

## Points of Interest

- More than half of the individuals who die from CHD or SCD do not have recognized heart disease
- Modest consumption of marine-source omega-3 fats appears to have a greater impact on reducing risk for fatal heart attack than on chronic disease progression
- Greater consumption of omega-3s may show a larger benefit on nonfatal heart-related events
- The strongest relationships with omega-3 intake and reduction in CHD death and SCD are seen when omega-3 tissue levels, not dietary intake, are measured
- Benefits for survival are seen within 3 months of omega-3 intake and benefits are independent of most heart medications
- Benefits are seen in individuals with and without established heart disease

## Omega-3 Recommendations

- 250-500 mg EPA+DHA/day is recommended to reduce risk of heart or sudden cardiac death
- 1 gram of EPA+DHA/day is minimum recommended amount for individuals with established heart disease
- There is insufficient data to recommend plant source omega-3 (i.e. ALA) as a replacement for marine-source omega-3 (i.e. EPA and DHA)

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## Omega-3 Fats and Risk of Sudden or Cardiac Death

### Review of:

Mozaffarian D. Fish and n-3 fatty acids for the prevention of fatal coronary heart disease and sudden cardiac death. *American Journal of Clinical Nutrition*, 2008; 87:1991S-1996S.

### Background

Today, more than half of heart disease related deaths occur in individuals who are not diagnosed with heart disease. Dr. Mozaffarian delivers a comprehensive review of the relationship between dietary omega-3 intake and risk of death by coronary heart disease and sudden cardiac death using data from observational studies, randomized clinical trials and experimental studies.

### First Look at Omega-3s and Sudden Cardiac Death

A relationship between consumption of marine-source omega-3 fats and heart health has been observed since the 1960's, but the first investigation of the relationship between fish intake and sudden cardiac death (SCD) was published in 1995. Results of this first perspective population based case-control study indicated a 60% reduction in SCD risk among individuals in the highest quartile (top 25%) of seafood consumption and a whopping 90% reduction of SCD risk among individuals in the highest quartile of omega-3 intake. These findings have been subsequently confirmed.

### Evaluation of Omega-3 Intake and Risk of Death by Coronary Heart Disease

At least 15 large, prospective cohort studies have looked at fish or omega-3 intake and death from coronary heart disease (CHD). While the health status of individuals, their cultural backgrounds, geography and other factors varied, the results of these cohort studies are remarkably consistent; compared to individuals who consume little or no seafood, individuals who consume a modest amount of omega-3 fats (250-500 mg of EPA and DHA/day, or 1-2 servings of oily fish/week) have a 25-50% lower risk for CHD death. A summary of these and other relevant studies indicates a significant dose-response; a 36% reduction in risk of CHD death with an omega-3 intake from zero to 250 mg/day. Four large randomized clinical trials investigated fish or fish oil consumption and risk of CHD death or SCD. Results from three of these 4 trials are consistent with the findings in the large cohort studies, again demonstrating that

compared too little or not intake, modest consumption of omega-3 fats measurably reduces risk of CHD death and SCD.

### Differences in those with and without heart disease

There has been an outstanding question regarding benefit of omega-3 fats among individuals with established CHD (secondary prevention) and those free of known heart disease (primary prevention). Findings-to-date suggest no difference, that is, the benefits of omega-3 fats on risk of CHD death and SCD do not vary depending on the presence or absence of CHD. The question of dose, however, remains; modest consumption (~ 250 mg EPA + DHA/day) may be sufficient for prevention, and 1 gram of EPA + DHA/day is the current minimum recommendation for individuals with known risk.

### Will the best omega-3 please rise?

The abundance of evidence suggests that risk reduction benefits for CHD death and SCD are related to EPA and DHA, the predominant omega-3 fats found in fish and seafood. Individual contributions of EPA and DHA are not well enough understood or identified to be separated. Plant source omega-3 (i.e. ALA) does not substantially convert to EPA or DHA, but it may offer other heart benefits. If this is so, it appears that much higher dietary intakes are necessary. Relevant mechanism of actions of EPA and DHA are unknown.

### Summary

Consistently remarkable findings indicate a substantial (36%) reduction in risk of heart and sudden cardiac death from a modest consumption of omega-3 fats, compared to little or no intake. Given that over half of individuals who die from heart disease related deaths do not have recognized heart disease, regular consumption of EPA and DHA omega-3s is a simple, smart and affordable health practice.

**Suggested Citation:** Mozaffarian D. Fish and n-3 fatty acids for the prevention of fatal coronary heart disease and sudden cardiac death. *American Journal of Clinical Nutrition*, 2008; 87:1991S-1996S. Review in *Quarterly Journal of Significant Omega-3 Research*. 2008 Oct-Dec.