

大豆はオメガ3脂肪酸の有益性を増強させる (Abstract# 1404/Poster 2071)

魚の調理法がオメガ3脂肪酸の心保護に関する有益性に影響する
How fish is cooked affects cardioprotective benefits of omega-3 fatty acids

オメガ3脂肪酸による心保護目的で魚を食べる際には、揚げたり塩漬けにしたりまたは乾燥させたりするよりも焼いたり蒸したりするほうが有効であり、減塩しょうゆや豆腐はその有益性を増強させると2009年American Heart Association学会で発表された。スタディの結果から、心保護作用は性別や民族性(おそらく調理法の違い、遺伝子感受性、またはホルモン因子による)の影響も受けることが示唆された。このスタディは、45~75歳の心疾患既往歴を有さない82,243人の男性および103,884人の女性を対象とした。オメガ3脂肪酸摂取量は男性においては心疾患による死亡の全リスクと逆比例した一傾向は主に白人、日系アメリカ人、およびラテン系民族において認められた。全体で、1日3.3gのオメガ3脂肪酸を摂取する男性は1日0.8g摂取する男性と比較し、心臓死のリスクが23%低かった。女性においてはそれぞれの摂取レベルにおいて心保護作用を有していたが一貫して有意なわけではなかった。塩漬けまたは乾燥の魚は女性においてはリスクファクターであった。しょうゆおよび照り焼きソースを追加すると男性では保護的に作用し、女性では心血管疾患死と逆比例の関係を示した。豆腐は全ての民族において心保護作用を有していた。

Full Text

If you eat fish to gain the heart-healthy benefits of its omega-3 fatty acids, baked or boiled fish is better than fried, salted or dried, according to research presented at the American Heart Association's Scientific Sessions 2009. And, researchers said, adding low-sodium soy sauce or tofu will enhance the benefits.

"It appears that boiling or baking fish with low-sodium soy sauce (shoyu) and tofu is beneficial, while eating fried, salted or dried fish is not," said Lixin Meng, M.S., lead researcher of the study and Ph.D. candidate at the University of Hawaii at Manoa. "In fact, these methods of preparation may contribute to your risk. We did not directly compare boiled or baked fish vs. fried fish, but one can tell from the (risk) ratios, boiled or baked fish is in the protective direction but not fried fish."

The findings also suggest that the cardioprotective benefits vary by gender and ethnicity - perhaps because of the preparation methods, genetic susceptibility or hormonal factors.

Many studies have suggested that eating omega-3 fatty acids reduces the risk of heart disease; however, little is known about which source is most beneficial.

In this study, researchers examined the source, type, amount and frequency of dietary omega-3 ingestion among gender and ethnic groups. Participants were part of the Multiethnic Cohort living in Hawaii and Los Angeles County when they were recruited between 1993 and 1996. The group consisted of 82,243 men and 103,884 women of African-American, Caucasian, Japanese, Native Hawaiian and Latino descent ages 45 to 75 years with no history of heart disease.

Researchers divided their intake of canned tuna, other canned fish, fish excluding shell fish, or soy products that contain plant omega-3s (soy, tofu and shoyu) into quintiles, quartiles, or tertiles when applicable. They also surveyed the preparation methods: raw, baked, boiled; fried; salted or dried. The initial study did not consider grilled fish.

Those in the highest quintile consumed a median 3.3 grams of omega-3 fatty acids a day. The lowest quintile consumed a median of 0.8 grams a day.

Omega-3 intake was inversely associated with overall risk of death due to heart disease in men - a trend mainly observed in Caucasians, Japanese Americans and Latinos. However, there weren't many blacks or Hawaiians in the study, so the results should be interpreted cautiously, Meng said. Overall, men who ate about 3.3 grams per day of omega-3 fatty acids had a 23 percent lower risk of cardiac death compared to those who ate 0.8 grams daily.

"Clearly, we are seeing that the higher the dietary omega-3 intake, the lower the risk of dying from heart disease among men," Meng said.

Japanese and Hawaiians eat fish more often compared to whites, blacks and Latinos, and they prepare fish in a variety of methods, Meng noted.

For women, the omega-3 effect was cardioprotective at each level of consumption but not consistently significant, Meng said. Salted and dried fish was a risk factor in women.

In contrast, adding less than 1.1 gram/day shoyu and teriyaki sauce at the dinner table was protective for men but not for greater than 1.1 gram/day. For women, shoyu use showed a clear inverse relationship to death from heart disease. She noted that shoyu that is high in sodium can raise blood pressure, so she stressed low-sodium products. Eating tofu also had a cardioprotective effect in all ethnic groups.

"My guess is that, for women, eating omega-3s from shoyu and tofu that contain other active ingredients such as phytoestrogens, might have a stronger cardioprotective effect than eating just omega-3s," said Meng, noting that further studies are needed to confirm the hypothesis.

During the average 11.9 years of follow-up, 4,516 heart-related deaths occurred in the group, according to state and national death records, which were cross-referenced through the end of 2005.

The study didn't consider possible dietary changes over time; subjects who were diagnosed with heart disease after their baseline food intake surveys might have modified their eating habits. Further, the study didn't account for the possible effects of fish-oil supplementation.

In light of these limitations, the researchers plan to include subjects' dietary patterns over time and a cross-validation of their omega-3 levels through blood analysis.

"Our findings can help educate people on how much fish to eat and how to cook it to prevent heart disease," Meng said.

"Alternatively, if it is verified that the interactions between fish consumption, risk factors and ethnicity are due to genetic susceptibility, the heart-disease prevention message can be personalized to ethnic groups, and future study could identify susceptibility at the genetic level."

Co-authors are Lynne Wilkens, Dr.P.H., and Laurence Kolonel, M.D., Ph.D.

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Cardiology特集

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