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In The NEWS

Supplements Help Elderly Avert Disease



Dietary supplements may help elderly adults to live longer, more independent lives, according to an analysis conducted by the Lewin Group.*

Furthermore, the use of certain supplements may save billions of dollars in health care costs as a result of fewer hospitalizations and doctor visits, as well as avoided transitions to assisted care facilities.

The Lewin Group analyzed existing research studies on two dietary supplements to determine their effects on promoting independent living. First, they examined whether omega-3 fatty acids might help prevent conditions such as coronary heart disease. Next, they analyzed the impact of lutein with zeaxanthin on averting age-related macular degeneration. Both coronary heart disease and macular degeneration are associated with significant disability and may cause elderly adults to

require daily assistance, ranging from help at home to residence at assisted care or nursing facilities.

Heart disease is the leading killer of Americans, and it primarily affects older adults. In 2000, the Food and Drug Administration issued a qualified health claim that omega-3 fatty acids may help to prevent coronary heart disease. The Lewin Group estimates that daily intake of approximately 1800 mg of omega-3 fatty acids by adults over the age of 65 could prevent nearly 400,000 hospitalizations and physician visits due to coronary heart disease over the course of five years, leading to a savings of over \$3 billion.

Visual impairment due to conditions such as age-related macular degeneration is one of the top four reasons for loss of independence in older adults. In fact, 18% of all hip fractures in seniors have been attributed to age-related loss of vision. The Lewin Group estimates that daily intake of 6-10 mg of lutein with zeaxanthin could help nearly 100,000 adults avoid the transition to greater dependence due to vision loss from macular degeneration over the course of five years. This could lead to a savings of \$2.5 billion.

"With health care costs for Americans 65 and older expected to reach \$16 trillion by the year 2030, the need for innovative and preventive health care solutions is clearer than ever," said Elliott Balbert, president of the Dietary Supplement Education Alliance. "More than 187 million consumers rely on daily use of dietary supplements, and this study reinforces the efficacy and health benefits of their usage."

—Elizabeth Wagner, ND

Reference

* Available at: <http://www.supplementinfo.org/anm/templates/?a=265&z=7>. Accessed March 20, 2006.

Chromium, B Vitamins Prevent Weight Gain



Supplementing with multi- vitamins, B vitamins, and chromium can decrease weight gain in middle-aged men and women, according to a recent study.*

Weight gain is a particular problem in the middle aged, as more than 70% of US adults aged 55-74 are overweight or obese.

Researchers evaluated the long-term use of 14 different nutritional supplements marketed as weight-control aids: multivitamins, vitamin B6, vitamin B12, chromium, fiber, coenzyme Q10, dehydroepiandrosterone (DHEA), garlic, ginkgo, ginseng, melatonin, omega-3 fatty acids, soy, and St. John's wort. The study subjects were 15,655 men and women, aged 53-57. Supplement use, diet, exercise, and other health behaviors were determined by questionnaire. Use of supplements over 10 years was recorded as no use, low use, or high use. The study groups were divided by sex

and body mass index (determined as normal, overweight, or obese) at age 45. The researchers calculated weight change between age 45 and the subject's current age.

High use of four supplements—multivitamins, vitamin B6, vitamin B12, and chromium—produced significantly lower weight gain compared to no use among men and women who were overweight or obese. For example, obese men who did not use chromium gained nearly 12 pounds on average over 10 years; obese men who used less than 150 mcg of chromium per day gained an average of 6 pounds; and obese men who used more than 150 mcg of chromium actually lost 3 pounds on average. Similar results for chromium use were reported in obese women.

To explain these results, the researchers noted that B vitamins improve energy usage, whereas chromium helps regulate blood sugar levels. Multivitamins may be beneficial because they contain B vitamins, chromium, and other healthful minerals such as calcium.

The authors concluded, "Given the rapidly expanding supplement market in this country, as well as the rapidly expanding waistlines of the population, future studies of weight-management tools based on physiologic and nutritional needs may be in order." Longitudinal and randomized trials are needed to prove a cause-and-effect relationship between supplementation and weight change.

—Laura J. Ninger, ELS

Reference

* Nachtigal MC, Patterson RE, Stratton KL, Adams LA, Shattuck AL, White E. Dietary supplements and weight control in a middle-age population. *J Altern Complement Med.* 2005 Oct;11(5):909-15.

Tea Polyphenols May Reduce Ovarian Cancer Risk



Drinking tea on a daily basis may reduce a woman's risk of developing ovarian cancer, report Swedish researchers.*

While abundant evidence suggests that polyphenol antioxidants from green and black teas offer protection against various cancers, few epidemiological studies have examined the relationship between tea consumption and ovarian cancer.

Researchers enrolled 61,057 women aged 40-76 in this prospective study. The participants completed a food-frequency questionnaire at the time of enrollment (between 1987 and 1990) and were followed for cancer incidence through December 2004. Additionally, in 1997, the women completed a follow-up questionnaire that probed their lifestyle habits and collected information specific to women's reproductive health. The questionnaires detailed the participants' consumption of 67 different food items, including tea.

Approximately two thirds of the study participants were tea drinkers, consuming an average of 0.8 cups per day. Compared to women who did not drink tea, the tea drinkers were leaner and ate more fruits and vegetables.

During the 17-year follow-up, 301 women were diagnosed with ovarian cancer. Women who regularly drank two cups of tea per day demonstrated a 46% lower risk of developing ovarian cancer than did women who did not drink tea. Moreover, each additional cup of tea consumed per day further reduced the risk of ovarian cancer by 18%. This risk reduction was not affected by known risk factors for ovarian cancer, such as oral contraceptive use, family history, or never having carried a pregnancy.

These findings suggest that tea consumption acts in a dose-dependent fashion to reduce the risk of ovarian cancer in women. The fifth most common cancer in women, ovarian cancer is notoriously difficult to detect and treat. Tea consumption may thus represent a novel strategy for fighting ovarian and other cancers.

—Linda M. Smith, RN

Reference

* Larsson SC, Wolk A. Tea consumption and ovarian cancer risk in a population-based cohort. *Arch Intern Med.* 2005 Dec 12-26;165(22):2683-6.

Resveratrol Offers Neuroprotective Benefits



Resveratrol has potent activity against amyloid beta peptides, a pathological characteristic of Alzheimer's disease, report researchers at the Litwin-Zucker Research Center for the Study of Alzheimer's Disease and Memory Disorders in Manhasset, New York.*

Epidemiological studies have shown that moderate consumption of wine, a natural source of resveratrol, is associated with a decreased incidence of Alzheimer's disease. In this study, scientists sought to determine whether resveratrol demonstrated activity against amyloid beta proteins in the laboratory.

In this laboratory investigation, researchers used a specialized cell line that is known to secrete amyloid beta peptides. They first pre-treated the cells with resveratrol, and then examined the cells' ability to secrete amyloid beta peptides. Incubating the cells with resveratrol for as little as 24 hours markedly decreased the cells' secretion of amyloid beta. In fact, incubation with resveratrol decreased amyloid beta secretion by more than 60%, and this effect was dose dependent. A longer incubation period of up to 72 hours resulted in an even greater reduction in amyloid beta secretion.

These findings were confirmed using another cell line that secretes amyloid beta peptides. By contrast, incubating cells with quercetin or catechin, two other wine-derived polyphenols with chemical structures similar to that of resveratrol, did not decrease amyloid beta secretion. This suggests that resveratrol has highly specific effects against amyloid beta secretion.

Corollary studies have suggested that resveratrol exerts its activity against amyloid beta peptides by promoting their degradation within cells rather than by decreasing their actual synthesis. Many scientists believe that amyloid beta peptides contribute to the pathogenesis of Alzheimer's disease.

By inhibiting the accumulation of amyloid beta peptides, resveratrol may have therapeutic potential against Alzheimer's disease.

—Linda M. Smith, RN

Reference

* Marambaud P, Zhao H, Davies P. Resveratrol promotes clearance of Alzheimer's disease amyloid-beta peptides. *J Biol Chem.* 2005 Nov 11;280(45):37377-82.

Olive Polyphenols Protect Blood Vessels



Meals rich in olive polyphenols improve endothelial function and blood flow in people with high cholesterol, according to a study conducted at the University of Cordoba in Spain.*

Impaired endothelial function is a major contributor to heart disease. These findings support the observation that those who consume an olive oil-rich, Mediterranean-style diet enjoy a lower risk of heart disease.

Twenty-one healthy adults with high cholesterol participated in the study. On average, the participants were 59 years of age, had a body mass index (BMI) of 25.4, and a total cholesterol level between 200 and 350 mg/dL, placing them at an increased risk for heart disease. The subjects did not use vitamins, supplements, or medications in the six weeks preceding the study. In the 24-hour period before the study's onset, they consumed a polyphenol-poor diet and did not engage in

exercise.

The study participants consumed a test meal consisting of olive oil with either a high or low content of polyphenols, as well as white bread and vitamin A. The investigators collected venous blood samples after the subjects consumed the test meal and 30, 60, 120, and 240 minutes thereafter for the purpose of assessing oxidative stress. Additionally, they assessed endothelial function by determining the amount of time required for blood flow to return to the participants' arms following mechanical obstruction of blood flow.

Blood flow increased significantly in the high-polyphenol olive oil group as early as 120 minutes after the test meal, and this improvement persisted until the end of the assessment at 240 minutes. Also, levels of an endogenous blood vessel dilator increased, while indicators of oxidative stress decreased. These changes indicate that olive polyphenols improved endothelial function and blood flow while decreasing oxidative stress.

The study results demonstrate that olive-derived polyphenols produce rapid improvement in blood flow characteristics and endothelial function, suggesting that their daily consumption may improve cardiovascular health and decrease the risk for heart disease.

—Linda M. Smith, RN

Reference

* Ruano J, Lopez-Miranda J, Fuentes F, et al. Phenolic content of virgin olive oil improves ischemic reactive hyperemia in hypercholesterolemic patients. *J Am Coll Cardiol.* 2005 Nov 15;46(10):1864-8.

Elevated HDL Protects Against Coronary Events



Maintaining elevated levels of high-density lipoprotein (HDL) may help reduce the risk of cardiovascular events such as heart attack, report researchers in the *American Heart Journal*.¹

Scientists have amassed overwhelming evidence that low-density lipoprotein (LDL) is synonymous with elevated risk of heart disease and other coronary events. As a result, physicians follow US government-sponsored guidelines and routinely monitor their patients' LDL levels.² Doctors may even prescribe lifestyle or dietary changes, if not statin drugs, to lower elevated levels of LDL and triglycerides, a condition known as hyperlipidemia. While these same guidelines recognize that elevated HDL is actually desirable, less is known about the potential benefits of elevated HDL than is understood about the dangers of increased LDL.

To illuminate HDL's role in protecting blood vessels from atherosclerosis (an underlying cause of heart disease), scientists in

Pennsylvania examined serial HDL levels in nearly 7,000 patients in an urban primary care practice. They noted changes in patients' HDL levels over 12 years, and compared those changes with patients' heart-health histories. After adjustment for other known coronary risk factors such as smoking, diabetes, and hypertension, statistical analysis revealed that patients with a 10-mg/dL higher initial HDL level experienced an 11% lower risk of coronary events. Patients whose HDL levels increased by 10 mg/dL between measurements enjoyed a 7% reduction in risk of events. Interestingly, the researchers found no relationship between changes in LDL or triglyceride levels and risk of coronary events.¹

More than a decade ago, researchers at Johns Hopkins performed a similar statistical analysis. By considering data gathered from patients with established coronary artery disease over a 13-year period, they found that two factors predict a second coronary event. The first involves measurement of the heart's ejection capacity, determined by expensive imaging technologies. But the second, low HDL, is readily measured by performing a blood lipid profile.³

—Dale Kiefer

Reference

1. Koro CE, Bowlin SJ, Stump TE, Sprecher DL, Tierney WM. The independent correlation between high-density lipoprotein cholesterol and subsequent major adverse coronary events. *Am Heart J.* 2006 Mar;151(3):755-755.
2. Brewer HB Jr. Rising to the challenge of the new NCEP ATP III guidelines: exceeding current therapeutic limitations. *Am J Manag Care.* 2002 Feb;8(2 Suppl):S23-8; discussion S45-7.
3. Miller M, Seidler A, Kwiterovich PO, Pearson TA. Long-term predictors of subsequent cardiovascular events with coronary artery disease and "desirable" levels of plasma total cholesterol. *Circulation.* 1992 Oct;86(4):1165-70.

Soy, Stevia Counter Metabolic Syndrome



The combination of soy protein and stevioside, a derivative of the leaves of the stevia plant (*Stevia rebaudiana*), may counteract the numerous biochemical manifestations of metabolic syndrome, according to a recent report in the journal *Metabolism*.*

Afflicting more than 50 million Americans, metabolic syndrome is characterized by insulin resistance, hypertension, elevated triglycerides, and diminished high-density lipoprotein (HDL).

Animal studies have shown that stevioside lowers blood pressure and blood glucose, while soy protein is known for its beneficial effects on cardiovascular disease risk markers in type II diabetes. Stevia leaf is a calorie-free natural sweetener. Danish researchers sought to determine whether the combination of soy protein and stevioside would offer benefits in treating type II diabetes and metabolic syndrome.

In this 10-week study, male diabetic rats were randomly assigned to four groups fed different test diets. The control group received a standard carbohydrate-rich chow diet, while the other groups received either standard chow plus stevioside, half chow and half soy protein, or half chow and half soy protein plus stevioside. Each week, the researchers measured plasma glucose, blood pressure, weight, and food intake in the test subjects.

After two weeks of treatment, the stevioside-supplemented rats demonstrated reductions in systolic blood pressure and blood glucose levels. The rats supplemented with soy protein demonstrated reductions in total cholesterol, triglycerides, and free fatty acids.

The researchers concluded, "The combination of stevioside and soy supplementation appears to possess the potential as an effective treatment of a number of the characteristic features of the metabolic syndrome."

—Christie C. Yerby, ND

Reference

* Dyrskog SE, Jeppesen PB, Colombo M, Abudula R, Hermansen K. Preventative effects of a soy-based diet supplemented with stevioside on the development of the metabolic syndrome and type 2 diabetes in Zucker diabetic fatty rats. *Metabolism*. 2005 Sept;54(9):1181-8.

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