

Get Fishy With Your Health

Fish Oil and Cod Liver Oil – Two Essential Superfood Supplements

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Cod liver oil is one of the oldest superfood supplements around. I would wager you or someone you know has memories of a mother chasing them around the house with a spoonful. There is good reason this supplement has a strong folk-remedy status; cod liver and fish oil have a mountain of research to back up their numerous benefits. Perhaps you are interested in increasing your energy, losing some weight, or preventing depression and mood swings. What about reducing pain and inflammation or cutting your risk of heart disease and cancer? One of the best ways to do all these things is to increase your intake of omega-3 fats from cod liver and fish oil.

People Need Fish Fats

In times past, humans consumed a balance of omega-3 fats (found in fish, fish oils, walnuts, eggs, flaxseed meal, grass-fed meats) and omega-6 fats (found principally in vegetables and vegetable oils like corn, sunflower, safflower, and soy – most of the fats you find in processed foods). The ratio between these fats used to be closer to 1:1 when our nutrients came exclusively from whole foods. The western world has greatly increased its omega-6 intake due to higher use of vegetable oils, processed foods, and animal products raised on omega-6 rich diets (e.g. corn and soy).¹ Our intake of omega-3-rich foods has also diminished,² which has resulted in the ratio of these fats falling anywhere between 1:20 to 1:30 – much too heavy in omega-6.^{3,4} Researchers believe that about 60% of Americans are deficient in omega-3 fats, and about 20% have so little it is undetectable in their blood.⁵ When there is an overabundance of omega-6 in the diet, the body's ability to utilize the omega-3 fats is inhibited, thus all of their health benefits are reduced. This causes a host of undesirable reactions, including increased heart disease, immune system dysfunction, damage to the liver as well as the reproductive organs and lungs, digestive disorders, depressed learning ability, impaired growth, and weight gain.⁶

Unarguably, most people are in great need of improving their omega-3 to 6 ratio, and fish fats offer a simple way to optimize this balance. The most important fish fats are eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Although these fatty acids *can* be made by the cells in the body via the conversion of linolenic acid, found abundantly in such foods as flaxseed oil, it is often inefficient and does not occur.⁷ This is why consuming the preformed EPA and DHA directly from fish fats is so important. One thing to remember, fish oil is not the same as cod liver oil. Cod liver is an excellent source of vitamins A and D, as well as EPA and DHA. Fish oils are extracted from the tissues (flesh) of fatty fish like salmon and herring, and are good sources of EPA and DHA only. The value of vitamin A and D will be discussed below, but let's focus on EPA and DHA first.

Fishy Tales of Health Benefits

Mental Health: EPA and DHA deficiency have been associated with a broad spectrum of mental concerns, including ADHD,^{8,9,10} memory loss,¹¹ depression,¹² and bipolar disorder.^{13,14,15} These fats also influence behavior by supporting proper development of brain tissue.¹⁶ They help increase serotonin levels,¹⁷ which not only improves mental function,¹⁸ but also boosts mood and encourages quality sleep.

Inflammation: Fish fats have strong anti-inflammatory activity by influencing prostaglandins.¹⁹ These hormone-like substances regulate the dilation of blood vessels, inflammatory responses, and other critical processes. As a result, fish oil is used to help people with various inflammatory conditions, such as Crohn's disease²⁰ and rheumatoid arthritis.²¹ Supplementation with fish oil has also been shown to reduce the severity of colitis by more than 50% and enable many sufferers to discontinue anti-inflammatory medication and steroids.^{22,23,24} These anti-inflammatory benefits are more wide-spread

than once believed. It is now understood that inflammation plays an key role in many of our most devastating diseases, such as cancer, Alzheimer's, and heart disease.^{25,26,27} Finally, the positive effects on prostaglandin production is said to be the reason these fats strengthen the immune system.²⁸

Insulin Stability/Diabetes: Insulin is the hormone that regulates sugar utilization in the body. When insulin balance falters, it can lead to symptoms like mood swings, headaches, afternoon sleepiness, and cravings. Moreover, many conditions have an underlying foundation of insulin instability, such as hypoglycemia, Syndrome X, and diabetes. Fish oils improve insulin receptor responsiveness.^{29,30,31} Studies have also found that these fats improve sugar (glucose) tolerance in diabetics and those dealing with other insulin problems.^{32,33,34,35}

Arthritis: A study at Cardiff University found that 86% of pre-operative patients with arthritis who took cod liver oil daily had absent or significantly reduced levels of the enzymes that cause cartilage damage and joint pain. It was determined that by taking cod liver oil, people are more likely to delay the onset of osteoarthritis and less likely to require multiple joint replacements later in life. This includes those with sports injuries that predispose them to early onset of osteoarthritis. This is welcomed news for those concerned about the side effects associated with commonly prescribed non-steroidal anti-inflammatory drugs.³⁶

Heart Health: EPA and DHA help maintain the elasticity of artery walls, reduce inflammation, prevent blood clotting, lower blood pressure, reduce fat levels in the blood, and stabilize heart rhythms.^{37,38,39,40,41,42,43,44,45} Thus, these oils support conditions such as atherosclerosis, angina, heart disease, congestive heart failure, arrhythmias, and stroke. A study performed in Germany found that fish oil supplementation for two years caused regression of atherosclerotic deposits. Another study reported that men who consume fish once or more every week have a 50% lower risk of dying from a sudden cardiac event than do men who eat fish less than once a month.^{46,47,48,49,50}

Prostate Health: A recently published study showed men with the highest amounts of EPA and DHA had an 11% lower prostate cancer risk, while advanced prostate cancer risk dropped 26%.⁵¹ This data is riding on the heels of a 30-year Swedish study involving 3,136 pairs of male twins that concluded men who never eat fish have a two-to-three-fold higher risk of prostate cancer than men who eat moderate to high amounts.⁵²

Fish fats have a virtual laundry list of health benefits. Besides the conditions touched on above, research has proven their positive effects on numerous others, such as headaches and migraines,^{53,54} wrinkles,⁵⁵ eczema and other skin disorders,^{56,57} asthma⁵⁸ (including exercise-induced⁵⁹), weight loss, and breast cancer.⁶⁰ Last but not least, DHA is essential for the development of the brain⁶¹ and eyes in infants, and a deficiency during this time can significantly affect learning and behavior.^{62,63}

Cod Liver Oil Extras

Both cod liver oil and fish oil provide EPA and DHA, but cod liver oil offers a few extras that may be appealing to many. Fat-soluble **vitamin A**, also called retinol, is found in most cod liver oils, but not fish oil. This nutrient is critical for vision, healthy skin, maintaining cell membranes - particularly the surfaces of the respiratory and intestinal tracts, and stimulating immunity.⁶⁴ Safe levels for most adults (except those with liver conditions) range between 15,000 to 25,000 IU and 5,000 to 10,000 for children.⁶⁵ There is some confusion regarding this nutrient. First, beta carotene, found in carrots and other vegetables, is not synonymous with vitamin A. Although beta carotene can convert to vitamin A in the body, true vitamin A is only present in animal foods, namely liver, dairy products, and cod liver oil. People with diabetes, insulin imbalance,⁶⁶ and low thyroid activity^{67,68} have trouble converting beta carotene to vitamin A. The same goes for those who use a lot of polyunsaturated fatty acids, found in vegetable oils, or eat too little fat.⁶⁹

What about vitamin A toxicity? It is now understood that most, if not all, the cases of vitamin A toxicity in regards to birth defects and bone mineral density have resulted from an excess intake of the synthetic variety, not the natural form like found in cod liver oil.⁷⁰ This is particularly true with the concern of birth defects when pregnant women take over 5,000 IUs. A study published from the National Institute of Child Health and Human Development found no association with birth defects in women who took up to 10,000 IUs of vitamin A during pregnancy. The researchers later found that women taking 30,000 IU of preformed vitamin A from animal foods daily had the same blood levels of A as healthy pregnant women in the first trimester who had healthy babies.^{71,72} With that said, these higher amounts are near impossible to reach. A typical one tablespoon dose of cod liver oil provides 7,500 IU of vitamin A. Therefore, to reach 30,000 IU, one would need to take 12 teaspoons or 4 tablespoons – much more than one should take. Furthermore, the vitamin D in cod liver oil has been shown to provide added protection from vitamin A toxicity.⁷³ If you are pregnant, it is still wise to talk with your doctor about the amount of vitamin A that is right for you.

Vitamin D, the other fat-soluble vitamin found in cod liver, has made headline news lately with its role in mood,^{74,75} cancer, heart health, and bone strength.* In fact, vitamin D is the reason cod liver oil is famous for contributing to bone health, as well as preventing and reversing rickets in children.^{76,77} Before the discovery of cod liver oil as a source of vitamin D, many children suffered greatly with deformed bones. In adult women, higher levels of vitamin D from cod liver oil have been shown to improve bone mineral density.⁷⁸ EPA and DHA are also important to keep and rebuild bone.^{79,80} One unique aspect of this nutrient is that it is manufactured in the skin when exposed to sunlight. Like vitamin A, it has limited food sources, with liver and cod liver oil being the best and, to a lesser extent, oysters, butter, and egg yolks. The most current research supports the idea that each day an individual is unable to get out in the vitamin D-producing sunshine enough to turn slightly pink, it is wise to take at least 2,000 to 3,000 IUs of vitamin D in supplement form.⁸¹

Fishy Supplementation

Consuming fatty fish such as salmon, tuna, mackerel, anchovies, sardines, as well as wild game (instead of commercially-produced grain-fed meats) provides a healthy amount of these healing fats. Bear in mind, the fish should be wild, since the farmed varieties have little if any omega-3s due to their feed and controlled environments. Moreover, with the heavy metal toxicity concern in fish, supplementation offers a nice alternative. Quality-produced cod liver and fish oil supplements are distilled to remove contaminants and often guarantee their cleanliness on their label. What to choose – cod liver or fish oil? The main difference between these two oils is that cod liver oil has vitamins A and D, which can vary between brands. Many people, especially those with limited sun exposure, are deficient in vitamin D, and would therefore do better with cod liver oil. Levels of this nutrient also steadily decline over the colder winter months. For those who do get adequate sunshine during the warmer months, fish oil may be a good option during this time to avoid overdoing vitamin D. With that said, there are still many people with low vitamin D levels even during sunny weather, thus cod liver oil is an appropriate choice all year round. To be sure of one's personal vitamin D level and need, consider getting tested by a doctor.

Krispin Sullivan, CN, who has done extensive research on cod liver oil and vitamin D, recommends the following: one teaspoon from birth to six months, two teaspoons from six months to three years, one tablespoon from 4-10 years, and one to two tablespoons thereafter during winter months or when not sunning.⁸² With fish oil, approximately 3000 mg (3 grams) per day of a combination of EPA/DHA is a good place to start.^{18,83} However, following the directions on the bottle is always a good idea. EPA and DHA are extremely delicate in nature and are susceptible to oxidative damage within the body and out. Therefore, those supplementing fish fats should also take additional vitamin E, approximately 400 IUs per day^{84,85,86} and consider adding 1,000 to 2,000 IUs to every bottle of oil as well.⁸⁷ The fishy smell of

cod liver oil is due to the presence of small amounts of fish protein and is not a sign of rancidity. If you find taking cod liver oil right off a spoon is too challenging for your taste buds, try adding it to a small amount of water or fresh juice, stir, and then quickly take it down. There are also flavored brands on the market that disguise the fishy smell and taste. If that still doesn't work, capsules are a good choice. For babies and small children, an eye dropper is useful.⁷⁰ Some who take these oils may experience "fishy" burps.⁸⁸ Taking the capsules frozen has helped reduce this side effect for some people and may be worth a try.

There is no question fish fats are something most everyone needs. Where the waters get murky is sifting through the verbiage, choosing the right one, and deciding how much to take. The information provided should clear the waters and make your next choice for improving your health an easy "catch."

* Ask any vitamin aisle employee for a copy of the Health Hotline article on vitamin D titled *Are You Getting Enough Sunshine Vitamin? Most Aren't!* published in February 2005.

Side Bar: Signs of Fish Fat Deficiency

Low mental sharpness on awakening

Depression

Weight gain

Brittle fingernails

Allergies

Arthritis

Poor sleep

Memory problems

Dry hair

Dry skin

Poor concentration

Fatigue

Side Bar: What About Flax?

Many of you may be asking where flaxseed oil fits into this equation. Flax oil is appropriate for many people in small amounts; however, research suggests one has to take up to 10 times more flax than fish to get comparable amounts of EPA since the linolenic acid in flax must first be converted into EPA and DHA in the body.^{89,90} Furthermore, the conversion is often hampered by such things as the consumption of processed foods, illness, genetic inadequacies, and nutrient deficiencies. The conversion also becomes less efficient as we age.^{91,92} Excess omega-6 fatty acids from modern commercial vegetable oils inhibit the omega-3 conversion pathway as well.^{93,94} The bottom line is, flaxseed oil is a good oil to include in the diet, however, preformed EPA and DHA are vitally important to consume and most Americans are severally deficient.

References Available Upon Request