

# Researchers show how fatty acids can fight prostate cancer

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Micrograph showing prostatic acinar adenocarcinoma (the most common form of prostate cancer) Credit: Wikipedia, [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

Washington State University researchers have found a mechanism by which omega-3 fatty acids inhibit the growth and spread of prostate cancer cells. The findings, which are at odds with a 2013 study asserting that omega-3s increase the risk of prostate cancer, point the way to more effective anti-cancer drugs.

Scientists have long known that [omega 3s](#) reduce inflammation and have anti-diabetic effects, and some recently discovered how this happens.

"But we're the first to show that they work this way in cancer," said Kathryn Meier, a professor of pharmacy at WSU Spokane. "The attention has mostly been on inflammation and diabetes but there has always been an interest in cancer, and we were the first to show this mechanism in any cancer cell at all. And we're using prostate cancer, which is the most controversial subject in omega 3s."

A 2013 study in the *Journal of the National Cancer Institute* found that men with higher levels of omega-3 [fatty acids](#) in their blood had a greater risk of developing [prostate cancer](#). It was not clear if the fatty acids came from food—certain fish, seeds and nuts are high in omega 3s—or supplements like [fish oil](#).

Working with prostate cell cultures, Meier and two students, Ze Liu and Mandi Hopkins, found the fatty acids bind to a receptor called FFA4, for "free fatty acid receptor 4." Rather than stimulating [cancer cells](#), the receptor acts as a signal to inhibit growth factors, suppressing proliferation of the cancer cells.

"This kind of knowledge could lead us to better treat or prevent cancer because now we know how it works," Meier said. The study also found that a drug mimicking the action of omega 3s can work as well or better than fatty acids in suppressing the cancer cells.

The study appears in the *Journal of Pharmacology and Experimental Therapeutics*.

Meier said it is still unclear if the effect can be obtained by taking dietary supplements like fish oil. Some people don't tolerate fish oil very well, she said. Moreover, the effect of fish oil could fade as it is

digested, while data from this study suggest that an omega-3 drug needs to be in a cancer cell all the time to have an effect.

"It's very difficult in dietary studies to tell how much to take or what form to take," Meier said. "Should you be eating fish? Should you be taking pills? But now we have a potential drug. Once you have a drug you can test very precisely whether it works or not in a certain disease and you would know exactly how much to give people."

Provided by Washington State University

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