

ORIGINAL RESEARCH COMMUNICATION

Maternal consumption of a docosahexaenoic acid–containing functional food during pregnancy: benefit for infant performance on problem-solving but not on recognition memory tasks at age 9 mo^{1,2,3}

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Background: There are few studies reporting on docosahexaenoic acid (DHA, 22:6n–3) supplementation during pregnancy and infant cognitive function. DHA supplementation in pregnancy and infant problem solving in the first year have not been investigated.

Objective: We tested the hypothesis that infants born to women who consumed a DHA-containing functional food during pregnancy would demonstrate better problem-solving abilities and recognition memory than would infants born to women who consumed the placebo during pregnancy.

Design: In a double-blind, placebo-controlled, randomized trial, pregnant women consumed a DHA-containing functional food or a placebo from gestation week 24 until delivery. Study groups received DHA-containing cereal-based bars (300 mg DHA/92-kcal bar; average consumption: 5 bars/wk; $n = 14$) or cereal-based placebo bars ($n = 15$). The Infant Planning Test and Fagan Test of Infant Intelligence were administered to infants at age 9 mo. The problem-solving trial included a support step and a search step. The procedure was scored on the basis of the infant's performance on each step and on the entire problem (intention score and total intentional solutions). Scores were generated on the basis of the cumulative performance of the infant on 5 trials.

Results: Treatment had significant effects on the performance of problem-solving tasks: total intention score ($P = 0.017$), total intentional solutions ($P = 0.011$), and number of intentional solutions on both cloth ($P = 0.008$) and cover ($P = 0.004$) steps. There were no significant differences between groups in any measure of Fagan Test of Infant Intelligence.

Conclusion: These data point to a benefit for problem solving but not for recognition memory at age 9 mo in infants of mothers who consumed a DHA-containing functional food during pregnancy.

Key Words: Docosahexaenoic acid • DHA • pregnancy • infants • cognition • problem solving • recognition memory • functional food

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