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Higher blood omega-3s associated with lower risk of premature death among older adults



Risk of dying from heart disease significantly lowered

Boston, MA – Older adults who have higher blood levels of omega-3 fatty acids—found almost exclusively in fatty fish and seafood—may be able to lower their overall mortality risk by as much as 27% and their mortality risk from heart disease by about 35%, according to a new study from Harvard School of Public Health (HSPH) and the University of Washington. Researchers found that older adults who had the highest blood levels of the fatty acids found in fish lived, on average, 2.2 years longer than those with lower levels.

“Although eating fish has long been considered part of a healthy diet, few studies have assessed blood omega-3 levels and total deaths in older adults,” said lead author Dariush Mozaffarian, associate professor in the Department of Epidemiology at HSPH. “Our findings support the importance of adequate blood omega-3 levels for cardiovascular health, and suggest that later in life these benefits could actually extend the years of remaining life.”

The study—the first to look at how objectively measured blood biomarkers of fish consumption relate to total mortality and specific causes of mortality in a general population—appears online April 1, 2013 in *Annals of Internal Medicine*.

Previous studies have found that fish, which is rich in protein and heart-healthy fatty acids, reduces the risk of dying from heart disease. But the effect on other causes of death or on total mortality has been unclear. With this new study, the researchers sought to paint a clearer picture by examining biomarkers in the blood of adults not taking fish oil supplements, in order to provide the best assessments of the potential effects of dietary consumption of fish on multiple causes of death.

The researchers examined 16 years of data from about 2,700 U.S. adults aged 65 or older who participated in the Cardiovascular Health Study (CHS), a long-term study supported by the National Heart, Lung, and Blood Institute. Participants came from four U.S. communities in North Carolina, California, Maryland, and Pennsylvania; and all were generally healthy at baseline. At baseline and regularly during follow-up, participants had blood drawn, underwent physical examinations and diagnostic testing, and were questioned about their health status, medical history, and lifestyle.

The researchers analyzed the total proportion of blood omega-3 fatty acids, including three specific ones, in participants’ blood samples at baseline. After adjusting for demographic, cardiovascular, lifestyle, and dietary factors, they found that the three fatty acids—both individually and combined—were associated with a significantly lower risk of mortality. One type in particular—docosahexaenoic acid, or DHA—was most strongly related to lower risk of coronary heart disease (CHD) death (40% lower risk), especially CHD death due to arrhythmias (electrical disturbances of the heart rhythm) (45% lower risk). Of the other blood fatty acids measured—eicosapentaenoic acid (EPA) and docosapentaenoic acid (DPA)—DPA was most strongly associated with lower risk of stroke death, and EPA most strongly linked with lower risk of nonfatal heart attack. None of these fatty acids were strongly related to other, noncardiovascular causes of death.

Overall, study participants with the highest levels of all three types of fatty acids had a 27% lower risk of total mortality due to all causes.

When the researchers looked at how dietary intake of omega-3 fatty acids related to blood levels, the steepest rise in blood

levels occurred when going from very low intake to about 400 mg per day; blood levels rose much more gradually thereafter. “The findings suggest that the biggest bang-for-your-buck is for going from no intake to modest intake, or about two servings of fatty fish per week,” said Mozaffarian.

Support for the study came from the National Heart, Lung, and Blood Institute (NHLBI) and the Office of Dietary Supplements of the National Institutes of Health (R01-HL-085710).

“Plasma Phospholipid Long-Chain Omega-3 Fatty Acids and Total and Cause-Specific Mortality in Older Adults,” Dariush Mozaffarian, Rozenn N. Lemaitre, Irena B. King, Xiaoling Song, Hongyan Huang, Molin Wang, Frank M. Sacks, Eric B. Rimm, and David S. Siscovick, *Annals of Internal Medicine*, online April 1, 2013

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