

Abstract

Effect of Maternal Gestational Diabetes on Infant Feeding and Growth †

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Gestational diabetes mellitus (GDM) is a major health problem not only in pregnancy but also for lifelong health, with increased risks of obesity and diabetes in offspring. However, little is known of the effect of GDM on infant feeding, nutrition and growth, and whether these factors play a role in mediating the long-term effects of GDM. Therefore, we systematically reviewed evidence for effect of GDM on infant feeding, nutrition and growth.

We searched MEDLINE, Web-of-Science, EMBASE, CINAHL and CENTRAL databases. We included all published studies that reported one or more pre-specified outcomes in infants <2 years exposed to GDM compared with those not exposed. We excluded studies of pre-gestational diabetes. Two reviewers independently assessed risk of bias, extracted data and quality of evidence using GRADE. Meta-analysis was performed in REVMAN in three epochs (1–6, 7–12, 13–24 months), using inverse-variance, fixed effects methods.

Twenty-five observational studies contributing 26 publications were included. At 1–6 months, very low to low quality evidence showed no association between GDM and body-mass-index, body size, skinfold thickness, breastfeeding, and breastmilk content; infants exposed to GDM had high rates of formula supplementation in hospital and increased fat mass ($n = 97$, standardized mean difference [SMD] 0.53, 95%CI 0.13–0.94). Similarly, at 7–12 months very low to low quality evidence showed no association between GDM and body-mass-index, body size and skinfolds, nor fat mass. No data were available for energy intake, macronutrients, diet-quality, appetitive traits, fat-free mass or for outcomes at 13–24 months.

Limited evidence suggests that GDM is associated with increased total fat mass in early infancy but is not related to subcutaneous fat, body size or milk feeds to 12 months of age. Further high-quality studies are needed to determine if the association between GDM and later risk of obesity is mediated by altered feeding, nutrition and growth in infancy.



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