johansson P, Bjornstedt M, et al. Cardiovascular mortality and N-terminal-proBNP reduced after combined selenium and coenzyme Q10 supplementation: a 5-year prospective randomized double-blind placebo-controlled trial among elderly Swedish citizens. *International Journal of Cardiology*, 2012: epub ahead of print. □

CoQ10 and Garlic Extract Also Helpful in Reducing Heart Risk

A new study has also shown that taking a combination of CoQ10 and aged garlic extract has the potential of reversing atherosclerosis, also known as hardening of the arteries.

In a presentation at the American College of Cardiology's symposium in Chicago, in May, Matthew Budoff, MD, and his colleagues described a study in which the CoQ10/garlic combination was tested against placebos.

The subjects were 65 firefighters diagnosed with cardiovascular disease and calcification of the arteries. They were given either four capsules daily of 300 mg of Kyolic® aged garlic extract combined with 30 mg of CoQ10 (total of 1200 mg Kyolic and 120 mg CoQ10 daily) or placebos.

After 12 months, people taking the supplements had a four-fold decrease in the progression of their arterial calcification. They also benefited from a seven-fold reduction of "lipoprotein-associated phospholipase A2," a marker of inflammation that is associated with a greater risk of dying from heart disease.

Reference: Zeb I, Ahmadi N, Kadakia J, et al. Aged garlic extract and coenzyme Q10 has favorable effect on oxidative and inflammatory markers and coronary atherosclerosis progression. American College of Cardiology's symposium, Chicago, May 24-27, 2012. □

Folic Acid Supplements Linked to Healthier Blood Vessels

Taking supplements of the B-vitamin folic acid can reduce the abnormal thickening of blood vessels, according to a recent analysis of published studies.

Xianhui Qin, MS, of Anhui Medical University, China, and his colleagues analyzed 10 studies that included 2,052 subjects. The dosages of folic acid ranged from 400 mcg to 15 mg daily, with a duration of three to 42 months.

Qin and his colleagues analyzed changes in the "carotid artery intima-media thickness" of the subjects. The carotid artery is a major blood vessel, and its status usually reflects the overall health of the

cardiovascular system. The intima-media consists of the two innermost layers of the artery wall, and increased thickness of these layers points to cardiovascular disease.

Qin wrote that folic acid supplementation “significantly reduces” the progression of intima-media thickness. People who had the greatest reductions in homocysteine levels – a marker of heart disease risk – benefited the most.

Reference: Qin X, Xu M, Zhang Y, et al. Effect of folic acid supplementation on the progression of carotid intima-media thickness: a meta-analysis of randomized controlled trials. *Atherosclerosis*, 2012;222:307-313. □

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Low Vitamin D Linked to Higher Risk of Physical Disabilities

Low blood levels of vitamin D are strongly associated with limitations in physical mobility and outright disability, according to a new study. The vitamin is needed for the body to make both muscle and bone.

Denise K. Houston, PhD, of the Wake Forest School of Medicine, North Carolina, and her colleagues analyzed vitamin D levels in 2,099 people and tracked them for a total of six years. Houston defined mobility limitations and disability as any or severe difficulty in walking one-quarter mile or climbing 10 steps.

At the beginning of the study, 29 percent of the subjects – elderly white and black men and women – were deficient in vitamin D, and 36 percent had marginal deficiencies.

People with low vitamin D levels had about a 30 percent greater risk of limitations in physical mobility and almost twice the risk of disability, compared with people who had higher vitamin D levels.

Reference: Houston DK, Neiberg RH, Tooze JA, et al. Low 25-hydroxyvitamin D predicts the onset of mobility limitation and disability in community-dwelling older adults: the health ABC study. *The Journals of Gerontology, Series A, Biological Sciences and Medical Sciences*, 2012; doi 10.1093/geronol/gls136. □

Meso-Zeaxanthin May Play Big Role in Maintaining Eye Health

Age-related macular degeneration is the most common cause of blindness among seniors. It’s caused in large part by the breakdown of the macular pigment, which consists of lutein, zeaxanthin, and meso-zeaxanthin.

Most research has focused on the roles of lutein and zeaxanthin in thickening – and thereby

improving – the macular pigment. But a new study has found that a related antioxidant, meso-zeaxanthin, may play a crucial role in maintaining eye health.

The macular pigment, which is yellowish and located in the center of the retina, helps filter out damaging blue wavelengths and also functions as an antioxidant. It is also crucial for fine-detail vision and color recognition.

John M. Nolan, PhD, of the Waterford Institute of Technology, Ireland, and his colleagues studied 31 people with abnormal macular pigments. Nolan gave them one of three supplement regimens for eight weeks: (1) 20 mg of lutein and 2 mg of zeaxanthin, (2) 10 mg of meso-zeaxanthin, 10 mg of lutein, and 2 mg of zeaxanthin, and (3) 17 mg of meso-zeaxanthin, 3 mg of lutein, and 2 mg of zeaxanthin.

The first combination of supplements did not alter the subjects’ macular pigment. However, the macular pigment did improve in people taking the second and third combinations of supplements, both of which contained meso-zeaxanthin.

Reference: Nolan JM, Akkali MC, Loughman J, et al. Macular carotenoid supplementation in subjects with atypical spatial profiles of macular pigment. *Experimental Eye Research*, 2012; doi 10.1016/j.exer.2012.05.006. □

N-Acetylcysteine Show Promise in Easing Autism Symptoms

N-acetylcysteine (NAC), an antioxidant with broad health benefits, can reduce some of the symptoms of autism in children.

Antonio Y. Hardan, MD, of Stanford University, California, and his colleagues treated 29 children, ages three to 12 years of age, with either NAC or placebos for three months. The dose of NAC was increased during the study, 900 mg daily for four weeks, 900 mg twice daily for four weeks, and 900 mg three times daily for four weeks.

The children were assessed using standard clinical measures to measure irritability and repetitive behaviors. One of the tests is known as the Aberrant Behavior Checklist, which uses 58 items to evaluate the behavior of people with intellectual and developmental disabilities.

Irritability affects up to 70 percent of children with autism, including throwing, kicking, and hitting, often requiring the children to be restrained.

By the end of the study, NAC decreased irritability scores on the clinical test by more than 50 percent. NAC also led to a decrease in repetitive behaviors.

Hardan ventured that NAC might help through two possible mechanisms. One, NAC might help restore a balance between stimulating and calming neurotrans-

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Quick Reviews of Recent Research

• Mental illness linked to low vitamin D levels

Children with severe mental illness are likely to have low blood levels of vitamin D. Researchers at Ohio State University and other institutions assessed 104 adolescents needing acute mental health treatment over a 16-month period. Nearly three of every four children was deficient or had a marginal deficiency of vitamin D. Adolescents with psychotic behavior had lower vitamin D levels, and low levels of the vitamin were associated with a 3.5 greater risk of psychosis.

Gracious BL. *BMC Psychiatry*, 2012; doi 10.1186/1471-244X-12-38.

• Folic acid may reduce two childhood cancers

Folic acid fortification of grains has reduced the incidence of spina bifida and other neural-tube birth defects. University of Minnesota researchers analyzed cancer incidence in 8,000 children before and after folic acid fortification began. Two types of cancer began to decline after fortification started. Primitive neuroectodermal tumors, a type of nervous system cancer, decreased by 44 percent. In addition, Wilms tumor, a type of kidney cancer, decreased by 20 percent.

Linabery AM. *Pediatrics*, 2012; epub ahead of print.

• Vitamin D enhance bone drug benefits

Drugs known as bisphosphonates are commonly prescribed to women with the objective of preventing osteoporosis. However, these drugs are controversial because they may not always improve bone formation or prevent osteoporosis. Spanish researchers studied 120 postmenopausal and osteoporotic women with an average age of 68 years. Thirty percent of the women had an inadequate response to bisphosphonate drugs. Women who had normal blood levels of vitamin D were more likely to

increase their bone-mineral density in the lumbar spine. Women who had low vitamin D levels were four times more likely to not respond to bisphosphonates. Vitamin D is needed for normal bone formation and maintenance.

Peris P. *Bone*, 2012;51:54-58.

• Vitamin D and exercise can reduce falls

An estimated 30 to 40 percent of seniors fall at least once a year, and 5 to 10 percent of them suffer a fracture or other serious injury. The U.S. Preventive Services Task Force has just recommended that seniors take vitamin D supplements and engage in either exercise or physical therapy to reduce their risk of falls and injuries.

Moyer VA. *Annals of Internal Medicine*, 2012;157; epub ahead of print.

• Omega-3s improve blood vessel tone

The omega-3 fish oils are well established for their multifaceted roles in reducing the risk of heart disease. Chinese researchers analyzed data from 16 studies, including 901 subjects who took fish oil supplements, ranging from 450 mg to 4.5 grams daily. The subjects blood vessel tone – e.g., the blood vessels' ability to relax – was measured using a technique known as flow-mediated dilation. The supplements led to dose-related improvements in blood vessel tone, except at the higher doses.

Wang Q. *Atherosclerosis*, 2012;221:536-543.

• High-protein diets don't hurt kidneys

Controversy has surrounded whether high-protein, low carbohydrate diets have a negative effect on the kidneys. Doctors at the Indiana School of Medicine, tracked 307 generally healthy but obese men and women who were dieting for two years. Although the subjects' urinary calcium increased, they did not have changes in bone density or new kidney stones.

Friedman AN. *Clinical Journal of the American Society of Nephrology*, 2012; epub ahead of print.

N-Acetylcysteine and Autism...

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mitters, a theory that other researchers have also suggested. Two, it might enhance the body's antioxidant network, which is not optimal in children with autism.

Previous research has shown that NAC is helpful in treating obsessive-compulsive disorders and cocaine addiction. It has also been shown to significantly reduce influenza symptoms. All hospitals stock NAC to treat acetaminophen (Tylenol®) poisoning.

Reference: Hardan AY, Fung LK, Libove RA, et al. A randomized controlled pilot trial of oral N-acetylcysteine in children with autism. *Biological Psychiatry*, 2012;71:956-961. □

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