# Omega 3 LCPUFA do not inhibit the growth of preterm or term infants. A meta analysis

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Long-chain polyunsaturated fatty acids (LCPUFA) occur naturally in breast milk and have been added to some infant formulas in forms that are not identical to those in breast milk. There have been few studies specifically designed and with sufficient power to assess the safety of these supplements. While the beneficial effects of dietary LCPUFA supplementation on early visual development to preterm and term infants have been demonstrated in several international clinical trials, the influence on the infant's growth performance has not been as clear. Early studies on preterm infants in the US have aroused international concern with the apparent association of omega-3 LCPUFA supplemented formulas and an inhibition of growth. The goal of our project was to summarise and evaluate 10 years of intensive clinical research on LCPUFA supplementation in infant nutrition and to bring clarity into the ongoing debate on its safety. This was achieved by means of a systematic review and a meta-analysis of growth measures from all published trials.

Thirteen randomised trials involving 1279 term infants met our criteria for inclusion in the meta-analysis. Infants allocated to LCPUFA supplementation were 90 g lighter (95% confidence interval, CI, –0.14, –0.04), 0.32 cm shorter (95% CI, –0.55, –0.08) and had a smaller head circumferences (–0.18 cm, 95% CI, –0.32, –0.04) at birth compared with infants allocated to the control groups. This difference, prior to randomisation, was explained by the fact the infants allocated to the LCPUFA groups were born two days earlier than infants in the control groups despite that fact that all infants were at least 37 weeks gestation at birth. Most importantly there were no significant differences in weight, length or head circumference of infants at either four or twelve months of age.

Eleven randomised trials involving preterm infants met our criteria for inclusion in the meta-analysis but data was only available from nine trials. 1097 infants were involved in these nine trials. The biggest predictors of growth at 40 and 57 weeks post-menstrual age (PMA) for these infants were their size at birth, sex and whether they received a nutrient enriched (protein and micronutrients) preterm formula. The influence of LCPUFA supplementation was small and did not reach statistical significance.

It therefore appears that LCPUFA supplementation of both preterm and term infant formulas do not influence growth of infants.

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