Flavonols—naturally occurring antioxidants found especially in beans, onions, apples and tea—may dramatically reduce the recurrence of advanced adenomas, the polyps that are associated with colorectal cancer. A fresh look at data from a randomized dietary intervention trial of more than 2,000 men and women reveals that those consuming the most flavonols were 76% less at risk than those with the lowest flavonol intake.

Flavonols are a subgroup of plant compounds called flavonoids. The findings, published in Cancer Epidemiology Biomarkers & Prevention, add to a growing body of evidence linking consumption of fruits and vegetables rich in flavonoids to cancer protection.

Led by Gerd Bobe, PhD, of the National Cancer Institute, the researchers employed a newly updated flavonoid database from the US Department of Agriculture (USDA). The update provides values for 26 selected flavonoid compounds in 393 foods. Researchers applied the new database to food-frequency questionnaires compiled by the Polypr Prevention Trial, a randomized dietary intervention that examined the effect of a low-fat, high-fiber, high-fruit and high-vegetable diet on adenoma recurrence. Bobe and colleagues analyzed participants’ diets for total flavonoid consumption, six flavonoid subgroups and 29 individual flavonoids. They then compared this new breakdown to subjects’ risk of adenoma recurrence.

The study found no association between total flavonoid intake and adenoma risk. But a sharp difference emerged between the one-quarter of participants consuming the most flavonols and the quarter with the least. Similar but smaller inverse associations—the more that people consumed, the less their risk—were observed for kaempferol, a specific flavonol found in plants such as beans and arugula; isoflavonoids in general; and two specific isoflavonoids, genistein and for-mononolin, found in soy products.

It is important to note that this study was conducted among people with a history of colorectal adenoma; it measured rate of recurrence, not primary prevention of colorectal cancer. A strong dose-response relationship was not found, as the results were significant only in comparing top and bottom quartiles of intake.

Without a degree in biochemistry, in any case, it can be a challenge to keep straight flavonols and flavonoids and all their chemical kin in order to decide what to eat. If you concentrate on eating a diet high in vegetables and fruits (and maybe washing it down with some tea), you can do your body good without breaking out a textbook at every meal.

Antioxidants from Produce May Protect Esophagus

Add a healthy gullet to the bountiful benefits of eating lots of fruits and vegetables. A new study reports that high dietary intake of antioxidant vitamins C and E and beta-carotene, linked to produce consumption, is associated with sharply lower risk of Barrett’s esophagus, a precursor to esophageal cancer.

Researchers led by Ai Kubo, PhD, of Kaiser Permanente in Oakland, Calif., compared 296 patients with Barrett’s esophagus (BE), 308 people with gastroesophageal reflux disease (GERD), and 309 healthy controls. Diet and dietary supplements were measured by a 110-item questionnaire.

“The study demonstrated that antioxidant intake was inversely associated with the risk of developing BE and that the effects appear to come mainly from dietary sources, rather than from supplemental sources,” Kubo and colleagues wrote in the American Journal of Gastroenterology. “Consumption of fruits and vegetables was strongly associated with a lower risk of BE.”

The one-fourth of subjects getting the most vitamin C from their diets were at 52% reduced risk of BE compared to the quarter with the least vitamin C. A similar relationship—44% risk reduction—was seen for dietary beta-carotene. The strongest inverse association—75% reduced risk of BE—was observed for dietary vitamin E.

But you’ll have to stroll down the produce aisle to get these benefits; popping a pill won’t do it. The researchers noted, “The discrepancy between dietary and total intake, as well as the lack of effect of supplement intake among those with low dietary intakes, indicates that the beneficial effects of fruits and vegetables cannot be fully explained by the intake of antioxidants per se. There are likely to be other, unmeasured compounds in fruits and vegetables that affect the early events in carcinogenesis.”

Kubo adds, “We also recently published a study showing that a ‘healthy’ dietary pattern (high in fruits and vegetables) was significantly related to lower risk of BE, while a ‘Western’ diet rich in processed food and dessert was associated with increased risk. These two papers make the strong argument that an overall diet rich in fruits and vegetables lowers the risk of BE, and you cannot make up for a poor diet simply by taking pills.”

In BE, some of the lining of the esophagus is replaced by a type of tissue similar to the intestine. A small number of BE patients develop a relatively rare but often deadly type of cancer of the esophagus; this risk is 30 to 125 times higher in those with BE.

The exact causes of Barrett’s esophagus are not known, but it’s thought to be connected to the same factors that cause GERD. The condition is estimated to affect about 700,000 US adults. The average age at diagnosis is 60.


TO LEARN MORE: Cancer Epidemiology Biomarkers & Prevention, June 2008; abstract at <cebp.aacrjournals.org/cgi/content/abstract/17/6/1344>. USDA Flavonoid Database <arsservo.tamu.edu/Servioes/docs.htm?docid=6231>