

Potential chemoresistance after consuming fatty acid in fish, fish oil

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Researchers found that consuming the fish herring and mackerel, as well as three kinds of fish oils, raised blood levels of the fatty acid 16:4(n-3), which experiments in mice suggest may induce resistance to chemotherapy used to treat cancer, according to a study published online by *JAMA Oncology*.

Patients with cancer often adopt lifestyle changes and those changes often include the use of supplements. But there is growing concern about the use of supplements while taking [anticancer drugs](#) and the possible effect on treatment outcomes, according to the study background.

Emile E. Voest, M.D., Ph.D., of the Netherlands Cancer Institute, Amsterdam, and coauthors examined exposure to the fatty acid 16:4(n-3) after eating fish or taking fish oil.

The authors examined the rate of fish oil use among patients undergoing cancer treatment, while researchers also recruited healthy volunteers to examine [blood levels](#) of the fatty acid after ingestion of fish oils and fish. The fish oil portion included 30 healthy volunteers and the fish portion included 20 healthy volunteers.

Among 118 cancer patients who responded to a survey about the use of nutritional supplements, 35 (30 percent) reported regular use and 13 (11 percent) used supplements containing omega-3 [fatty acids](#), according to the results.

The study found increased blood levels of the fatty acid 16:4(n-3) in [healthy volunteers](#) after the recommended daily amount of 10 mL of fish oil was administered. An almost complete normalization of blood levels was seen eight hours after the 10-mL fish oil dose was given, while a more prolonged elevation resulted after a 50-mL dose, according to the results.

Eating 100 grams of herring and mackerel also increased blood levels of 16:4(n-3) compared with tuna, which did not affect blood levels, and salmon consumption, which resulted in a small, short-lived peak.

"Taken together, our findings are in line with a growing awareness of the biological activity of various fatty acids and their receptors and raise concern about the simultaneous use of chemotherapy and fish oil. Based on our findings, and until further data become available, we advise patients to temporarily avoid [fish oil](#) from the day before chemotherapy until the day thereafter," the study concludes.

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