

Abstract

Atherosclerosis. 2010 Feb;208(2):467-72.

Subgram daily supplementation with docosahexaenoic acid protects low-density lipoproteins from oxidation in healthy men.

Calzada C, Colas R, Guillot N, Guichardant M, Laville M, Véricel E, Lagarde M.

Université de Lyon, F-69622, Lyon, France.

OBJECTIVE: To determine the effect of supplementation with increasing doses of docosahexaenoic acid (DHA), as the only n-3 polyunsaturated fatty acid (PUFA), on low-density lipoprotein (LDL) redox status and oxidizability.

METHODS: Twelve healthy men aged 53-65 years ingested consecutive doses of DHA (200, 400, 800 and 1600 mg/day), each dose for two weeks.

RESULTS: The proportions of DHA increased dose-dependently in LDL phospholipids and cholesteryl esters, even after two weeks of supplementation with 200mg/day DHA. The daily intake of 200, 400 and 800 mg DHA resulted in increased alpha-tocopherol concentrations, decreased MDA concentrations, and a longer lag time for copper-induced LDL oxidation. Supplementation with 1600 mg/day DHA had no effect on the above parameters. In plasma, concentrations of 4-hydroxy-hexenal, specifically derived from the peroxidation of n-3 fatty acids, significantly increased after 800 and 1600 mg DHA, representing 0.01% of plasma n-3 PUFAs, while 4-hydroxy-nonanal concentrations, derived from the peroxidation of n-6 fatty acids, did not change.

CONCLUSION: Our results clearly show that an intake of 200-800 mg/day DHA may have protective and antioxidant effects on LDL and could represent optimal doses for cardiovascular disease prevention in a healthy population.

PMID: 19717153

