

PLANT VERSUS FISH - GOOD SOURCES OF OMEGA-3 FATS

Introduction

Many consumers are asking an important question: Are the omega-3 fats in fish the same as those found in flax? The answer is that omega-3 fats are like siblings – they all belong to the same family, but their chemical makeup and some of their health benefits differ.

What Are the Major Omega-3 Fats?

Alpha-linolenic acid or ALA, for short, is the essential omega-3 fat. The word "essential" means that we must eat ALA in our diets because our bodies cannot make it. In other words, ALA is an essential nutrient just like vitamin C and calcium. The human body needs ALA to be healthy. Two other important omega-3 fats are eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). EPA and DHA are not considered "essential" in the strictest sense because our bodies make small amounts of them from ALA. Nonetheless, they are vital for health.

Which Foods Are Rich in Omega-3 Fats?

Omega-3 fats are found in a variety of foods. ALA is found mainly in flax seeds and walnuts and in plant oils like flax oil, canola oil and soybean oil. Flax seeds and flax oil are the richest sources of ALA in the North American diet.¹ Flax-based omega-3-enriched eggs, along with some fish like Atlantic salmon and canned sardine, are good sources of ALA. Small amounts of ALA are found in products made with added flax like cereals, breads, bagels, spaghetti, energy bars and cookies. Beef, pork and chicken also contain small amounts of ALA because livestock and poultry ingest ALA in their daily rations.

EPA and DHA are found mainly in fatty fish like herring, salmon, mackerel and bluefin tuna and the fish oil supplements made from them. Table 1 lists foods that qualify for a nutrient content claim on U.S. food product labels stating that they are "high" in, or excellent sources of, omega-3 fats. Flax oil, flax seeds and flax-based omega-3-enriched eggs qualify for a label claim as a "high" source of ALA omega-3 fat.²

White fish like haddock, cod, flounder, sole and orange roughy, along with the fried fish fillets made from these fish, contain small amounts of EPA and DHA. Because they are relatively low in omega-3 fats, they do not qualify for a nutrient content claim on U.S. food product labels.

Algae are rich sources of DHA, but contain little EPA. Plants do not contain EPA and DHA.

Table 1. Foods Qualifying for a Label Claim of "High" Source of Omega-3 Fats, Ranked by Omega-3 Fat Content^{a,b}

Omega-3 Fat Content per Reference Amount ^c		
ALA	EPA	DHA
Flax oil	Herring	Salmon, Atlantic, wild
Flax seeds	Salmon, coho, wild	Tuna, bluefin
Walnuts	Mackerel	Herring
Walnut oil	Salmon, Atlantic, wild	Salmon, coho, wild
Canola oil	Tuna, bluefin	Striped bass
Soybean oil	Sardine, canned in oil	Mackerel
Flax-based omega-3 enriched egg ^d	Mahaden oil capsules ^e	Sea bass
Atlantic salmon	Shark	Shark
Sardine, canned in oil	Striped bass	Sardine, canned in oil
	Sea bass	Manhaden oil capsules
		Omega-3 enriched egg ^f

^a Sources: O'Raherty *et al.* (2).

^b Omega-3 fat content ranked from highest to lowest within each column, based on grams of fatty acid per reference amount of food. Values are for cooked fish. Sources of data: flax, flax oil and omega-3 enriched eggs (1); all other foods - U.S. Department of Agriculture, Nutrient Database for Standard Reference, Release 17, available at www.nal.usda.gov/fnic/foodcomp.

^c Reference amount - the amount customarily consumed, for fats and oils like flax oil, the reference amount is 1 tablespoon.

^d Flax-based omega-3 enriched eggs are derived from laying hens fed flax.

^e Values are for 2 capsules; data obtained from www.fishoilcapsules.com.

^f Omega-3 enriched eggs are derived from laying hens fed a variety of feed supplements.

Do All Omega-3 Fats Have the Same Health Benefits?

Just like siblings, omega-3 fats are alike in some ways and different in others. ALA, EPA and DHA are alike in keeping the body's cell membranes flexible and elastic to help cells work properly. Plus, ALA, EPA and DHA are alike in blocking the actions of some compounds that cause inflammation.³ Most chronic diseases like heart disease, stroke, diabetes, cancer and arthritis are marked by inflammation. By blocking inflammation, omega-3 fats help reduce the risk of chronic disease.

One omega-3 fat - DHA - differs from the others. Because DHA helps the eye, brain and nervous system develop properly, infants have a special need for this omega-3 fat. Aging adults may need DHA, too. A study of 815 elderly people living in Chicago found that those with the highest DHA intake had the most protection against Alzheimer Disease. ALA and total omega-3 fats, but not EPA, were also protective.⁴