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Protective Factors for Colorectal Cancer

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ABSTRACT

Aspirin and other nonsteroidal anti-inflammatory medicines (NSAIDs) have been shown in a large body of research to be protective against the growth of adenomas and colon cancer. the possible benefit of NSAIDs like aspirin in preventing CRC. Other protective factors have also been found, mostly through observational research, but the potency of some of these correlations is not clear. Dietary regimens of a certain kind may lower the risk of CRC.

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INTRODUCTION

The deadly condition known as colorectal cancer (CRC) is widespread. Both environmental and genetic variables affect the chance of getting CRC. Worldwide differences in CRC incidence and mortality rates are significant. According to the GLOBOCAN database of the World Health Organization, CRC is the second most frequently diagnosed cancer in women and the third most frequently diagnosed cancer overall in males. Men have significantly greater rates of incidence and mortality than women.[1, 2]

PROTECTIVE FACTORS

Physical activity: a large body of observational data and numerous systematic reviews have found a link between regular physical activity—either for work or recreation—and a reduced risk of CRC**.** [3]

Diet: Numerous epidemiological studies have demonstrated a link between a diet high in fruits and vegetables and a reduced risk of CRC. [4]

The risk of CRC has also been found to be considerably reduced in vegetarians compared to non-vegetarians, and the impact is stronger among pesco-vegetarians. [5]

Fiber: A role for dietary fiber in the pathogenesis of CRC has been discovered in a number of laboratory, nutritional, and epidemiological investigations. As a result of conflicting findings from epidemiological research, randomized trials, and meta-analyses of prospective observational studies, it is unclear to what extent dietary fiber prevents the growth of adenomas or CRC.

The World Cancer Research Fund's meta-analysis discovered that fiber type may be a significant impact, even if there are many other possible causes that could account for the variations between studies. In addition to this data, the Australian trial mentioned above used unprocessed wheat bran, which may be more efficient in delivering the advantages of cereal fiber compared to more processed forms and demonstrated a substantial reduction in advanced adenomas (alone). In the end, in the absence of prospective intervention studies, the level of dietary fiber protection, if any, is likely to remain unstable. [6]

Resistant starch: The term "resistant starch" refers to starch types that bypass small intestine digestion and enter the colon, where they are fermented and produce short-chain fatty acids. One of these fatty acids, butyrate, has anti-cancer effects in the colon. [7]

Folic acid and folate: The vitamin is present in foods naturally as foliate, while synthetically as folic acid, which is added to foods and supplements. The two might not be equal and result in the same in vitro effects depending on the metabolic pathways. [8]

Vitamin B6 (pyridoxine): The information at hand points to a tenuous link between increased intake of vitamin B6 (pyridoxine) and a reduced risk of CRC.**[9]**

Calcio and dairy products: A higher intake of calcium in the diet or through supplements is another potential protective factor. Calcium's ability to defend against conventional adenomas may be influenced by a person's genotype for the vitamin D receptor and/or by having normal vitamin D levels. [10]

Vitamin D: By influencing both incidence and progression, vitamin D and its metabolites prevent the progression of CRC in animal systems. Observational research, particularly long-term prospective studies and cross-sectional studies, have shown a connection between vitamin D deficiency and the

risk of developing several malignancies, including CRC. According to a World Health Organization investigation, colon cancer is the canine disease most closely linked to vitamin D deficiency. Additionally to these findings, some evidence also points to a link between vitamin D deficiency and mortality in CRC patients, both in cases of advanced metastatic illness and potentially treatable disease.. [11]

Magnesium: Studies on animals imply that dietary magnesium may affect how CRC develops. A population-based study from Sweden discovered a negative relationship between women's CRC risk and magnesium consumption.[12]

Garlic: Consuming garlic has been linked to a lower risk of colonic adenomas in both laboratory and observational studies of CRC patients. The World Cancer Research Fund and American Institute for Cancer Research have mentioned garlic as a potential preventive component, although a U.S. There is "very limited reliable evidence of a relationship between garlic consumption and reduced risk of colon cancer," according to the Food and Drug Administration (FDA).[13]

Fish consumption: Consumption of omega-3 fatty acids (mostly in the form of fish oil) has been linked in several observational studies to a decreased risk of colorectal neoplasia, however the evidence is inconsistent.. [14]

Aspirin and NSAIDs: The development of adenomas and colon cancer is thought to be prevented by aspirin and other nonsteroidal anti-inflammatory medicines (NSAIDs), according to a sizable body of evidence from observational and intervention trials. In people with average risk, regular use of aspirin and other NSAIDs is linked to a 20–40% reduction in the risk of colonic adenomas and CRC. [15]

Hormone therapy in women: Although data are more consistent for combination usage (with progesterone) than for unopposed estrogen, postmenopausal hormone therapy (both combined estrogen plus progestin and unopposed estrogen) has been linked to a decreased risk of CRC.. [16]

Antioxidants: The effectiveness of antioxidants in reducing colorectal adenomas has been examined in a number of intervention trials. No compelling evidence that antioxidant supplements had a substantial advantage in the main or secondary prevention of colorectal adenomas was discovered by a meta-analysis of eight controlled studies. [17]

Bisphosphonates: Osteoporosis is frequently treated with oral bisphosphonates. In two case-control studies and one cohort study, it was first hypothesized that extended use of bisphosphonates might lower the incidence of CRC; however, this hypothesis was not supported by a third case-control study or a sizable prospective cohort investigation. [18]

Angiotensin II inhibition: Angiotensin II is thought to play a role in the promotion of cancer formation, and there is evidence linking its suppression with decreased colon cancer cell proliferation in both in vitro and in vivo settings. However, a number of observational studies and secondary analyses of clinical trial data looking at the connection between antihypertensive medication with an ACE-I inhibitor and the incidence of CRC have produced contradictory findings. [19]

CONCLUSIONS

Despite the uncertainty, a protective diet can be described for clinical purposes as avoiding processed and charred meat, consuming vegetables (especially cruciferous), unprocessed wheat bran (debatable), getting enough folate from food, consuming fewer calories, and abstaining from excessive alcohol.

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