Abstract

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Long chain n-3 PUFA-rich meal reduced postprandial measures of arterial stiffness.

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BACKGROUND & AIMS: The consumption of long chain n-3 polyunsaturated fatty acids (LC n-3 PUFA) is known to be cardio-protective. Data on the influence of LC n-3 PUFA on arterial stiffness in the postprandial state is limited. The aim of this study was to investigate the acute effects of a LC n-3 PUFA-rich meal on measures of arterial stiffness.

METHODS: Twenty-five healthy subjects (12 men, 13 women) received a control and a LC n-3 PUFA-rich meal on two occasions in a random order. Arterial stiffness was measured at baseline, 30, 60, 90, 120, 180 and 240min after meal consumption by pulse wave analysis and digital volume pulse to derive an augmentation index and a stiffness index respectively. Blood samples were taken for measurement of lipids, glucose and insulin.

RESULTS: Consumption of the LC n-3 PUFA-rich meal had an attenuating effect on augmentation index (P=0.02) and stiffness index (P=0.03) compared with the control meal. A significant treatment effect (P=0.036) was seen for plasma non-esterified fatty acids concentrations.

CONCLUSIONS: These data indicate that acute LC n-3 PUFA-rich meal consumption can improve postprandial arterial stiffness. This has important implications for the beneficial properties of LC n-3 PUFA and cardiovascular risk reduction.

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