

Embargoed: 00.01 hrs London time (BST) Wednesday 22 April 2009

Eating fatty fish and marine omega-3 fatty acids may reduce risk of heart failure

Eating fatty fish and marine omega-3 fatty acids, which are found in fish oil, seems to protect men from heart failure according to one of the largest studies to investigate the association.

However, the effect was seen only in men who eat approximately one serving of fatty fish a week and who had a moderate intake of marine omega-3 fatty acids (approximately 0.3 grams a day). Eating more did not give a greater benefit and, in fact, returned the chances of heart failure to the same level as that seen in men who never consume fatty fish or fish oils.

The study provided no evidence that taking food supplements containing marine omega-3 fatty acids made any difference. The men in this study, which is published in Europe's leading cardiology journal, the *European Heart Journal* [1] today (Wednesday 22 April), obtained most of their marine omega-3 fatty acids from the food they ate.

Researchers in the USA and Sweden followed 39,367 Swedish men, aged between 45-79, from 1998 to 2004. They recorded details of the men's diet and tracked the men's outcome through Swedish inpatient and cause-of-death registers. During this period, 597 men without a history of heart disease or diabetes developed heart failure, of which 34 died.

The researchers found that men who eat fatty fish, such as herring, mackerel, salmon, whitefish and char, once a week were 12% less likely to develop heart failure compared to men who never eat fatty fish. Although this association with fatty fish did not reach statistical significance, the researchers also found a statistically significant association with the intake of marine omega-3 fatty acids (found in cod livers and other fish oils); men who consumed approximately 0.36 grams a day were 33% less likely to develop heart failure than men who consumed little or no marine omega-3 fatty acids (0.15-0.22 grams a day). [2]

The men were divided into five groups depending on their intake of fatty fish, with the first group consuming none, or very little, and the fifth group consuming the most – three or more servings of fatty fish a week. The researchers found that while the middle group, which eat one serving of fatty fish a week, had a 12% reduced risk compared to the men who never eat fatty fish, the men in the next two groups, who eat either two servings a week or three or more servings a week, had nearly the same risk as the men who eat none.

The researchers also divided the men into five groups based on their intake of marine omega-3 fatty acids. Again, the same U-shape was seen, with the middle group who consumed 0.36 grams a day of fatty acids having a 33% reduced risk of heart failure, while the men who consumed more (either approximately 0.46 grams per day or approximately 0.71 grams per day) had a risk similar to men who consumed none or very little.

Dr Emily Levitan, a cardiology research fellow at Beth Israel Deaconess Medical Center and

Harvard Medical School, Boston, USA, who led the research, said: "Our study shows that a moderate intake of fatty fish and marine omega-3 fatty acids is associated with lower rates of heart failure in men, but that the men did not gain a greater benefit by eating more of these foods.

"The apparent U-shaped relationship of fatty fish and marine omega-3 fatty acids with heart failure was unexpected. The higher rate of heart failure in men who consumed the most fatty fish or marine omega-3 fatty acids compared with moderate consumption may be due to chance. Alternatively, these may be men in poor health who ate more fish to try to improve their ill-health, and therefore the fatty fish and fatty acids appear to be risk factors for heart failure. I suspect this is the most likely explanation, but we cannot be certain from our data."

Previous studies have shown that fatty fish and omega-3 fatty acids help to combat risk factors for a range of heart-related conditions such as lowering levels of triglycerides (fats in the blood), blood pressure, heart rate and heart rate variability. This may explain the association with a reduced risk of heart failure found in this current study.

Dr Levitan said: "This study reinforces the current recommendations for moderate consumption of fatty fish. For example, the Swedish National Food Administration recommends consuming fish two to three times per week, with one of those portions being fatty fish. Similarly, the American Heart Association recommends eating fish, preferably fatty fish, twice a week. Our study supports the idea that a healthy diet, including moderate consumption of fatty fish, can reduce the risk of cardiovascular diseases including heart failure. It will be important to replicate these findings in other populations, particularly those including women, as our study was conducted in men only."

(ends)

Notes:

[1] "Fish consumption, marine omega-3 fatty acids, and incidence of heart failure: a population-based prospective study of middle-aged and elderly men". *European Heart Journal*. doi:10.1093/eurheartj/ehp111.

[2] There are two reasons why results on consumption of fatty fish were not statistically significant while the results on marine omega-3 fatty acids were significant, even though these were derived from food sources. The first is that the marine omega-3 intake was corrected for total energy intake and age and frequency of fatty fish intake was not. The correction for total energy intake was done because a given amount of marine omega-3 is not likely to have the same effect in a man who weighs 250 pounds as in a man who weighs 150 pounds. Correction for age was done because, in this population, the portion sizes varied quite a bit by age. The second reason the results do not line up exactly is that the categories are different. Fatty fish was divided up by frequency of consumption and the very low and very high groups were small. Marine omega-3 (adjusted for age and total energy) intake was divided into five equally sized groups.

A pdf of the full paper is available on request from Emma Mason or is available at: http://www.oxfordjournals.org/our_journals/eurheartj/press_releases/freepdf/ehp111.pdf

The European Heart Journal is the flagship journal of the European Society of Cardiology (<http://www.escardio.org>). It is published on behalf of the ESC by Oxford Journals, a division of Oxford University Press. Please acknowledge the journal as a source in any articles.

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