Maternal milk tied to better school-age outcomes for children born preterm

July 13 2022

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Children who were born preterm are at heightened risk of lower academic achievement in math, reading and other skills and are also at greater risk for attention-deficit/hyperactivity disorder (ADHD). But a

new study suggests that an intervention in the first weeks and months of a preterm infant's life may lead to better neurodevelopmental outcomes in later years. In a study that followed preterm infants for seven years, investigators from Brigham and Women's Hospital together with collaborators at the South Australian Health and Medical Research Institute found that children who received greater quantities of maternal milk both during and after time in the neonatal intensive care unit (NICU) had greater academic achievement, higher IQs and reduced ADHD symptoms. Results are published in *JAMA Network Open*.

"Our study finds that there may be long-term neurodevelopmental benefits to providing maternal milk to preterm infants," said corresponding author Mandy Brown Belfort, MD, MPH, of the Department of Pediatric Newborn Medicine. "A lot of families are dedicated to the idea of providing maternal milk but may face steep challenges. Our findings emphasize the importance of providing support for initiating and sustaining lactation because maternal milk at this early age can provide benefits years later."

Belfort and colleagues looked at neurodevelopmental outcomes for 586 infants born at less than 33 weeks' gestation at one of five Australian perinatal centers. Children were evaluated at age 7 (corrected for prematurity). The team looked at data on maternal milk dose (volume of maternal milk infants received each day) and maternal milk duration (how long parents continued breastfeeding) predicted several neurodevelopmental outcomes. These outcomes included academic achievement, Verbal and Performance IQ, symptoms of ADHD, executive function, and behavior.

Overall, the team found that higher maternal milk intake was associated with higher Performance IQ and higher reading and math scores. Parents also reported fewer ADHD symptoms for children who consumed more maternal milk during infancy. Duration of maternal milk intake (up to

18 months corrected age) was also associated with higher reading, spelling and math scores. The researchers controlled for confounders, including clinical and social factors. These beneficial associations were stronger for infants born at the lowest gestational ages, particularly those born below 30 weeks of gestation.

The authors note that their study is observational—they cannot determine causality as there may be other, unaccounted factors that influence both the ability to provide maternal milk and academic achievement. The study's strengths include its large size, the range of outcomes examined, and that the researchers could assess school-age outcomes. Other studies have only followed children through preschool age, making it difficult to assess the full range of neurodevelopmental outcomes.

Overall, Belfort sees the team's findings as an affirmation of guidance from the American Academy of Pediatrics and World Health Organization, both of which recommend maternal milk for infants.

"Our study confirms recommended strategies for supporting parents to provide maternal milk for preterm infants," said Belfort. "And it strengthens the call for health policies and parental leave policies that support rather than work against parents. As a society, we need to invest in families—it's an investment that will continue to benefit children when they reach school age."

More information: Associations of Maternal Milk Feeding With Neurodevelopmental Outcomes at 7 Years of Age in Former Preterm Infants, *JAMA Network Open* (2022). DOI: 10.1001/jamanetworkopen.2022.21608

Provided by Brigham and Women's Hospital