Reference:

n-3 Fatty acids from fish or fish-oil supplements, but not a-linolenic acid, benefit cardiovascular disease outcomes in primary – and secondary-prevention studies: a systematic review.


Summary:

This newly-published systematic review of the literature is directed to the effects of DHA (docosahexaenoic acid) plus EPA (eicosapentaenoic acid) consumed as fish/fish oils or ALA (a-linolenic acid) on cardiovascular disease outcomes and events. Peer-reviewed published studies which were of at least one year or more in duration and which reported intakes of fish or omega-3 fatty acid intakes in relation to cardiovascular disease outcomes were included in the analyses for this review. After evaluating 842 full text articles and 8039 abstracts for potentially relevant data, the authors identified 46 unique eligible studies on cardiovascular disease outcomes – including 14 randomized-controlled trials, 25 perspective cohort studies and 7 case-control studies. The authors concluded that the overall evidence suggests that increasing consumption of omega-3 fatty acids as DHA/EPA from fish or fish oil, but not ALA, significantly reduces the rates of all-cause mortality, cardiac and sudden death, and possibly stroke. They also observed from their overall analyses of the relevant published literature that evidence for beneficial effects of fish oil is much stronger in secondary settings (i.e., in those with a previous history of cardiovascular disease), as compared to those in primary-prevention settings (populations with no history of cardiovascular disease). In the randomized controlled trials of fish oil supplementation for the secondary prevention of cardiovascular disease, the daily dosages of DHA/EPA combined ranged from 0.3 to 4.8 gm/day. The overall mean risk ratios were less than 1.0 (supporting benefit for all-cause mortality in 3 out of 5, in 3 out of 4 for cardiac death, and in 3 out of 5 for non-fatal myocardial infarction. In reviewing the 3 randomized controlled intervention trials (using DHA/EPA supplementation, in patients with implantable cardioverters defibrillators, ICD), the authors concluded that no benefits of omega-3 supplementation were seen overall. The effects on stroke with DHA/EPA supplementation were concluded to be
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inconsistent.

Dr. Holub's Comments:

This timely review article is of importance in view of its thorough evaluation of various study designs and clinical trials directed towards the potential impact of increased consumption of omega-3 fatty acids from fish or supplements in relation to cardiovascular disease outcomes from both primary and secondary prevention studies. This extensive review is of further importance since it comes on the heels of two differing overall conclusions from reviews on omega-3 fatty acids (particularly from randomized controlled trials) and cardiovascular disease end-points as reported recently by Hooper et al. (2006) and Studer et al. (2005). The importance of the trial by Burr et al. (2003) in partly accounting for the discrepant conclusions of Hooper et al. (2006) and Studer et al. (2005) as well as other observations on the recent review by Hooper et al. (2006) has been commented upon by the DHA/EPA Omega-3 Institute (see News ‘Section’ on this website).