A randomized controlled trial of long-chain polyunsaturated fatty acid supplementation of formula in term infants after weaning at 6 wk of age.

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BACKGROUND: The critical period during which the dietary supply of long-chain polyunsaturated fatty acids (LCPs) may influence the maturation of cortical function in term infants is unknown.

OBJECTIVE: The aim of the present study was to determine the relative importance for maturation of the visual cortex of the dietary supply of LCPs during the first 6 wk of life compared with that during weeks 7-52.

DESIGN: A randomized controlled clinical trial of LCP supplementation in 65 healthy term infants who were weaned from breast-feeding at 6 wk of age was conducted to determine whether the dietary supply of LCPs after weaning influenced the maturation of visual acuity and stereoacuity.

RESULTS: Despite a dietary supply of LCPs from breast milk during the first 6 wk of life, infants who were weaned to formula that did not provide LCPs had significantly poorer visual acuity at 17, 26, and 52 wk of age and significantly poorer stereoacuity at 17 wk of age than did infants who were weaned to LCP-supplemented formula. Better acuity and stereoacuity at 17 wk was correlated with higher concentrations of docosahexaenoic acid in plasma. Better acuity at 52 wk was correlated with higher concentrations of docosahexaenoic acid in plasma and red blood cells. No significant effects of diet on growth were found.

CONCLUSION: The results suggest that the critical period during which the dietary supply of LCPs can influence the maturation of cortical function extends beyond 6 wk of age.