

ESSENTIAL Omega-3

A good fat

When you sprinkle walnuts on your cereal, pack a salmon sandwich for lunch, or cook with canola oil, you are adding omega-3 fatty acids to your meal. That is good news. The human brain, eyes, central nervous system, and body membranes need omega-3 fats to work properly. Omega-3 fatty acids affect inflammation, mood, behaviour, and many functions inside body cells. They may also reduce the risk of many chronic diseases. The bottom line however, is that many Canadians do not get the recommended amount of omega 3.

Health promises

At the top of the list of good news is that omega-3 fatty acids help heart health by:

- lowering the risk of sudden death caused by cardiac arrhythmias (irregular heartbeat)
- reducing the blood's tendency to clot, which may help avoid clogging in the arteries that occurs with atherosclerosis
- slightly lowering blood pressure
- reducing blood triglyceride levels, which can contribute to coronary heart disease. (With this condition, arteries that supply the heart muscle become hardened and narrow.)

Research is suggesting that omega-3 fats may also reduce or prevent:

- inflammatory diseases such as asthma, inflammatory bowel diseases, and stiffness in rheumatoid arthritis
- eye problems affecting sharpness of vision, including age-related macular degeneration where sharp, central vision is gradually destroyed
- mental health disorders such as depression, ADHD, and bipolar disorder.

Omega-3 fatty acids may also help those with osteoporosis (fragile bones) and cancers of the breast, colon and prostate.

A dash of food chemistry

Fatty acids are basic units of fat molecules. All fats are made of the same basic elements - carbon, oxygen and hydrogen.

Omega-3 fatty acids are a class of polyunsaturated fats (a healthy type). They are often referred to as n-3 fatty acids. The three omega-3 fatty acids are alpha linolenic acid (ALA), eicosapentanoic acid (EPA), and docosahexanoic acid (DHA).

ALA, EPA and DHA are called essential fatty acids because the human body cannot make them. They should be eaten often. Once in the diet, the body can change one omega-3 fatty acid into another, but it cannot create omega-3 fats from scratch.

ALA is often called the parent omega-3 fatty acid, since it is the starting point for forming EPA and DHA in the body. However, the ability to change ALA to EPA and DHA is limited in many people. Make sure you include EPA and DHA often in the foods you eat.

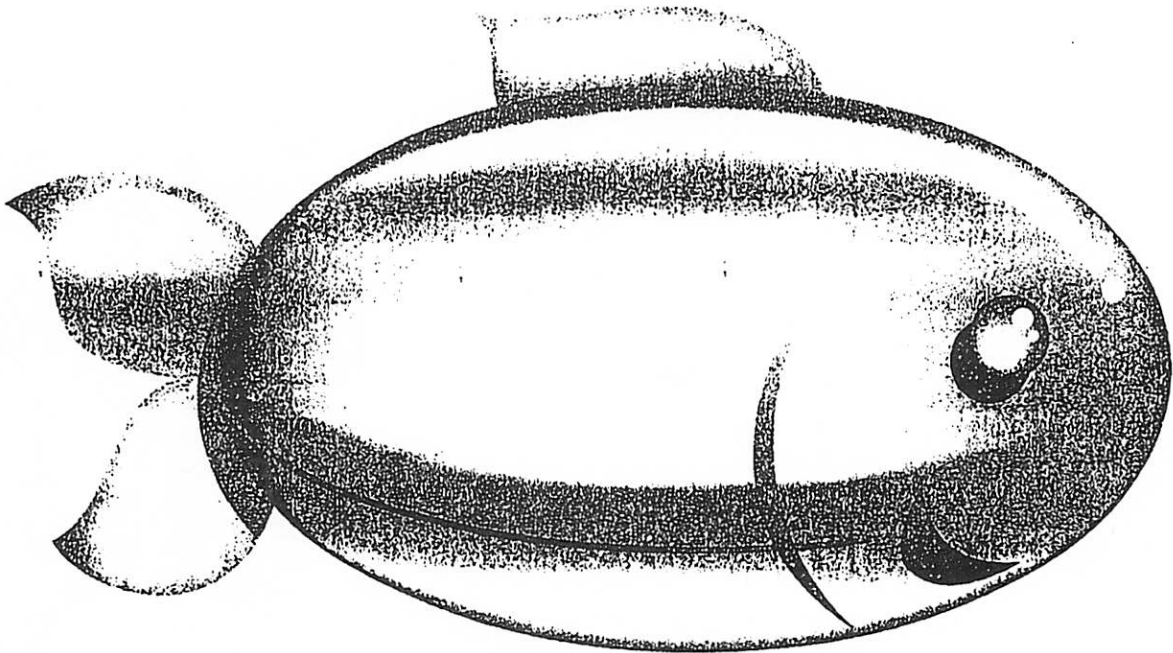
Rich sources of ALA are plant foods such as ground flaxseed, walnuts, soybeans, hemp, as well as the oils from these foods, and canola oil. The richest source of the key omega-3 fatty acids, EPA and DHA, are found in fatty fish. These fats are called the marine omega-3 fatty acids. Salmon, mackerel, herring, sardines and tuna are all common sources of EPA and DHA in a western Canadian diet. Microalgae and seaweed also contain omega-3 fatty acids.

How much is enough?

ALA - The recommended amount of omega-3 fatty acids necessary for health is based on the amount of calories you should eat. Table 1 outlines the recommended daily amounts of ALA fats. A tolerable upper limit has not been set for omega-3 fats.

Table 1: Recommended daily amount of ALA fats

Children aged 1 to 3	0.7 grams
Children aged 4 to 8	0.9 grams
Men aged 14 and over	1.6 grams
Women aged 14 and over	1.1 grams
Pregnant women	1.4 grams
Breastfeeding women	1.3 grams



In food, half a teaspoon (2 mL) of flax oil, two teaspoons (10 mL) of ground flaxseed, three tablespoons (45 mL) of walnuts, two tablespoons (30 mL) hemp seed, or one tablespoon (15 mL) of canola oil will each provide 1.1 grams of ALA.

DHA and EPA - Of the three omega-3 fats, researchers consider the marine fats (EPA and particularly DHA), to be most important for health benefits. Specific recommendations exist on including sources of EPA and DHA in the diet regularly, preferably from fatty fish. For instance, since omega-3 fats affect brain development, it is suggested that pregnant women have two to three meals of low mercury content fish, each week. (See article about fish and mercury content on page 25).

In order to prevent heart disease and the risk of sudden cardiac death, advisory committees in the United States, Australia, and the United Kingdom recommend two to three servings of fish per week. The best choices are fatty fish that will provide 0.45 to 0.55 grams (450 to 500 milligrams) of EPA plus DHA per day. About 250 grams (eight ounces) of cooked fish fillets eaten during the week provides the necessary 500 milligrams per day of EPA and DHA.

For those with coronary heart disease, the American Heart Association recommends including one gram (1,000 mg) of EPA plus DHA in the daily diet, preferably from oily fish. Talk with your doctor about supplements.

The American Heart Association suggests that those with a high level of triglycerides in their blood should talk to a doctor about taking two to four grams (2,000 to 4,000 mg) of EPA plus DHA daily.

A word of warning

Some people take omega-3 fatty acid capsules to supplement their diet. However, be cautious about doing this if you are on medication to control your blood glucose level, or take anticoagulants, including ASA (such as Aspirin™) and warfarin. As they can prolong bleeding time, talk to your doctor before taking DHA and EPA supplements.

Some fish oils, such as cod liver oil, contain large amounts of vitamin A and vitamin D. If used for a long time, there is a risk of vitamin toxicity. Aside from these concerns, fish oils are generally tolerated well at doses of three grams or less per day. Some people claim that, if you dislike the fishy after-taste, you can try freezing the capsules before swallowing them.

Safety of eating fish

Some fish contain toxins from the environment, including mercury and polychlorinated biphenyls (PCBs). However, the health benefits of eating fish outweigh the potential health risks.

To avoid eating hazardous levels of mercury, Health Canada has issued guidelines about certain types and amounts of fish. Specifically, pregnant women, women of childbearing age, and young children should limit shark, swordfish and fresh and frozen tuna to one meal per month. Others should eat these types of fish no more than once a week. This advice does not apply to canned tuna, which is low in mercury. Fish oil supplements are generally thought to be safe.

Mercury levels in fish

The Canadian Food Inspection Agency (CFIA) routinely monitors mercury levels in fish before they reach the market. Keep the following advisories in mind when shopping for fish.

Low mercury-level fish: Alaskan pollock, Atlantic herring and mackerel, anchovy, farmed catfish, clams, haddock, oysters, salmon (farmed and wild), scallops, mussels, sardines, shrimp, and tilapia.

Medium mercury-level fish: cod, crab, Atlantic golden bass, mahi mahi, smelt, snapper, spiny lobster, trout, light tuna, and whitefish.

High mercury-level fish: bluefish, golden bass (New Mexico), grouper, halibut, king mackerel, North American lobster, orange roughy, shark, swordfish, marlin, white albacore tuna, and fresh and frozen tuna.

Many scientific and health organizations have weighed the potential risks against the benefits of eating fish. A few selected fish species are known to be risky. Still, based on the evidence, the benefits of eating one or two servings of fish each week outweigh the risks.

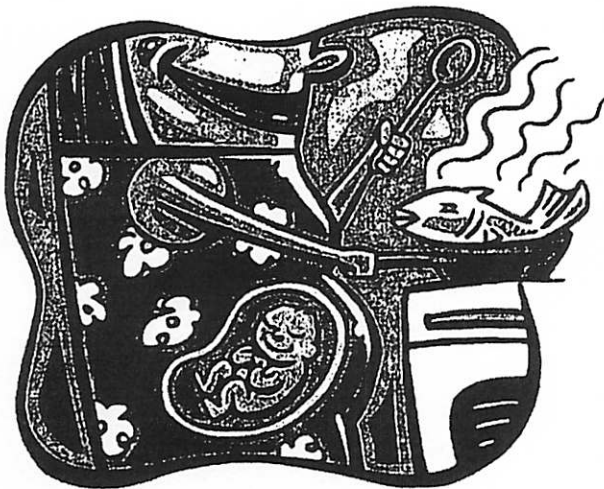


Table 2:
Omega-3 fatty acid content of common foods

Keep in mind that your body can convert ALA to DHA or EPA, the most helpful omega-3 fats.

FISH - 3 OUNCES (90 grams)	DHA + EPA (grams)
Salmon	0.68 (sockeye) 1.56 (Atlantic wild)
Halibut	0.40 - 1.0
Crab (Alaskan king)	0.35
Sardines	0.98 - 1.70
Light tuna, canned in water, drained	0.26
Herring	1.71 (Atlantic) - 1.81 (Pacific)
Rainbow trout, wild or farmed	0.84 - 0.98
Oysters	0.37 (farmed) - 1.17 (Pacific)
Cod	1.3 (Pacific) - 2.4 (Atlantic)

Omega-3 math

Using Table 2, add up the grams to meet your omega-3 fatty acid needs. Some foods and beverages are enhanced or supplemented with omega-3 fats. You can find them in certain brands of juice, eggs, yogurt, cheese, milk, margarine, and infant formulas.

Dietitians of Canada suggest that eating foods rich in omega-3 fatty acids is the best way to get the recommended dietary intake.

Here are some practical ways to add omega-3 fatty acids to your food choices.

- Eat two meals of fish each week. Choose fresh, canned or unbattered fish.
- Enjoy fatty fish such as salmon, sardines, herring, mackerel and trout. Shellfish is also a good source of omega-3 fatty acids.
- Sprinkle wheat germ, walnuts, pumpkin seeds or ground flaxseed on cereal, yogurt, and salads. Add them to baking.
- Use canola oil in cooking and baking. Choose salad dressings and non-hydrogenated margarines made with canola or flax oil.
- Choose foods, especially eggs, fortified with omega-3 fatty acids. Food manufacturers may use terms like omega-3, n-3, ALA, EPA or DHA.

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FOOD PRODUCT	ALA CONTENT (grams)
Flaxseed, ground, 2 tbsp (30 mL)	3.6
Flaxseed oil, 1 tsp (5 mL)	2.8
Walnuts, English, 14 halves (28 grams)	2.57
Hemp seeds, 2 tbsp (30 mL)	1.3
Soybeans, 1/2 cup (125 mL)	0.51
Flax oil capsule (1,000 mg)	0.5
Oil and vinegar based salad dressings, 3 tsp (15 mL)	0.3 - 0.6
Omega-3 soy beverage or omega-3 milk, 1 cup (250 mL)	0.4 - 0.7
Omega-3 egg (1)	0.1 - 0.13
Omega-3 juice, 1 cup (250 mL)	0.1 - 0.3
Omega-3 yogurt, 4 oz. (100 - 125 grams)	0.3 - 0.4
Oil, 2 tsp (10 mL)	
• canola	0.6 - 0.8
• olive oil	0.1
• corn oil	0.1
Omega-3 margarine, 2 tsp (10 mL)	0.5 - 0.7