Can Feeding Your Gut Microbiome Prevent Colorectal Cancer?

Plant compounds called ellagitannins may protect against colorectal cancer. They are abundant in walnuts, berries and pomegranates.

December 17, 2024 By American Institute for Cancer Research and Anne Danahy

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Key Takeaways:

- Studies show that your gut microbiome plays a role in the development and progression of colorectal cancer. What you eat can make a difference in your microbiome.

- Research by AICR grantee Dr. Daniel Rosenberg explores the interaction between diet, cancer and the microbiome.

- Rosenberg's studies examine plant compounds called ellagitannins, which may protect against colorectal cancer. They are abundant in walnuts, berries and pomegranates.

You've heard the expression "you are what you eat." Did you know that your risk for colorectal cancer might depend on what your gut bacteria eat?

Research suggests that your gut microbiome, which includes trillions of bacteria and other microbes living in your colon, plays a role in the development and progression of colorectal cancer based on your diet.

Colorectal cancer usually starts as polyps. These are abnormal growths in the lining of the large intestine. Over time, lifestyle factors, inflammation and genetics cause some cells lining the gut to grow abnormally and form polyps.

By age 50, nearly half of us will have polyps detected during colon cancer screening. Some will be advanced precancerous polyps, according to American Institute of Cancer Research (AICR) grantee Dr. Daniel Rosenberg, PhD, Director of the Colon Cancer Prevention Program at the University of

Connecticut. He also notes that people under 50 are developing colorectal cancer at an alarming rate.

Dr. Rosenberg and his team have been studying the interaction between diet and the gut microbiome. They are interested in how the interactions cause changes in the colon lining that may protect against cancer.

Feeding the Microbiome

Gut bacteria break down fiber and other compounds from fruits, vegetables, grains, legumes, nuts and seeds. In doing so, they produce metabolites with various health benefits. Certain plant foods also stimulate the growth and activity of specific gut bacteria, leading them to produce large amounts of anti-inflammatory and anti-cancer compounds.

Dr. Rosenberg's research focuses on plant compounds called ellagitannins, which are abundant in walnuts, berries and pomegranates. Gut bacteria convert ellagitannins into urolithins, which are metabolites with powerful anti-inflammatory effects on colon polyps.

With a grant from AICR and the California Walnut Commission, Dr. Rosenberg's team conducted a small pilot study and found that eating a generous handful of walnuts daily (about ¼ cup) for three weeks can boost urolithin levels and reduce inflammatory markers in the blood.

"There is no question that walnuts cause significant changes to the inflammation going on in colon polyps, even in a short time," says Dr. Rosenberg. He says that not everyone produces the same amount of urolithins; some make none, while others produce large amounts. Certain strains of bacteria are responsible, and some people may not have the necessary microbes.

Using Food as Medicine

Dr. Rosenberg's AICR-funded study helped secure a $3.5 million grant from the National Institutes of Health to further his research. He hopes to find more evidence that consuming foods containing ellagitannins protects the colon. He'd also like to identify which gut microbes are responsible for converting ellagitannins to urolithins so they can be isolated, grown and used as a probiotic for people who don't have urolithin-producing microbes.

It may be years before we have a better understanding of the interplay between diet, microbiome and colorectal cancer, but this research supports AICR's Cancer Prevention Recommendations. Regardless of the mechanism, eating a high-fiber, plant-forward diet is an important way to reduce the risk of colon cancer.

Walnuts In the Spotlight

All nuts support a health-promoting diet, but they differ in the nutrients and plant compounds they

provide. Walnuts are unique in several ways and have been studied more extensively than other nuts regarding cancer prevention.

Research shows potential for walnuts to contribute to a cancer-preventive diet through several compounds possibly working together. Ellagitannins, melatonin and gamma-tocopherol may each work through different paths to reduce oxidative stress, inflammation and gene expression that can lead to cancer.

Read more research about walnuts here. And try some of these recipes that feature walnuts as a key ingredient.

- Lentil Walnut Bolognese with Spaghetti
- Walnut Cauliflower Glow Bowl
- Walnut Encrusted Tilapia

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This article was originally published November 8, 2024, by the American Institute for Cancer Research. It is republished with permission.
