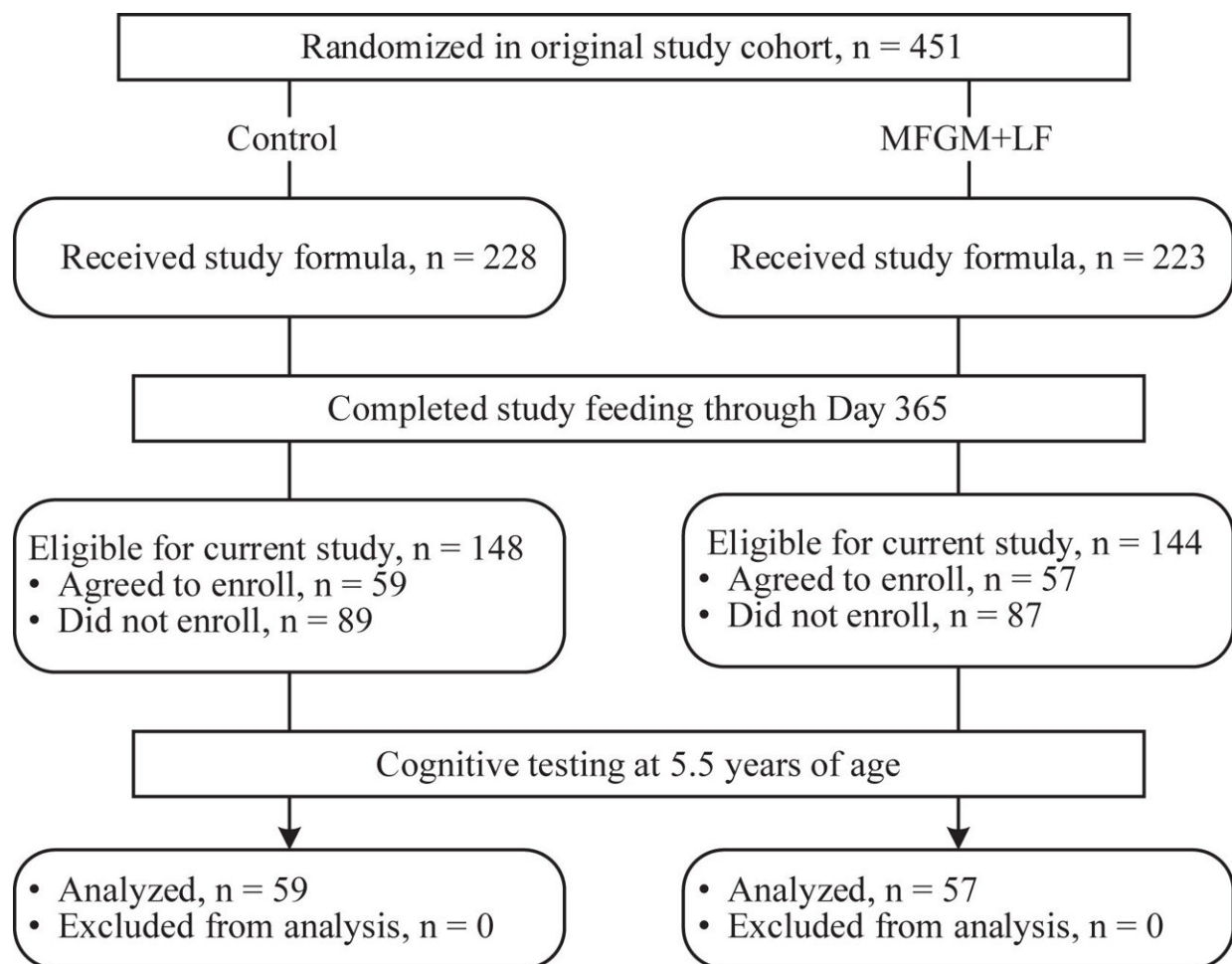


Study demonstrates adding complex component of milk to infant formula confers long-term cognitive benefits

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Study allocation. MFGM + LF, milk fat globule membrane + lactoferrin. Credit: *The Journal of Pediatrics* (2023). DOI: 10.1016/j.jpeds.2023.113483

Breast milk is widely acknowledged as the most beneficial nutrition for infants, but many families face medical or logistical challenges in breastfeeding. In the U.S., just 45% of infants continue to be exclusively breastfed at 3 months of age, according to the Centers for Disease Control.

For decades, researchers have sought to create a viable complement or alternative to [breast milk](#) to give children their best start for healthy development. New research out of the University of Kansas has shown how a complex component of [milk](#) that can be added to [infant formula](#) has been shown to confer long-term [cognitive benefits](#), including measures of intelligence and executive function in children.

The research by John Colombo, KU Life Span Institute director and investigator, along with colleagues at Mead Johnson Nutrition and in Shanghai, China, adds to the growing scientific support for the importance of ingredients found in milk fat globule membrane (MFGM) in early human development.

The study, which was published in the *Journal of Pediatrics*, showed that feeding infants formula supplemented with MFGM and lactoferrin for 12 months raised IQ by 5 points at 5 ½ years of age. The effects were most evident in tests of children's speed of processing information and visual-spatial skills. Significant differences were also seen in children's performance on tests of executive function, which are complex skills involving rule learning and inhibition.

All forms of mammalian milk contain large fat globules that are surrounded by a membrane composed of a variety of nutrients important to [human nutrition](#) and brain development, Colombo said. When milk-based infant formula is manufactured, the membrane has typically been removed during processing.

"No one thought much about this membrane," Colombo said, "until chemical analyses showed that it's remarkably complex and full of components that potentially contribute to health and [brain development](#)."

The 2023 study was a follow-up to one that Colombo also co-wrote with colleagues in Shanghai, China, [published in the *Journal of Pediatrics* in 2019](#). That study showed that babies who were fed formula with added bovine MFGM and lactoferrin had higher scores on neurodevelopmental tests during the first year and on some aspects of language at 18 months of age.

The global nutrition research community has been looking at MFGM for about a decade, Colombo said. Because the membrane is made up of several different components, it isn't known whether one of the components is responsible for these benefits, or whether the entire package of nutrients act together to improve brain and behavioral development.

These benefits were seen in children long after the end of formula feeding at 12 months of age.

"This is consistent with the idea that [early exposure](#) to these nutritional components contribute to the long-term structure and function of the brain," said Colombo, who has spent much of his career researching the importance of early experience in shaping later development.

More information: John Colombo et al, Improved Neurodevelopmental Outcomes at 5.5 Years of Age in Children Who Received Bovine Milk Fat Globule Membrane and Lactoferrin in Infant Formula Through 12 Months: A Randomized Controlled Trial, *The Journal of Pediatrics* (2023). [DOI: 10.1016/j.jpeds.2023.113483](https://doi.org/10.1016/j.jpeds.2023.113483)

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