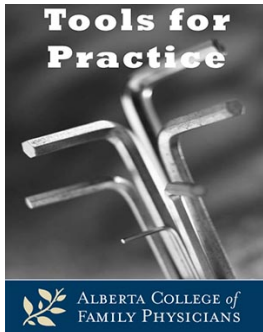


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Reviewed: July 23, 2016
Evidence Updated: New evidence
Bottom Line: Modified, no major change
First Published: July 3, 2012



Omega-3 Fatty Acids (Fish Oil) for Patients with Cardiovascular Disease (CVD)

Clinical Question: Do omega-3 fatty acid supplements reduce the risk of cardiovascular events in patients with and without existing cardiovascular disease (CVD)?

Bottom-line: Evidence does not support using omega-3 fatty acid supplements for primary or secondary prevention of CVD.

Evidence:

- One meta-analysis¹ and two subsequent Randomized Controlled Trials (RCTs)^{2,3} evaluated omega-3s for primary or secondary CVD prevention.
 - Meta-analysis¹ of 20 RCTs (68,680 patients)
 - Two RCTs administering dietary omega-3s showed opposing effects on all-cause mortality.
 - Eighteen RCTs administering omega-3 supplements found:
 - No significant difference in all-cause mortality, myocardial infarction or stroke.
 - Note: 9% relative reduction in cardiac death not significant after adjusting for multiple comparisons, and not reflected in change in above outcomes or sudden death.
 - RCT² of 12,513 patients at high CVD risk showed no difference at five years in:
 - Death or hospitalization from cardiovascular cause: Omega-3s 11.7% versus 11.9% with placebo.
 - Other CVD outcomes unchanged.
 - Secondary outcomes of AREDS2 RCT³ of 4,203 patients with age-related macular degeneration:
 - No difference at 4.8 years in CVD morbidity or mortality: 9% in both groups.
- Only RCT⁴ in patients with heart failure (included in above systematic review) demonstrated:
 - Decreased all-cause mortality: Omega-3s 27.3% versus placebo 29.1%.
 - But achieved statistical significance (p=0.041) only after adjusting for differences in baseline characteristics.

Context:

- Omega-3s are a group of polyunsaturated fatty acids found in fish oils, flax seed (to a lesser extent other nuts), canola oil, and soybeans.
- Observed lower CVD in the Inuit was thought to be due to their high marine omega-3 intake.⁵
- The only RCTs to demonstrate CVD benefits of omega-3s were not blinded^{6,7} or had low use of standard cardiovascular medications (like statins).⁶
- Meta-analyses of lower-level evidence (cohort studies) show inconsistent effects of omega-3s on outcomes.⁸⁻¹⁰
- Canada's Food Guide¹¹ and the American Heart Association¹² encourage consumption of two or more portions of fish per week for primary and secondary prevention of CVD.
 - Since 2013, NICE guidelines no longer recommends eating fish specifically for CVD prevention as no benefit (though acknowledge no evidence of harm in doing so).¹³

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