

Proinflammatory Diet Contributes to CRC Risk in Both Sexes

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A proinflammatory diet replete in red, processed, and organ meat, among other foods, increases the risk for colorectal cancer (CRC) in both men and women; it is especially risky in overweight and obese men and, paradoxically, also in lean women, new research shows.

The association between a proinflammatory diet and CRC risk is also stronger among men and women who do not drink, the same analysis shows.

The finding comes from a study published online January 18 in *JAMA Oncology*.

"There were two major findings from this study," Fred Tabung, MSPH, PhD, Harvard T. H. Chan School of Public Health, Boston, Massachusetts, said in an interview with *JAMA Oncology*.

"The first was that higher dietary inflammatory potential was associated with an increased risk of developing colorectal cancer in both men and women, and the second was that the risk of developing colorectal cancer was even higher amongst overweight and obese men and in lean women and among men and women not consuming alcoholic beverages," he added.

"So dietary recommendations for both men and women would be to consume a dietary pattern with a low potential to contribute to inflammation in the colon and that pattern would be high in green leafy vegetables, dark yellow vegetables, coffee, and tea and low in processed meat, red meat, refined grains, and sugar-sweetened beverages," Dr Tabung said.

Details of the Study

For the study, Dr Tabung and colleagues used data from the Health Professionals Follow-up Study and the Nurses' Health Study to track the development of colorectal cancer in a total of 121,050 adults over 26 years of follow-up.

"Every 4 years, participants received validated semiquantitative food frequency questionnaires (FFQ) for dietary assessments," the investigators explain.

The team rated 18 food groups for their inflammatory potential using an empirical dietary inflammatory pattern (EDIP) score based on circulating levels of three inflammatory biomarkers — interleukin-6, C-reactive protein, and tumor necrosis factor- α receptor 2.

Diets were rated on a continuum from a maximally anti-inflammatory diet to a maximally proinflammatory diet — the higher the EDIP score, the more proinflammatory the diet.

Foods that were positively related to concentrations of these inflammatory markers included tomatoes; both high- and low-energy carbonated beverages; vegetables other than green leafy and dark yellow vegetables; and processed meat, red meat, organ meat, and fish other than dark-meat fish.

In contrast, beer, wine, tea, coffee, dark yellow and green leafy vegetables, snacks, fruit juice, and pizza were inversely related to concentrations of the same inflammatory markers.

Over long-term follow-up, there were 2699 cases of colorectal cancer across the two cohorts.

"Comparing participants in the highest vs the lowest EDIP quintile in multivariable-adjusted analyses, colorectal cancer risk was 44% higher in men (HR [hazard ratio], 1.44; 95% CI [confidence interval], 1.19 - 1.74; $P < .001$ for trend), 22% higher in women (HR, 1.22; 95% CI, 1.02 - 1.45; $P = .007$ for trend), and 32% higher in men and women combined (pooled HR, 1.32; 95% CI, 1.12 - 1.55; $P < .001$ for trend)," the study authors report.

The association between the highest EDIP quintile and increased colorectal cancer risk was observed for all anatomic sites with the exception of the rectum in women, in which the risk for rectal cancer was not higher among women with the highest EDIP scores compared to those with the lowest, they add.

The risk of developing colorectal cancer was 48% higher among overweight or obese men with the most proinflammatory diets compared to those with the least inflammatory diets ($P = .004$).

Interestingly, the risk for colorectal cancer was 31% higher for lean women in the highest EDIP quintile compared to those in the lowest quartile ($P = .01$).