Fruit, vegetables, and cancer prevention: a review of the epidemiological evidence.

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Approximately 200 studies that examined the relationship between fruit and vegetable intake and cancers of the lung, colon, breast, cervix, esophagus, oral cavity, stomach, bladder, pancreas, and ovary are reviewed. A statistically significant protective effect of fruit and vegetable consumption was found in 128 of 156 dietary studies in which results were expressed in terms of relative risk. For most cancer sites, persons with low fruit and vegetable intake (at least the lower one-fourth of the population) experience about twice the risk of cancer compared with those with high intake, even after control for potentially confounding factors. For lung cancer, significant protection was found in 24 of 25 studies after control for smoking in most instances. Fruits, in particular, were significantly protective in cancers of the esophagus, oral cavity, and larynx, for which 28 of 29 studies were significant. Strong evidence of a protective effect of fruit and vegetable consumption was seen in cancers of the pancreas and stomach (26 of 30 studies), as well as in colorectal and bladder cancers (23 of 38 studies). For cancers of the cervix, ovary, and endometrium, a significant protective effect was shown in 11 of 13 studies, and for breast cancer a protective effect was found to be strong and consistent in a meta analysis. It would appear that major public health benefits could be achieved by substantially increasing consumption of these foods.