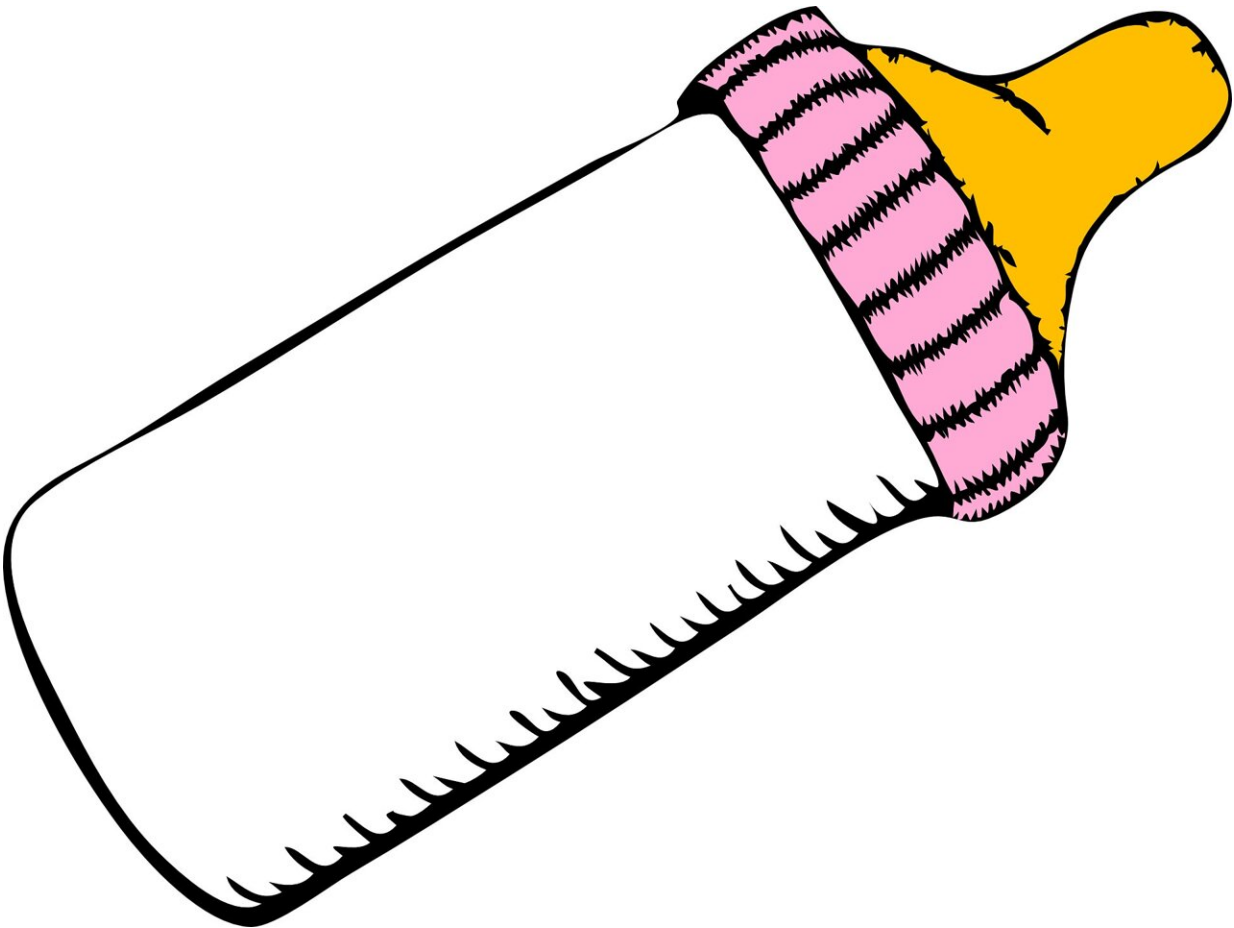


Study finds no benefit of enriched formula milks on later academic performance

November 11 2021



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Children who are given nutrient or supplement enriched formula milk as

babies do not appear to have higher exam scores as adolescents than those fed with standard formula, suggests a study published by *The BMJ* today.

Researchers linked data from seven randomized controlled [trials](#) to children's performance in school exams at ages 11 and 16 and found no clear differences in their results.

Breastfeeding is best for infant nutrition, but breastfeeding rates beyond six weeks are low in many countries. Instead, infant formulas (breast milk substitutes) are widely used to supplement or replace breastfeeding and are consumed globally by more than 60% of [infants](#) aged less than six months.

It has been suggested that modifying [formula milk](#) promotes [cognitive development](#), but trial evidence that modified formulas result in long term cognitive advantages is inconclusive.

To address this, researchers from UCL Great Ormond Street Institute of Child Health and Institute of Education set out to compare differences in academic performance between adolescents who were randomly given modified or standard [infant formula](#) as babies.

They analyzed results from seven randomized trials of nutritionally modified infant formula carried out at five English hospitals between August 1993 and October 2001 involving 1,763 adolescents.

Two of the trials tested formula milks enriched with a long chain polyunsaturated fatty acid (LCPUFA), one of the many breast milk constituents with a role in brain development; one tested added iron; two tested formula milks with higher macronutrient concentrations; and two tested formulations with added sn-2 palmitate or nucleotides, not thought to relate to cognition.

In 2018, these trial data were linked to school records, focusing on what effect (if any) the formula had had on scores for national mandatory exams (GCSEs) in maths and English at ages 11 and 16 years, as well as eligibility for special educational needs support and achieving five or more GCSE grades of C or higher.

Results were gathered for 1,607 (91.2%) participants linked to school records.

No benefit was found for performance in maths exams at age 16 years for children given any modified formula.

There was no difference in scores for English at age 16, and for maths and English at age 11, between children who had standard formula as infants and those who had nutrient enriched, added iron, sn-2 palmitate or nucleotide formulas.

However, at age 11, children who had been given the LCPUFA supplemented formula scored lower in both English and maths.

The researchers point out that the trials were carried out several decades ago and, since then, the composition of formulas and neonatal care have changed.

This is relevant, they say, because nowadays, a larger number of sick and small preterm infants survive, and these infants could have different sensitivities to the nutritional modifications investigated in this study.

Nevertheless, the study's strengths include the high rate of follow-up and the use of GCSE scores that the authors say have real world relevance to young people and their future.

"In summary, differences in [academic performance](#) between modified

and standard formulas were consistent with differences measured in the original trials and in the external literature; that is, no benefit of the infant formula modifications on cognitive outcomes," they write.

"This study sets a precedent for other trials and cohorts to use linkage to administrative data to answer important questions about long term outcomes in children and young people," they add.

In a linked editorial, researchers at the University of Glasgow argue that added nutrients could also do harm and that baby milk trials were often not well conducted.

They conclude: "Recently published evidence suggests a need to better regulate research into infant formulas and to ensure that this evidence is used to remove unnecessary and potentially harmful nutrients from formula milk, and to prevent misleading promotional claims."

More information: Maximiliane L Verfürden et al, Effect of nutritionally modified infant formula on academic performance: linkage of seven dormant randomised controlled trials to national education data, *BMJ* (2021). [DOI: 10.1136/bmj-2021-065805](https://doi.org/10.1136/bmj-2021-065805)

Provided by British Medical Journal

Citation: Study finds no benefit of enriched formula milks on later academic performance (2021, November 11) retrieved 7 May 2024 from <https://medicalxpress.com/news/2021-11-benefit-enriched-formula-academic.html>

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