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In The NEWS

Flavonoids Cut Cardiovascular, All-Cause Mortality in Women



Women with a high intake of certain kinds of dietary flavonoids have a reduced risk of cardiovascular mortality and premature death, scientists recently reported.* Flavonoids are plant-derived antioxidants that may benefit the heart by preventing low-density lipoprotein (LDL) oxidation, reducing inflammation, improving endothelial function, and inhibiting platelet aggregation.

Scientists evaluated the dietary intake of nearly 35,000 women who were free from cardiovascular disease at the study's onset, and then calculated the incidence of death from cardiovascular disease, coronary heart disease, stroke, and all causes over 16 years of follow-up.

Women who consumed anthocyanidins (found in blueberries, raspberries, and red wine) experienced a lower risk of death from coronary heart disease, cardiovascular disease, and all causes. Those whose flavonone consumption (from sources such as citrus fruits) was in the top fifth of subjects had a 22% lower risk of coronary heart disease mortality compared to those who consumed the least flavonones.

—Dayna Dye

Reference

* Mink PJ, Scrafford CG, Barraj LM, et al. Flavonoid intake and cardiovascular disease mortality: a prospective study in postmenopausal women. *Am J Clin Nutr.* 2007 Mar;85(3):895-909.

DHA May Protect Against Breast Cancer



Consuming the omega-3 fatty acid docosahexaenoic acid (DHA) may help provide protection against breast cancer, according to a preliminary study in animals.* DHA is derived from marine sources, such as fish oil and algae.

In the laboratory, scientists examined the effects of DHA supplementation on breast tumor incidence in rats. DHA supplementation reduced the incidence of breast tumors by an impressive 30%. Further, DHA supplementation increased levels of BRCA1 protein—the product of a major tumor-suppressor gene—by 60%.

By activating a gene that confers breast cancer protection, DHA may represent an important cancer-preventive strategy. These findings support the observation that abundant dietary fish consumption may reduce the risk of breast cancer.

—Elizabeth Wagner, ND

Reference

Jourdan ML, Maheo K, Barascu A, et al. Increased BRCA1 protein in mammary tumours of rats fed marine omega-3 fatty acids. *Oncol Rep.* 2007 Apr;17(4):713-9.

Alternate-Day Caloric Restriction Improves Asthma-Related Symptoms

Restricting calorie intake every other day improves symptoms and decreases inflammation and oxidative stress in overweight adults with asthma, according to a recent study.*

On alternate days for two months, two men and eight women limited their caloric intake (to 380 and 320 calories, respectively). On the remaining days, they consumed as much food as they liked. Scientists monitored blood lipids, glucose, and markers of inflammation and oxidative stress periodically, and assessed airway function daily. The subjects rated their asthma symptoms and quality of life using questionnaires.

The nine participants who completed the study lost an average of 8% of their weight. Asthma symptoms, quality of life, and respiratory function significantly improved, while serum cholesterol, triglycerides, and markers of oxidative stress and inflammation decreased significantly.

The authors propose that alternate-day calorie restriction decreases free radical production while enhancing antioxidant protection. "These findings demonstrate rapid and sustained beneficial effects of alternate-day calorie restriction on the underlying disease process in subjects with asthma," they concluded.

—Dayna Dye

Reference

* Johnson JB, Summer W, Cutler RG, et al. Alternate-day calorie restriction improves clinical findings and reduces markers of oxidative stress and inflammation in overweight adults with moderate asthma. *Free Radic Biol Med*. 2007 Mar 1;42(5):665-74.

Garlic Extract Limits Atherosclerosis Progression



Aged garlic extract slows the progression of atherosclerosis in adults, report scientists in California.^{1,2}

In a randomized, double-blind, placebo-controlled pilot study, 19 patients who took aspirin and cholesterol-lowering statin drugs were followed for a year. Half received a 4-mL dose of aged garlic extract daily, while half took inactive placebo. Electron beam tomography was used to monitor changes in calcification in the subjects' coronary arteries. Calcification underlies the transformation of arterial plaques to "hardened" atherosclerotic lesions, which interfere with vascular blood flow and may eventually lead to heart attack.

Compared to subjects who took placebo, those who consumed aged garlic extract had far less calcification of coronary artery plaques over the course of the study. "Garlic may prove useful for patients who are at high risk of future cardiovascular events," the researchers concluded.²

—Dale Kiefer

Reference

1. Budoff M. Aged garlic extract retards progression of coronary artery calcification. *J Nutr*. 2006 Mar;136(3 Suppl):741S-4S. 2. Budoff MJ, Takasu J, Flores FR, et al. Inhibiting progression of coronary calcification using Aged Garlic Extract in patients receiving statin therapy: a preliminary study. *Prev Med*. 2004 Nov;39(5):985-91.

EGCG, COX-2 Inhibitor Fight Prostate Cancer

The combination of a COX-2 (cyclooxygenase-2) inhibitor drug and the green tea polyphenol EGCG (epigallocatechin gallate) works synergistically to thwart prostate cancer in cell cultures and live animals, according to a recent report.*

While scientists have known for years that anti-inflammatory COX-2 inhibitors (such as celecoxib, or Celebrex®) may help prevent cancer, concerns about the toxicity of these drugs, particularly Vioxx®, has spurred a search for complementary agents

that can be combined with low doses of the drugs to help prevent cancer.

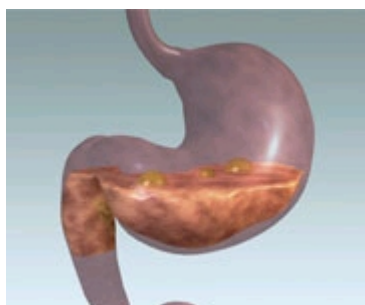
When three lines of human prostate cancer cells were treated with EGCG, a COX-2 inhibitor used in experimental studies called NS398, or a combination of the two in the laboratory, the combination resulted in greater inhibition of cancer cell growth and increased apoptosis (programmed cell death) than either agent alone. In mice implanted with human prostate cancer cells, combination treatment with EGCG and celecoxib inhibited tumor growth and reduced levels of PSA (prostate-specific antigen, a marker of prostate disease).

—Dale Kiefer

Reference

* Adhami VM, Malik A, Zaman N, et al. Combined inhibitory effects of green tea polyphenols and selective cyclooxygenase-2 inhibitors on the growth of human prostate cancer cells both in vitro and in vivo. *Clin Cancer Res.* 2007 Mar 1;13(5):1611-9.

Vitamin A, Carotenoids Cut Risk of Stomach Cancer



High intake of dietary vitamin A and related compounds greatly reduces the risk of developing gastric (stomach) cancer, report scientists in Sweden.* Vitamin A helps control cell proliferation and tissue differentiation throughout the body.

This prospective study evaluated the dietary intake of more than 82,000 adults for approximately seven years. Those with the highest intake of vitamin A and retinol (from dietary and supplemental sources) were much less likely to develop gastric cancer than those with the lowest intake. Higher dietary intake of the vitamin A precursors alpha-carotene and beta-carotene also reduced the risk of developing gastric cancer. Subjects with the highest intake of vitamin A and carotenoids cut their risk of gastric cancer nearly in half compared to those

with the lowest intake of the vitamin.

—Dale Kiefer

Reference

* Larsson SC, Bergkvist L, Naslund I, Rutegard J, Wolk A. Vitamin A, retinol, and carotenoids and the risk of gastric cancer: a prospective cohort study. *Am J Clin Nutr.* 2007 Feb;85(2):497-503.

Low Testosterone May Raise Male Diabetes Risk



Men with low-normal testosterone levels are far more likely to have diabetes than men with higher levels, according to Johns Hopkins researchers.* Although low levels of hormones that promote masculine characteristics have been tied to the development of diabetes, few studies have correlated low testosterone with existing diabetes.

More than 1,400 men participating in the Third National Health and Nutrition Examination Survey were measured for levels of free, bioavailable, and total testosterone. After adjusting for age, race/ethnicity, and body fat, men in the lowest one third of free testosterone levels were four times more likely to have diabetes than men in the highest third. Men in the lowest one third of bioavailable testosterone also had a four times greater chance of existing diabetes than men in the lowest third. Low levels of free or bioavailable testosterone thus appear to be important risk factors for diabetes. These findings support the theory that male hormones directly influence sugar metabolism and the development of insulin resistance.

—Elizabeth Wagner, ND

Reference

* Selvin E, Feinleib M, Zhang L, et al. Androgens and diabetes in men: results from the Third National Health and Nutrition Examination Survey (NHANES III).

Zinc L-Carnosine Guards Against NSAID Damage



The nutritional supplement zinc L-carnosine protects the upper-gastrointestinal tract against damage often caused by the nonsteroidal anti-inflammatory drug (NSAID) indomethacin (Indocin®), according to a recent report.*

The use of NSAIDs such as ibuprofen (Advil®), naproxen (Aleve®, Naprosyn®), and piroxicam (Feldene®) is often limited by their adverse gastrointestinal effects, including stomach ulcers and upper-gastrointestinal bleeding. Sold as a prescription ulcer medication in Japan, zinc L-carnosine supports gastrointestinal healing.

In an animal model of indomethacin- and stress-induced upper-gastrointestinal damage, oral zinc L-carnosine decreased stomach injury by 75% and small intestinal injury by 50%. While adult volunteers who took indomethacin (50 mg, three times daily) for five days had increased gut permeability—a pathological change that may contribute to inflammation—no significant increase in intestinal permeability was seen when zinc L-carnosine (37.5 mg, twice daily) was co-administered. People who take NSAIDs may thus be able to guard their gastrointestinal health using supplemental zinc L-carnosine.

—Elizabeth Wagner, ND

Reference

* Mahmood A, FitzGerald AJ, Marchbank T, et al. Zinc carnosine, a health food supplement that stabilises small bowel integrity and stimulates gut repair processes. *Gut*. 2007 Feb;56(2):168-75.

Green Tea May Shield Against Breast Cancer



Regular consumption of green tea protects women against breast cancer, concludes a recently published case-control study from China.*

Laboratory studies have previously shown that green tea extract possesses anti-cancer effects, while epidemiological studies have suggested a link between green tea consumption and a reduced risk of breast cancer.

In a recent study, approximately 1,000 breast cancer patients were matched with an equal number of healthy control subjects. After assessing the women's annual green tea consumption and controlling for potential confounding factors, the researchers concluded that women who consumed the most green tea were least likely to develop breast cancer. This study suggests that women may be able to lower their breast cancer risk by regularly consuming green tea.

—Dale Kiefer

Reference

* Zhang M, Holman CD, Huang JP, Xie X. Green tea and the prevention of breast cancer: a case control study in southeast China. *Carcinogenesis*. 2006 Dec 20; [Epub ahead of print]

Vitamin D Status Tied to Physical Performance in Elderly

Low levels of vitamin D in elderly people are predictive of declining physical performance, according to results of a three-year study conducted by researchers in the Netherlands.¹

The study monitored the physical performance of more than 1,200 men and women aged 65 and older, allowing for confounding factors such as age, gender, and chronic diseases. Subjects with the highest levels of serum 25-hydroxyvitamin D—the main circulating form of the vitamin—were more likely to perform well on standardized tests of physical capabilities throughout the study period. By contrast, the performance of those with the lowest vitamin D levels declined from year to year.

The body's ability to manufacture vitamin D from sunlight declines with age, and ultraviolet light in wintertime is insufficient to drive this process in any event, especially in northern latitudes.^{2,3} Vitamin D levels among many groups, including the elderly, are suboptimal. In the Dutch study, nearly one half of the subjects had vitamin D levels that were too low.¹

—Dale Kiefer

Reference

1. Wicherts IS, van Schoor NM, Boeke AJ, et al. Vitamin D status predicts physical performance and its decline in older persons. *J Clin Endocrinol Metab.* 2007 Mar 6; [Epub ahead of print]
2. Park S, Johnson MA. Living in low-latitude regions in the United States does not prevent poor vitamin D status. *Nutr Rev.* 2005 Jun;63(6 Pt 1):203-9.
3. Dawson-Hughes B. Racial/ethnic considerations in making recommendations for vitamin D for adult and elderly men and women. *Am J Clin Nutr.* 2004 Dec;80(6 Suppl):1763S-6S.

Omega-3 Fatty Acids Boost Brain Volume, Mood



Higher intake of omega-3 fatty acids is associated with greater volume in areas of the brain related to mood and behavior,* according to findings presented at the American Psychosomatic Society's Annual Meeting in Budapest, Hungary.

Researchers questioned 55 healthy adults about their diet to assess average intake of long-chain omega-3 fatty acids. They then used high-resolution structural magnetic resonance imaging of the brain to measure gray matter volume. Subjects with higher omega-3 intake had greater gray matter volume in areas of the brain associated with emotional arousal and regulation. These same areas are reduced in volume in people with mood disorders, such as major depressive disorder.

Although the study found an association between omega-3 fatty acid intake and brain structure, further studies are needed to determine whether increasing fish oil intake produces changes in the brain's structure.

—Dayna Dye

Reference

* Available at: <http://www.upmc.com/Communications/NewsBureau/NewsReleaseArchives/2007/March/Omega3ImproveMood.htm>. Accessed March 13, 2007.

*Available at: <http://www.upmc.com/Communications/NewsBureau/NewsReleaseArchives/2007/March/Omega3ImproveMood.htm>. Accessed March 13, 2007.

Whole-Grain Breakfast Lowers Heart Failure Risk



Eating a breakfast featuring whole-grain cereals reduces the risk of developing heart failure, according to a study presented at the American Heart Association's 47th Annual Conference on Cardiovascular Disease, Epidemiology, and Prevention.*

Researchers analyzed data from the Physicians' Health Study for the period from 1982 to 2006. In questionnaires completed at the beginning of the study, 79% of 10,469 physicians reported consuming breakfast cereals that contain at least 25% oat or bran. Among the 39% of subjects who reported consuming the cereals at least seven times a week, the risk of heart failure was cut by 28% over the course of the study, compared to those who reported never eating them. Subjects who ate cereal two to six times weekly had a 22% lower risk of heart failure.

"Even in a population with overall healthy behavior, it is possible to see less heart failure in those who eat a whole-grain cereal breakfast," the researchers concluded.

—Dayna Dye

Reference

* Available at: <http://www.emaxhealth.com/15/10052.html>. Accessed March 13, 2007.

Antioxidants Protect Against Periodontitis



Higher serum levels of antioxidants—particularly vitamin C—are associated with a reduced risk of periodontitis, a serious infection that destroys tissues supporting the teeth and increases the risk of stroke, type II diabetes, and heart disease.*

Scientists examined periodontitis measurements and antioxidant levels in more than 11,000 adults. Fourteen percent had mild disease, and 5% had severe disease. Higher levels of vitamin C and total antioxidants were linked to a lower incidence of periodontitis: those with the highest vitamin C levels had a 39-50% lower risk of periodontitis compared to those with the lowest levels.

In addition to scavenging free radicals and reducing inflammation, vitamin C is involved in collagen synthesis, which helps maintain the structure and integrity of connective tissue.

—Dayna Dye

Reference

* Chapple IL, Milward MR, Dietrich T. The prevalence of inflammatory periodontitis is negatively associated with serum antioxidant concentrations. *J Nutr.* 2007 Mar;137(3):657-64.

Watercress Consumption Prevents DNA Damage



Consuming watercress helps protect against DNA damage, which could reduce the risk of cancer, according to a recent study.* Intake of cruciferous vegetables such as watercress, broccoli, and cabbage is associated with a lower risk of numerous cancers.

Sixty men and women, half of whom were smokers, consumed their usual diet plus 85 grams of raw watercress daily for eight weeks. Blood samples were analyzed for plasma antioxidant status and DNA damage in lymphocytes, a type of white blood cell. Watercress consumption significantly reduced lymphocyte DNA damage, with greater effects in smokers. Plasma lutein levels doubled following watercress supplementation, while beta-carotene concentrations rose by approximately one third.

Scientists believe that antioxidants in watercress—namely, lutein, beta-carotene, rutin, and glucosinolates—may be responsible for its protective effects.

—Dayna Dye

Reference

* Gill CI, Haldar S, Boyd LA, et al. Watercress supplementation in diet reduces lymphocyte DNA damage and alters blood antioxidant status in healthy adults. *Am J Clin Nutr.* 2007 Feb;85(2):504-10.

Zinc Lowers Infection Rates in Elderly Adults



Daily supplementation with zinc reduces the incidence of infections in elderly subjects, while decreasing markers of inflammation and oxidative stress, according to a new study.* In a randomized, double-blind, placebo-controlled trial, scientists administered zinc gluconate (45 mg of elemental zinc per day) or placebo to healthy adults, aged 55-87, for one year. They documented the incidence of infections throughout the year, and assessed levels of inflammatory cytokines and markers of oxidative stress at the study's onset and conclusion.

Compared to the placebo group, zinc-supplemented adults had a markedly lower occurrence of infections, significantly lower generation of tumor necrosis factor-alpha (an inflammatory cytokine associated with arthritis and cancer), and decreased oxidative stress markers.

—Elizabeth Wagner, ND

Reference

* Prasad AS, Beck FW, Bao B, et al. Zinc supplementation decreases incidence of infections in the elderly: effect of zinc on generation of cytokines and oxidative stress. *Am J Clin Nutr.* 2007 Mar;85(3):837-44.

New Model Improves Heart Disease Risk Assessment in Women



To accurately assess heart disease risk in women, physicians must incorporate family history of the disease and C-reactive protein levels in their current methods of risk assessment, according to recent reports in the *Journal of the American Medical Association*.^{1,2} While death rates from cardiovascular disease in men have steadily declined over the past 20 years, they have remained relatively stable for women. This discrepancy may arise from limitations inherent in the most commonly used risk-assessment model: the Framingham Risk Estimate.

The Framingham score is used to predict the 10-year risk of heart attack or death, based on risk factors such as age, levels of total cholesterol and high-density lipoprotein, smoking status, and systolic blood pressure. In 2001, the third National Cholesterol Education Program Adult Treatment Panel III advised that all adults should have their coronary heart disease risk evaluated using the Framingham risk score. However, more recent studies have suggested that this model misclassifies the coronary heart disease risk in symptom-free postmenopausal women.

To develop a more accurate cardiovascular risk-assessment tool for women, Dr. Paul Ridker and his colleagues tracked incident coronary heart disease and stroke in nearly 25,000 women over 10 years. They evaluated 35 risk factors, enabling them to create and validate a new risk-assessment model for women.¹ Two risk factors—family history of the disease and high-sensitivity C-reactive protein level—provided significant, additive predictive value superior to the Framingham score in identifying women at moderate or high risk of future cardiovascular disease. Family history (a parent or sibling who has suffered a coronary event) was found to double a woman's chances of developing arterial disease, as was a C-reactive protein level above 3 mg/L.

Termed the Reynolds Risk Score, this new method altered levels of assessed risk in at least 20% of women previously classified according to their Framingham risk score. While the Framingham score is still useful, the Reynolds score is superior because it predicts total cardiovascular events (including stroke and coronary revascularization) in addition to heart attack and death risk.

In an editorial published in the same issue of the *Journal of the American Medical Association* as Dr. Ridker's research, Dr. Roger Blumenthal and his colleagues urge that family history of heart disease and blood levels of C-reactive protein be added to traditional assessments of women's risk of suffering heart attack, stroke, or angina.² Using these factors to gauge women's cardiovascular disease risk, physicians can intervene with lifestyle changes or medications before symptoms arise.

For more information, please visit: <http://www.reynoldsriskscore.org>.

—Elizabeth Wagner, ND

Reference

1. Ridker PM, Buring JE, Rifai N, Cook NR. Development and validation of improved algorithms for the assessment of global cardiovascular risk in women: the Reynolds Risk Score. *JAMA*. 2007 Feb 14;297(6):611-9.
2. Blumenthal RS, Michos ED, Nasir K. Further improvements in CHD risk prediction for women. *JAMA*. 2007 Feb 14;297(6):641-3.

Poison Centers: Vitamin Supplements Are Safe

The safety of supplemental vitamins was recently confirmed by the American Association of Poison Control Centers. The association, which manages a national database of information logged by the country's 61 poison control centers, recently published its 2005 annual report in the journal *Clinical Toxicology*.¹

The lengthy report details all reported poison center contacts regarding exposure to toxic substances. While over-the-counter analgesics such as acetaminophen (Tylenol®) were involved in numerous adverse events, no deaths occurred from exposure to any form of vitamin supplement, including multivitamins and single vitamins (such as A, C, D, E, and B vitamins).¹ The Orthomolecular Medicine News Service estimates that Americans consume more than 53 billion doses of supplemental vitamins annually, making the safety of vitamins "all the more remarkable."²

—Dale Kiefer

Reference

1. Lai MW, Klein-Schwartz W, Rodgers GC, et al. 2005 Annual Report of the American Association of Poison Control Centers' national poisoning and exposure database. *Clin Toxicol (Phila)*. 2006;44(6-7):803-932.
2. Available at: <http://orthomolecular.org/resources/omns/v03n03.shtml>. Accessed March 12, 2007.

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