

# DIETARY FISH OIL SUPPLEMENTATION IMPROVES THE PLASMA LIPID PROFILE IN HEALTHY ELDERLY SUBJECTS.

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Dietary fish oil can reduce plasma triglycerides and may increase plasma high density lipoprotein cholesterol (Harris 1989). Since the incidence of coronary heart disease (CHD) increases with advancing age, and elevated plasma triglycerides may be an independent risk factor for CHD in older individuals (Castelli 1986), consumption of fish oils may help to reduce the risk of CHD in the elderly population. In this study we have examined the effect of dietary supplementation with either fish oil or sunflower oil on plasma lipids in 51 healthy subjects aged 60-80 years. Sodium intake was also modified and effects on blood pressure were examined.

Subjects were predominantly normotensive with mean plasma cholesterol and triglyceride of 5.5 mmol/L and 1.2 mmol/L respectively. After an initial 2 week dietary adjustment (run-in) phase which was supplemented with 8g of encapsulated sunflower oil (5 g n-6 fatty acids), subjects were allocated to groups taking either fish oil (8 x 1g HiMega capsules containing 4g of n-3 fatty acids) or the sunflower oil. The supplements were supplied in double blind fashion. After 12 weeks, the fish oil improved the plasma lipid profile by decreasing plasma triglycerides and cholesterol, raising high density lipoprotein (HDL) cholesterol but producing no significant change in low density lipoprotein (LDL) cholesterol compared to the sunflower oil. Plasma lipid levels were not significantly influenced by differences in sodium intake.

	n	Plasma Triglycerides	Plasma Cholesterol	HDL Cholesterol	LDL Cholesterol
Fish oil	24	-0.34±0.05*#	-0.19±0.09*	+0.04±0.03#	-0.08 ±0.08
Sunflower oil	27	-0.01±0.05	-0.05±0.08	-0.05±0.02*	+0.002±0.07

Values are expressed as mean ± SEM of changes in lipid concentrations (mmol/L) compared with end of the run-in phase. \* P<0.05 from end of run-in phase (paired t-test); # P<0.05 compared to sunflower oil (unpaired t-test).

In a cross-over comparison made earlier in this study, an anti-hypertensive effect of dietary sodium restriction combined with fish oil supplementation was demonstrated (Howe and Cobiac 1990). The effect of sodium on blood pressure was not apparent in the measurements taken after 12 weeks of intervention. However there were significant reductions from the end of the run-in phase in systolic blood pressure with both the fish (-10.8 mm Hg) and the sunflower oil (-8.2 mm Hg) and in the diastolic blood pressure with the fish oil (-4.4 mm Hg) only.

This study suggests that fish oil consumption can beneficially modify plasma cholesterol and triglycerides in elderly subjects. Fish oil reduced diastolic blood pressure and earlier results suggest that this effect may be related to sodium intake.

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