

BIOMEDICINE

From a meeting in San Francisco of the Federation of American Societies for Experimental Biology

Antioxidants preserve lung function

Several studies have shown that diets rich in antioxidants—chemicals that defuse free radicals and other biologically damaging molecular fragments in the body—appear to protect the heart (SN: 7/6/96, p. 6). A new study suggests that they also shield the lungs from damage. The difference in lung function between people who consume above-average amounts of four major antioxidants and those who consume lower-than-average amounts “is approximately equivalent to the difference between nonsmokers and people who have smoked a pack [of cigarettes] a day for 10 years,” explains Patricia A. Cassano of Cornell University, an author of the report.

Cassano and Guizhou Hu, also of Cornell, worked with newly released federal data collected as part of the third National Health and Nutrition Examination Survey. Using this representative cross-section of the U.S. population, which includes more than 18,000 people, they correlated each person’s dietary consumption of antioxidants with the volume of air he or she could forcefully expel in 1 second. This test of lung function serves as an indicator of pulmonary health, reflecting problems such as asthma, emphysema, and chronic bronchitis.

A few other studies, including some conducted in China by Cassano’s group, had turned up hints that diets high in various antioxidants might protect lung function. However, none of the studies had looked at the individual and combined effects of the most common dietary antioxidants: vitamin C and beta carotene, which are present in fruits and vegetables; vitamin E, found in plant-derived oils; and selenium, present in whole grains, meats, and nuts.

The new study’s biggest surprise, Cassano says, “was a finding that benefits of individual antioxidants were somewhat different in smokers.” For instance, while smokers derived more protection from selenium, nonsmokers benefited most from beta carotene. Indeed, she notes, among heavy smokers, “we see little or no effect [of beta carotene].”

Some recent studies have found that smokers who take beta carotene supplements appear to face an elevated risk of lung cancer—suggesting that a biological difference affects their response to the antioxidant, Hu says. “Our study confirms this, that there must be some biological interaction between beta carotene and smoking.”

—J.R.