

## Maternal & Infant Nutrition Briefs

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How Effective is Peer Counseling to Promote Breastfeeding?

Current Use of Folic Acid among U. S. Women

Effect of Parental Feeding Styles on Children's Weight

How Does Storage of Breast Milk Affect Antioxidants?

*A research-based newsletter prepared by the University of California for professionals interested in maternal and infant nutrition*



### **How Effective is Peer Counseling to Promote Breastfeeding?**

Peer counseling, commonly used in developing countries for health education, is increasingly used in the U.S., especially as a way to reach recent immigrants. In addition to providing social support for behavior change, peer counseling serves as an important bridge between health professionals and target communities. However, many peer counseling programs have not been carefully evaluated to document their effectiveness. The purpose of this study was to evaluate the effectiveness of a peer counseling intervention for breastfeeding promotion and identify mothers who are most likely to respond well to this intervention.

The study was a randomized, controlled intervention. The target population was mostly low-income, Puerto Rican mothers, living in inner-city Hartford, Connecticut. The researchers recruited all the subjects from Hartford Hospital, which has been certified as being "Baby Friendly". The women were randomly assigned to either a control (n=75) or peer counseling intervention (n=90) group. The control group received the usual breastfeeding support which, in this setting, includes prenatal brochures and advice; in-hospital breastfeeding assistance from nurses and an International Board Certified Lactation Consultant; and access to a "warm line" for advice by telephone after discharge. In addition to these services, the intervention mothers received prenatal, in-hospital, and in-home postnatal peer counseling contacts, along with a free mini-pump service. The main outcomes were breastfeeding initiation and exclusive or any breastfeeding at one, three, and six months postpartum.

At baseline, the intervention and control groups were similar in socioeconomic status and biomedical characteristics (i.e., parity, previous breastfeeding experience, etc.). Due to understaffing, not all of the peer counseling was provided as planned: 53% of the women had a prenatal visit; 94%, an in-hospital visit; 50%, in-home postpartum visits; and 53%, postpartum follow-up phone calls. Nevertheless, peer counseling had a significant effect on breastfeeding initiation. Only 8.9% of the intervention mothers did not try breastfeeding, compared to 23% of the control mothers. The probability of stopping breastfeeding at one

and three months also tended to be lower in intervention than in control women, but differences were not significant (stop at one month: 35.7 vs. 49.3%; stop at three months: 55.6% vs. 70.8%, respectively). However, the lack of effect on the breastfeeding duration is not particularly surprising since most contacts occurred in the first month; fewer contacts were provided than planned; and any, rather than exclusive, breastfeeding was the emphasis of the education.

Who responds most to peer counseling? Peer counseling was particularly effective in increasing breastfeeding initiation rates among two groups: multiparas ( $p < 0.002$ ) and women who were undecided about how to feed their babies ( $p < 0.02$ ). Unfortunately, no effect of peer counseling was seen on duration of breastfeeding in these women. Women who were partially breastfeeding on day one postpartum were more likely to continue breastfeeding for at least three months if they received peer counseling, compared to partially breastfeeding control women who did not (41.6% vs. 6.2%,  $p < 0.03$ ). Regardless of whether they received peer counseling or not, women who were exclusively breastfeeding on day one were more likely to still be breastfeeding at all follow-up time points.

*Conclusions and Implications: Peer counselors, working under the supervision of a lactation consultant, seem to be effective in increasing breastfeeding initiation rates in a low-income population. The women mostly likely to benefit from prenatal peer counseling are those who are undecided about breastfeeding and multiparous women who may have had previous negative experiences in breastfeeding. Peer counseling also appears to be effective in counteracting the negative effects of early supplementation. However, exclusive breastfeeding in the early postpartum period is still the best way to increase duration of breastfeeding.*

**Sources:**

Chapman DJ, Domino G, Young S, Perez-Escamilla R. Effectiveness of breastfeeding peer counseling in a low-income, predominantly Latina population: A randomized controlled trial. *Arch Pediatr Adolesc Med* 2004; 158: 897-902.

Chapman DJ, Domino G, Perez-Escamilla R. Differential response to breastfeeding peer counseling within a low-income, predominantly Latina population. *J Hum Lact* 2004; 20 (4): 389-396.

**Current Use of Folic Acid among U. S. Women**

To prevent neural tube defects, all women of child-bearing years should consume 400 µg of folic acid daily, in addition to natural forms of this vitamin found in a varied diet. The current popularity of low-carbohydrate diets may increase the likelihood of not getting enough folic acid in fortified grains. To monitor the use of vitamins among women in the United States, the Gallop Organization has conducted an annual phone survey since 1995 among 2000 women, ages 18-45 years, for the March of Dimes. Response rates for these surveys, typically ranging between 24-52%, are not very high. In 2004, 2012 women participated in the survey, with a response rate of 36%. The margin of error is + 3%. The results of the survey suggest that percentage of women who report taking a vitamin containing folic acid has increased to 40%, up from 32% in 2003. Most of the change has occurred among white, older, college-educated women at the highest income levels. The lowest rate of vitamin use was among women with less than a high school education (19%), compared to college-educated women who have one of the highest rates (48%). Twenty-four percent of the women reported that they were dieting to lose weight, with 48% of those women following a low-carbohydrate diet. Compared to women on other kinds of diets, those who chose a low-

carbohydrate diet were 1.5 times more likely to take a folic acid supplement ( $p < 0.01$ ).

*Conclusions and Implications: This report documents a substantial increase in folic acid use that has not been seen before in the annual March of Dimes survey. While the results are encouraging, most of the improvement appears to have occurred in older women with higher socioeconomic status. More interventions are needed among less advantaged women in the U. S.*

**Source:** Anonymous. Use of vitamins containing folic acid among women of child-bearing age—United States, 2004  
Mortality and Morbidity Weekly Review Sept 17, 2004; 53(36): 847-850.

### **Effect of Parental Feeding Styles on Children's Weight**

Parenting advice related to child feeding practices appeals to many health professionals as a way to prevent childhood obesity. A growing body of research seems to indicate that certain parental feeding styles may be related to self-regulation of energy intake, food preferences, and ultimately to body weight of young children. However, many of these studies are cross-sectional; therefore, the direction of the relationships is unclear. For instance, does greater parental control interfere with a child's ability to regulate energy intake and result in weight gain, or does a rapid weight gain prompt parents to become more restrictive? The aim of a recent study is to sort out these issues and determine if parenting styles are the same and predict changes in children's weight over time.

The data come from a small, longitudinal infant growth study of 57 white children. Children born to normal weight mothers ( $n=32$ ) were considered at low-risk of becoming overweight, whereas those born to overweight mothers ( $n=24$ ) were at high-risk. Staff measured and weighed the children at 3, 5, and 7 years to calculate body mass index (BMI), as a measure of weight status. When the children were 5 and 7 years old, the research staff interviewed the mothers using the Child Feeding Questionnaire (CFQ), developed by Leann Birch. In the analysis, the authors examined the relation of three parental feeding styles—restriction, monitoring, and pressure to eat—to the child's BMI.

Most of the parental attitudes and feeding styles did not change significantly over the two year period, except for monitoring which was used less in older than younger children. The relation between parental attitudes/styles and child's BMI differed among the low-and high-risk groups. For low-risk children, greater monitoring of the child's fat intake at 5 years of age was associated with lower BMI at 7 years ( $r = -0.48$ ,  $p < 0.006$ ). Controlling for the child's BMI at 3 years reduced the strength of the association, but monitoring still remained a significant factor. For high-risk children, greater restriction and less pressure to eat at 5 years of age were associated with higher BMI at 7 years ( $r = +0.25$ ,  $p < 0.02$ ;  $r = +0.35$ ,  $p < 0.02$ ). Again, controlling for the child's BMI at 3 years weakened the relationship, but parenting styles remained significant factors. In fact, the relationships between parental attitudes, feeding styles, and children's weight over time may well be far more complex and beyond the limits of this small sample size to detect.

*Conclusions and Implications: Among children predisposed to obesity, a higher weight at a young age seems to prompt parents to become more restrictive in types or amounts of foods offered. A more restrictive style in these children seems to make the situation worse, resulting in greater weight gains. Whether these relationships hold true in other ethnic groups remains to be determined. Health professionals need to be aware that the type of parenting*

*advice offered may depend not only on the child's current weight but also the family risk of obesity.*

**Source:** Faith MS, Berkowitz RI, Stallings VA, Kerns J, Storey M, and Stunkard AJ. Parental feeding attitudes and styles and child body mass index: prospective analysis of a gene-nutrient interaction. *Pediatrics*. 2004; 114: 429-436.

### **How Does Storage of Breast Milk Affect Antioxidants?**

Compared to infants born full-term, preterm babies are more vulnerable to oxidative stress caused by infections, mechanical ventilation, intravenous nutrition, and some interventions in the neonatal nursery. Oxidative stress may be a factor in many of the serious health problems in these infants, including necrotizing enterocolitis, lung disease, and retinopathy. Human milk is much richer in antioxidants than infant formulas. A recent study examined how different storage conditions affect antioxidant capacity of human milk. The authors collected breast milk samples from 16 mothers within 24 hours of delivery and stored the milk in the refrigerator (4° C) or freezer (-20° C) for two to seven days. They measured the antioxidant activity of the samples, compared to fresh breast milk and infant formula. No difference was found between preterm and term milk, so these samples were pooled for the analysis. Likewise, the term and preterm formulas did not differ from each other, so they also were analyzed as a single value. As expected, the human milk had significantly higher antioxidant activity than formula under all conditions. However, freezing and longer duration of storage significantly reduced antioxidant capacity of human milk. Antioxidant capacity of formula was not affected by time or temperature.

*Conclusions and Implications: To preserve the antioxidant capacity of human milk, neonatal nurseries should consider limiting storage time to 48 hours in the refrigerator. Note: A recent Wall Street Journal article reported only part of the results from this study, which may lead to some unnecessary concern among mothers who pump and store breast milk. These mothers need to know that, despite the apparent effects of storage conditions on antioxidant capacity, human milk is still a significantly better source of antioxidants than infant formula.*

**Source:** Hanna N, Ahmed K, Anwar A, Hiatt M, Hegyi T. Effect of Storage on breast milk antioxidant activity *Arch Dis Chil Fetal Neonatal Ed*. 2004; 89: F518-F520.

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