

## **Visual acuity and the essentiality of docosahexaenoic acid and arachidonic acid in the diet of term infants.**

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The need for a dietary supply of docosahexaenoic acid (DHA) and arachidonic acid (AA) in term infants was evaluated in a double-masked randomized clinical trial of the effects of supplementation of term infant formula with DHA (0.35% of total fatty acids) or with DHA (0.36%) and AA (0.72%) on visual acuity development. One hundred and eight healthy term infants were enrolled in the study; 79 were exclusively formula-fed from birth (randomized group) and 29 were exclusively breast-fed (gold standard group). Infants were evaluated at four time points during the first 12 mo of life for blood fatty acid composition, growth, sweep visual evoked potential (VEP) acuity, and forced choice preferential looking acuity. Supplementation of term infant formula with DHA or with DHA and AA during the first 4 mo of life yields clear differences in total red blood cell (RBC) lipid composition. Supplementation of term infant formula with DHA or with DHA and AA also yields better sweep VEP acuity at 6, 17, and 52 wk of age but not at 26 wk of age, when acuity development reaches a plateau. The RBC lipid composition and sweep VEP acuity of supplemented infants was similar to that of human milk-fed infants, whereas the RBC lipid composition and sweep VEP acuity of unsupplemented infants was significantly different from human milk-fed infants. Differences in acuity among diet groups were too subtle to be detected by the forced choice preferential looking protocol. Infants in all diet groups had similar rates of growth and tolerated all diets well. Thus, early dietary intake of preformed DHA and AA appears necessary for optimal development of the brain and eye of the human infant.