

Eating beans found to improve gut health, regulate immune and inflammatory processes in colorectal cancer survivors

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Incorporating navy beans into the diet of colorectal cancer (CRC)

survivors has the potential to positively impact both gut and host health by modulating markers linked to obesity and disease, according to new research from The University of Texas MD Anderson Cancer Center.

The findings published today in [eBioMedicine](#), revealed BE GONE trial participants who added a cup of navy beans daily to their regular meals saw [positive changes](#) in their [gut microbiome](#), which is associated with [cancer prevention](#) and improved treatment outcomes.

Changes included an increase of alpha diversity, or beneficial bacteria (Faecalibacterium, Eubacterium, and Bifidobacterium) and decreased pathogenic, or opportunistic, bacteria.

"Observing a shift in microbiome diversity with diet intervention alone is rare, and this study underscores the ability of a readily available prebiotic food to bring about such changes," said corresponding author Carrie Daniel-MacDougall, Ph.D., associate professor of Epidemiology. "Over the course of eight weeks, there was an improvement in participants' gut health, marked by an increase in beneficial bacteria, which wards off the harmful bacteria."

Obesity, poor diet, or gastrointestinal issues can cause disturbances in a person's normal microbial balance. For people who have had or have CRC, these changes cause inflammation and can affect survival. Even after [cancer](#) treatment or precancerous polyp removal, a [poor diet](#) and an unbalanced gut microbiome can have negative effects on prevention efforts for both cardiovascular disease and cancer.

Beans, particularly small white navy beans, are full of gut-supporting fibers, [amino acids](#), and other nutrients, which can help the beneficial bacteria in your colon flourish, supporting immune health and regulating inflammation, Daniel-MacDougall explains. Despite being accessible and cost-effective, the legumes are frequently avoided by Americans due

to mild or acute gastrointestinal side effects, which can be mitigated by proper preparation and consistent consumption.

Daniel-MacDougall cautions that individuals should not attempt this diet without speaking to a physician, as it could have [negative impacts](#) without proper guidance. Further study is needed in order to determine how dietary changes can be used to lower [cancer risk](#) or improve treatment outcomes.

The randomized BE GONE trial followed 48 men and women over age 30 who met the criteria for obesity via [body mass index](#) (BMI) or waist size and who had a history of bowel lesions. This included patients with a history of CRC (75%) and/or high-risk, precancerous polyps of the colon or rectum detected at colonoscopy. For eight weeks, participants either followed their regular diet or included a daily cup of organic, canned, pressure-cooked white navy beans.

Patients could choose and prepare their own meals, with close follow-up and counseling from the study dietitian. Every four weeks, participants provided stool and fasting [blood samples](#) to assess shifts in the gut microbiome as well as host metabolites and markers.

Participants were considered adherent if they consumed at least 80% of the beans over the intervention period and followed the prescribed regimen at least five days a week. Limitations of this study include participant aversion to continually consuming navy beans. No serious side effects were reported.

"The beans did not appear to induce gut inflammation or seriously impact bowel habits, which is crucial for CRC survivors and patients," Daniel-MacDougall said. "However, once participants stopped eating the beans, the positive effects faded quickly, highlighting the need to educate patients on how to maintain healthy habits."

The study highlights the therapeutic role of naturally prebiotic-rich foods while further emphasizing the need for consistent and sustainable dietary adjustments for high-risk cancer patients. In the next steps, researchers will focus on a wider variety of prebiotic foods and how changes to the microbiome affect patients undergoing immunotherapy.

More information: Xiaotao Zhang et al, Modulating a prebiotic food source influences inflammation and immune-regulating gut microbes and metabolites: insights from the BE GONE trial, *eBioMedicine* (2023). DOI: 10.1016/j.ebiom.2023.104873 , [www.thelancet.com/journals/ebiom/article/S2352-3026\(23\)00439-5/fulltext](https://www.thelancet.com/journals/ebiom/article/S2352-3026(23)00439-5/fulltext)

Provided by University of Texas M. D. Anderson Cancer Center

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