

## **Low Vitamin C Increases Stroke Risk**

June 7, 2002 -- Need another reason to juice up your morning routine? As little as a half a glass of orange juice a day may be enough to help prevent a stroke. A new study shows not getting enough vitamin C in your diet can increase the risk of stroke, especially among men with high blood pressure or who are overweight.

Researchers found that men with the lowest levels of vitamin C in their blood were nearly two and half times more likely to have a stroke than were men who had the highest levels of vitamin C in their blood. And the risk grew if the man had high blood pressure or was overweight.

The complete report appears in the June issue of *Stroke: Journal of the American Heart Association*.

Although previous studies that looked at whether vitamin C protects against stroke have not been very convincing, study author Sudhir Kurl, MD, of the Research Institute of Public Health in Finland, says this study is different. Rather than measuring vitamin C intake from supplements and dietary sources as in prior studies, they measured the amount of vitamin C actually circulating in the blood in 2,419 men who were followed for about 10 years.

"Other studies analyzed on the basis of fruit and vegetable intake, but we did our study on the basis of [blood concentrations of] vitamin C, which we consider to be a better marker of the availability of vitamin C in the body," says Kurl.

Researchers say vitamin C is a potent antioxidant that may work to reduce the risk of stroke in a number of different ways. As an antioxidant, it reduces the effects of damaging substances in the body known as free radicals, which have been linked to heart disease, cancer, and stroke. In addition, vitamin C helps protect the arteries against damage and lowers blood pressure and cholesterol levels.

Kurl says older adults may benefit most from the findings of this study by increasing their daily dose of vitamin C and eating a well-balanced diet rich in fruits and vegetables.

"Stroke is a disease of older people, and they are the ones that are suffering the most. And many of them are not eating a well-balanced diet," says Kurl. "A minimum of a half glass of juice [that contains vitamin C, such as orange juice] per day could contribute to this reduction in risk."

Registered dietician Jo Ann Hattner, spokesperson for the American Dietetic Association, agrees that incorporating more vitamin C rich foods is the best way to get the most out of this powerful vitamin.

Both Hattner and Kurl say previous studies have shown that taking vitamin C supplements doesn't necessarily have the same protective effects as getting your daily dose of vitamin C from fruits and vegetables.

"We like to think that vitamin C in natural sources has some special synergy and works with other elements in the food to make it more effective in creating a line of defense," Hattner tells WebMD.

"The problem with the elderly is that they may not want the acidity in their diet and may avoid orange juice," says Hattner.

Acidic foods, such as citrus fruits, can cause heartburn or acid reflux (a back-up of stomach acids into the esophagus) in some people. But Hattner says eating or drinking citrus products with other foods can minimize this effect.

Even squeezing some lemon or lime juice on salads or vegetables can add an extra dose of vitamin C to your diet, suggests Hattner. Other, lesser-known sources of vitamin C that people often overlook include strawberries, cantaloupe, papaya, broccoli, and cabbage.

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