HEART HEALTH BENEFITS FROM EATING FISH

We now know that eating fish regularly protects against heart disease and dying suddenly from a heart attack. This is because the oils in fish are unique—they have long-chain omega-3s, fatty acids found in few other foods. Fish omega-3s improve the way the heart works and make other conditions that contribute to heart disease less dangerous. For these reasons, the American Heart and Diabetes Associations and the Dietary Guidelines for Americans urge everyone to eat fish—especially fatty species such as salmon, herring, black cod, mackerel, and sardines—at least twice a week.[1-3] For people who already have heart disease or diabetes, the oils in fish are especially important, as they may prolong life and improve the condition. Long-chain omega-3s from fish help to:

♥ **Decrease the chance of dying from heart disease**—Much evidence has shown that eating fatty fish regularly lowers the likelihood of heart disease mortality by as much as 36%.[4] This effect is mainly due to the omega-3 fatty acids in seafood.

♥ **Reduce the chance of sudden death**—Nearly half of all deaths from heart disease occur suddenly, before a person reaches help. Most sudden heart deaths come from uncontrolled rapid heart rhythms. Omega-3s from fish help prevent this type of fatality.[5-7] Besides improving heart rhythms, seafood omega-3s improve other electrical properties of the heart, such as heart rate.[8,9]

♥ **Reduce the chance of stroke**—Blood clots that develop in the brain or are carried to the brain from elsewhere cause strokes and serious disability. They can be fatal. People who eat fish regularly are less likely to develop strokes.

♥ **Maintain normal heart rhythms**—When the controlled rhythm of the heart gets out of order, a dangerous pattern of very rapid heartbeats can develop, which can be fatal. Omega-3s from fish help prevent these disturbed heart rhythms,[10] but not in all patients.[11,12] In some rhythm disorders, such as atrial fibrillation, fish oil may not be helpful.[13] However, for many who might develop harmful heart rhythms, seafood omega-3s may help maintain normal heart rhythms.

♥ **Reduce the chance of stroke**—Blood clots that develop in the brain or are carried to the brain from elsewhere cause strokes and serious disability. They can be fatal. Some, but not all, studies suggest that people who eat fish regularly are less likely to develop strokes.[14,15]

♥ **Lower chance of a second heart attack and non-fatal heart events**—In people who have already had a heart attack, the likelihood of developing a second heart attack is significantly lower with regular fish or omega-3 fatty acid consumption.[16] The development of other heart disorders, such as unstable angina (sharp chest pains), the need for coronary by-pass graft surgery or stents is also lower in patients who took EPA, a purified seafood omega-3. Eating fatty fish is also linked to a lower occurrence of heart failure, a weakened heart.[17]

♥ **Reduce inflammation**—As heart disease develops, blood vessels become mildly inflamed and this worsens heart disease. Many experts consider inflammation to be an underlying cause of heart disease.[18,19] This type of inflammation is reduced in people who regularly consume fatty fish or the omega-3s from fish.[20,21] Omega-3s also reduce the inflammatory substances produced in the heart's arteries, improving the function of these blood vessels.[22] Seafood omega-3s help counteract the inflammatory effects of the fatty acids we eat in vegetable oils and are used to make substances that help end inflammation.

♥ **Improve the pattern of lipids in the blood**—Seafood omega-3s can dramatically lower the amount of blood fats (triglycerides) in blood, reducing the chance of a heart attack.[23,24] People with type 2 diabetes and certain types of heart disease can have very high levels of blood triglycerides and eating fatty fish or seafood omega-3s is one of the best ways to lower these fats.[25] Seafood omega-3s do not lower LDL or "bad" cholesterol levels and may raise them modestly.[24]

♥ **Improve "good" cholesterol or HDL levels**—People who have higher levels of HDL or "good" cholesterol in their blood are less likely to develop heart disease or heart failure.[26] HDL helps remove cholesterol from the blood vessels where it can be harmful and has anti-inflammatory, anti-blood clotting and antioxidant effects. Regularly eating fish or the omega-3s from them helps boost blood levels of HDL cholesterol.[27]

♥ **Lower blood pressure**—High blood pressure or hypertension increases the chance of heart disease and stroke. Eating fish or seafood omega-3s regularly may lower blood pressure modestly.[28,29] Higher doses of seafood omega-3s, in the range of 3 to 4 grams/day may be needed to reduce blood pressure.[30] The effect of omega-3s can be improved by limiting salt (sodium) intake, achieving and keeping a healthy body weight and exercising at least 3 times a week.

♥ **Lower chance of blood clots**—Blood clotting helps heal injuries, but if the blood clots too readily, it can block a blood vessel, especially one clogged with plaque. When this happens a stroke, heart attack or death can result. The omega-3s from fish reduce the tendency to form blood clots and improve blood flow.[31] Recent studies have shown that seafood omega-3s enhance the effectiveness of anti-platelet drugs, including aspirin.[32] Omega-3s also make red blood cells more flexible, improving circulation through small blood vessels.

♥ **Better blood vessel function**—Our arteries do more than send blood around the body. Their cells are miniature chemical factories making substances that affect blood flow, artery wall flexibility and inflammation. With the omega-3s from fish, arteries are more elastic and less likely to promote the formation of blood clots.[33,34] The cells lining the arteries produce less inflammatory substances and more products that limit inflammation when seafood omega-3s are present. As a result, blood flow, blood pressure and inflammation are improved.

♥ **Improved heart rate adaptability**—A person's pattern of heartbeats normally has small beat-to-beat changes. These small differences reflect the heart's ability to adapt to changes in its environment. When fish oil omega-3s are present, the heart rate often, but not always, shows greater flexibility compared to its variability without omega-3s.[35] Having greater variability in heart rate is linked to lower heart disease and reduced likelihood of dying from it.[36]

♥ **More stable arterial plaques**—One of the riskiest aspects of heart disease is the build-up of deposits or plaques in the blood vessels going to the heart and brain. These plaques begin in childhood and are the early stages of atherosclerosis. As the plaques grow larger they are more likely to break apart starting a chain of events that can lead to heart failure. There is emerging evidence that the omega-3s from fish help make these plaques more stable and less likely to rupture.[37,38] More work is needed, however, to confirm the initial findings. In some studies, the amount of plaque decreases with fish oil consumption, easing blood flow and reducing the chance of stroke or heart attack.

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