

High Vitamin C Levels May Reduce The Threat of Lead Poisoning

Lead poisoning remains a leading public health problem. In the United States alone, an estimated three to four million children suffer from lead poisoning, and even larger numbers have exposures that can interfere with brain development.

Calcium EDTA and other chelating compounds are standard treatments for lead poisoning. However, a new study points to vitamin C as a potentially simple and effective means of reducing lead levels.

Joel A. Simon, MD, and Esther S. Hudes, PhD, of the Veterans Affairs Medical Center, San Francisco, studied 22 youths and 57 adults with elevated blood levels of lead. Their study was based on data from the Third National Health and Nutrition Examination Survey (NHANES III).

Simon and Hudes found that people with the highest blood levels of vitamin C were the least likely to have elevated lead levels. Among youths ages 6-16, high blood levels of vitamin C were associated with an 89 percent reduced risk of elevated lead. Similarly,

Vitamin E Boosts Immune Function

In many people, immune function declines with age. This decline may be partly offset by supplementation with vitamin E.

Evert Schouten, PhD, of Agricultural University Wageningen, Netherlands, studied 161 healthy elderly subjects who were given either 50 mg or 100 mg of vitamin E or a placebo for six months. Their immune function was measured using delayed-type hypersensitivity (DTH) skin tests.

Overall, 100 mg of vitamin E, but not 50 mg, improved immune responsiveness in the elderly subjects.

However, the greatest benefits were noted in subjects with a low initial DTH skin tests as well as those who were physically less active. After supplementation, these people demonstrated the greatest degree of change in immune responsiveness to challenges.

Reference: Pallast EG, Schouten EG, Waart de FG, et al., "Effect of 50- and 100-mg vitamin E supplements on cellular immune function in noninstitutionalized elderly persons," *American Journal of Clinical Nutrition*, 1999;69:1273-1281. □

adults with high vitamin C levels were 65 to 68 percent less likely to have elevated lead in their blood.

In adults, each 10 mg increase in dietary vitamin C was associated with a 3.5 percent decrease in the risk of elevated blood lead levels. In youths, there was no significant relationship between dietary vitamin C and lead.

"Although it is biologically plausible that ascorbic acid may affect lead absorption and excretion, it is possible that blood lead may lower serum ascorbic acid levels," Simon and Hudes wrote.

Reference: Simon JA and Hudes ES, "Relationship of ascorbic acid to blood lead levels," *JAMA*, 1999;281:2289-2293. □

Pine Bark Extract Reduces Blood Clotting, Heart Risks

An antioxidant supplement obtained from the bark of French maritime pine trees can reduce several risk factors for cardiovascular disease, according to a medical review article by Ronald R. Watson, PhD, of the University of Arizona, Tucson.

Watson noted that population studies have found that fruits and vegetables reduce the risk of cardiovascular diseases. These foods are rich in antioxidant flavonoids similar to those found in Pycnogenol®, the French bark extract.

The review noted that Pycnogenol® can quench several key free radicals, including hydroxyl, superoxide, and nitric oxide radicals. Pycnogenol can prevent free radical oxidation of the low-density lipoprotein (LDL) form of cholesterol and help maintain normal function of blood vessels.

According to Watson, one of the principal effects of Pycnogenol® is a reduction of platelet aggregation, or blood cell stickiness. By reducing platelet aggregation, Pycnogenol® functions as a natural, mild anticoagulant.

In a study of smokers, Watson found that cigarettes increased platelet aggregation. "The prevention of abnormal platelet aggregation after smoking followed a clear dose response relationship, starting from 25 mg [of Pycnogenol®]," he wrote. "The maximum effect, the complete prevention of

Continues on next page

abnormal platelet aggregation, was achieved with 200 mg extract from the bark of the French maritime pine...the...effects persisted more than six days after intake of a single 200 mg dose."

Reference: Watson RR, "Reduction of cardiovascular disease risk factors by French maritime pine bark extract," *Cardiovascular Reviews and Reports*, 1999;20:326-329. □

Hypericin May Reduce Inflammation

Hypericin, one of the principal constituents of the herb St. John's wort (*Hypericum perforatum*), may be useful in reducing inflammation.

In a study conducted at the University of Freiburg, Germany, researchers investigated the effect of hypericin, hyperforin (another compound found in St. John's wort, and an extract of the whole herb on nuclear factor-kappa B (NF-kappa B).

NF-kappa B is a genetic transcription factor that activates proinflammatory genes.

The researchers found that hypericin inhibited the activity of NF-kappa B. However, hyperforin and the whole herb extract did not.

Reference: Bork PM, Bacher S, Schmitz ML, "Hypericin as a non-antioxidant inhibitor of NF-kappa B," *Planta Medica*, 1999;65:297-300. □

Vitamin C Blocks Tobacco Damage

Endothelial dysfunction—essentially, the inability of blood vessels to relax—is a risk factor for coronary heart disease. In a recent animal study, researchers found that cigarette smoke promoted endothelial dysfunction, but that supplemental vitamin C was protective.

The researchers, from the University of California Medical Center, Los Angeles, exposed rabbits to cigarette smoke for several hours daily for eight weeks. Some of the rabbits received supplemental vitamin C.

Animals that received vitamin C had significantly increased endothelial relaxation.

Mays BW, Freischlag JA, Eginton MT, et al., "Ascorbic acid prevents cigarette smoke injury to endothelium-dependent arterial relaxation," *Journal of Surgical Research*, 1999;84:35-39. □

Broccoli High in Sterols

Plant sterols, which are being added to some brands of margarine, are well documented for their ability to reduce cholesterol levels. Unfortunately, margarines are high in trans fatty acids, which are similar to saturated fats and increase the risk of heart disease.

Sterols are naturally found in fruits and vegetables, and Swedish researchers recently analyzed 20 different vegetables and 14 fruits. The highest

vegetable sources of sterols were broccoli, Brussels spouts, cauliflower, and olives. The highest fruit sources were oranges and passion fruit.

Reference: Normen L, Johnsson M, Andersson H, et al., "Plant sterols in vegetables and fruits commonly consumed in Sweden," *European Journal of Nutrition*, 1999;38:84-89. □

Briefly Noted...

• Echinacea reduces common cold symptoms

In a study of 246 adults with colds, researchers found that six daily tablets of an echinacea supplement, Echinaforce®, produced a greater reduction in 12 symptoms compared with placebo.

Brinkeborn RM, et al., *Phytotherapy*, 1999;6:1-6.

• Vitamin C prevents electrical shock injury

High-voltage electrical shocks can result in extensive muscle and nerve tissue damage. In an animal study, researchers found that intravenously administered vitamin C significantly improved the recovery of muscle cells after electrical shock.

Abramov G, et al., *Proceedings of the 19th Annual International Conference of the IEEE Engineering in Medical and Biology Society*, 1999;19:2474-2475.

• Phytoestrogens ease some menopausal symptoms

Phytoestrogens, such as the isoflavones found in soy foods, may ease hot flashes in two-thirds of women who take them. Because phytoestrogens lower cholesterol levels, they may reduce the risk of heart disease. Based on published research, they do not appear to improve vaginal dryness.

Eden J, *Baillieres Clinical Endocrinology and Metabolism*, 1999;12:581-587.

• Pistachio nuts reduce cholesterol levels

Researchers asked patients with elevated cholesterol to substitute 20 percent of their daily caloric intake with pistachio nuts. After three weeks, total cholesterol decreased and the "good" HDL cholesterol increased.

Edwards K, Kwaw I, Matud J, et al., *Journal of the American College of Nutrition*, 1999;18:229-232.

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