

Supplementation of n-3 fatty acids during pregnancy and lactation reduces maternal plasma lipid levels and provides DHA to the infants.

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Abstract

OBJECTIVE:

Docosahexaenoic acid (DHA, 22:6 n-3) is considered an essential fatty acid for the fetus and newborn infant, but the optimal level of supply is not known. We studied the effect of supplementing pregnant and lactating women with marine n-3 polyunsaturated fatty acids (PUFAs) as compared to n-6 PUFAs related to maternal and infant lipid levels.

STUDY DESIGN:

Five hundred and ninety pregnant women in weeks 17-19 of pregnancy were recruited. They were given either 10 mL cod liver oil (n-3 PUFAs) or corn oil (n-6 PUFAs) daily until three months after delivery, and 341 women took part in the study until giving birth.

RESULTS:

Maternal supplementation with cod liver oil increased the concentration of DHA in maternal as well as infant plasma and umbilical tissue phospholipids, as compared to corn oil. The maternal plasma triacylglycerol increase during pregnancy was less pronounced in women supplemented with cod liver oil as compared to corn oil. The concentration of high-density lipoprotein (HDL)-cholesterol was unchanged during pregnancy in the cod liver oil group, whereas it decreased in the corn oil group, promoting a greater increase in the ratio of total cholesterol/HDL-cholesterol in the corn oil group.

CONCLUSION:

Maternal supplementation with n-3 fatty acids during pregnancy and lactation provides more DHA to the infant and reduces maternal plasma lipid levels compared to supplementation with n-6 fatty acids.