

The effect of infant diets supplemented with α -linolenic acid on growth and development: a systematic review and meta-analysis of randomised controlled trials

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Background - Docosahexaenoic acid (DHA; 22:6n-3) is the main structural lipid in the human brain and can be derived endogenously from α -linolenic acid (ALA; 18:3n-3). Several studies have attempted to improve blood DHA concentrations of formula-fed infants by increasing the amount of ALA in formula while measuring changes to infant growth and development.

Objective - To evaluate the effect of supplementing diets of term and preterm infants with ALA on growth and development.

Design - A systematic review and meta-analysis of randomised controlled trials (RCTs) involving term and preterm infants where the ALA composition of the diet was changed.

Outcomes - Five term and three preterm RCTs, and three term and three preterm RCTs were included in the systematic review and meta-analysis, respectively. Infants fed ALA supplemented formula had significantly higher blood phospholipid DHA concentrations than control. Combined data suggested that ALA supplemented formulas influence the growth of term but not preterm infants. Finally, there was no effect on developmental indices of term infants but there was a transient improvement in retinal function of preterm infants' supplemented with ALA compared with control (mean difference: -0.37 scot td-sec, 95% CI: -0.66, -0.08; 36 weeks post menstrual age).

Conclusion - Further studies are needed to provide convincing evidence regarding the effects of ALA supplementation on growth and development of infants