Title: Maternal Gestational Weight Gain and Infant Nutritional Status at Birth and 6 Months
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Background: Excessive gestational weight gain (GWG) is associated with increased infant size and adiposity at birth. However, it is unclear how long these effects persist or if they do so in exclusively breast fed infants.

Methods: 292 mother-infant dyads from the prospective MILK Study were included (100% of whom exclusively breastfed for 1 month and 75% exclusively breastfed to 6 months). GWG was categorized as below/within or exceeding the 2009 Institute of Medicine (IOM) Guidelines. Infant body composition was conducted using dual energy x-ray absorptiometry. Multiple linear regression analyses were used to assess the relationship between excessive GWG and infant percent body fat, length and weight for length z-scores at birth and 6 months, and change in weight z-scores from 0-6 months. Models were adjusted for numerous potential confounders including pre-pregnancy BMI, diet quality, and infant feeding.

Results: ~57% of women in the MILK cohort had excessive GWG. While offspring of mothers with excessive GWG had higher weight (B: 0.33; p = .001) and length (B: 0.34; p = .03) z-scores at birth, only the effect on length z-score persisted at 6 months (B: 0.34; p < .01). No associations were observed between excessive GWG and infant %BF, weight for length z-scores, or change in weight z-scores at 6 months.

Conclusions: In a cohort of exclusively breastfed infants, maternal excessive GWG was associated with greater infant length, but not weight or body composition, at 6 months. Studies are needed on the potential for exclusive breastfeeding to modify the effects of excessive GWG.