

Abstract

Atherosclerosis. 2006 Nov;189(1):19-30.

Effects of omega-3 fatty acids on serum markers of cardiovascular disease risk: a systematic review.

Balk EM, Lichtenstein AH, Chung M, Kupelnick B, Chew P, Lau J.

Tufts-New England Medical Center Evidence-based Practice Center, Institute for Clinical Research and Health Policy Studies, Tufts-New England Medical Center, NEMC #63, Boston, MA 02111, USA.

OBJECTIVE: Greater fish oil consumption has been associated with reduced CVD risk, although the mechanisms are unclear. Plant-source oil omega-3 fatty acids (ALA) have also been studied regarding their cardiovascular effect.

METHODS: We conducted a systematic review of randomized controlled trials that evaluated the effect of consumption of fish oil and ALA on commonly measured serum CVD risk factors, performing meta-analyses when appropriate.

RESULTS: Combining 21 trials evaluating lipid outcomes, fish oil consumption resulted in a summary net change in triglycerides of -27 (95% CI -33, -20)mg/dL, in HDL cholesterol of +1.6 (95% CI +0.8, +2.3)mg/dL, and in LDL cholesterol of +6 (95% CI +3, +8)mg/dL. There was no effect of fish oil on total cholesterol. Across studies, higher fish oil dose and higher baseline levels were associated with greater reductions in serum triglycerides. Overall, the 27 fish oil trials evaluating Hgb A(1c) or FBS found small non-significant net increases compared to control oils. Five studies of ALA were inconsistent in their effects on lipids, Hgb A(1c) or FBS. Four studies investigating the effects of omega-3 fatty acids on hs-CRP were also inconsistent and non-significant.

CONCLUSIONS: The evidence supports a dose-dependent beneficial effect of fish oil on serum triglycerides, particularly among people with more elevated levels. Fish oil consumption also modestly improves HDL cholesterol, increases LDL cholesterol levels, but does not appear to adversely affect glucose homeostasis. The evidence regarding the effects of omega-3 fatty acids on hs-CRP is inconclusive, as are data on ALA.

PMID: 16530201