Q/ Does breastfeeding affect the risk of childhood obesity?

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EVIDENCE-BASED ANSWER

A/ **Yes.** Ever having breastfed during the first year of life is associated with a 15% lower risk of overweight or obesity over the next 2 to 14 years compared with never having breastfed. Breastfeeding exclusively for 6 months is associated with a 30% to 50% reduction in risk (strength of recommendation [SOR]: **B**, meta-analysis of cohort studies and subsequent cohort studies). However, interventions that increase breastfeeding rates during the first 3 to 6 months of life don't appear to alter body mass index (BMI) at 11 to 12 years of age (SOR: **B**, randomized clinical trial [RCT]).

Introducing complementary (solid) foods before 3 months is associated with a 30% greater risk of childhood obesity than later introduction; starting solid foods after 4 months isn't linked to increased obesity. High caloric density of complementary feedings may be associated with greater childhood obesity (SOR: **C**, systematic reviews of heterogeneous cohort studies).

Scheduled feeding doubles the risk of rapid infant weight gain compared with on-demand feeding, although it's unclear whether a direct relationship exists between rapid infant weight gain and childhood obesity (SOR: **B**, cohort study).

Evidence summary

A systematic review and meta-analysis of prospective cohort studies evaluating infant risk factors for childhood obesity found that breastfeeding was associated with a lower risk of obesity.[1] The authors identified 10 trials (primarily from the United States and Europe) with more than 76,000 infants that compared the effect of some breastfeeding in the first year to no breastfeeding. Follow-up ranged from 2 to 14 years (median 6 years).

Having ever breastfed decreased the odds of future overweight (BMI >85th percentile) or obesity (BMI >95th percentile) by 15% (adjusted odds ratio [AOR]=0.85; 95% confidence interval [CI], 0.74-0.99).

Subsequent studies suggest increased risk with formula feeding

Three large, prospective, longitudinal cohort studies have been published since the meta-analysis. One, which followed 43,367 term infants in Japan, found that formula feeding before 6 months was associated with increased risk of obesity compared with continuous breastfeeding for 6 months.[2] Researchers evaluated weight at 7 years and adjusted for child and maternal factors associated with weight gain (AOR for obesity, formula-fed infants=1.8; 95% CI, 1.3-2.6).

A similar prospective longitudinal cohort study of 2868 infants in Australia analyzed maternal breastfeeding diaries and followed children's weight to age 20 years.[3] Introducing a milk other than breast milk before 6 months of age was linked to increased risk of obesity at age 20 (odds ratio [OR]=1.5; 95% CI, 1.1-1.9).

Finally, in a prospective cohort of 568 children in India, 17% of children who breastfed for fewer than 6 months were above the 90th percentile for weight at age 5 years, compared with 10% of children who were breastfed for at least 18 months.[4] The result didn't reach statistical significance, however (*P*=.08).

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Scheduled feeding was associated with rapid weight gain at a higher rate than feeding on demand.

Interventions that increase breastfeeding don't seem to have an impact

An RCT of an intervention to promote breastfeeding didn't find any effect on subsequent obesity rates. Researchers in Belarus randomized 17,046 mother-infant pairs to breastfeeding promotion, modeled on the UNICEF Baby-Friendly Hospital Initiative, or usual care. The intervention increased the prevalence of exclusive breastfeeding (at 3 months, 43% vs 6%; at 6 months, 7% vs 0.6%; *P* values not given).

When researchers evaluated 13,879 children at 11 or 12 years by intention-to-treat analysis, however, they found no difference in mean BMI between the children whose mothers received the intervention and those whose mothers didn't (BMI difference=0.16; 95% CI, -0.02 to 0.35).[5]

Introduction of solid foods: Later is better

A systematic review investigated the association between the timing of introducing complementary (solid) foods and childhood obesity in 23 primarily cross-sectional and cohort studies (17 from the United States, Canada, and Europe) with more than 33,000 patients. Follow-up ranged from 4 to 19 years.

Eight of the 21 studies that used BMI as an outcome found that early introduction of complementary foods was associated with a higher childhood BMI. In the largest study (a cohort of 17,561 infants), introducing complementary foods before 3 months was associated with higher risk of obesity at age 5 years than introducing them thereafter (OR=1.3; 95% CI, 1.1-1.6).[6] Introduction of solids after 4 months was not associated with childhood obesity.

A systematic review of 10 primarily cross-sectional and cohort studies with more than 3000 infants evaluated associations between the types of complementary foods given and the development of childhood obesity.[7] Six of the 10 studies were from Europe and none were from the United States. Follow-up ages ranged from 4 to 11 years.

Outcomes were heterogeneous, and no meta-analysis could be performed. The authors cited 3 studies (total 1174 infants) that found various positive associations between total caloric intake during complementary feeding and childhood obesity. No consistent evidence pointed to increased risk from specific foods or food groups.

Scheduled feeding is linked to rapid infant weight gain

A cohort study evaluated the baseline data of an Australian RCT (on an intervention to promote proper nutrition) in 612 infants, mean age 4.3 months.[8] Researchers looked at the relationship between feeding on demand vs scheduled feeding (assessed by parental report) and weight gain in infancy. "Rapid weight gain" was defined as >0.67 change in weight-for-age Z-score between birth and enrollment.

Scheduled feeding was associated with rapid weight gain at a higher rate than feeding on demand (OR=2.3; 95% CI, 1.1-4.6). This study didn't use childhood obesity as an outcome. **JFP**

References

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