

Effect of docosahexaenoic acid supplementation of lactating women on the fatty acid composition of breast milk lipids and maternal and infant plasma phospholipids.

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To determine whether docosahexaenoic acid (DHA) supplementation of breast-feeding mothers increases the DHA contents of breast milk and infant plasma phospholipids (PPs), breast-feeding women were randomly assigned to 3 DHA-supplementation groups (170-260 mg/d) or a control group. Group 1 (n = 6) consumed an algae-produced high-DHA triacylglycerol; group 2 (n = 6) consumed high-DHA eggs; group 3 (n = 6) consumed a high-DHA, low-eicosapentaenoic acid marine oil; and group 4 (n = 6) received no supplementation. From before to after supplementation (2 and 8 wk postpartum), mean (+/-SD) maternal PP DHA increased in groups 1, 2, and 3 by 1.20 +/- 0.53, 0.63 +/- 0.82, and 0.76 +/- 0.35 mol% of fatty acids, respectively (23-41%), but decreased in group 4 by 0.44 +/- 0.34 mol% (15%). Breast-milk DHA of groups 1, 2, and 3 increased by 0.21 +/- 0.16, 0.07 +/- 0.11, and 0.12 +/- 0.07 mol%, respectively (32-91%) but decreased in group 4 by 0.03 +/- 0.04 mol% (17%). Mean infant PP DHA in groups 1, 2, and 3 increased by 1.63 +/- 0.79, 0.40 +/- 1.0, and 0.98 +/- 0.61 mol%, respectively (11-42%), but only by 0.18 +/- 0.74 mol% (5%) in group 4. Correlations between the DHA contents of maternal plasma and breast milk and of milk and infant PPs were significant. Breast-milk and maternal and infant PP 22:5n-6 concentrations were lowest in group 2. DHA supplementation increases the plasma and breast-milk DHA concentrations of lactating women, resulting in higher PP DHA concentrations in infants.