

Breast milk proven to enhance heart performance in premature babies

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Professor Afif EL-Khuffash, Clinical Professor of Paediatrics at RCSI and Consultant Neonatologist at the Rotunda Hospital, Dublin. Credit: RCSI University of Medicine and Health Sciences

New research from RCSI University of Medicine and Health Sciences demonstrates the beneficial effect of breast milk consumption on cardiovascular health and early cardiovascular development in premature infants.

Published in *JAMA Network Open*, the study of 80 [preterm infants](#) is the first of its kind to show that preterm [infants](#) with higher exposure their mother's own milk had enhanced [cardiac function](#) at age one year, with values approaching those of healthy full-term infants.

The research was led by Professor Afif EL-Khuffash, Clinical Professor of Pediatrics at RCSI and Consultant Neonatologist at the Rotunda Hospital, Dublin, in collaboration with researchers at University of Oxford; Mount Sinai Hospital, Toronto; Northwestern University Feinberg School of Medicine; Washington University School of Medicine; and, Harvard Medical School.

Children and adults who are born preterm are at increased risk of cardiovascular disorders, including [ischemic heart disease](#), [heart failure](#), systemic and [pulmonary hypertension](#), and are more likely to die as a result of cardiovascular disease. The hearts of young people born early are known to have unique traits such as reduced biventricular volume, shorter length, lower systolic and diastolic function and a disproportionate increase in muscle mass. This results in impaired heart function, which is significantly lower than that of healthy infants who are born at term. This dysfunction is detectable at hospital discharge and persists throughout their adolescence.

This study shows that exclusive breast milk consumption in the first months after birth is associated with a normalization of some of these traits. Premature infants exposed to a high proportion of their mother's own milk during the first few week after delivery had greater left and right heart function and structure with lower lung pressures and

enhanced right heart response to stress at one year of age compared to preterm infants who had a higher intake of formula, with all measures approaching those seen in term-born healthy children.

These findings were apparent before discharge from the hospital and persisted up to a year of age (the duration of follow up).

Professor EL-Khuffash said: "This study provides the first evidence of an association between early postnatal nutrition in preterm-born infants and heart function over the first year of age, and adds to the already known benefits of breast milk for infants born prematurely."

"Preterm infants have abnormal heart function. However, those who are fed their mother's own milk demonstrate recovery of their heart function to levels comparable to healthy term born infants. Preterm infants fed formula do not demonstrate this recovery."

More information: Afif El-Khuffash et al, Cardiac Performance in the First Year of Age Among Preterm Infants Fed Maternal Breast Milk, *JAMA Network Open* (2021). [DOI: 10.1001/jamanetworkopen.2021.21206](https://doi.org/10.1001/jamanetworkopen.2021.21206)

Provided by RCSI University of Medicine and Health Sciences

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