

Consumption of omega-3s linked to lower risk of fatal heart disease

June 27 2016



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Blood levels of seafood and plant-based omega-3 fatty acids are moderately associated with a lower risk of dying from heart attacks, according to a new epidemiological study, published today in *JAMA*

Internal Medicine, led by Liana C. Del Gobbo, Ph.D., a postdoctoral research fellow in the division of cardiovascular medicine at Stanford University School of Medicine and senior author Dariush Mozaffarian, M.D., Dr.P.H., dean of the Friedman School of Nutrition Science and Policy at Tufts University in Boston.

Researchers from around the world joined together to form the Fatty acids and Outcomes Research Consortium (FORCE). By pooling findings from diverse large studies that had measured blood or tissue levels of omega-3 [fatty acids](#), they evaluated relationships with heart disease events over time. Each study performed new standardized, individual-level analyses. Findings were then centrally pooled in a meta-analysis.

A total of 19 studies were involved from 16 countries and including 45,637 participants. Of these, 7,973 people developed a first heart attack over time, including 2,781 deaths and 7,157 nonfatal heart attacks.

Overall, both plant-based and seafood-based omega-3s were associated with about a 10 percent lower risk of fatal heart attacks. In contrast, these fatty acids biomarkers were generally not associated with a risk of nonfatal heart attacks, suggesting a more specific mechanism for benefits of omega-3s related to death.

"These new results, including many studies which previously had not reported their findings, provide the most comprehensive picture to-date of how omega-3s may influence [heart](#) disease," said Del Gobbo, who conducted this study as part of her postdoctoral work with Mozaffarian. "Across these diverse studies, findings were also consistent by age, sex, race, presence or absence of diabetes, and use of aspirin or cholesterol-lowering medications."

"At a time when some but not other trials of fish oil supplementation

have shown benefits, there is uncertainty about cardiovascular effects of omega-3s," said Mozaffarian. "Our results lend support to the importance of fish and omega-3 consumption as part of a healthy diet."

Fish is the major food source of omega-3 fatty acids, including eicosapentaenoic acid (EPA), docosapentaenoic acid (DPA), and docosahexaenoic acid (DHA). According to the U.S. Department of Agriculture's National Nutrient Database, fatty fish such as salmon, trout, anchovies, sardines, and herring contain the highest amounts of omega-3 fatty acids, although all fish contain some levels. In addition to omega-3 fatty acids, fish provide specific proteins, vitamin D, selenium, and other minerals and elements. Alpha-linolenic acid (ALA) is the plant-based omega-3 fatty acid found in walnuts, flaxseed oil, and canola oil and some other seed and nuts and their oils.

"Most prior studies of dietary fats have relied on self-reported estimates of intake," said Mozaffarian. "This new global consortium provides an unprecedented opportunity to understand how blood biomarkers of many different fats and fatty acids relate to diverse health outcomes, and many additional investigations are in progress."

This study is part of the Cohorts for Heart and Aging Research in Genomic Epidemiology (CHARGE) Fatty acids and Outcomes Research Consortium (FORCE). There are 47 additional authors on the study.

This work was supported by awards from the National Heart, Lung, and Blood Institute, the National Human Genome Research Institute, the National Institutes of Health Roadmap for Medical Research, the National Institute of Neurological Disorders and Stroke, and the National Institute of Aging, all of the National Institutes of Health and numerous other funders including ones in Europe, Asia, and Australia. Please see the study for a full list of authors, funding sources, and conflicts of interest disclosure.

More information: Del Gobbo, L.C.; and Mozaffarian, D., et al. ω -3 Polyunsaturated fatty acid biomarkers and coronary heart disease. Pooling project of 19 cohort studies. *JAMA Intern Med.* 2016;176(8);1-13. DOI: [10.1001/jamainternmed.2016.2925](https://doi.org/10.1001/jamainternmed.2016.2925) . Published online June 27, 2016.

Provided by Tufts University

Citation: Consumption of omega-3s linked to lower risk of fatal heart disease (2016, June 27) retrieved 20 March 2024 from <https://medicalxpress.com/news/2016-06-consumption-omega-3s-linked-fatal-heart.html>

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