Effect of long-chain polyunsaturated fatty acids in infant formula on problem solving at 10 months of age.

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BACKGROUND: Long-chain polyunsaturated fatty acids (LCPUFA) are important for normal visual and brain development. Although present in human milk, LCPUFA have until recently been absent from artificial formulas, and infants may have limited ability to synthesise LCPUFA. To determine the clinical significance of this relative deficiency of LCPUFA, we undertook a randomised trial of the relation between LCPUFA supplementation and infant cognitive behaviour.

METHODS: 44 term infants had been randomised to a formula supplemented with LCPUFA (21) or not supplemented with LCPUFA (23), which they had taken from birth to age 4 months. Infant cognitive behaviour was assessed at 10 months of age by a means-end problem-solving test—the intentional execution of a sequence of steps to achieve a goal. The problem required three intermediate steps to achieve the final goal, uncovering and retrieving a hidden toy.

FINDINGS: Infants who received LCPUFA-supplemented formula had significantly more intentional solutions than infants who received the no-LCPUFA formula (median 2.0 vs 0, p=0.021). Intention scores (median 14.0 vs 11.5 [maximum 18]) were also increased in this group (p=0.035).

INTERPRETATION: These findings suggest that term infants may benefit from LCPUFA supplementation, and that the effects persist beyond the period of supplementation. Since higher problem-solving scores in infancy are related to higher childhood IQ scores, supplementation with LCPUFA may be important for the development of childhood intelligence.