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IN THE NEWS

Calcium, Folic Acid Yield Cost Savings, Health Benefits

A new study released in September 2004 found that daily use of calcium would prevent 734,000 hip fractures and save \$13.9 billion in health care costs over the next five years.* According to the same report, daily use of folic acid by women would prevent 600 cases of neural tube birth defects yearly, saving \$1.3 billion in lifetime medical costs over five years. The study, commissioned by the Dietary Supplement Education Alliance and conducted by the Lewin Group, included a systematic literature review of the most rigorous scientific research available.

The \$13.9 billion estimate of the five-year (2005-2009) net savings in hospital, nursing facility, and physician expenditures assumes a reduction in the occurrence of hip fractures among those over age 65, through daily intake of 1200 mg of calcium with vitamin D. If just 10.5 million women of childbearing age began taking 400 mcg of folic acid daily, approximately 600 fewer babies would be born with neural tube defects per year, saving as much as \$321,853,000 as a result. Taking into account the very low cost of the supplement, \$1.3 billion in lifetime medical costs could potentially be saved over the next five years.

The study authors also found that omega-3 fatty acids, glucosamine, and saw palmetto supplements showed substantial promise for improving health and quality of life and potentially reducing health care costs.

"Many studies over the years have demonstrated the positive effects of calcium and folic acid. This report reinforces those findings by demonstrating the cost savings that could be achieved by taking these two supplements," said Allen Dobson, PhD, senior vice president at the Lewin Group. "The results on omega-3 fatty acids, glucosamine and saw palmetto were also extremely encouraging in their ability to offset health problems and costs associated with chronic conditions."

For more information about the study, visit www.supplementinfo.org.

Reference

* DaVanzo J, et al. "Improving Public Health, Reducing Health Care Costs: An Evidence-Based Study of Five Dietary Supplements." September 22, 2004.

Red Wine Protects Prostate Health



Men who regularly drink red wine have a reduced risk of prostate cancer, according to a study recently published in the *International Journal of Cancer*.* Moderate consumption of red wine has previously been reported to reduce risk for cardiovascular disease.

Researchers at the Fred Hutchinson Cancer Research Center in Seattle investigated the association between consumption of various alcoholic beverages and the incidence of prostate cancer in middle-aged men. The researchers used data from a population-based, case-controlled study in King County, WA. A group of 753 newly diagnosed prostate cancer patients, ranging from 40 to 64 years of age, were matched by age to a control group of 703 men. All the participants completed a personal interview on lifetime alcohol consumption and other risk factors for prostate cancer.

Red wine consumption was associated with a decreased risk for prostate cancer, the researchers reported. Men who drank four glasses of red wine weekly demonstrated a 50% reduction in prostate cancer risk. Red wine appeared to be especially beneficial in offering protection against more aggressive cancers of the prostate. Consumption of white wine, beer, or liquor did not affect prostate cancer risk, according to the study.

Alcohol consumption is a modifiable lifestyle risk factor that may affect cancer risk. Alcohol alters hormonal factors and contains chemical substances such as flavonoids that may alter tumor growth. The researchers noted that resveratrol, an antioxidant that naturally occurs in the skin of red grapes, may be responsible for red wine's protective effects on the prostate gland. Resveratrol may help modulate prostate cancer risk by reducing inflammation and neutralizing dangerous free radicals.

Reference

* Schoonen WM, Salinas CA, Kiemeny LA, Stanford JL. Alcohol consumption and risk of prostate cancer in middle-aged men. *Int J Cancer*. 2004 Aug 25. [Epub ahead of print.]

Soy Protein Reduces Atherosclerosis Risk

Canadian scientists have reported that soy protein promotes a pattern of low-density lipoprotein (LDL) particles that is less likely to cause lipid deposits in the arteries, thus favorably altering one of the most dangerous risk factors for cardiovascular disease.*

Until recently, LDL was thought of as a single compound that increased risk for coronary artery disease. Recent findings have shown, however, that LDL exists as either small or large particles. The smaller, denser LDL particles are dangerous promoters of cardiovascular disease, while the larger, more buoyant LDL particles are protective.

In their study reported in the *Journal of Nutrition*, the Canadian researchers examined men and women with high blood cholesterol levels who consumed four different diets in a random order for six weeks each. One diet included soy protein depleted of isoflavones, another contained soy protein with added isoflavones, and the other two diets contained animal protein either with or without added isoflavones. LDL particles were measured and assessed for size before and after each dietary intervention.

Consumption of soy protein was associated with a larger peak LDL particle size relative to animal protein. Soy protein decreased levels of small LDL particles by 12% and raised levels of large LDL particles by 14% relative to animal protein. Isoflavones did not affect LDL particle characteristics.

By helping to optimize LDL particle size, soy protein may be a valuable therapeutic tool in reducing the risk of cardiovascular disease. The Life Extension Foundation offers the VAP™ laboratory test to assess LDL particle size and other cardiovascular risk factors.

—Elizabeth Wagner, ND

Reference

* Desroches S, Mauger JF, Ausman LM, Lichtenstein AH, Lamarche B. Soy protein favorably affects LDL size independently of isoflavones in hypercholesterolemic men and women. *J Nutr*. 2004 Mar;134(3):574-9.

Vitamins Avert Immune Suppression from Chemotherapy

Supplementation with vitamin E or with a multivitamin prevents the depression in neutrophils, a type of white blood cell, associated with chemotherapy, according to a recent study in the journal *Cancer*.*

Neutrophils are one of the most abundant types of white blood cells in the human body, and are responsible for much of the body's protection against infection. Neutropenia, which is a diminished level of neutrophils in the blood, is associated with an increased susceptibility to bacterial and fungal infections. Neutropenia commonly occurs as a byproduct of chemotherapy, making these patients vulnerable to infection due to a weakened immune system.

Researchers at the University of Vermont investigated the role of nutritional supplements on common side effects of chemotherapy, including neutropenia. Women with breast carcinoma completed a questionnaire that detailed their use of dietary supplements. Weekly blood counts were obtained throughout the trial. Of the 49 women involved in the study, 71% used dietary supplements. On average, patients took three supplements. The most commonly used supplements were multivitamins, vitamin E, and calcium.

Women taking either multivitamins or vitamin E supplements experienced less of a depression in neutrophil count from chemotherapy than did women who were not taking supplements. The study authors concluded that multivitamin and vitamin E supplementation may be useful tools to help ameliorate neutropenia associated with chemotherapy and help protect cancer patients from potentially dangerous infections.

—Elizabeth Wagner, ND

Reference

* Branda RF, Naud SJ, Brooks EM, Chen Z, Muss H. Effect of vitamin B12, folate, and dietary supplements on breast carcinoma chemotherapy-induced mucositis and neutropenia. *Cancer*. 2004 Sept 1;101(5):1058-64.

Zinc Prevents, Treats Dyslexia in Children

Zinc supplementation can help prevent and treat developmental dyslexia in children, according to a report in the prestigious British medical journal *The Lancet*.*

Dyslexia is marked by difficulty with learning and movement skills. A deficiency of zinc, an essential mineral involved in over 300 enzymatic reactions in the body, impairs the function of B vitamins and blocks essential phospholipid pathways. In dyslexia, there is evidence of reduced incorporation of docosahexaenoic acid and arachidonic acid into phospholipids' cell membranes.

Dyslexic children have been found to be severely zinc deficient in comparison to unaffected children. In animal studies, zinc deficiency in offspring causes impaired learning that is corrected by zinc supplementation. Maternal zinc deficiency in early fetal development, however, can cause permanent learning difficulties. Therefore, it is extremely important to correct nutritional deficiencies, particularly of zinc, before conception, and to maintain adequate zinc status throughout pregnancy, lactation, and growth. This strategy may help to prevent dyslexia, even in families with a genetic susceptibility to the disorder.

Doctors who practice nutritional medicine have noted that the earlier a zinc-deficient child is repleted with zinc, the more rapid is the improvement in learning and behavior. Controlled trials with vitamin and mineral supplements have been found to improve intelligence scores and brain-function tests, and to reduce brain-wave abnormalities. Correcting zinc deficiency is a crucial yet often overlooked component of preventing and treating developmental dyslexia.

—Elizabeth Wagner, ND



Reference

* Grant, EC. Developmental dyslexia and zinc deficiency. *Lancet*. 2004 July 17; 364(9430): 247-8.

IN THE NEWS

Pharmacies Sue FDA Over Compounding Limits



A coalition of pharmacies from Texas, Arizona, Alabama, Wisconsin, California, and Colorado filed suit against the Food and Drug Administration in September, claiming that the agency is illegally enforcing an arbitrary regulation that is out of its jurisdiction. The suit accuses the FDA of conducting unlawful inspections, illegal interventions, and intimidation of law-abiding pharmacies.

At issue is the centuries-old practice of compounding medications from bulk ingredients. In this process, a pharmacist combines, mixes, or alters the administration of ingredients to prepare a medication, prescribed by a physician or veterinarian, that is tailored to an individual patient's needs. Compounding protection laws were enacted in 1962 to ensure the best health care for patients and pets.

The FDA has no legal authority over pharmacies, whether or not they prepare compound preparations. Last year, however, the FDA issued a compliance policy guideline that made the use of bulk ingredients in the preparation of medications illegal. The agency has since waged an aggressive inspection campaign to enforce the guideline.

Ten compounding pharmacies have petitioned a US District Court in Texas to be able to continue filling prescriptions from doctors and veterinarians using pure "bulk ingredients" that are manufactured in facilities that are registered, inspected, and approved by the FDA.

"If the FDA is successful, this would deprive veterinarians and physicians of critical treatment options that relieve the suffering of their patients and improve their health," said Steven F. Hotze, MD, president of Premier Pharmacy in Katy, TX.

Compounded drugs typically offer superior treatment options because they are tailored to the individual patient. Moreover, restrictions on compounded medications prevent many prescription drugs from being offered at more affordable prices. The FDA's illegal actions work to the benefit of large pharmaceutical companies, which continually lobby the agency in efforts to stifle competition and keep prices high.

—Stephen Laifer

Whey Cuts Weight Gain, Improves Insulin Sensitivity

Whey protein, a mixture of some of the proteins found naturally in milk, reduces weight gain and increases insulin sensitivity, according to a study conducted by Australian researchers.*

Whey is a highly bioavailable source of protein that is known to promote immune health and to raise levels of the antioxidant glutathione. A high-protein diet has been known to help reduce body weight and to improve insulin sensitivity, but scientists previously had not known whether those outcomes were affected by the type of dietary protein consumed.

Scientists at the University of Adelaide in Australia examined the effects of both whey protein and red-meat protein on mice. Insulin-resistant rats were fed a high-fat diet for nine weeks. They were then switched to a diet containing either 80 or 320 grams of protein per kilogram of body weight, provided by either whey protein concentrate or red meat, for six weeks. The rats were then analyzed for energy intake, body fat, body weight, plasma insulin, and insulin sensitivity.

High dietary protein reduced energy intake by the rats, as well as visceral, subcutaneous, and carcass fat. Increasing the dietary concentration of whey protein concentrate, but not red-meat protein, also reduced body weight gain and plasma insulin concentration, and increased insulin sensitivity.

These findings support the conclusion that a high-protein diet reduces energy intake and reduces body fat in mice. Whey protein, the researchers concluded, is more effective than red meat in reducing body weight gain and increasing insulin sensitivity. These data are highly significant for the millions of overweight and obese Americans who experience associated problems such as insulin resistance.

—Elizabeth Wagner, ND

Reference

* Belobrajdic DP, McIntosh GH, Owens JA. A high-whey-protein diet reduces body weight gain and alters insulin sensitivity relative to red meat in wistar rats. *J Nutr.* 2004 Jun;134(6):1454-8.

Tea Drinking Tied to Reduced Hypertension Risk

Tea is the second most consumed beverage in the world, second only to water. The most common cardiovascular disease among adults worldwide is hypertension, or high blood pressure. A recently published research study from Taiwan suggests that habitual tea drinkers may significantly reduce their risk of hypertension.*

Researchers compared the incidence of hypertension in habitual tea drinkers to that in nonhabitual tea drinkers. The samples were adjusted to account for age, sex, socioeconomic status, family history of hypertension, body mass index, waist-hip ratio, and lifestyle and dietary factors.

The tea-drinking group was found to be generally more obese, to smoke and drink alcohol more, and to exercise less than the non-drinking group. With these characteristics, one would thus logically assume the tea drinkers to show a higher incidence of hypertension. In fact, however, habitual tea drinkers who ingested 120-599 mL of tea daily exhibited a 46% reduction in hypertension compared to nonhabitual drinkers. Even more striking was the 65% reduction in hypertension in those who ingested over 600 mL of tea daily compared to nonhabitual drinkers. Habitual tea consumption for periods of more than one year was not associated with a further reduction of hypertension risk.

The researchers did not identify a mechanism to explain the results, though theoretical arguments were advanced concerning caffeine, theanine (a neurotransmitter), and the antioxidant effect from tea polyphenols that could cause vasodilatation. The study results, however, conclusively demonstrated that habitual moderate-strength green or oolong tea consumption of 120 mL or more daily for one year significantly reduces the risk of developing hypertension in Chinese adults.

—Steve Otto, MD

Reference

* Yang Y, Lu F, Wu J, Wu C, Chang C. The protective effect of habitual tea consumption on hypertension. *Arch Intern Med.* 2004 Jul 26;164(14):1534-40.

Blood Test May Detect Aortic Atherosclerosis

Scientists at the Mayo Clinic have found that a simple blood test measuring C-reactive protein may help to ascertain risk for aortic atherosclerosis.* Although common in the elderly and the most significant risk factor for stroke, aortic atherosclerosis is generally an undiagnosed disease.

Atherosclerosis is a systemic disease involving the heart, brain, aorta, and peripheral arteries. Of deaths attributable to it, approximately 70% are due to heart attacks, 17% to strokes, and 10% occur after rupture of an aortic aneurysm. Some 700,000 strokes occur in the US each year, usually without warning. Symptoms appear after the stroke has occurred. In the US, stroke-related deaths rank behind only those attributed to heart disease and cancer, and the associated disability of survivors is life altering.

Blood tests have not been used to diagnose aortic atherosclerosis or to stratify risk. Although not currently used as routine screening tests, transesophageal echocardiography, a noninvasive ultrasound test performed in the office, and magnetic resonance imaging are available and can identify clinically significant plaques.

Researchers at the Mayo Clinic in Rochester, MN, report that a simple blood test can raise suspicions of aortic atherosclerosis. In their study, 386 men and women with an average age of 66 underwent trans-esophageal echocardiography. Nearly 70% of the subjects were shown to have atherosclerotic plaques in the aorta, and 25% of the plaques were categorized as "severe." C-reactive protein, a systemic biomarker of inflammation and an established risk factor for cardiovascular disease, was measured in all subjects and found to be independently associated with severe plaques, but not insignificant plaques, in both those with and without known cardiovascular disease.

Given the role of aortic atherosclerosis in stroke, it may be prudent to consider further testing in those with elevated C-reactive protein to detect and possibly treat existing disease.



Reference

* Agmon Y, Khandheria BK, Meissner I, et al. C-reactive protein and atherosclerosis of the thoracic aorta: a population-based transesophageal echocardiographic study. Arch Intern Med. 2004 Sep 13;164(16):1781-7.

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