

Top Ten Things to Know Seafood Long-Chain n-3 Polyunsaturated Fatty Acids and Cardiovascular Disease

1. The purpose of this AHA Science Advisory is to summarize the health effects of seafood, as well as the effects of dietary LC n-3 PUFAs from seafood, on the primary and secondary prevention of CVD.
2. Evidence from observational and experimental studies, and from randomized controlled trials continue to substantiate the beneficial effects of seafood long chain n-3 polyunsaturated fatty acids (LC n-3 PUFAs) and cardiovascular disease; including a recent AHA Advisory that addressed the specific effect of n-3 PUFA supplementation on clinical cardiovascular events.
3. While a growing number of foods, such as eggs, peanut butter, orange juice, margarine, bread, yogurt, and milk, are being enriched with LC n-3 PUFA, seafood remains the primary dietary source of these fatty acids and the only class of foods for which there is a substantial research base that includes hard clinical endpoints. For this reason, this Scientific Advisory Statement is limited to seafood.
4. The current AHA dietary recommendation is to consume at least 2 servings (3.5oz/serving) of fish, preferably fatty fish. One fatty fish serving/week (4 oz.) such as salmon, provides the recommended daily intake of LC n-3 PUFAs (~ 250 mg/day), while multiple servings of lean fish, such as cod, would be required to achieve the recommended intake.
5. The Advisory discusses the role of seafood in secondary prevention of CVD and the major effects of LC n-3 PUFA, specifically from seafood, in providing the best health impact is through its beneficial effects in heart failure, CHD, stroke, blood pressure and intermediate CV risk markers
6. Seafood-derived LC n-3 PUFAs have positive electrophysiological effects and an impact on the fundamental elements (ion channels, exchangers, and modulators) of cardiac electric activity. Greater consumption of seafood has also been associated with other electrophysiological indices including lower heart rate, slower atrioventricular conduction, lower likelihood of abnormal repolarization (prolonged QT), and optimal values of several heart rate variability components; these effects being associated with a lower risk of developing ventricular arrhythmias and sudden cardiac death.
7. The Advisory suggests that the available evidence is consistent with a beneficial role of dietary LC n-3 PUFAs on triglycerides, blood pressure, cardiac electrophysiology, endothelial function, and possibly inflammation, although the evidence for each of these endpoints is more limited for dietary, as opposed to supplement, sources; demonstrating the need for larger well-controlled clinical trials of longer duration.
8. In the case of sudden cardiac death, the evidence suggests that for apparently healthy individuals, the association between LC n-3 PUFAs from seafood and risk of sudden cardiac death is not linear, but rather has a threshold effect. Modest consumption of seafood (~1-2 servings per week) is associated with lower rates of sudden cardiac death, as compared with little or no seafood intake, and there is little additional benefit in risk reduction with a higher intake
9. The Advisory reviews data from a few prospective cohort studies that show that a lower risk of heart failure is associated with a higher intake of seafood. Also, dietary intake of LC n-3 PUFAs from seafood is associated with a lower risk of CHD and ischemic stroke.
10. The Advisory reports no significant adverse effects of mercury in seafood on CVD endpoints, but does suggest a need for further research on fish as a dietary source of Trimethylamine N-oxide (TMAO) which could impact CVD risk. Overall, the Advisory supports the current recommendation that seafood be an integral component of a heart healthy dietary pattern

Rimm EB, Appel LJ, Chiuve SE, Djoussé L, Engler MB, Kris-Etherton PM, et al; on behalf of the American Heart Association Nutrition Committee of the Council on Lifestyle and Cardiometabolic Health; Council on Epidemiology and Prevention; Council on Cardiovascular Disease in the Young; Council on Cardiovascular and Stroke Nursing; and Council on Clinical Cardiology. [Seafood long-chain n-3 polyunsaturated fatty acids and cardiovascular disease: a science advisory from the American Heart Association](#) [published online ahead of print May 17, 2018]. *Circulation*. DOI: 10.1161/CIR.0000000000000574.