



UNITED STATES BREASTFEEDING COMMITTEE

STATEMENT ON THE IMPORTANCE OF BREASTFEEDING / HUMAN MILK FEEDING IN THE PREVENTION OF OBESITY

In keeping with the deep concern about increases in childhood obesity in the United States, the United States Breastfeeding Committee wishes to emphasize that breastfeeding, especially exclusive breastfeeding for the first six months of life and extended breastfeeding into the toddler years, may exert a small but positive influence in reducing the risk for obesity in childhood and later in life and thereby be of considerable importance in the role of nutrition in public health.

When investigating the relationship between breastfeeding and obesity, both the duration of breastfeeding and the exclusivity of breastfeeding must be considered. Current recommendations call for exclusive breastfeeding/human milk feeding during the first six months of life followed by continued breastfeeding/human milk feeding as the sole source of milk for at least the ensuing six months, during which time appropriate complementary foods are added to the infant's diet.

Deweyⁱ recently reviewed the literature on the relationship between breastfeeding and childhood obesity. She noted that eight of the eleven studies reviewed examined the prevalence of overweight in children older than three years and showed a lower risk of overweight in children who had been breastfed. Furthermore, the three studies that did not show a protective effect had not provided information about the exclusivity of breastfeeding. As reported by Deweyⁱ, the data from the DARLING studies demonstrates that after six months of age, breastfed infants become leaner than infants who are not breastfed [of women who chose not to breastfeed].

Dewey's review further noted that some studies demonstrated a dose response reduction in the risk for obesity or the prevalence of obesity with increasing periods of exclusive breastfeeding/human milk feeding especially beyond six months. Von Kries et alⁱⁱ reported a reduction in the risk for BMI>97% ile with increasing length of breastfeeding in the first year.

Liese et alⁱⁱⁱ reported a similar response with exclusive breastfeeding and Gillman et al^{iv} showed a very positive effect of breastfeeding for more than nine months on reduction of childhood obesity.

Dewey suggests that many factors could play a role in the metabolic programming which could predispose a child to become overweight when not fed human milk. For example, plasma insulin levels have been shown to be higher among formula fed infants early in life. It is conceivable that the branched chain amino acids, which are found in greater concentrations in formulas and are metabolized to glucose in the muscle and liver, stimulate increased levels of insulin, which over a period of time could induce greater deposition of adipose tissue. Higher insulin levels and obesity have been seen at five to nine years of age among Pima Indian children who were not breastfed.

Fisher et al^v found that mothers who breastfed for 12 or more months reported exerting less control when feeding their infants in later months than mothers who had not breastfed as long. These findings suggest that the breastfed infant is better able to control intake in response to appetite. In addition, Gillman^{iv} suggested that mothers who breastfeed may be more responsive to the infant's signals for frequency and volume of feedings.

A recent editorial in *Pediatrics* by Gillman^{vi} highlighted a study done by his own group,^{iv} as well as studies by Hediger et al,^{vii} von Kries et al,^{viii} and Toschke et al^{ix} that demonstrate a protective effect of having been breastfed on later obesity. The author suggested that the four studies agree remarkably on the magnitude of risk reduction for obesity with the adjusted odds ratios ranging from 0.75 to 0.84.^{vi} Furthermore, the studies by Gillman et al^{iv} and von Kries et al^{viii} indicated that increased duration of breastfeeding predicted lowered risk for obesity in later years. Gilman suggested that while it is already known that breastfeeding is the best choice for infant feeding for almost all infants and mothers, now obesity prevention could be added to the list of potential benefits for infants.^{vi}



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ⁱ Dewey KD. Is breastfeeding protective against childhood obesity? *J Hum Lact* 2003; 19:9-18.

ⁱⁱ von Kries R, Koltecko B, Sauerwald T, et al. Breastfeeding and obesity: cross sectional study. *Br Med J* 1999; 319:147-150.

ⁱⁱⁱ Liese AD, Hirsch T, von Muius E, et al. Inverse association of overweight and breastfeeding in 9 to 10 year old children in Germany. *Int J Obes* 2001; 25:1644-1650.

^{iv} Gillman MW, Rifas-Shiman SL, Camargo CA, Jr et al. Risk of overweight among adolescents who were breastfed as infants. *JAMA* 2001; 285:2461-2467.

^v Fisher JO, Birch LL, Smiciklas-Wright H, Picciano MF. Breastfeeding through the first year predicts maternal control in feeding and subsequent toddler energy intakes. *J Am Diet Assoc* 2000; 100:641-646.

^{vi} Gillman MW. Breastfeeding and obesity. *Pediatr* 2002; 141:749-750.

^{vii} Hediger ML, Overpeck MD, Kuczmariski RJ, Ruan WJ. Association between infant breastfeeding and overweight in young children, *JAMA* 2001; 285:2453-2460.

^{viii} von Kries, Koletzko, Sauerwald T, von Mutius E, Barnert D, Grunert et al. Breastfeeding and obesity; cross sectional study. *BM* 1999; 319:147-150.

^{ix} Toschke AM, Vignerova J, Lhotska D, Osancova K, Koletzko B, von Kries R. Overweight and obesity in 6 to 14 year-old Czech children in 1991: protective effect of breastfeeding. *Pediatr* 2002; 141:764-769.