

Does Fish Oil Lower Colon Cancer Risk? It May Depend on Your Genes.

A specific gene may determine whether omega-3 fatty acids in fish oil can lower or raise your risk for colon cancer.

October 1, 2025 By Laura Schmidt

New research suggests that people should talk to their physicians before taking fish oil to prevent cancer because a certain [gene](#) may be needed to lower [colon cancer](#) risk, according to findings from a team of researchers from the University of Michigan and University of Texas MD Anderson Cancer Center.

Fish oil is one of the most popular [dietary supplements](#) in the United States. In fact, about 19 million U.S. adults take fish oil supplements, according to [a press release from the University of Michigan about the study](#).

Fish oil is rich in [omega-3](#) fatty acids and can aid in lowering triglycerides, blood pressure, the risk for chronic illness and more. Fish oil supplements consist mainly of the omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). However, previous studies have produced inconclusive results on the association between fish oil, EPA, DHA and cancer.

For the current study, which was published in [Cellular and Molecular Gastroenterology and Hepatology](#), researchers compared mice fed fish oil diets with mice on control diets. Scientists explored the role that the gene 15-lipoxygenase-1 (ALOX15) played in the development of colon cancer. Researchers also used mice engineered to express human ALOX15.

Results showed that ALOX15 is essential for helping EPA and DHA fight colon cancer. ALOX15 produces an enzyme that helps break down the omega-3 fatty acids into molecules called resolvins, which prevent chronic [inflammation](#), a key factor in the [development of cancer](#).

Without ALOX15, fish oil actually increased the number of colon tumors in mice exposed to chemicals that cause inflammation.

What's more, the degree of colon tumors depended on the type of omega-3 fatty acid. There were fewer tumors in mice that were fed EPA diets compared with DHA.

Researchers concluded: "Colonic ALOX15 expression is essential for enabling EPA and DHA to generate resolvins and consistently suppress CRT. The status of colonic ALOX15 expression should be taken into account when developing prevention strategies that utilize EPA and DHA to decrease the risk of colon cancer."

"Not all fish oil supplements are the same," said senior researcher Imad Shureiqi, MD, professor of internal medicine at University of Michigan and a member of the Imad Shureiqi Rogel Cancer Center, in the release. "It is also important to ask whether the person who is taking the supplement has the required enzymes to metabolize these products to prevent chronic inflammation and subsequently cancer development."

The team is now working on developing drugs that can help increase ALOX15 expression in cancer cells.

To read more, click [#Dietary Supplements](#) or [#Cancer Risk](#). There, you'll see headlines such as "[Few Cancer Survivors Improve Their Diets After Treatment](#)," "[With RFK Jr. in Charge, Supplement Makers See Chance to Cash In](#)" and "[Daily Multivitamin May Enhance Memory in Older Adults](#)."