



Stay Healthy!

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Our February 2007 Newsletter for Healthy Living

Better bones

Folic acid (vitamin B9), vitamin B12, magnesium, and potassium citrate improved bone health in several new studies on men, women, and children. A study in the *European Journal of Clinical Nutrition* found that folic acid combined with vitamin B12 reduced homocysteine, a chemical compound that doctors believe increases risk for bone disease (osteoporosis) and fracture. Researchers reporting in the *New England Journal of Medicine* followed nearly 2,000 patients with osteoporosis, aged 59 to 91, for 17.5 years and found that women and men with the highest homocysteine levels were twice as likely, and four times as likely, respectively, to have a hip fracture than were women and men



with the lowest levels.

Scientists from the University of California, San Francisco, studied 80 elderly women, average age 71, and found that women with the highest blood-fluid (serum) levels of vitamin B12 had significantly more hip bone mineral density (BMD) than women with the lowest levels.

In one of the first bone studies on children, reported in *The Journal of Clinical Endocrinology & Metabolism*, 120

Caucasian girls aged 8 to 14 volunteered to keep diet diaries. Girls whose daily diets had less than 220 mg of magnesium took 300 mg of elemental magnesium oxide per day, separately in two 150 mg capsules, or a placebo, for 12 months. Researchers measured bone mineral content (BMC) of the hip, thigh (femoral neck), and lower

(lumbar) spine at the start and end of the study and found that compared to placebo, girls who took magnesium before, during, and in the late stages of puberty had significantly increased hip BMC without side effects.

Researchers from the University of Basel, Switzerland theorized that modern diets have fewer fruits and vegetables, and more dairy, grains, and meats, which may cause chronic, mildly elevated blood acidity and lower BMD. In this new 12-month study, post-menopausal women, average age 59, who took 1,173 mg of potassium citrate—a non-acidic (alkaline) form—per day had a one-percent increase in BMD of the lumbar spine, a result similar to pharmaceutical treatments, and lower blood acidity.

Reference: *Journal of the American Society of Nephrology*, 2006, Vol. 7, No. 11, 3213-22.

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News & Research This Issue

- Supplements improved bone health.
- Pycnogenol® strengthened blood vessels in diabetics.
- Multivitamins improved health in pregnancy.
- Cinnamon reduced risk of diabetes.
- Selenium lowered risk of bladder cancer.
- Grape seed extract protected blood cells.
- Melatonin aided sleep and reduced tinnitus.

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Great grape seed!

Grape seed extract, a rich source of antioxidants, **protected cells** that line the inner walls of blood vessels (endothelial cells) **from oxidative damage**, according to a new study. Researchers from Utrecht University, Netherlands, grew (incubated) endothelial cells in a laboratory test tube (*in vitro*), with grape seed extract and found that **these cells had 75% less oxidative damage than cells incubated without grape seed extract.**

Grape seed extract contains antioxidants known as **oligomeric proanthocyanidins (OPCs)**, which are water-soluble, yet the scientists noted that **OPCs protected against non-water-soluble (lipid) oxidation** in the study. Oxidation, doctors believe, causes inflammation and hardening of the arteries (atherosclerosis), and contributes to high cholesterol and heart (cardiovascular) disease. The U.S. Department of Agriculture recommends OPCs in the diet, and several studies have shown benefits with doses ranging from 100 mg to 300 mg per day.



Reference: The 14th Annual International Inflammation Research Association Conference; 2006, Maryland, U.S.

This Month's **HEALTHY Tip**

Patients who took melatonin, a natural sleep hormone secreted by the pineal gland in the brain, **had less ringing in the ears (tinnitus) and better sleep**, according to findings from a new study. Doctors recruited 24 tinnitus patients who took **3 mg of melatonin per day for four weeks**, and observed the patients for an additional four weeks. Subjects reported **18.6% fewer tinnitus symptoms and 36.7% better quality of sleep** after four weeks. Patients who had the worst sleep before the study improved the most. The tinnitus was idiopathic, meaning that doctors could not identify a cause. The researchers are planning a larger, placebo-controlled trial to confirm these results.



Reference: *Otolaryngology-Head and Neck Surgery*, Vol. 134, 210-3.

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Improving diabetes

In a new study, **diabetics who took Pycnogenol[®], an antioxidant extract of French maritime pine bark, had significantly stronger small blood vessels (capillaries)** compared to those who took a placebo. Researchers from the Gabrielle d'Annunzio University, in Chieti and Pescara, Italy, noted that **all diabetics have weak capillary walls**, a condition known as diabetic microangiopathy (DM). Damaged capillaries can leak blood and protein, slowing blood flow, and causing clotting and swelling (edema) in the limbs. In severe cases, those with DM may lose vision, and may develop leg ulcers that require amputation.



All 60 DM patients, aged 55 to 68, had used insulin for at least three years, and had no history of diabetic ulcerations. In the four-week trial, half the group took **150 mg of Pycnogenol, in three separate 50 mg capsules per day**, while the other half took a placebo. The scientists measured blood flow, first while patients were lying down (prone), then while standing up, a transition that increases pressure, causing some capillaries to fail in those with DM.

Patients who had taken Pycnogenol showed a 34% increase in capillary blood flow while lying down, compared to a

4.7% increase in the placebo group, **and a 68% improvement in capillary blood flow while standing**, compared to an 8% improvement for placebo. Researchers also measured **swelling at the ankle**—to calculate capillary leakage, which occurs 10 minutes after standing up from a prone position—and found that **those who had taken Pycnogenol were 17% less swollen**, compared to 2.6% less swelling in the placebo group.

The doctors noted that the rapid strengthening of the capillaries was clinically remarkable, and concluded that Pycnogenol may prevent diabetic ulcerations, and can help control and treat DM.

Reference: Angiology, 2006, Vol. 57, No. 4, 431-6.

Healthier pregnancy

Women who took **multivitamins before and during early pregnancy were less likely to have high blood pressure, swelling from excess lymph fluids, and kidney damage**, together a set of pregnancy symptoms known as **preeclampsia**. Over the course of 15 years, researchers from the Department of Epidemiology at the University of Pittsburgh, Pennsylvania, enrolled 1,835 women—all of whom were less than 16 weeks pregnant at the time—in the Pregnancy Exposures and Preeclampsia Prevention Study. Researchers determined whether the **women had used multivitamins or prenatal vitamins** within the six months prior to enrolling in the study, and found that those who had taken vitamins were **45% less likely to have preeclampsia**

compared to those who had not taken vitamins.

The scientists adjusted for factors including race, ethnicity, income, marital status, the number of times a woman had given birth (parity), physical activity before pregnancy, and weight, and found that women who were overweight before pregnancy did not benefit from taking multivitamins. Researchers removed the overweight women from the statistics and found that **non-overweight (lean) women who took vitamins were 71% less likely to develop preeclampsia** than lean women who did not. The doctors reviewed the diets of the women, and found that **those who ate fewer fruits and vegetables**

tended to be overweight, a finding that supported the conclusions of the study.

Preeclampsia occurs only in pregnancy and symptoms include blood pressure of at least 140/90, protein in the urine—which indicates kidney damage—and swelling in the feet, hands, and face, as excess lymph fluid builds up in the body. The doctors concluded that taking multivitamins before and at the time of conception (periconception) may help prevent preeclampsia, particularly in lean women.



Reference: American Journal of Epidemiology, 2006, Vol. 164, No. 5, 470-7.

Cinnamon helps absorb sugar

An extract of **cinnamon reduced risk for diabetes** in pre-diabetic volunteers, according to results from a new study. Researchers recruited 24 participants who had slightly raised blood sugar levels after not eating for 8 to 14 hours, a condition known as **impaired fasting glucose**, which is a risk factor for diabetes.

In the double-blind trial, doctors from the Joseph Fourier University, Grenoble, France, randomly assigned the recruits to take **500 mg of standardized cinnamon extract**, in two 250 mg capsules per day, or a placebo, for 12 weeks. At the end of the study,

scientists found that, compared to placebo, **those who had taken cinnamon had less cell damage (oxidative stress) and higher blood-fluid (plasma) levels of antioxidants**, factors which the doctors believe are related to the ability of the body to convert glucose into energy (insulin sensitivity). There were no changes in the placebo group. The researchers stated that this was the first study to test the antioxidant effects of cinnamon in humans.

In a related study in the July, 2006, issue of the *European Journal of Clinical Investigation*, researchers from the University of



Hannover, Germany followed **79 type 2 diabetic patients who took 3 grams of standardized cinnamon extract capsules per day**, or a placebo, for four months. At the end of the study, **fasting plasma glucose levels dropped by an average of 10.3% for those who had taken cinnamon** compared to a 3.4% drop in the placebo group. Doctors pointed out that those who had the highest fasting plasma glucose levels at the start of the study saw the largest drop in plasma glucose.

Reference: The 47th Annual American College of Nutrition Conference; October, 2006, Reno, Nevada, U.S.

Selenium and cancer

People with higher blood-fluid (serum) levels of selenium, the essential trace mineral, **had significantly lower risk for bladder cancer**, according to findings from a new Belgian study. Doctors conducted a case-control study that examined 178 persons with bladder cancer (cases) and 362 persons without bladder cancer (controls). The researchers took into account age, sex, smoking habits, and occupational hazards, and measured fruits and vegetables in the diet, as well as levels of vitamins A (retinol), C, and E, and total antioxidants in the blood.

After adjusting for these factors, scientists determined that **those who had the highest levels of selenium—more than 96 mcg per liter of blood (mcg/l)—were 70% less likely to develop bladder cancer** as were those who had the

lowest levels of selenium; less than 82.4 mcg/l. Doctors also found that those in the middle group, whose selenium levels were between 82.4 mcg/l and 96 mcg/l, had 52% less risk of developing bladder cancer compared to those with the lowest

lower death rates for cancer in regions of the U.S. with high levels of selenium. The first double-blind selenium-cancer study began in 1983 when researchers recruited 1,312 patients with histories of skin cancer at seven

“Selenium reduced risk of bladder cancer by 70%.”

levels. The researchers pointed out that, **for each 10 mcg/l increase in the selenium level, the risk for bladder cancer dropped by 14%.**

The average person has about one liter of blood per 30 pounds of body weight.

According to the September, 2006, issue of *Lancet Oncology*, researchers first noticed the connection between selenium and cancer 40 years ago, when geographic studies reported

dermatology clinics located in low-selenium areas of the U.S. Doctors administered 200 mcg of selenium per day—about twice the average amount Americans consume—or a placebo, and followed up 10 years later. While results were not significant for skin cancer, **there were 41% fewer total cancers, and 18% fewer deaths from cancer for selenium users** compared to placebo.

Reference: *International Journal of Urology*; 2006, Vol. 13, No. 9, 1180-4.

