

## Maternal & Infant Nutrition Briefs

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



### **American Academy of Pediatrics Statement on Breastfeeding**

In December of 1997, the American Academy of Pediatrics (AAP) published its statement on breastfeeding and the use of human milk. This statement generated a lot of media attention, primarily because it included the recommendation that "breastfeeding continue for at least 12 months, and thereafter for as long as mutually desired". Unfortunately, some reporters misinterpreted this statement to mean that women should breastfeed *exclusively*. Without considering how solid foods gradually replace breast milk in older infants, these reporters questioned the practicality of breastfeeding for the first 12 months of life. Health practitioners working with pregnant and breastfeeding women should be familiar with the AAP statement not only to be able to correct public misconceptions but also to be aware of many other important recommendations on infant feeding. In brief, the statement includes the following:

- 1) Human milk is the preferred feeding for all infants, including premature and sick newborns with rare exceptions. Pediatricians should provide parents with complete and current information on the benefits and methods of breastfeeding. Premature infants that cannot breastfeed directly should be given expressed breast milk, fortified if necessary.
- 2) Breastfeeding should begin as soon as possible after delivery. Newborns should remain with their mothers after birth, except in special circumstances.
- 3) Newborns should be nursed whenever they show signs of hunger, such as rooting, increased alertness, or activity. Newborns should be nursed approximately 8-12 times every 24 hours. Trained observers should evaluate and document in the record breastfeeding performance during the first 24-48 hours and again 48-72 hours after discharge. Rooming-in facilitates breast-feeding.
- 4) No supplements (water, glucose, or formula) should be given to breastfeeding newborns

unless medically indicated. Supplements and pacifiers should be avoided.

5) If discharged < 48 hours after birth, mothers and babies should be seen by a pediatrician or other practitioner when the baby is 2 to 4 days old.

6) Exclusive breastfeeding is ideal for the first 6 months of life. Babies weaned before 12 months should receive iron-fortified formula. Gradual introduction of iron-enriched solid foods should complement breast milk after six months. Breastfeeding should continue for at least 12 months.

7) In the first six months, water, juice, and other foods are generally unnecessary for breast-fed infants. Vitamin D and iron may be needed in select groups. Fluoride should not be given during the first six months to either breast-fed or formula-fed infants. From six months to three years, infants require fluoride only if the water supply has less than 0.3 ppm fluoride.

8) Every effort should be made to maintain breastfeeding in hospitalized infants.

Finally, AAP encourages physicians to take a proactive role by supporting breastfeeding "enthusiastically", becoming knowledgeable, promoting hospital policies to facilitate breastfeeding, etc. Perhaps most significant, throughout the document, breastfeeding is not only referred to as the superior way to feed an infant but also as the norm.

**Sources:** American Academy of Pediatrics. Work Group on Breastfeeding. 1997. Breastfeeding and the use of human milk. *Pediatrics*. 100: 1035-1039.

Heinig MJ. 1998. The American Academy of Pediatrics recommendations on breastfeeding and the use of human milk. *Journal of Human Lactation* 14 (1):2-3

### **Calcium Needs during Pregnancy and Lactation**

Although the demand for calcium during pregnancy and lactation may increase by 200-300 mg per day, a recent study reported that fetal needs for calcium can be met by increased maternal absorption of calcium, with no loss of calcium from the mother's bones. While breastfeeding, the mother is able to meet the needs of her infant by mobilizing calcium from her spinal bone and excreting less calcium in her urine. Five months after she resumes menstruation, replacement of minerals in the spinal bone has occurred, although total bone mineral density is still somewhat lower than levels measured after delivery.

This study is the first to provide a long-term, longitudinal look at calcium metabolism in a group of women followed before, during, and after their pregnancy through five months postmenstruation. The availability of dual-energy X-ray absorptiometry and quantitative computerized tomography have made it possible to detect small changes in the calcium content of bone that occur along with other dramatic metabolic changes of pregnancy and lactation.

However, as is often the case, more research is needed to examine calcium metabolism in other subgroups of the population. The fourteen subjects followed in this study were healthy, well-nourished, white middle-class women whose usual diet was rich in dairy products (average intake was 1171 mg of calcium throughout the study). Dietary intake of calcium increased significantly by 296 mg at the third trimester. All of the women were between the ages of 23 to 41 years. None delivered twins. Lower calcium intakes, maternal age, and

multiple births could all change the metabolic picture. In the meantime, these findings are consistent with the most recently revised dietary recommendations that additional increases in calcium during pregnancy and lactation are not needed in women whose usual diet is rich in dairy products and other good sources of calcium.

**Sources:** Ritchie LD, Fund EB, Halloran BP, Turnlund JR, Van Loan MD, Cann CE, and King JC. 1998. A longitudinal study of calcium homeostasis during human pregnancy and lactation and after resumption of menses. *AJCN* 67(4): 693-701.

Allen LH. 1998. Women's dietary calcium requirements are not increased by pregnancy or lactation. *AJCN* 67(4): 591-592

### **Is Milk Production Low in Breastfeeding Teens**

Relatively little is known about the capacity of teens to produce adequate amounts of breast milk. Some evidence suggests that the young mother's needs for growth may compromise her ability to produce enough milk for her baby. The purpose of a recent study was to examine milk production, milk composition, and breastfeeding patterns in teens and to compare their lactational performance to that of adult women.

The study was carried out in the Children's Nutrition Research Unit at Baylor College in Texas. Twenty-two healthy, well-nourished, nonsmoking mothers (11 teens, 11 adults) with normal term babies were recruited at delivery and followed at 6, 12, 18, and 24 weeks postpartum. All mothers intended to breast-feed exclusively as long as possible. At each visit, the mothers and babies lived in the metabolic unit for four days while the data were collected. Milk volumes over 52 hours were measured by test-weighing the babies before and after each nursing. The mothers provided milk samples for analysis by pumping alternate breasts over a 24 hour period. Frequency of day and night feedings, duration of each feeding, and number of supplemental (formula) or complementary (baby food) feedings were recorded over a 24 hour period.

Between 6 and 24 weeks, the teens produced 37-50% less milk than the adult mothers. Total time spent nursing was lower, and use of supplementary formula was higher in teens than in adults, although the differences were significant only at some of the time points. Milk production in teens was still lower, even after accounting for differences in frequency and duration of feedings and number of supplemental or complementary feedings ( $p < 0.05$ ). In contrast, milk composition, including energy, lactose, protein and nonprotein nitrogen, fat, calcium, potassium, and phosphorus, differed little between the teen and adult mothers. Only milk sodium concentrations at 6 and 12 weeks were higher in teen than in adult breast milk samples, which may be due to earlier weaning in the teens.

Unfortunately, the design of this study does not allow us to say whether low milk production in teens is a *cause or effect* of early introduction of formula. By starting data collection at 6 weeks postpartum, the authors have missed observing critical events during the first few weeks that could explain the results. Moreover, some of the differences in breastfeeding patterns between teens and adults could be due to racial and/or ethnic differences in the groups, but the sample size was too small to control for these factors. Thus, although this study suggests that milk production may be low in teens, more research is definitely needed to determine whether or not concurrent growth in the teen mother compromises her ability to nurse her baby adequately.

**Source:** Motil KJ, Kertz B, Thotathuchery M. 1997. Lactational performance of adolescents shows preliminary differences from that of adult women. *Journal of Adolescent Health* 20: 442-44

### **WIC and Food Stamp Programs Increase Nutrient Intakes of Preschoolers**

The changes in the welfare system during the past few years have increased the need for careful evaluation of food assistance programs. Since families cannot ethically be randomly assigned to receive benefits or act as controls, evaluations must rely on advanced statistical techniques that control for confounding differences between participants and eligible nonparticipants. Despite the need for evaluation and availability of sophisticated statistical techniques, relatively little work has been done on the effects of Food Stamps on nutrient intakes. While numerous studies have examined the effects of the Women, Infants, and Child Nutrition Program (WIC) on pregnant women, much less research has been done on preschool children. Consequently, the main purpose of this study was to determine to what extent Food Stamps and WIC affect preschooler intakes of nutrients, particularly iron and zinc.

The authors used data from the 1989-91 Continuing Survey of Food Intakes by Individuals (CSFII), which collected one 24 hour dietary recall and two food records for each individual. For each nutrient, the average intake over the three days was calculated and expressed as a percentage of the Recommended Daily Allowance (% RDA). The effect of food assistance dollars on nutrient adequacy was analyzed in a subsample of children who were age eligible for WIC and who lived in households eligible for Food Stamps (n = 499). WIC and Food Stamp participation had independent and significantly positive effects on nutrient intake of preschoolers. WIC benefits increased nutrient adequacy of iron and zinc by 16.6% and 10.6%, respectively. Food Stamp benefits, although not as strong as WIC's, increased adequacy of iron by 12.3% and of zinc by 9.2%. Intakes of energy, fat, saturated fat, and cholesterol were not related to either WIC or Food Stamp benefits. The beneficial effects of WIC on iron and zinc intakes were significant not only in public health terms but also much greater than would have resulted from similar increases in cash income.

**Source:** Rose D, Habicht JP, and Devaney B. 1998. Household participation in the Food Stamp and WIC programs increases the nutrient intakes of preschool children. *J. Nutr.* 128: 548-555

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