

New research finds walnuts may help slow colon cancer growth

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A walnut-enriched diet may cause beneficial genetic changes in animal cancer cells, affecting inflammation, blood supply and growth of tumors. Credit: California Walnut Commission

A new animal study from Beth Israel Deaconess Medical Center, Harvard Medical School, led by Dr. Christos Mantzoros, indicates that a diet containing walnuts may slow colorectal tumor growth by causing

beneficial changes in cancer genes.

This is the first study that evaluates whether walnut consumption can cause changes to micro-ribonucleic acids (miRNA), the nucleotides that are involved in altering gene expression. miRNA are the focus of much research in the growing field of epigenetics, or the study of how genes may be changed by environmental factors.

"Our research demonstrates that a walnut [diet](#) causes significant changes in the expression profile of miRNAs in localized colorectal cancer tissue, and that a walnut diet incorporates protective fatty acids in the colonic tumor either through its direct effects or through additive or synergistic effects of multiple other compounds present in walnuts," said Dr. Mantzoros. "While future studies are needed, we're optimistic of the role of miRNAs as biomarkers of disease and prognosis, and may demonstrate a potential therapeutic target for colorectal cancer treatment."

Researchers conducted the randomized study with two groups of mice. One group was fed the equivalent of two servings (2 ounces) per day of walnuts for humans, while the second group received a similar control diet with no walnuts. After 25 days, researchers found that in walnut-fed mice, key miRNA that may affect cancer cell inflammation, vascularization (blood supply) and proliferation were positively engaged.

The tumors of mice fed the walnut-containing diet were found to have 10 times the amount of total [omega-3 fatty acids](#), including plant-based alpha-linolenic acid (ALA), in the tissue compared to the mice fed the control diet. The study results found that a smaller tumor size was associated with greater percentage of omega-3s in tumor tissues, suggesting that ALA may provide a protective benefit. Tumor growth rate was also significantly slower in the [walnut](#) group compared to the control group. As this study was conducted on animals, results cannot yet

be implied for humans.

ALA is an essential fatty acid critical to various body processes and is known to reduce inflammation. Walnuts are the only nut that contain a significant source of alpha-linolenic acid (ALA) (2.5 grams per ounce). Walnuts also contain a variety of antioxidants, (3.7 mmol/ounce), and numerous vitamins and minerals.

Colorectal cancer is the third most common type of cancer worldwide and is second to only lung cancer as the leading cause of death in Western Countries. Diet has been shown to be a modifiable risk factor in preventing many types of cancer, including colorectal [cancer](#). It is estimated that 30-50 percent of [colorectal cancer](#) in men and 20 percent in women can be prevented by diet and other lifestyle changes.

An article detailing these findings, "Dietary Walnut Suppression of Colorectal Cancer in mice: mediation by miRNA patterns and fatty acid incorporation" has been published in the *Journal of Nutritional Biochemistry*.

More information: Tsoukas MA, Ko BJ, Witte TR, Dincer F, Hardman WE, Mantzoros CS. Dietary walnut suppression of colorectal cancer in mice: Mediation by miRNA patterns and fatty acid incorporation. *J Nutr Biochem*. 2015 Apr 1. [Epub ahead of print]

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