Abstract

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Folate and cancer prevention: a new medical application of folate beyond hyperhomocysteinemia and neural tube defects.

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BACKGROUND: Folate is an important cofactor in the transfer of one-carbon moieties and plays a key role in DNA synthesis, repair, and methylation. The role of folate has greatly evolved from the prevention of macrocytic anemia to the prevention of cardiovascular disease and neural tube defects. More recently, epidemiologic, animal, and clinical evidence suggests that folate may also play a role in cancer prevention.

FINDINGS: Two recently published large, prospective epidemiologic studies suggest that maintaining adequate levels of serum folate or moderately increasing folate intakes from dietary sources and vitamin supplements can significantly reduce the risk of pancreatic and breast cancer, respectively. This protective effect of folate appears to be operative in subjects at risk for developing these cancers, namely, male smokers for pancreatic cancer and women regularly consuming a moderate amount of alcohol for breast cancer.

CONCLUSION: Because the expanding role of folate nutrition in cancer prevention has major public health implications, research is required to clearly elucidate the effect of folate on carcinogenesis.

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