

# Largest study of its kind shows leafy greens may decrease bowel cancer risk

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Increasing the amount of folate through our diet or taking supplements could help to reduce bowel cancer risk.

These are the findings of new research, co-led by Dr. Konstantinos Tsilidis from the School of Public Health at Imperial College London.

It suggests that increasing the intake of [folate](#)—which can be found in [leafy greens](#), such as spinach, cabbage and broccoli—could help to reduce the risk of colorectal cancer by up to 7%.

In the largest study of its kind, published in [The American Journal of Clinical Nutrition](#), researchers analyzed data from over 70,000 individuals to identify genetic variants that may modify how dietary folate (vitamin B9), [folic acid supplements](#), and total folate can influence the risk of colorectal cancer (CRC).

In line with previous studies, they found that people consuming higher levels of dietary folate, the odds of developing CRC (including proximal colon, distal colon, and rectal cancer) were reduced by 7% for every 260 micrograms higher consumption of dietary folate, which corresponds to 65% of the daily recommended amount (400 micrograms).

According to the authors, the findings support the hypothesis that folate may be effective for CRC prevention, even at regular levels of intake that can be achieved through the diet. The study also suggests folate might be influencing cancer risk, including different genes involved in modulating this risk.

Dr. Konstantinos Tsilidis, Reader in Cancer Epidemiology and Prevention at Imperial College London said, "When it comes to bowel cancer, there are a number of things that people can do to reduce their risk, including eating a [varied diet](#)—rich in wholegrains, vegetables, fruit, and beans—which supports the findings from this study."

"The potential protective health benefits of vitamin B9 are demonstrated in this large study. The study also found some promising findings about

how folate might be influencing cancer risk, including different genes, but these need further exploration."

## Reducing risk

In the UK, bowel cancer is the fourth most common cancer, with nearly 45,000 people diagnosed with the disease every year, and over 120 new cases diagnosed each day. One in 18 women and one in 15 men are likely to receive a bowel cancer diagnosis in their lifetime.

Folate is a natural form of vitamin B9 and is found in many foods. Good sources include foods such as spinach, cabbage, broccoli, [sunflower seeds](#), wholegrains, pulses like chickpeas, lentils and beans, and fruit, especially citrus fruits like oranges. Folate is also available as a supplement in the form of folic acid.

Folate and folic acid are critical in helping produce [red blood cells](#) and are especially important for women who are pregnant or trying to get pregnant.

In the latest study, the researchers analyzed data from more than 70,000 people (in 30,550 cases and 42,336 controls) from 51 studies. They explored interactions of common genetic variants and dietary folate, folic acid supplement use, and total folate in relation to the risk of CRC.

They also found that one area of the genome in particular (a location 3p25.2 on Chromosome 3) may modify the association of folate supplements with CRC risk. However they stress more research is needed to pinpoint the genes involved and their influence.

Dr. Helen Croker, Assistant Director of Research and Policy at the World Cancer Research Fund, said, "Interestingly, in this study, the protective effects were seen at usual dietary intakes of folate, further

indicating the importance of folate-rich foods as part of a healthy, balanced diet as well as being physically active."

Matt Lambert, Nutritionist and Health Information Manager at World Cancer Research Fund said, "This study adds to what we've been saying for years—that a healthy diet based around vegetables, fruit, whole grains, and pulses can help reduce [cancer](#) risk. Folate, which is found in a variety of foods, including leafy green vegetables like spinach and broccoli, has not only been linked to a reduced [bowel cancer](#) risk but also supports our overall health if eaten regularly."

"We understand that not everyone enjoys eating vegetables, which is why we have lots of delicious and varied recipes that use vegetables without you even knowing they are there, such as in our Enjoy Greens Cookbook."

**More information:** Emmanouil Bouras et al, Genome-wide interaction analysis of folate for colorectal cancer risk, *The American Journal of Clinical Nutrition* (2023). [DOI: 10.1016/j.ajcnut.2023.08.010](https://doi.org/10.1016/j.ajcnut.2023.08.010)

Provided by Imperial College London

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