

Can Diet and Lifestyle Help Prevent Cancer and Improve Survival?

UC San Francisco scientists have uncovered important scientific links between diet and cancer.

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Open up your favorite podcast app or tune into TikTok these days, and you'll find an endless stream of influencers, health coaches, and so-called experts offering advice for how to prevent and fight cancer. But who to trust?

UC San Francisco scientists have uncovered important scientific links between diet and cancer. Here are three examples of how food and lifestyle choices — from plant-based eating to ketogenic diets — help slow cancer progression, improve survival, and make some existing cancer treatments more effective.

Prostate patients benefit from a more plant-based diet

Plant-based diets, including fruits, vegetables, whole grains, nuts, legumes, vegetable oils, tea, and coffee, are increasingly popular in the U.S. Vivian N. Liu, formerly lead clinical research coordinator at the UCSF Osher Center for Integrative Health, and [Stacey A. Kenfield](#), ScD, a UCSF professor of urology and the Helen Diller Family Chair in Population Science for Urologic Cancer, studied how [dietary factors affected the progression of prostate cancer](#).

What did they find?

Liu and Kenfield followed men over 65 with localized prostate cancer and found that those who ate a more plant-based diet had a 47% lower risk of their cancer progressing compared with those who ate the most animal products.

Why does it matter?

Even relatively small dietary changes — like adding one or two more daily servings of fruits, vegetables, whole grains, nuts, and olive oil while reducing meat and dairy — were linked to better outcomes. “Making small changes in one’s diet each day is beneficial. Greater consumption of plant-based food after a prostate cancer diagnosis has also been associated with better quality of life, including sexual function, urinary function, and vitality, so it’s a win-win on both levels,” Kenfield said.

A ketogenic diet could improve the response to pancreatic cancer therapy

Pancreatic cancer is one of the deadliest and hardest-to-treat cancers, and UCSF researchers found [a more powerful way to use existing cancer drugs](#). [Davide Ruggero](#), PhD, Goldberg-Benioff Endowed Professor and American Cancer Society Research Professor in the Departments of Urology and Cellular Molecular Pharmacology, and [Haojun Yang](#), PhD, post-doctoral researcher, published their results in Nature.

What did they find?

They discovered that combining a high-fat, or ketogenic, diet with an experimental cancer drug caused pancreatic tumors in mice to shrink. The diet forced the cancer cells to rely on fat for fuel, while the drug blocked their ability to metabolize fat, effectively starving the tumors.

Why does it matter?

The findings lay the groundwork for a new treatment strategy that combines diet with targeted therapy, and for opportunities to personalize cancer treatments that exploit the unique weaknesses of different tumors. “Our findings open a point of vulnerability that we can treat with a clinical inhibitor that we already know is safe in humans,” Ruggero said.

Eating right and exercising could reduce the risk of colon cancer recurrence

[Erin L. Van Blarigan](#), ScD, assistant professor in the UCSF Departments of Epidemiology and Biostatistics, and Urology, led a research team that explored how [a healthy lifestyle can significantly lower the risk of colon cancer recurrence or death](#).

What did they find?

They found that people with stage III colon cancer who maintained a healthy weight, exercised regularly, and ate a diet rich in fruits, vegetables, and whole grains — while limiting red and processed meat — had significantly better outcomes after treatment. Patients who most closely followed healthy lifestyle guidelines had a 42% lower risk of death and a 31% lower risk of cancer recurrence.

Why does it matter?

The study suggests healthy lifestyle changes may improve survival after colon cancer diagnosis, not just prevent cancer. With more than 1.5 million colorectal cancer survivors in the U.S., “there is a pressing need for improved survivorship care, and resources to help people adopt and maintain a healthy lifestyle after a cancer diagnosis,” said Van Blarigan, a member of the [UCSF Helen Diller Family Comprehensive Cancer Center](#).

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