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IN THE NEWS

Increasing Fiber Intake May Slow Atherosclerosis



New research supports the hypothesis that fiber retards the progression of cardiovascular disease through its effect on lipids. Published in the *American Journal of Clinical Nutrition*, the findings were obtained from the Los Angeles Atherosclerosis Study, a prospective study that is investigating fiber's ability to help combat atherosclerosis.*

In the study, 500 men and women between the ages of 40 and 60 with no history of cardiovascular events received baseline examinations and were followed for three years. Dietary information was obtained through oral and telephone interviews at the beginning of the study and at the first follow up at 18 months. Intima-media thickness of the common carotid arteries (a measure of atherosclerosis) was determined by ultrasound examination at the study's onset, at 18 months, and at three years. Blood samples taken at all three examinations provided data on serum lipids.

The median total fiber intake in the fifth of the study population with the highest fiber intake was found to be twice that of the fifth with the lowest fiber intake. Intima-media thickness progression declined with an increase in fiber intake. The trend was significant for viscous (soluble) fiber found particularly in fruits and vegetables, and in pectin. Controlling for the intake of fruit and vegetables, which have other anti-atherogenic constituents, did not alter the findings.

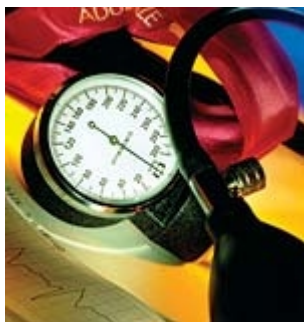
Increased high-density lipoprotein (HDL) levels were correlated with an increase in total fiber, viscous fiber, and pectin. Additionally, the ratio of total cholesterol to HDL improved with greater total fiber, viscous fiber, and pectin intake. The study authors concluded: "The present study suggests that increased dietary fiber intake has significant cardiovascular benefit and that the regulation of serum lipids by dietary fiber may be partially involved in the process of slowing the progression of atherosclerosis."

—Dayna Dye

Reference

* Wu H, Dwyer KM, Fan Z, Shircore A, Fan J, Dwyer JH. Dietary fiber and progression of atherosclerosis: the Los Angeles Atherosclerosis Study. *Am J Clin Nutr.* 2003 Dec;78(6):1085-91.

Potassium Supplementation Reduces Blood Pressure



Previous research has associated low potassium intake with higher rates of hypertension and related complications. In a study recently published in the *British Journal of Nutrition*, researchers at King's College London found that a daily supplement of potassium is effective in reducing blood pressure.*

The double-blind, placebo-controlled trial enrolled 59 volunteers who were randomly assigned to receive either 24 mmol/day (approximately 1.8 grams) of a slow-release potassium chloride supplement or placebo. Six weeks later, mean arterial pressure was reduced in the potassium-supplemented group by 7.01 mmHg, systolic blood pressure was lowered by 7.60 mmHg, and diastolic blood pressure dropped by 6.46 mmHg. The researchers concluded that a daily dietary supplement of potassium, equivalent to the content of five portions of fresh fruits and vegetables, induces a substantial reduction in mean arterial pressure, similar in effect to single-drug therapy for hypertension.

Editor's Note: Anyone taking this much potassium should have their doctor monitor blood potassium levels.

—Carmia Borek, PhD

* Naismith DJ, Braschi A. The effect of low- dose potassium supplementation on blood pressure in apparently healthy volunteers. *Br J Nutr.* 2003 Jul;90(1):53-60.

B Vitamins Lower Dangerous Homocysteine Levels

Elderly people are more likely to have B-vitamin deficiencies than younger people. While diet plays an important role, the elderly's greater use of prescription drugs and lower vitamin bioavailability also contribute to these deficiencies. In addition, the activity of enzymes involved in vitamin metabolism declines 25% between the ages of 18 and 90. Because homocysteine is a risk factor for coronary artery disease—and one that increases with advancing age—scientists are exploring how B vitamins may influence homocysteine levels.



Researchers at Germany's University of Hanover evaluated the dietary intake and blood status of 178 German women aged 60 to 70 years old.* The study participants completed a three-day diet record that assessed their energy and nutrient intakes. This was compared to the corresponding recommended dietary allowance (RDA) for older women. Blood samples were drawn after an overnight fast and used to measure the levels of thiamine (B1), riboflavin (B2), pyridoxine (B6), cobalamin (B12), folate, and homocysteine.

Riboflavin intake was sufficient for the most part, with only 2% of the study participants below the RDA. By contrast, more than 82% of the women had a folate intake below the RDA. Blood levels of cobalamin, thiamine, and pyridoxine were below the respective RDAs for these vitamins in 42%, 29%, and 17% of the women, respectively. Plasma homocysteine was dramatically elevated in 17% of the study participants. Because the subjects had above-average levels of education, the researchers speculated that poor B-vitamin status might be even more prevalent in the general population.

This study found significantly higher homocysteine levels when both folate and cobalamin were low. Supplementation with B vitamins is therefore advisable, as is a follow-up test of homocysteine levels to ensure that your vitamin intake is appropriate.

Reference

* Wolters M, Hermann S, Hahn A. B vitamin status and concentrations of homocysteine and methylmalonic acid in elderly German women. *Am J Clin Nutr.* 2003 Oct;78(4):765- 72.

IN THE NEWS

Resveratrol Investigated as Treatment for Lung Disease

Researchers at the National Heart and Lung Institute in London, England, are examining resveratrol as a possible treatment for chronic obstructive pulmonary disease, a condition usually caused by cigarette smoking. No effective treatment currently exists for this progressive disease.



Preliminary data indicate that resveratrol may work better than dexamethasone, a corticosteroid drug sometimes used to treat chronic obstructive pulmonary disease. When resveratrol was added to lung cells taken from people with chronic obstructive pulmonary disease, inflammatory factors were reduced 79-94%.¹ While both resveratrol and dexamethasone inhibit inflammation that damages lung cells, only resveratrol blocks IL-8, a factor that is highly elevated in patients with chronic obstructive pulmonary disease. Moreover, resveratrol, unlike dexamethasone, has no side effects. Researchers say the only drawback involving resveratrol is achieving and maintaining sufficient levels of this phyto-vitamin in the lungs.

Resveratrol is emerging as an important agent in the prevention and treatment of several serious conditions. Scientific studies have documented its anti-inflammatory effects, from reversing inflammatory damage to blood vessels to halting the spread of cancer.²

—Terri Mitchel

Reference

1. Culpitt SV, Rogers DF, Fenwick PS, et al. Inhibition by red wine extract, resveratrol, of cytokine release by alveolar macrophages in COPD. *Thorax*. 2003 Nov;58(11):942-6.
2. Kimura Y, Okuda H. Resveratrol isolated from *Polygonum cuspidatum* root prevents tumor growth and metastasis to lung and tumor-induced neovascularization in Lewis lung carcinoma-bearing mice. *J Nutr*. 2001 Jun;131(6):1844-9.

Lycopene Inhibits Growth of Normal Prostate Cells



The dietary carotenoid lycopene has been demonstrated in several studies to be associated with a reduction in prostate cancer cell growth. In the first study to test the effects of lycopene on noncancerous cells, researchers from the University of California at Davis found that lycopene also has an inhibitory effect on the growth of normal prostate epithelial cells *in vitro*.^{*} The researchers speculate that lycopene could have preventive or therapeutic benefits in benign prostate hyperplasia (enlargement of the prostate gland), which frequently occurs in older men and may precede the development of prostate cancer.

In the study, a solution of varying concentrations of synthetic lycopene was added to normal prostate epithelial cells. Control cell cultures received the solution without lycopene or no treatment. Lycopene was found to significantly and dose-dependently inhibit prostate epithelial cell growth in concentrations of 1 micromole per liter or greater. At a concentration of 2 micromoles per liter, an approximate 80% inhibition of prostate epithelial cell growth was achieved. This degree of growth inhibition is greater than that previously reported for lycopene when tested on prostate cancer cells.

While studies have found a 20-25% inhibition in growth on several prostate cancer cell lines using 5 micromoles per liter of lycopene, the UC-Davis study found a 20% reduction in normal cells at only 0.3 micromoles per liter.

Lycopene is one of the carotenoid compounds that preferably accumulate in the human prostate. If lycopene inhibits prostate cell growth *in vitro*, it is reasonable to anticipate that it may also be found to do so in the body. By inhibiting normal prostate cell proliferation, lycopene consumption could reduce the risk of developing prostate cancer.

—Dayna Dye

Reference

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