



Omega-3 Fatty Acids and Cardiovascular Disease

A REVIEW OF THE RESEARCH FOR ADULTS

You may have heard that omega-3 fatty acids (from certain foods and dietary supplements) are good for your heart. This summary will tell you what researchers have found about omega-3 fatty acids and cardiovascular disease (disease that affects the heart and blood vessels).

What is cardiovascular disease?

Cardiovascular (CV) disease is any disease that affects your heart and blood vessels. A common form of CV disease happens when the blood vessels that supply blood to your heart become narrow or blocked. This is the main cause of heart attacks and heart failure.

Your blood contains cholesterol (a waxy, fat-like substance) and triglycerides (a type of fat). Eating foods high in saturated and trans fats (such as red meat, butter, cheese, fried foods, and baked goods) can raise the levels of cholesterol and triglycerides in your blood. Having too much cholesterol in your blood can cause plaque to build up in the blood vessels that supply blood to your heart. This buildup can cause the blood vessels to become narrow or blocked. Having high cholesterol levels and high blood pressure can increase the risk of CV disease and could lead to a heart attack. People with high triglyceride levels may also be at risk for CV disease.

What are omega-3 fatty acids?

Omega-3 fatty acids are polyunsaturated fatty acids that are important for many bodily functions. Omega-3 fatty acids are found in certain foods and also come as dietary supplement pills that you can take by mouth. Some food products (such as milk, eggs, margarine, yogurt, and juices) also have omega-3 fatty acids added to them.

There are different types of omega-3 fatty acids:

- » **Fish oil (EPA, DPA, and DHA):** EPA, DPA, and DHA are types of omega-3 fatty acids found in oily fish (such as salmon, trout, tuna, mackerel, and sardines), some other types of seafood, and algae. Fish oil dietary supplements may include just one type of fish oil (such as DHA) or a combination of types.
 - Some types of fish (such as swordfish, shark, and king mackerel) may have high levels of mercury. The U.S. Food and Drug Administration (FDA) advises women who are pregnant or breastfeeding to avoid eating fish high in mercury.
- » **ALA:** This other type of omega-3 fatty acid is found in walnuts, soybeans, tofu, flaxseed, and some oils (such as canola, soy, and flaxseed oils). ALA also comes as a dietary supplement pill.



What have researchers studied about omega-3 fatty acids and cardiovascular disease?

You may have heard that omega-3 fatty acids are good for your heart.

Researchers looked at how omega-3 fatty acids from food and dietary supplements affect cholesterol and triglyceride levels and blood pressure. They also looked at how omega-3 fatty acids affect longer term cardiovascular problems such as the risk of heart attack, heart failure, stroke, death from heart disease, and death from any cause.

The section that follows discusses what researchers found.



What have researchers found about omega-3 fatty acids and CV disease?

How do different types of omega-3 fatty acids affect:	Eating fish rich in omega-3 fatty acids	Fish oil dietary supplements	ALA dietary supplements
The risk of longer term CV problems (such as heart attack and heart failure) and death?	May lower the risk (in healthy people)	Do not lower the risk (in people with CV disease or those at risk for CV disease)	Not enough research to know
Triglyceride level?	Not enough research to know	Lower triglyceride level	Do not lower triglyceride level
HDL ("good") cholesterol level?		Slightly raise good cholesterol	Do not raise good cholesterol
LDL ("bad") cholesterol level?		Slightly raise bad cholesterol	Do not lower bad cholesterol
Blood pressure?		Do not lower blood pressure	Do not lower blood pressure

LEGEND: Positive result Negative result Not enough research to know

Researchers found that:

» Eating fish rich in omega-3 fatty acids:

- Appears to lower the risk of longer term CV problems (such as heart attack and heart failure) and death in healthy people.

» Fish oil dietary supplements:

- Do not lower the risk of longer term CV problems (such as heart attack and heart failure) and death in people with CV disease or those at risk for CV disease.
- Lower triglyceride level.
- Slightly raise HDL ("good") cholesterol level. High levels of good cholesterol lower the risk of CV disease.
- Slightly raise LDL ("bad") cholesterol level. High levels of bad cholesterol increase the risk of CV disease.
- Do not lower blood pressure.

» ALA dietary supplements:

- Do not lower triglyceride level or blood pressure.
- Do not raise good cholesterol.
- Do not lower bad cholesterol.

What are the possible side effects of omega-3 fatty acids?

Not much research has been done on the side effects of omega-3 fatty acids.

Fish oil dietary supplements may cause minor side effects such as burping, a fishy taste in your mouth, or an upset stomach. ALA dietary supplements may cause an upset stomach.

It is important to note that omega-3 fatty acid dietary supplements may interact with other medicines that you take. Always talk with your health care professional before taking any dietary supplement.

The U.S. Food and Drug Administration (FDA) approves the quality and safety of all prescription and over-the-counter medicines. But dietary supplements such as omega-3 fatty acids do not need FDA approval. That means the label on the bottle may not tell you exactly what is in the bottle.

If you buy dietary supplements, check to see if the label has the verified seal of the U.S. Pharmacopeial Convention (USP). The USP seal verifies a supplement's purity and quality.

The Source of This Information

The information in this summary comes from the report *Omega-3 Fatty Acids and Cardiovascular Disease: An Updated Systematic Review*, August 2016, produced by the Brown Evidence-based Practice Center through funding by the Agency for Healthcare Research and Quality (AHRQ). For a copy of the report or for more information about AHRQ, go to www.effectivehealthcare.ahrq.gov/omega-3. Additional information came from the MedlinePlus® Web site at www.medlineplus.gov.

This summary was prepared by the John M. Eisenberg Center for Clinical Decisions and Communications Science at Baylor College of Medicine, Houston, TX. Healthy adults, adults at risk for CV disease, and adults with CV disease gave feedback on this summary.



TALKING WITH YOUR HEALTH CARE PROFESSIONAL

Always talk with your health care professional before taking any dietary supplement.

You may want to ask your health care professional:

Might I benefit from eating fish rich in omega-3 fatty acids?

Might I benefit from taking fish oil dietary supplements?

How can I be sure about the quality and purity of fish oil dietary supplements?

Might fish oil dietary supplements interact with any of the medicines I take?