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Abstract

Background: Nutrition in the first few months of life has important effects on long-term growth. The aim of this PhD was to investigate the effect of an infant's milk diet (both formula and breastmilk intake) in the first two months of life on body composition at two months of age, growth in the first two years of life and neurodevelopment at two years; and to examine whether breast- and formula-fed infants differ at birth, confounding the true effect of breastfeeding.

Methods: Secondary data analysis of the feeding patterns, growth and development of children in the Cork BASELINE Birth Cohort Study. Descriptive and multivariate (multi-linear and logistic regression) analysis was employed.

Results: Admission to the neonatal intensive care unit had the greatest negative impact on exclusively breastfeeding at two months (adjusted odds ratio = 0.20 (95% CI 0.05, 0.83)).

Nearly twice as many exclusively formula-fed infants experienced early rapid growth (ERG) at two months compared to exclusively breastfed infants, n=87 (30%) vs n=56 (16.9%), respectively. Infants that experienced ERG saw an increase in their weight-for-height (wfh) z-score at 24 months compared to infants that did not experience ERG, β=0.39 (95% CI 0.19, 0.54).

Breastfed infants had a higher mean(SD) birthweight to formula-fed infants, 3.56(0.42)kg versus 3.46(0.44)kg, respectively. However, breastfed infants had a lower mean(SD) percentage fat mass at birth compared to formula-fed infants, 10.01(3.71)% versus 12.05(4.06)%.

Conclusion statement: By two months of age few Irish infants are exclusively breastfed. Formula supplementation and admission to the neonatal intensive care unit in the maternity hospital shortened breastfeeding duration. Formula feeding increased the odds of ERG and experiencing ERG at two months increased a child's wfh z-score at 24 months. Breastfed infants were different in growth and body composition at birth in our cohort.