

Breast milk could help prevent heart disease caused by premature birth

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Early use of breast milk could play a vital role in preventing heart disease in prematurely born infants, according to a paper led by researchers at RCSI (Royal College of Surgeons in Ireland) and the Rotunda Hospital.

The review article, published in the journal *Pediatric Research*, was written in collaboration with researchers from Harvard Medical School, University of Oxford and University of Toronto.

One of the long-term health complications that [young adults](#) born prematurely may have is unique [heart](#) characteristics. These can include smaller heart chambers, relatively higher blood pressure, and a disproportionate increase in muscle mass in the heart.

One study cited in the article looked at 30 preterm-born adults who were assigned to receive exclusive human milk and 16 preterm-born adults who were assigned to receive an exclusive formula-based diet during their hospital stay at birth. They then underwent detailed cardiovascular assessment between 23 and 28 years of age, including an MRI of their hearts. As expected, all of the hearts of those born prematurely had smaller chambers than the hearts in people who were not born prematurely.

However, the study showed that the smaller heart chambers were less profound for the exclusively human milk-fed group in comparison to those who were exclusively formula fed, suggesting a potentially protective effect of human milk for heart structure.

The researchers then identified potential reasons for why breast milk results in a lower risk of heart disease. Breast milk could help prevent [heart disease](#) by better regulating hormones and growth factors, strengthening the infant's immune system, reducing inflammation and by possibly improving the metabolism of the child.

Identifying the key components within breast milk that result in improved heart health could pave the way for a more targeted approach to improve long-term cardiovascular wellbeing for those born prematurely.

"It is becoming increasingly clear that premature birth results in long-term adverse cardiovascular effects with important clinical consequences. There is a distinct lack of preventative and therapeutic interventions available to alleviate those effects," said Professor Afif EL-Khuffash, Honorary Clinical Professor of Paediatrics at RCSI and Consultant Neonatologist at The Rotunda Hospital, Dublin.

"The current evidence comes from [observational studies](#) and highlights the strong link between early breast milk administrations and improvement in long-term heart health, but it lacks concrete mechanistic explanations. More studies on the composition of [breast milk](#) could make clear exactly what causes these health benefits, which could in turn lead to better treatment options."

The collaborative research group is continuing to study the effects of human milk exposure on heart function in very premature infants by using novel scans to measure heart function. They hope to demonstrate that early human [milk](#) exposure in premature infants can lead to significant improvements in heart function over the first two years of age.

More information: Afif EL-Khuffash et al, Preventing disease in the 21st century: early breast milk exposure and later cardiovascular health in premature infants, *Pediatric Research* (2019). [DOI: 10.1038/s41390-019-0648-5](#)

Provided by RCSI

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