

This Nutrient Could Cut Tumor Growth Up to 67%

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✓ Fact Checked

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STORY AT-A-GLANCE

- › Data presented at the 2022 Experimental Biology meeting showed omega-3 fatty acids could cut tumor growth by 67% when combined with immunotherapy or anti-inflammatory therapy, but omega-6 fats could accelerate tumor growth
- › Past research has demonstrated an unbalanced intake of omega-6 fats, commonly found in vegetable oils and processed foods, could promote the growth of cancer cells
- › Data revealed an omega-3 index greater than 5.7% lowers the risk of death in COVID-19. Past research shows adequate levels of omega-3 have a positive impact on viral infections and a combination of vitamin D and omega-3 can help prevent autoimmune disease
- › The only way to know if you need a supplement is to test using an omega-3 index. The best type of supplement is sustainable krill oil since fish oil has a higher risk of oxidative damage and krill oil also contains astaxanthin, which helps reduce oxidative damage

Dietary fats are essential to your good health. However, like everything else, you can eat too much of some or not enough of others. When this happens, your body does not work effectively. Research from Harvard Medical School's Beth Israel Deaconess Medical Center in Boston demonstrated omega-3 fat could reduce tumor growth by 67%.¹

Your body uses fat to keep your skin and hair healthy, absorb certain vitamins,² temperature control,³ and for an essential role in neurological health.⁴ The most dangerous type of fat is trans-fat, which is commonly found in baked goods and processed foods.⁵

During processing, certain healthy oils can be turned into solids using a process called hydrogenation. This extends the shelf life and creates trans fats in the process. There are no health benefits, and it is not safe to eat any of them. On the other hand, polyunsaturated fats are essential, which means your body needs this type of fat but cannot manufacture it, so you must get it in food.

The two main types are omega-3 and omega-6 fatty acids. The number identifies where the first carbon-carbon double bond appears.⁶ Both fats may be essential, but it's vital to get them in the right ratio to reduce the risk of a chronic inflammatory response.

Omega-6 fats are found in high concentrations in processed foods, corn oil, sunflower oil and safflower oil.^{7,8} The optimal ratio of omega-3 to omega-6 fats is 1-to-4 or lower.⁹ Unfortunately, the typical Western diet has a ratio of 1-to-16.¹⁰

Many people are becoming more aware of the importance of omega-3 fats to their overall health. Yet, they may still be unsure of how much is needed to achieve or maintain optimal levels. Adjusting your ratio may help reduce your risk of many chronic diseases that are so prevalent in Western Society.

Excessive intake of omega-6 fats nearly tripled in the last 100 years with the introduction of vegetable oil.¹¹ Researchers have now found that integrating omega-3 fat into the diet and reducing omega-6 could have a significant impact on the prevention and treatment of cancer.¹²

Omega-3 Fatty Acids Help Fight Cancer

The research¹³ was presented April 4, 2022 at the annual Experimental Biology meeting in Philadelphia.¹⁴ The animal model showed that omega-3 fatty acids helped promote the cancer-fighting activities of immunotherapy and anti-inflammatory therapy.

Immunotherapy is a type of biological treatment that prompts the immune system to attack cancer cells.¹⁵ Biological therapies use compounds from living organisms. Several types of immunotherapies help promote the immune system's response, including monoclonal antibodies which are used in the treatment of COVID-19.¹⁶

The scientists sought to determine the impact of what a cancer patient eats on antitumor activity after treatment with immunotherapy or an anti-inflammatory therapy designed to inhibit the enzyme soluble epoxide hydroxylase.¹⁷ As of the time of the study, immunotherapy was approved for use in the treatment of cancer, but anti-inflammatory therapy was still under clinical investigation.

The researchers used an animal model to produce primary and metastatic malignancies. The animals were first fed one of three diets for 10 days before tumor injection and the remainder of the study period. One group received a standard diet, one a diet high in omega-3 and the third group a diet high in omega-6. One week after tumors were injected, each group was split into four different intervention groups.

The groups were either given no treatment, immunotherapy, anti-inflammatory therapy or both therapies simultaneously. The researchers evaluated the response of the tumors to diet supplementation in addition to the cancer treatment. What they found was that omega-3 fatty acids helped block tumor growth in the three treatment groups of mice.

The mice receiving the high omega-3 diet and both cancer treatments showed a reduction of 67% growth when compared to the group of mice eating a normal diet and receiving no treatment.¹⁸ By comparison, cancer cell growth increased in the mice who ate the high omega-6 diet and were given immunotherapy.

The researchers believe the results indicated there could be synergistic activity between omega-3 fatty acids and immunotherapy and anti-inflammatory therapy for cancer. The research is being presented by Abigail Kelly from Harvard Medical School Beth Israel Deaconess Medical Center. She commented on the results in a press release, saying:¹⁹

“We demonstrated, for the first time, that the combination of immunotherapy and anti-inflammatory treatment (sEHi) was more effective when mice were fed diets enriched with omega-3 fatty acids. This is very promising because dietary supplementation is easy to implement for cancer patients and can be added for patients already on immunotherapy.”

Abundance of Omega-6 Fatty Acids Promotes Cancer

The data on omega-6 and omega-3 in the scientific literature is not new. In fact, research showing omega-6 fats promote malignant growth dates to the 1990s.²⁰ And yet, many people are unaware that the imbalance of omega-3 and omega-6 fats in their diet may be increasing their risk of developing cancer.

Data in 2008 revealed that omega-6 fatty acids in combination with heterocyclic amines (HA), produced when meat and fish are cooked, increased the likelihood of breast cancer in post-menopausal women.²¹ The amount of HA was not associated with the potential risk in this cohort. Rather, it was the combination of HA and omega-6 that increased the potential risk of a diagnosis of breast cancer.

Another paper published in 2012 discussed the results of studies that also found a link between omega-6 and breast cancer.²² Data also show higher intake of omega-6 can increase the risk of prostate cancer and a low ratio of omega-6 to omega-3 can improve the effectiveness of treatment.²³

Omega-6 fatty acid metabolites also promote angiogenesis in malignant tumors by increasing growth factor expression.²⁴ Data have demonstrated there is a relationship between omega-6 consumption and the progression of certain types of cancer growths, such as breast, prostate, lung, colorectal and neuroblastoma.²⁵

Combination of D and Omega-3 Helps Prevent Autoimmune Disease

Vitamin D and omega-3 have several things in common,²⁶ not the least of which is that they play important roles in cardiovascular health and most who are deficient in one are also deficient in the other. This sparked the VITAL study,²⁷ which is an ongoing study in which researchers are studying the effect of these dietary supplements on the risk of cardiovascular disease or cancer in 25,871 men and women.

The combination deficiency also has a negative effect on your immune health. One study²⁸ published in the BMJ has suggested that supplementing with vitamin D and omega-3 could lower your risk of developing an autoimmune disease, such as psoriasis, thyroid diseases and rheumatoid arthritis as you get older. The researchers from Brigham and Women's Hospital and Harvard Medical School used data from the VITAL trial.

They followed the participants for more than five years and compared supplementation against self-reported autoimmune diseases diagnosed during the study period. They wrote:²⁹

“Vitamin D supplementation for five years, with or without omega-3 fatty acids, reduced autoimmune disease by 22%, while omega-3 fatty acid supplementation with or without vitamin D reduced the autoimmune disease rate by 15% (not statistically significant).”

However, participants who took both an omega-3 supplement, and vitamin D decreased their risk of autoimmune disease by 30%. Further, when participants took the supplements for at least two years, the risk decreased even more to 39%.

Study author Dr. Karen Costenbader, lupus program director at Brigham and Women's Hospital, explained that the findings are so powerful, she can now answer one of her patients' most common questions – “Which vitamins or supplements do you recommend?” She said:³⁰

“Now, when my patients, colleagues, or friends ask me, I can point to our research findings, which suggest that for women age 55 years and older, and men 50 years and older, marine omega-3 fatty acids (fish oil) 1000 mg a day, and vitamin D 2000 IU a day – the doses used in VITAL – lead to a 22% reduction in all autoimmune diseases with vitamin D, and a 15% reduction in the same with fish oil supplementation over 5.3 years of randomized follow-up.

In the trial, these supplements were prescription grade and underwent rigorous quality testing. They were safe and well tolerated and no increase in adverse

events was found.”

Omega-3 Level Effects Infection Rate

The name of the infection on everyone’s lips for the last two years has been COVID-19. Yet, colds, flu and gastrointestinal viral infections have not disappeared. Research also indicates that optimal levels of omega-3 fatty acids may have a protective effect on viral illness. Since it may still be top of mind, let’s start with how omega-3 fatty acid levels have helped improve COVID-19 outcomes.

A study³¹ published in January 2021, analyzed the omega-3 index in 100 individuals and compared that against their COVID-19 outcomes. The patients were admitted to Cedar Sinai Medical Center starting March 1, 2020, with a confirmed case of COVID-19. Blood samples were drawn and stored within 10 days of diagnosis.

The primary outcome measurement was death, and the risk was analyzed as a measure of quartiles. When they analyzed the overall data, the researchers found that older individuals and those admitted with a “do not resuscitate” order had a higher likelihood of dying. Blood samples were then separated from the highest to the lowest quartile.

Researchers found there was only one death in the group with an omega-3 index that measured 5.7% or greater. He was a 66-year-old man admitted with a do not resuscitate order. In the other 3 quartiles, a total of 17% of the patient's died. The blood samples also confirmed past results that had demonstrated the average person in the U.S. has an omega-3 index near 5%.³²

Several other studies also confirmed these results, showing individuals with adequate levels of omega-3 had better outcomes from COVID-19.^{33,34} Research before 2020 also showed that omega-3 has an impact on viral infections, including influenza³⁵ and bacterial infections associated with COPD.³⁶

Omega-3 Also Helps Heart Health

Several epidemiological and clinical trials have demonstrated that omega-3 fatty acids play a role in the risk of cardiovascular disease. Those with risk factors associated with coronary heart disease benefit from omega-3 fats.³⁷ Supplementation may also reduce heart and all-cause mortality.

In one study³⁸ of 84,688 nurses who were followed over 16 years, researchers analyzed their omega-3 intake and compared the health outcomes of those who rarely ate fish (less than once per month) to those who ate the greatest amount (five or more times each week). They found that those with the highest intake had the lowest risk of coronary heart disease.

Another group of scientists³⁹ used a medication described as a "highly purified eicosapentaenoic acid ethyl ester" that is "a synthetic derivative of omega-3 fatty acid."⁴⁰ They found that those taking the medication experienced a significantly lower number of ischemic events than those taking a placebo, including those taking statin medications. The researchers concluded:⁴¹

"Among patients with elevated triglyceride levels despite the use of statins, the risk of ischemic events, including cardiovascular death, was significantly lower among those who received 2 g of icosapent ethyl twice daily than among those who received placebo."

Choose Krill Oil Over Fish Oil for Omega-3

The best way to know if you need to supplement with omega-3 is to test your level. The omega-3 index measures the amount of omega-3 on your red blood cells as a reflection of the amount found in the rest of your body. Before the test was developed in 2004, an assay was not available.

Since the lifespan of a red blood cell is about 120 days,⁴² the test measures an average of your omega-3 intake and isn't influenced by a recent meal that was high in omega 3. The test has been used to evaluate data from several studies, including the Framingham Study⁴³ and the Women's Health Initiative.⁴⁴

The index is expressed as a percent of all fatty acids in the red blood cell membrane.⁴⁵ Data from studies Harris performed showed the healthy range of omega-3 is from 8% to 12%.⁴⁶ One study showed that a low index is just as powerful a predictor of early death as smoking.⁴⁷

The best omega-3 supplement is from an animal-based source. Krill oil and fish oil provide both eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA). Krill is sustainable and resistant to oxidative damage since it also contains astaxanthin. Fish oil has a greater potential for contamination and has a higher risk of oxidative damage that can occur during processing and after you open the bottle.⁴⁸

In an analysis of fish oil available over the counter in Canada, researchers analyzed 171 supplements from 49 brands.⁴⁹ They found 50% of the samples exceeded one measurement of oxidation and 39% exceeded what is considered safe by international standards.

In addition to a lower rate of contamination, krill oil is far more potent than fish oil. In one study,⁵⁰ participants who took krill oil required only 62.8% of the amount of those taking fish oil to achieve the same results.

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