

Soybean oil or fish oil? This study's result surprised cancer researchers

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Investigators discovered, unexpectedly, that soybean oil was better than fish oil for reducing cancer-related fatigue in breast cancer survivors.

The study results—along with other research—raises new questions about the value of fish oil and also the consumption of soy by women with breast cancer, which is controversial.

"Our study confirms that the benefits of fish oil have been overstated," said Luke Peppone, Ph.D., assistant professor of Surgery in the Cancer Control program at the Wilmot Cancer Institute at the University of Rochester Medical Center. He led the study, which was published this month by *Journal of the National Cancer Institute Spectrum*.

For years [fish oil supplements](#), which contain [omega-3](#) fatty acids, have been widely used by Americans to treat or protect against a variety of ills and to promote cardiovascular health. But many studies, including a review of several clinical trials, have shown inconclusive evidence or no

meaningful benefit for taking fish oil supplements.

However, because fish oil can reduce inflammation in the body, the Wilmot investigators wanted to find out if it could help with the crushing fatigue experienced by some cancer patients. Previous research has shown a link between fatigue and inflammation, and suggested that fish oil might help.

The fish-oil-versus-[soybean-oil](#) study of 80 female breast cancer survivors was designed to use soy as the comparison supplement because it contains omega-6 instead of omega-3. Soy (omega-6) is generally viewed as having pro-[inflammatory properties](#) rather than the more desirable anti-inflammatory properties, Peppone said.

The decision to use soybean oil was based on advice from the National Center for Complementary and Integrative Health, he added.

Researchers assessed the women's fatigue at the outset with standard measurements including screening questions, and then the women were randomly assigned to one of three groups: to receive high-dose fish oil supplements; to receive a low-dose combination of fish oil and soybean oil; or to receive high-dose soybean oil supplements alone. Investigators also collected blood from the patients to measure inflammatory proteins.

All three groups reported a reduction in fatigue, but the most significant reduction was in the omega-6 soybean oil group. The greatest effect was on women who reported the most severe fatigue at the beginning of the study.

The data from blood samples may explain the surprising results, Peppone said. Despite the abundance of anti-inflammatory properties in fish oil, his data showed that [fish](#) oil impacts a different set of inflammatory proteins than soybean oil. The [fish oil](#) supplements reduced the levels of

inflammatory markers such as IFN γ , IL-6, and PTGES2, while the soy supplement reduced the inflammatory protein known as TNF- α . It's possible that cancer-related fatigue is more closely associated with the TNF- α pathway, the study said.

Although soy performed well in this study, soy is eyed with caution among many women treated for hormone receptor-positive breast cancer, which is the most common type. The concern is that some soy products, such as protein powders, tofu, and additives in processed foods, contain isoflavones that can exert estrogen-like effects and possibly increase the risk of a cancer recurrence.

Peppone noted that the soybean oil supplements used in his study did not contain isoflavones. He also emphasized there is not enough evidence yet to support patients taking soybean oil for cancer-related fatigue, and he advised against starting [soybean](#) oil supplements for any reason without consulting a physician.

More research is needed to fully understand the relationship between inflammation, dietary fats, and [cancer fatigue](#).

More information: Luke J Peppone et al. Multicenter Randomized Controlled Trial of Omega-3 Fatty Acids versus Omega-6 Fatty Acids for the Control of Cancer-Related Fatigue among Breast Cancer Survivors, *JNCI Cancer Spectrum* (2019). DOI: [10.1093/jncics/pkz005](https://doi.org/10.1093/jncics/pkz005)

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