

Abstract

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

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BACKGROUND: Studies on the relation between dietary n-3 fatty acids (FAs) and cardiovascular disease vary in quality, and the results are inconsistent.

OBJECTIVE: A systematic review of the literature on the effects of n-3 FAs (consumed as fish or fish oils rich in eicosapentaenoic acid and docosahexaenoic acid or as alpha-linolenic acid) on cardiovascular disease outcomes and adverse events was conducted.

METHODS: Studies from MEDLINE and other sources that were of > or =1 y in duration and that reported estimates of fish or n-3 FA intakes and cardiovascular disease outcomes were included. Secondary prevention was addressed in 14 randomized controlled trials (RCTs) of fish-oil supplements or of diets high in n-3 FAs and in 1 prospective cohort study.

RESULTS: Most trials reported that fish oil significantly reduced all-cause mortality, myocardial infarction, cardiac and sudden death, or stroke. Primary prevention of cardiovascular disease was reported in 1 RCT, in 25 prospective cohort studies, and in 7 case-control studies. No significant effect on overall deaths was reported in 3 RCTs that evaluated the effects of fish oil in patients with implantable cardioverter defibrillators. Most cohort studies reported that fish consumption was associated with lower rates of all-cause mortality and adverse cardiac outcomes. The effects on stroke were inconsistent.

CONCLUSIONS: Evidence suggests that increased consumption of n-3 FAs from fish or fish-oil supplements, but not of alpha-linolenic acid, reduces the rates of all-cause mortality, cardiac and sudden death, and possibly stroke. The evidence for the benefits of fish oil is stronger in secondary- than in primary-prevention settings. Adverse effects appear to be minor.

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