

Abstract

Prev Med. 2004 Jul;39(1):212-20.

The Omega-3 Index: a new risk factor for death from coronary heart disease?

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BACKGROUND: Low intakes or blood levels of eicosapentaenoic and docosahexaenoic acids (EPA + DHA) are independently associated with increased risk of death from coronary heart disease (CHD). In randomized secondary prevention trials, fish or fish oil have been demonstrated to reduce total and CHD mortality at intakes of about 1 g/day. Red blood cell (RBC) fatty acid (FA) composition reflects long-term intake of EPA + DHA. We propose that the RBC EPA + DHA (hereafter called the Omega-3 Index) be considered a new risk factor for death from CHD.

METHODS: We conducted clinical and laboratory experiments to generate data necessary for the validation of the Omega-3 Index as a CHD risk predictor. The relationship between this putative marker and risk for CHD death, especially sudden cardiac death (SCD), was then evaluated in several published primary and secondary prevention studies.

RESULTS: The Omega-3 Index was inversely associated with risk for CHD mortality. An Omega-3 Index of $\geq 8\%$ was associated with the greatest cardioprotection, whereas an index of $\leq 4\%$ was associated with the least.

CONCLUSION: The Omega-3 Index may represent a novel, physiologically relevant, easily modified, independent, and graded risk factor for death from CHD that could have significant clinical utility.

PMID: 15208005

