

# Abstract

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## Comparison of the effects of fish and fish-oil capsules on the n-3 fatty acid content of blood cells and plasma phospholipids.

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**BACKGROUND:** n-3 Fatty acids (FAs) have been shown to be beneficial for cardiovascular health. Whether n-3 FAs from oily fish consumed weekly or from fish-oil capsules taken daily are equally bioavailable is not clear.

**OBJECTIVE:** The purpose of this study was to compare the rate and extent of enrichment of blood cell membranes [ie, red blood cells (RBCs)] and plasma phospholipids with n-3 FAs from these 2 sources.

**DESIGN:** Healthy premenopausal female volunteers were randomly assigned to consume a daily average of 485 mg eicosapentaenoic (EPA) and docosahexaenoic (DHA) acids either from 2 servings of oily fish (ie, salmon and albacore tuna) per week or from 1-2 capsules/d.

**RESULTS:** After 16 wk, EPA+DHA in RBCs in the fish group (n = 11) increased from 4.0 +/- 0.6% of total FAs to 6.2 +/- 1.4%, whereas it rose from 4.3 +/- 1.0% to 6.2 +/- 1.4% in the capsule group (P < 0.0001 for both; NS for group effect). Similar results were observed in plasma phospholipids. EPA+DHA stabilized in the latter after 4 wk but continued to rise through week 16 in RBCs. EPA in RBCs increased significantly (P = 0.01) more rapidly in the fish group than in the capsule group during the first 4 wk, but rates did not differ significantly between groups thereafter. Total FA variances were less in RBCs than in plasma phospholipids (P = 0.04).

**CONCLUSIONS:** These findings suggest that the consumption of equal amounts of EPA and DHA from oily fish on a weekly basis or from fish-oil capsules on a daily basis is equally effective at enriching blood lipids with n-3 FAs.

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