



Role of Dietary Intake in Cancer Prevention

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DESCRIPTION

By the end of this century, cancer is expected to be the top cause of death in every nation on earth. Although it is believed that dietary factors play a significant role in determining cancer risk, it has proven difficult to pinpoint exactly how food affects cancer risk. Here the limited number of dietary components that have been shown to significantly affect the risk of cancers of the digestive system and other prevalent malignancies, as well as difficulties for future indagation.

Colorectal cancer

The third most prevalent cancer in the world is colorectal cancer. Alcohol and smoking both raise risk, as do being overweight or obese [1]. In 2015, the International Agency for Research on Cancer (IARC) classified processed meat as human carcinogenic and unprocessed red meat as probably carcinogenic, in part based on a meta-analysis reporting an increase in risk of 17% for each daily increment of 50 g in processed meat consumption and 18 percent for each daily increment of 100 g in red meat consumption

Nitrates and nitrites, which are used to preserve processed meat, may expose the stomach to more mutagenic N-nitroso compounds. Haem iron which may have a cytotoxic impact in the stomach and accelerate the synthesis of N-nitroso compounds is also present in both processed and unprocessed red meat [2]. High temperature meat cooking can produce polycyclic aromatic hydrocarbons and heterocyclic amines that are carcinogenic. It's uncertain which of these hypothetical pathways actually accounts for the link between consumption of red and processed meat and the risk of colorectal cancer.

A slight reduction in the incidence of colorectal cancer is linked to higher milk and calcium intake [3]. Calcium may offer protection by forming compounds in the intestinal lumen with secondary bile acids and hemoglobin. Higher levels of vitamin D in the blood are linked to a lower risk although this relationship may be complicated by other factors including physical exercise.

Genetically determined vitamin D has not been the subject of Mendelian randomization research that has proven a causal link.

In the 1970's the high consumption of dietary fiber in some parts of Africa was responsible for the low prevalence of colorectal cancer there. Increasing daily dietary fiber intake by 10 g is linked to a 10% reduction in the risk of colorectal cancer. Wholegrain cereals and cereal fiber are protective, but not fruit or vegetable fiber [4]. While adequate folate preserves genomic integrity and high folate may accelerate the growth of colorectal tumors, high folate intake has been linked to a lower risk of colorectal cancer. It's unclear whether folic acid or folate significantly affects the risk of colorectal cancer. Although the gene for methylenetetrahydro folate reductase has shown that lower circulation folate is related with a somewhat lower risk, the interpretation of these genetic findings is not simple. The majority of randomized trials of folic acid supplementation have revealed no impact.

Red meat and processed meat are likely to raise the risk of colon cancer, while dietary fiber, dairy products and calcium are likely to lower the risk.

Stomach cancer

Eastern Asia has the highest incidence of stomach cancer which is the fifth most frequent cancer worldwide. A higher risk is connected with eating a lot of salted foods such as salt-preserved fish [5]. This risk may be brought on by the salt itself or by carcinogens formed from the nitrites found in many preserved foods. Salted food may raise the likelihood of Helicobacter pylori infection, which is a known cause of stomach cancer and work in concert with other diseases to hasten their development. Eating a lot of pickled vegetables raises your risk of developing stomach cancer because these foods occasionally include mold or fungi which produce N-nitroso compounds.

Diets rich in fruits and vegetables and for those with high plasma concentrations of vitamin C may reduce the incidence of stomach cancer. Using the supplements of vitamin C, carotene or both may help precancerous lesions to regress more quickly.

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China, found that taking supplements of carotene, selenium and tocopherol significantly reduced the mortality rate from stomach cancer. Japan have also revealed a possible polyphenol-related inverse relationship between green tea drinking by women (the majority of whom do not smoke) and their risk of developing stomach cancer. These antioxidant micronutrients or other antioxidant chemicals play a protective effect although these correlations require further explanation.

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