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A Summary of a Cochrane Review: Supplementation with long chain polyunsaturated fatty acids (LCPUFA) to breastfeeding mothers for improving child growth and development

L. Susan Wieland, MPH, PhD¹ and Nancy Santesso, RD, MLIS, PhD^{2,*}

¹University of Maryland, Baltimore MD, USA

²McMaster University, Hamilton, Canada

Introduction

Review authors in the Cochrane Collaboration conducted a review of the effects of providing long chain polyunsaturated fatty acids (LCPUFA) supplements to breastfeeding mothers for improving child growth and development. After searching for all relevant studies, they found 8 studies which provided LCPUFA to women during pregnancy and breastfeeding or solely during breastfeeding. This summary presents the review findings of the effects of LCPUFA supplementation versus placebo on child growth and neurodevelopmental outcomes after 24 months.

LCPUFA and Child Growth and Development

Long chain polyunsaturated fatty acids (LCPUFA) such as arachidonic acid (AA), eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA) are important nutrients for the development of the infant nervous system, including the brain and retina. LCPUFA are known as ‘essential’ fatty acids because they are not efficiently produced by the body and are more easily obtained from the diet. LCPUFA may be provided to infants who breastfeed by supplementing the diet of the lactating mother. There has been some research into whether giving LCPUFA supplements to breastfeeding mothers improves the growth, neurodevelopment, and visual ability of children during infancy and early childhood. This review was carried out to summarize the evidence.

What Does the Research Say?

Eight studies with 1567 women tested the effects of giving LCPUFA supplements to breastfeeding women on childhood development and growth. The studies were carried out in Denmark, Norway, Australia, Sweden, Germany, the Netherlands, and the United States. All of the women had normal pregnancies and their children were born healthy and at term.

Correspondence: Nancy Santesso santesna@mcmaster.ca.

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Women were randomly selected to take or not take an LCPUFA. The LCPUFA supplementation either began during pregnancy and continued during breastfeeding or began after birth for four months of breastfeeding. The LCPUFA supplements contained DHA, or combinations of DHA and EPA or AA. Different types and doses of LCPUFA were used. For example, doses of DHA ranged from 200mg/day to 1.3g/day. Women who did not receive LCPUFA supplements received counselling on a healthy diet (1 study), or a placebo such as olive, corn or soybean oil (7 studies). The main outcomes were child development and growth after 24 months.

The evidence from the studies was of moderate to low quality. After 24 months many people dropped out of the study which also meant there were few people providing information.

In summary, when pregnant women take LCPUFA supplements, there may be little or no difference in their child's language development, intelligence or problem-solving ability, psychomotor development, or visual acuity after 24 months of age. LCPUFA may improve child attention slightly. There is probably little or no difference in child weight. There is little information about adverse effects. See Table 1 for more details of the above. There are currently 3 studies being conducted on the topic, and we may have more and better evidence in the future.

Where Does this Information Come From?

This summary is based on a Cochrane systematic review: Delgado-Noguera MF, Calvache JA, Bonfill Cosp X, Kotanidou EP, Galli-Tsinopoulou A. Supplementation with long chain polyunsaturated fatty acids (LCPUFA) to breastfeeding mothers for improving child growth and development. Cochrane Database of Systematic Reviews 2015, Issue 7. Art. No.: CD007901. DOI: 10.1002/14651858.CD007901.pub3.

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Table 1
Summary of Findings Table: Effects of LCPUFA measured after 24 months of age

What was measured	Without LCPUFA	With LCPUFA *	Quality of the evidence	What happens with LCPUFA
Language development (2 studies, 187 people) Measured on the Vocabulary subset of the Weschler Primary and Preschool Scale of Intelligence-Revised. Higher scores are better.	The mean was 12.3	On average 0.65 units lower (from 1.34 lower to 0.05 higher)	⊕⊕⊖⊖ low^a	There may be little or no difference in language development.
Intelligence or problem-solving ability (3 studies, 238 people) Measured on the Information subset of the Weschler Primary and Preschool Scale of Intelligence-Revised. Higher scores are better.	The mean was 10.8	On average 0 change (from 0.94 lower to 0.94 higher)	⊕⊕⊖⊖ low^a	There may be little or no difference in problem-solving ability.
Psychomotor development (1 study, 113 people) Measured on the Visual-Motor Integration Test. Higher scores are better.	The mean was 11.6	On average 0.20 units higher (from 0.88 lower to 0.48 higher)	⊕⊕⊖⊖ low^a	There may be little or no difference in psychomotor development.
Child attention (1 study, 110 people) Measured on the Sustained Attention Subscale of the Leiter International Performance Scale. Higher scores are better.	The mean was 46.5	On average 4.70 units higher (from 1.30 higher to 0.89 higher)	⊕⊕⊖⊖ low^a	LCPUFA may improve child attention slightly.
Child visual acuity (1 study, 111 people) Measured by sweep visual evoked potential testing. Higher scores are better.	The mean was 11.9	On average 0.10 units higher (from 0.01 lower to 0.21 higher)	⊕⊕⊖⊖ low^a	There may be little or no difference in visual acuity.
Child weight (4 studies, 414 people) Measured in grams.	The mean ranged from 20 to 27	On average 0.13 grams higher (from 0.49 lower to 0.74 higher)	⊕⊕⊕⊖ moderate^b	There is probably little or no difference in child weight.
Adverse events	-	-	-	One study found no side effects at 1 year. Side effects were not measured in the other

* The numbers in the brackets show the range in which the actual effect could be using a 95% confidence interval.

Details about the quality of the evidence:

^a Evidence was low quality because it is unclear if the studies were well-conducted and the effect is not precise (the confidence interval includes both a positive and negative effect).

^b Evidence was moderate quality because it is unclear if the studies were well-conducted.