

Abstract

J Nutr. 2011 Feb;141(2):207-13.

Algal docosahexaenoic Acid affects plasma lipoprotein particle size distribution in overweight and obese adults.

Neff LM, Culiner J, Cunningham-Rundles S, Seidman C, Meehan D, Maturi J, Wittkowski KM, Levine B, Breslow JL.

Laboratory of Biochemical Genetics and Metabolism, Rockefeller University, New York, NY 10065.

OBJECTIVE: Fish oils containing both EPA and DHA have been shown to have beneficial cardiovascular effects, but less is known about the independent effects of DHA. This study was designed to examine the effects of DHA on plasma lipid and lipoprotein concentrations and other biomarkers of cardiovascular risk in the absence of weight loss.

METHODS: In this randomized, controlled, double-blind trial, 36 overweight or obese adults were treated with 2 g/d of algal DHA or placebo for 4.5 mo. Markers of cardiovascular risk were assessed before and after treatment.

RESULTS: In the DHA-supplemented group, the decrease in mean VLDL particle size ($P \leq 0.001$) and increases in mean LDL ($P \leq 0.001$) and HDL ($P \leq 0.001$) particle sizes were significantly greater than changes in the placebo group. DHA supplementation also increased the concentrations of large LDL ($P \leq 0.001$) and large HDL particles ($P = 0.001$) and decreased the concentrations of small LDL ($P = 0.009$) and medium HDL particles ($P = 0.001$). As calculated using NMR-derived data, DHA supplementation reduced VLDL TG ($P = 0.009$) and total TG concentrations ($P = 0.006$). Plasma IL-10 increased with DHA supplementation to a greater extent than placebo ($P = 0.021$), but no other significant changes were observed in glucose metabolism, insulin sensitivity, blood pressure, or markers of inflammation with DHA.

CONCLUSION: In summary, DHA supplementation resulted in potentially beneficial changes in some markers of cardiometabolic risk, whereas other markers were unchanged.

PMID: 21178084