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Bioavailability of marine n-3 fatty acid formulations.

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Abstract

The use of marine n-3 polyunsaturated fatty acids (n-3 PUFA) as supplements has prompted the development of concentrated formulations to overcome compliance problems. The present study compares three concentrated preparations - ethyl esters, free fatty acids and re-esterified triglycerides - with placebo oil in a double-blinded design, and with fish body oil and cod liver oil in single-blinded arms. Seventy-two volunteers were given approximately 3.3g of eicosapentaenoic acid (EPA) plus docosahexaenoic acid (DHA) daily for 2 weeks. Increases in absolute amounts of EPA and DHA in fasting serum triglycerides, cholesterol esters and phospholipids were examined. Bioavailability of EPA+DHA from re-esterified triglycerides was superior (124%) compared with natural fish oil, whereas the bioavailability from ethyl esters was inferior (73%). Free fatty acid bioavailability (91%) did not differ significantly from natural triglycerides. The stereochemistry of fatty acid in acylglycerols did not influence the bioavailability of EPA and DHA.

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