NUTRITION

Breast is best for avoiding obesity

Two recent reports add to the accumulating body of evidence that diet and feeding practices in early infancy are a critical determinant of the risk of obesity in later life. “Breastfeeding has been identified as having a powerful protective effect on future childhood obesity risk,” notes Tessa Crume, epidemiologist and lead author of one of the two studies, “but some scientists assert that this relationship might depend on other factors.” One such factor might be the feeding method; Ruowei Li and colleagues have published new findings suggesting that feeding solely by bottles, whether of formula or breast milk, is independently associated with increased weight gain during the first year of life.

“Our retrospective cohort study aimed to examine the effect of infant diet (breastfeeding for at least 6 months, compared with breastfeeding for <6 months or no breastfeeding at all) on overall body size and measures of abdominal fat, including visceral fat, in adolescence,” Crume comments. Current guidelines usually recommend breastfeeding for at least 6 months. Accordingly, Crume and colleagues assessed 442 children aged 6–13 years who were born at a single hospital in Denver, CO, USA and participated in a study of perinatal outcomes (EPOCH). “Breastfeeding had the effect of preventing extremes in body size and fat levels,” Crume notes. Indeed, breastfeeding selectively protected against large adolescent body size, excess abdominal fat, and deleterious fat patterning among children in the highest percentiles of body weight at birth. Moreover, breastfeeding tended to increase body size for individuals in the lowest birthweight percentiles and had no effect in children with an average body size. Crume now plans to conduct further studies to identify other pregnancy-related and infant-diet-related factors that might lead to ‘fetal programming’ of future obesity and metabolic disease. One such factor might be the type and time of introduction of solid foods. “I want mothers to have clear, valid information about the best infant feeding practices,” Crume states.

In a longitudinal study jointly conducted by the FDA and Centers for Disease Control, Li’s team monitored weight gain in 1,899 babies from birth to 1 year of age. “The difference in infant growth between formula-fed and breastfed infants has long been recognized,” says Li. “What we don’t know, though, is why breastfed infants grow slower than formula-fed infants.” The researchers found that, compared with infants fed at the breast only, infants who were only bottle-fed (with either expressed breast milk or formula) had more rapid weight gain. Breastfed infants supplemented with expressed breast milk grew similarly to those fed only at the breast, but breastfed infants supplemented with formula grew more rapidly. Intriguingly, the researchers noted a dose–response relationship between bottle feeding and weight gain. Among babies fed breast milk only, the more bottles were given, the more the infant gained weight. Poor self-regulation among formula-fed infants might account for these observations, Li suggests: “In contrast to infants fed at the breast, who may need to actively suckle, formula-fed infants are more likely to be passive in the feeding process,” she remarks. “With bottle feeding, the caregiver’s control might undermine the infants’ capability for self-regulation to balance their energy intake against internal cues of hunger and satiety.”

“These findings confirm that breastfeeding needs to be the first feeding choice for babies,” Li concludes. “Supplementing breastfeeding with expressed milk is a good alternative if breastfeeding is not feasible, but special attention should be paid to the infant’s internal feeding cues while bottle feeding. Cues such as turning away from the bottle, increased attention to surroundings, and keeping mouth closed are all signs of being full,” she continues. “Breast milk is a unique and optimal nutrition for human growth and development,” agrees Crume.

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Original articles Crume, T. L. et al. Selective protection against extremes in childhood body size, abdominal fat deposition, and fat patterning in breastfed children. *Arch. Pediatr. Adolesc. Med.* **166**, 437–443 (2012) | Li, R. et al. Risk of bottle-feeding for rapid weight gain during the first year of life. *Arch. Pediatr. Adolesc. Med.* **166**, 431–436 (2012)