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Breast feeding and cardiometabolic health in preadolescence: findings from the ROLO longitudinal birth cohort study

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Early postnatal life represents an important period of nutritional risk in the development of later health and disease⁽¹⁾. Breast milk has clear short-term benefits for child health. With regards to long-term consequences, breast milk may reduce the risk of overweight and obesity in childhood. However, less is known about other long-term effects up to preadolescence, including cardiometabolic functioning^(2,3).

Aims:

1. To investigate the impact of breastfeeding exposure on cardiometabolic health at 9–11 years of age.
2. To determine whether longer breastfeeding duration is associated with cardiometabolic health at 9–11 years of age.

This is a secondary analysis of 362 preadolescents in the ROLO longitudinal birth cohort study. Breastfeeding exposure and duration (weeks) were obtained at 6 months and 2, 5, and 9–11 year postnatal follow up visits. At the 9–11-year follow-up, cardiometabolic health was assessed using anthropometry, dual-energy x-ray absorptiometry scans, blood pressure, heart rate, 20-metre shuttle run test, and non-fasting serum biomarkers (glucose, insulin, HbA1c, lipid profile, C-reactive protein, and complement C3) that were obtained for a subgroup (n = 213). Independent t-tests, Mann-Whitney U tests, and Chi-square tests explored differences in cardiometabolic outcomes between; children who received any breastmilk and those who did not; children who received any breastmilk for ≥ 6 months and < 6 months. Spearman's correlations determined associations between breastfeeding duration with preadolescent cardiometabolic health.

Of the 362 preadolescents included in this analysis, 63% (n = 228) received any breastmilk for any duration. The median (IQR) duration of breastfeeding was 21.75 (33.58) weeks and 42% (n = 95) preadolescents received any breastmilk for ≥ 6 months. Preadolescents who received any breastmilk had lower prevalence of overweight/obesity (23.2% vs. 36.6%, $p = 0.016$) than those who did not. At 9–11 years, preadolescents who received any breastmilk had lower mean (SD) body mass index z-score (16.74 (3.25) vs. 17.75 (3.8), $p < 0.001$), lower median (IQR) abdominal circumference (61.45 (8.4) cm vs. 63.1 (10.9) cm, $p < 0.001$), lower median (IQR) sum of skinfolds (26.63 (13.53) mm vs. 31.0 (17.36) mm, $p = 0.003$), lower median (IQR) body fat percentage (23.35 (10.63) % vs. 27.4 (9.6) %, $p < 0.001$), and lower median (IQR) serum C3 concentration (1.36 (0.25) g/L vs. 1.44 (0.38) g/L, $p = 0.037$). There were no differences in cardiometabolic outcomes between preadolescents who received any breastmilk for ≥ 6 months and those < 6 months. Breastfeeding duration was not significantly correlated to any cardiometabolic outcomes at 9–11 years of age.

We found that exposure to breast milk in early life is associated with optimal adiposity and lower inflammation in preadolescence, irrespective of duration. Public health strategies that promote and support breastfeeding initiation are vital to tackle early precursors of cardiometabolic disease in the first decade of life.

Acknowledgments

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References

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