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IN THE  
NEWS**Cognitive Impairment Linked to Low Vitamin D Blood Levels**

In an article scheduled for publication in the *Journal of Geriatric Psychiatry and Neurology*, Ian Lang, PhD, and colleagues report an association between *decreased* levels of vitamin D and an increased risk of cognitive impairment in older men and women.\*

The study included 708 men and 1,058 women who participated in the Health Survey for England 2000. Neurocognitive testing revealed cognitive impairment in 212 subjects. The risk of impairment was found to increase with declining levels of serum 25-hydroxyvitamin D. Participants whose blood vitamin D levels were among the lowest 25% of participants experienced an adjusted risk of cognitive impairment that was **2.28 times greater** than that of men and women whose vitamin D levels were in the top quarter.

“We need to investigate whether vitamin D supplementation is a cost-effective and low-risk way of reducing older people’s risks of developing cognitive impairment and dementia,” Dr. Lang observed.

—Dayna Dye



## Reference

\*Llewellyn DJ, Langa K, Lang I. Serum 25-hydroxyvitamin D concentration and cognitive impairment. *J Geriatr Psychiatry Neurol*. 2008 Dec 10.

**Green Tea Catechins Improve Exercise-Induced Abdominal Fat Loss**

A recent article published in the *Journal of Nutrition* reports that green tea catechins combined with exercise helps decrease abdominal fat and triglycerides in overweight adults.\*

Kevin C. Maki, PhD, of Provident Clinical Research in Bloomington, Indiana, and colleagues randomized 132 overweight adults to receive a beverage containing green tea catechins and caffeine, or a beverage containing the same amount of caffeine without catechins daily for 12 weeks while engaging in an exercise program. Both groups lost weight by the end of the study, yet participants who received catechins lost a greater amount. Abdominal fat area, subcutaneous abdominal fat, and serum triglycerides were significantly lower in subjects who received tea catechins.



“Our results are not inconsistent with the possibility that catechin consumption increases energy expenditure to a degree that could produce clinically important changes in body fat over time,” the authors concluded.

—Dayna Dye

## Reference

\*Maki KC, Reeves MS, Farmer M, et al. Green tea catechin consumption enhances exercise-induced abdominal fat loss in overweight and obese adults. *J Nutr*. 2009 Feb;139(2):264-70.

**Soy Protects Against Colorectal Cancer in Postmenopausal Women**

Regular soy consumption may reduce the risk of colorectal cancer in postmenopausal women, according to a Chinese study.\* This report from the Shanghai Women's Health Study included 68,412 women with an average age of 52 years. Participants reported their average soy intake during interviews and were monitored for colorectal cancer.

After an average of 6.4 years, 321 cases of colorectal cancer occurred. The risk of cancer was 30% lower among those with the highest consumption of soy, whether measured as soy foods, soy protein, or isoflavones. Each increase of 5 grams/day in soy intake (dry weight; equivalent to about 1 ounce tofu/day) was associated with an 8% lower risk, even after adjusting for cancer risk factors. The benefit applied primarily to postmenopausal women.

The authors concluded, "given the fact that colorectal cancer is one of the most common cancers worldwide and that soy can be readily incorporated into most diets, our findings have important public health implications in the prevention of this common malignancy."

—Laura J. Ninger, ELS

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#### Reference

\*Yang G, Shu XO, Li H, et al. Prospective cohort study of soy food intake and colorectal cancer risk in women. *Am J Clin Nutr.* 2009 Feb;89(2):577-83.

## EPA Helps Relieve Psychological Distress in Women

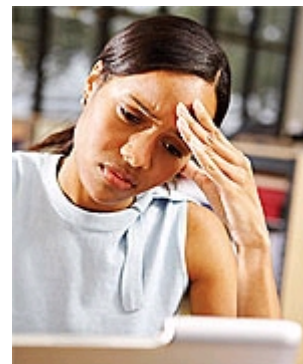
A recent issue of the *American Journal of Clinical Nutrition* reported the outcome of a Canadian clinical trial that found a beneficial effect for the omega-3 fatty acid eicosapentaenoic acid (EPA) in middle-aged women suffering from psychological distress.\*

Michel Lucas and his associates at Laval University enrolled 120 women between the ages of 40 and 55 with moderate to severe psychological distress, which can sometimes occur during the menopausal transition. The group was randomized to receive EPA in divided doses, or a placebo daily for eight weeks.

After excluding women undergoing major depression, psychological distress among those who received EPA was found to have improved significantly after eight weeks compared with subjects who received the placebo.

"Because EPA and DHA supplements have beneficial outcomes on cardiovascular disease, have no serious side effects, and might be helpful in reducing hot flashes, research should be encouraged in middle-aged women with psychological distress and depressive symptoms," the authors stated.

—Dayna Dye



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#### Reference

\* Lucas M, Asselin G, Merette C, Poulin MJ, Dodin S. Ethyl-eicosapentaenoic acid for the treatment of psychological distress and depressive symptoms in middle-aged women: a double-blind, placebo-controlled, randomized clinical trial. *Am J Clin Nutr.* 2009 Feb;89(2):641-51.

## Higher Vitamin E Levels in Smokers Linked With Reduced Pancreatic Cancer Risk

A recent issue of the *American Journal of Clinical Nutrition* reports an association between higher concentrations of vitamin E and a lower risk of pancreatic cancer in smokers.\*

Rachel Z. Stolzenberg-Solomon, PhD, and colleagues evaluated data from 29,092 men who participated in the Alpha-Tocopherol, Beta-Carotene Cancer Prevention Study, a placebo-controlled trial that sought to determine the effect of vitamin E and beta-carotene supplementation on the prevention of cancers in smokers. During up to 19.4 years of follow-up, 318 cases of pancreatic cancer were diagnosed.

For participants whose serum alpha tocopherol levels at the beginning of the study were among the top 20% of participants, the risk of developing pancreatic cancer was 48% lower than those whose levels were in the lowest fifth.

“Our results support the hypothesis that higher concentrations of serum alpha tocopherol may protect against pancreatic carcinogenesis in smokers,” the authors concluded.

—Dayna Dye



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## Reference

\* Stolzenberg-Solomon RZ, Sheffler-Collins S, Weinstein S, et al. Vitamin E intake, alpha-tocopherol status, and pancreatic cancer in a cohort of male smokers. *Am J Clin Nutr.* 2009 Feb;89(2):584-91.

## Younger Men With Erectile Dysfunction May be at Increased Risk For Heart Disease

In the February 2009 issue of *Mayo Clinic Proceedings*, Jennifer St. Sauver, PhD, and colleagues report the results of a study that found men between the ages of 40 and 49 who experience erectile dysfunction (ED) have a significantly higher risk of developing heart disease compared with those not affected by the condition.\*

For the investigation, 1,402 men were screened for ED every two years. Cardiac events and coronary angiograms diagnostic of coronary artery disease were tracked and confirmed.

Over the 10-year follow-up, coronary heart disease developed in 11% of the participants, and was 80% more likely to occur in men with ED. Men with ED between the ages of 40 and 49 experienced a 50-fold higher number of new cases of heart disease than men in the same age group who did not report the condition.

“Erectile dysfunction and coronary artery disease may be differing manifestations of a common underlying vascular pathology,” the authors concluded.

—Dayna Dye

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## Reference

\* Inman BA, Sauver JL, Jacobson DJ, et al. A population-based, longitudinal study of erectile dysfunction and future coronary artery disease. *Mayo Clin Proc.* 2009 Feb;84(2):108-13.

## Arginine Shows Promise Against Obesity

In a study reported in a recent issue of the *Journal of Nutrition*, scientists at Texas A&M University showed that arginine helps reduce fat gain in rats.\*

Guoyao Wu, PhD, and associates fed 24 rats a high-fat diet and gave 24 animals a low-fat diet for 15 weeks. The animals were then divided to receive drinking water supplemented with L-arginine or L-alanine while maintaining their previous diets.

After 12 weeks, weight gain in the rats on the high-fat diet was 40% lower among those that received arginine compared with the controls, and for rats on the low-fat diet, weight gain was 60% lower. White fat pad weight increased by 98% in animals that received alanine; for animals that received arginine, the increase averaged only 35%.

The researchers concluded that arginine promotes lean tissue growth over fat gain. Dr. Wu stated that future investigations will involve obese children and adults.

—Dayna Dye



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## Reference

\* Jobgen W, Meininger CJ, Jobgen SC, et al. Dietary L-arginine supplementation reduces white fat gain and enhances skeletal muscle and brown fat masses in diet-induced obese rats. *J Nutr.* 2009 Feb;139(2):230-7.

## Media May be Biased Against Herbal Remedies

Media coverage of clinical trials may be slightly biased against herbal remedies in favor of pharmaceuticals, according to a literature review.\*

The authors compared 201 newspaper articles on pharmaceuticals (based on 48 clinical trials) and 352 newspaper articles on herbal remedies (based on 57 clinical trials). In terms of study quality, the authors rated the herbal trials as equal to the pharmaceutical trials, despite being smaller and of shorter duration. Press coverage of both classes frequently omitted important details such as dosage, study methods, likelihood of risk, funding, and conflicts of interest. Further, newspaper coverage was more negative for herbal remedies than for pharmaceuticals, even after accounting for positive versus negative results in the original trials. Specifically, the tone was positive, negative, and neutral in 21%, 22%, and 57% of herbal articles, respectively, and 68%, 0%, and 32% of pharmaceutical articles.

Despite the recent increase in alternative-medicine clinical trials, the authors stated, “overall the media is not reporting on the trend toward evidence-based herbal medicine,” possibly because journalists “have subtle biases towards scientific method and conventional medicine.”

—Laura J. Ninger, ELS

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### Reference

\* Bubela T, Boon H, Caulfield T. Herbal remedy clinical trials in the media: a comparison with the coverage of conventional pharmaceuticals. *BMC Med.* 2008 Nov 26;6(1):35.

## Vitamin D Deficiency Raises Risk of Caesarean Delivery

Low maternal blood levels of vitamin D increase the risk of a first-time Caesarean section in a study of women delivering between 2005 and 2007.\*

In this study, 253 women were enrolled within 72 hours of birth and were tested for levels of 25-hydroxyvitamin D; severe deficiency was defined as a value <15.0 ng/mL (37.5 nmol/L). Forty-three women (17%) underwent a Caesarean section as opposed to vaginal delivery. The Caesarean rate was 28% among women with vitamin D deficiency and 14% among women without deficiency. Women with vitamin D deficiency were 3.8 times more likely to undergo a Caesarean section, whereas high vitamin D was protective against this procedure.

Vitamin D deficiency is rising in industrialized countries, and Caesarean births have reached a record high of 30% in the United States. In these cases, arrest of labor could be due to impaired muscle strength or low calcium levels as a result of vitamin D deficiency.

—Laura J. Ninger, ELS



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### Reference

\* Merewood A, Mehta SD, Chen TC, Bauchner H, Holick MF. Association between vitamin D deficiency and primary cesarean section. *J Clin Endocrinol Metab.* 2008 Dec 23.

## Carotenoids Help Protect Bone

High intake of carotenoids protects against loss of bone mineral density (BMD) over time among both men and women.\*

Carotenoids are antioxidants found in fruits and vegetables that may inhibit bone resorption.

Study subjects were 334 men and 540 women (average age 75 years). Bone mineral density was measured at baseline and four years later in the femur and trochanter (leg), radius (arm), and lumbar spine, while food questionnaires were used for carotenoid intakes. Among men, loss of BMD in the trochanter over four years was significantly less pronounced among those with the highest intakes of total carotenoids, beta-carotene, lycopene, and lutein + zeaxanthin. Among women, the highest level of lycopene intake was associated with a lower rate of BMD loss in the spine.

Although the findings were not consistent between sexes or across all bone sites, the results suggest a beneficial effect of carotenoids, especially lycopene, on BMD in elderly men and women.

—Laura J. Ninger, ELS

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#### Reference

\*Sahni S, Hannan MT, Blumberg J, Cupples LA, Kiel DP, Tucker KL. Inverse association of carotenoid intakes with 4-y change in bone mineral density in elderly men and women: the Framingham Osteoporosis Study. *Am J Clin Nutr.* 2009 Jan;89(1):416-24.

## Strength Training and Aerobic Exercise Combo Improves Insulin Sensitivity, Functional Limitations

Combining resistance training with aerobic exercise is the best strategy for simultaneously reducing insulin resistance and improving functional limitations in obese older adults, according to a new report in the *Archives of Internal Medicine*.\*

In this study, 136 sedentary, abdominally obese older adults with some degree of insulin resistance were randomly assigned to one of four groups for six months. Subjects in one group engaged in resistance exercise (strength training) only; another group of subjects did aerobic exercise; a third performed both forms of exercise; and the control group remained sedentary.

After controlling for other factors, such as age, sex, and baseline insulin resistance values, investigators determined that engaging in both aerobics and strength training yields improvements in both insulin sensitivity and functional limitations better than doing either form of exercise alone or being sedentary.

“The combination...was the optimal exercise strategy for simultaneous reduction in insulin resistance and functional limitation,” the researchers concluded.

—Dale Kiefer

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#### Reference

\*Davidson LE, Hudson R, Kilpatrick K, et al. Effects of exercise modality on insulin resistance and functional limitation in older adults: a randomized controlled trial. *Arch Intern Med.* 2009 Jan 26;169(2):122-31.

## Vitamin C Intake Should be at Least 10 Times Higher Than RDA

Intake of vitamin C should be increased to at least 1,000 mg/day, significantly higher than the current Recommended Daily Allowance (RDA), according to a review of the literature.\*

Vitamin C intake is necessary because the human body cannot synthesize it. Although the current RDA is 90 mg/day for men and 75 mg/day for women, authorities disagree about the optimal intake. Research continues to highlight the critical role of vitamin C for optimal immune function, prevention of oxidative DNA damage, resistance to infection, and prevention or treatment of diseases such as cancer, heart disease, and degenerative conditions. Unfortunately, modern farming and food storage techniques have decreased the micronutrient content of foods, making it difficult to obtain enough vitamin C from diet alone.



The authors concluded that healthy persons should take at least 1,000 mg/day supplemental vitamin C, along with five servings of fruits and vegetables, to prevent disease.

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Reference

\*Deruelle F, Baron B. Vitamin C: is supplementation necessary for optimal health? *J Altern Complement Med.* 2008 Dec;14(10):1291-8.

## Regular Green Tea Consumption Helps Ward Off Breast Cancer

Regular green tea consumption is associated with a slightly lower risk of breast cancer, according to a study in Chinese women.\* The study was intended to clarify the effects of green tea on breast cancer risk.

Participants in the Shanghai Breast Cancer Study included 3,454 newly diagnosed patients and 3,474 healthy controls selected from the general population and matched for age. Green tea consumption was reported during interviews.

Regular consumption of green tea, when compared with no consumption, was associated with a 12% lower risk of breast cancer after controlling for several variables that might also affect the relationship. The reduced risk was considered modest but was statistically significant for the overall group of women. Risk reduction was also about 12% in premenopausal and postmenopausal women analyzed separately. Premenopausal women had a lower risk of breast cancer with increasing years of green tea consumption.



—Laura J. Ninger, ELS

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Reference

\* Shrubsole MJ, Lu W, Chen Z, et al. Drinking green tea modestly reduces breast cancer risk. *J Nutr.* 2009 Feb;139(2):310-6.

## Higher Vitamin C Associated with Lower Blood Pressure

Higher blood levels of vitamin C intake are associated with lower blood pressure in young women.\* Vitamin C has well-known anti-inflammatory and antioxidative effects.

Participants were 242 healthy black and white women aged 18 to 21 years who were examined for blood pressure and blood levels of vitamin C. Vitamin C results were grouped into four categories from lowest to highest. Both systolic and diastolic blood pressure declined significantly as the vitamin C level rose, and the results remained statistically significant even after adjusting for patients' weight, race, diet, and education. A higher vitamin C level was also predictive of smaller blood-pressure changes during the year before measurement.



An effect of vitamin C on lowering blood pressure had already been documented in older and/or hypertensive patients. This study suggests a way to prevent high blood pressure and age-related cardiovascular disease beginning in young adulthood.

—Laura J. Ninger, ELS

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Reference

\*Block G, Jensen CD, Norkus EP, Hudes M, Crawford PB. Vitamin C in plasma is inversely related to blood pressure and change in blood pressure during the previous year in young Black and White women. *Nutr J.* 2008 Dec 17;7:35.

## Antioxidant Supplementation May Reduce Risk of Diabetes

Antioxidant supplementation significantly reduces oxidative stress while improving insulin sensitivity and decreasing blood levels

of chemicals associated with the development of diabetes, according to a new report.<sup>1</sup>

In this randomized, double-blind, controlled trial, 48 overweight and normal-weight young adults received an antioxidant cocktail containing vitamin E (800 IU), vitamin C (500 mg), and beta-carotene (10 mg), or placebo, for eight weeks. Endothelial adhesion molecules, lipid peroxidation, insulin resistance, and adiponectin were assessed at the start of the study and again after eight weeks. At the study's onset, overweight individuals exhibited greater insulin resistance and had higher levels of endothelial adhesion molecules, which have been implicated in the development of diabetes and atherosclerosis.<sup>2</sup>

After eight weeks, the overweight individuals experienced increased insulin sensitivity and decreased levels of endothelial adhesion molecules. Additionally, their oxidative stress decreased, and their levels of adiponectin increased. Higher levels of adiponectin are associated with a reduced risk of both diabetes and cardiovascular disease.<sup>3,4</sup>

—Dale Kiefer

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## Reference

- 1.Vincent HK, Bourguignon CM, Weltman AL, et al. Effects of antioxidant supplementation on insulin sensitivity, endothelial adhesion molecules, and oxidative stress in normal-weight and overweight young adults. *Metabolism*. 2009 Feb;58(2):254-62.
- 2.Song Y, Manson JE, Tinker L, et al. Circulating levels of endothelial adhesion molecules and risk of diabetes in an ethnically diverse cohort of women. *Diabetes*. 2007 Jul;56(7):1898-904.
- 3.Chahwala V, Arora R. Cardiovascular manifestations of insulin resistance. *Am J Ther*. 2008 Dec 23. 4.Yamauchi T, Kadowaki T. Physiological and pathophysiological roles of adiponectin and adiponectin receptors in the integrated regulation of metabolic and cardiovascular diseases. *Int J Obes (Lond)*. 2008 Dec;32(Suppl 7):S13-8.

## Vitamin B12 Relieves Painful Mouth Sores

Vitamin B12 safely relieves recurrent aphthous stomatitis (i.e., painful mouth sores also known as canker sores) after six months of therapy.\* Up to 25% of the general population experiences mouth ulcers, yet no effective long-term treatment exists.

The study included 58 patients who reported recurrent mouth sores at least every two months for the past year. Patients were randomly assigned to take one sublingual tablet per day of vitamin B12 (1,000 mcg) or matching placebo for six months.

Average duration of outbreaks, number of ulcers per month, and pain level all declined significantly over the entire study duration in the vitamin B12 group, but not in placebo patients; the differences between groups become particularly significant at months five and six. The benefit of vitamin B12 was unrelated to the patients' blood levels of vitamin B12 measured at enrollment. By the end of the study, 74% of the vitamin B12 group but only 32% of placebo patients were ulcer-free.

—Laura J. Ninger, ELS

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## Reference

- \*Volkov I, Rudoy I, Freud T, et al. Effectiveness of vitamin B12 in treating recurrent aphthous stomatitis: a randomized, double-blind, placebo-controlled trial. *J Am Board Fam Med*. 2009 Jan-Feb;22(1):9-16.

## Highlights From the 2009 Drug Discovery For Neurodegeneration Conference

Scientists from around the country converged at the Drug Discovery For Neurodegeneration Conference in Washington, DC, February 2-3, 2009. The conference was presented by the Alzheimer's Drug Discovery Foundation, a public charity whose mission it is to accelerate the discovery and development of drugs to prevent, treat, and cure Alzheimer's disease and related dementias of cognitive aging.

An exciting revelation at the conference was that the pharmaceutical industry is substantially changing the model it uses to pursue new drug development. These changes include seeking more partnerships and new ideas from outside sources such as universities and smaller companies, as well as aggressively working to increase the rate at which therapeutic concepts are translated into actual clinical use.



The conference explored numerous novel technologies under development that should be of real benefit to future treatments for neurodegenerative diseases. Among the promising agents under development are new compounds known as “penetrants,” which can improve the ability of drugs to pass through the blood-brain barrier.

Another area of intense research interest is the class of compounds called histone deacetylase (HDAC) inhibitors. These agents were discussed in the May 2004 issue of *Life Extension* magazine and show great potential as anticancer compounds and may also have uses in diseases affecting the central nervous system.

The Life Extension Foundation will continue to follow the cutting-edge research in these areas, since Alzheimer’s disease and other neurodegenerative ailments are a major concern to all aging adults. Clearly, effective treatments for these diseases are currently lacking. At present, controlling known environmental triggers of neurodegenerative disease (such as poor diet, smoking, etc.) and using nutrients known to protect the brain are still the best strategies for averting these disabling disorders.

To learn more about the Alzheimer’s Drug Discovery Foundation, visit [www.alzdiscovery.org](http://www.alzdiscovery.org).

—Will Brink

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