Effect of Fatty Fish vs Walnuts on Serum Lipids in Healthy Adults

Sujatha Rajaram, Ella Haddad, M. Alfredo Mejia, Lan Nguyen, Jay Tanzman. Department of Nutrition, Loma Linda University, School of Public Health, Loma Linda, CA, 92350

Regular consumption of n-3 fatty acids from both marine (20:5 n-3, 22:6 n-3) and plant sources (18:3 n-3) has been shown to produce significant cardiovascular health benefits. These effects may be mediated through different mechanisms by the n-3 fatty acids present in these two sources. Our study compared the effects of feeding fatty fish (salmon) and walnuts in amounts recommended by the Dietary Guidelines for Americans. Following a one week run-in diet, 14 males and 11 females were assigned to one of three dietary treatments for 4 weeks each in a randomized controlled crossover feeding study. The treatments were: control diet (Typical American diet without fish and walnuts), walnut diet (42.5 g or 1.5 oz/2400 kcal, 6 d/wk) and fish diet (113 g or 4 oz of fish, 2 d/wk). All diets were isoenergetic and fat contributed less than 30% of the total energy. Mixed linear models were used to analyze the treatment effects for serum lipids.

Serum lipids (mg/dL)	Control diet	Fish diet	Walnut diet
Total-C	199 ± 7^{a}	206 ± 7^{b}	188 ± 7^{c}
LDL-C	118 ± 6^{a}	124 ± 6^{b}	107 ± 6^{c}
HDL-C	46 ± 2^{a}	48 ± 2^{b}	46 ± 2^{a}
Triacylglycerol*	100 ± 10^{a}	88 ± 9^{b}	98 ± 10^{a}

Values are means ± S.E. Values with different superscript letters indicate diets

are significantly different, $P<0.05$. *Analysis was conducted using log triacylglycerol

Walnut diet significantly decreased serum total cholesterol and LDL-C compared to the fish and control diets, while the fish diet increased serum HDL-C and decreased triacylglycerol compared to the control and walnut diets. N-3 fatty acids 20:5 n-3 and 22:6 n-3 from fatty fish and 18:3 n-3 from walnuts lower blood lipids but the individual lipid components they alter and therefore the overall lipid profile are different.

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