

## **Supplementing Diet With Fruits And Vegetables, Rather Than Vitamins, Provides Needed "Antioxidants"**

DALLAS, Dec. 1 -- Instead of popping vitamin pills, the addition of a few more servings of fruits and vegetables and lowering fat in the diet may help stave off a disease process which leads to heart attack and stroke, researchers say. In today's *Circulation: Journal of the American Heart Association*, scientists at Johns Hopkins University in Baltimore report that people who ate a low-fat diet rich in fruits and vegetables were able to better protect against oxidation of lipids, a form of fat in the bloodstream. Blood lipids are altered, or oxidized, when exposed to oxygen free radicals. This process, atherosclerosis, clogs blood vessels, which inhibits blood flow and causes heart attacks or strokes.

The study's lead author, Edgar R. Miller, III, M.D., Ph.D., says that a change in eating habits, rather than supplementing a diet with "antioxidant" vitamins, provides the body with ample amounts of carotenoids and other naturally occurring antioxidants, which inhibit the oxidation of lipids that ultimately leads to atherosclerosis.

"These results support the hypothesis that diets rich in fruits and vegetables can increase the antioxidant capacity of blood, which protects against lipid oxidation," says Miller, of the Welch Center for Prevention, Epidemiology, and Clinical Research at The Johns Hopkins Medical Institutions, Baltimore. "Such links between healthy dietary patterns and reduced rates of lipid oxidation contribute to a better understanding of the role of diet in atherosclerosis.

"This study provides additional scientific rationale for recommendations to increase the consumption of fruits and vegetables and reduce dietary fat intake as a means to prevent atherosclerotic cardiovascular disease," he adds. This research was done as part of the DASH (Dietary Approaches to Stop Hypertension) clinical trial, which previously demonstrated a favorable impact of certain diets on blood pressure.

Researchers studied 123 healthy people enrolled in the DASH study over 11 weeks to determine how diet affected lipid oxidation. During the first three weeks of the trial, study participants ate a control diet low in fruits, vegetables and dairy products, with 37 percent of calories coming from fat. The control diet had about four servings of fruits and vegetables per day.

After eating the control diet for three weeks, participants were randomly assigned to one of three diets, which they followed for eight weeks. One group of 40 people continued on the control diet. A second group of 42 people ate a diet similar to the control diet, but it contained about nine servings of fruits and vegetables per day and was rich in potassium, magnesium and fiber. The remaining 41 people ate a combination diet,

emphasizing fruits and vegetables -- about 10 servings a day -- low-fat dairy products, and other reduced-fat foods. Scientists measured breath ethane levels of those who participated in the study. Breath ethane is an end-product of the oxidation of polyunsaturated fatty acids in the bloodstream. Breath ethane is also a measurement of how well the body is able to neutralize oxygen-free radicals in the bloodstream. Breath and blood collection was done at the end of the first three weeks of the study and at the end of the study.

Those on the diets emphasizing fruits and vegetables showed a greater capacity to neutralize oxygen-free radicals and had significantly lower breath ethane. This finding, says Miller, indicates increased protection by naturally occurring antioxidants and less lipid oxidative damage.

Miller says that people should not be screened for breath ethane as a substitute for screenings for high blood pressure or high cholesterol.

"That would be pretty far down the road, if ever," he says. "This is better used in clinical research, not as a screening tool."

The research was supported by grants from the National Institutes of Health and the American Heart Association. Co-authors are Lawrence J. Appel, M.D., and Terence H. Risby, Ph.D.