

# Maternal and Infant Nutrition Briefs



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## Should Pregnant Women Wean Their Toddlers?

Little is known about the effects of nursing a toddler while pregnant with the next baby. However, research in cattle has found that an overlap between pregnancy and lactation changes milk composition, specifically reducing the amount of immune factors. Similar research has not been conducted in humans, even though breastfeeding during pregnancy is common in many cultures.

Recently, a study was carried out in Lima, Peru to determine whether nursing a toddler while pregnant has any negative effects on breast milk or health of the second baby. The mothers, recruited while pregnant, were 18 years or older, healthy, and had at least one child less than 4 years. Only babies who were healthy, born after 37 weeks gestation, and of normal birth weight were included in the study. The final sample included 68 mothers who breastfed their toddlers during the last trimester of pregnancy and 65 who did not. Collected at 2 days and 1 month postpartum, the data included breast milk composition, breast milk intake by test weighing of the babies, and illness of the mother and baby.

Colostrum of women who nursed while pregnant, compared to that of women who did not, was higher in lactose and lysozyme and lower in lactoferrin ( $p < 0.05$ ). At 1 month, total intake of immunoglobulin A was lower ( $p < 0.01$ ) among babies whose mothers had nursed while pregnant, but intake of other immune factors was not. Frequency of infant diarrhea was similar between the groups, but cough with other signs of illness occurred more often among babies whose mothers nursed while pregnant ( $p < 0.001$ ). None of the mothers who nursed while pregnant developed mastitis, whereas 6% of the other women did ( $p < 0.05$ ). One possible complication to keep in mind while interpreting the results is that the "nursing while pregnant" group was mixed. Sixteen mothers weaned the toddler before delivery, 19 weaned

at birth, 7 weaned within a month of delivery, and 26 tandem breast-fed both toddler and infant beyond a month. Greater differences might have been observed, had it been possible to examine these subgroups separately. However, the group who nursed while pregnant was better-off socioeconomically than the others, so that poverty does not explain more frequent infant illness in this group.

*Conclusions and Implications: While the results suggest that humans might benefit from avoiding an overlap between pregnancy and lactation, the question of whether to wean can only be answered after full consideration of benefits and costs to the mother, infant, and older child.*

Source: Marquis GS, Penny ME, Zimmer JP, Diaz, JM. An overlap of breastfeeding during late pregnancy is associated with subsequent changes in colostrum composition and morbidity rates among Peruvian infants and their mothers. *J Nutr* 2003; 133: 2585-2591

## **Iron in Low-Doses Effective in Preventing Anemia in Pregnancy**

Iron-deficiency anemia during pregnancy increases the risk of preterm delivery and low-birth weight. In the U.S., iron supplements (30 mg a day) are routinely recommended for all pregnant women. In many studies, compliance in taking iron supplements during pregnancy has often been low, due to the constipation, nausea, and abdominal pain that may be associated with high doses of iron. Another concern about iron supplements is a possible interference with zinc absorption. Therefore, several countries, including Australia, New Zealand, Canada, and the U.K., do not routinely recommend iron supplements for all pregnant women. Instead, usual care is to screen pregnant women for anemia at 28 weeks and provide a high dose of iron (60-120 mg) as needed. Therefore, the purpose of this study was to assess the risks and benefits of taking a low-dose iron supplement in a randomized clinical trial.

The setting for the study was Adelaide, Australia where pregnant women could be randomly--and ethically-- assigned in double-blind fashion to take either low-dose iron (20 mg/day) or a placebo (control), starting at 20 weeks gestation. Only healthy, pregnant women (n=430) without pre-existing anemia and not currently taking a supplement enrolled in the study. Hemoglobin values were taken from the hospital records before 20 and at

28 weeks gestation. If anemia was detected at 28 weeks, then the woman was given 80 mg of iron. The researchers also drew blood at delivery and 6 months postpartum and analyzed the samples for hemoglobin, serum ferritin, and serum zinc. Additional data included self-reported side effects, pregnancy outcomes, and the mother's well-being.

Before the intervention, the groups had similar hemoglobin values and iron intake. By the end of the study, fewer of the supplemented mothers were anemic (3% vs. 11% of controls,  $p < 0.005$ ). Likewise, iron deficiency was less common in the supplemented group compared to the controls (35% vs. 58%,  $p < 0.001$ ). At six months postpartum, prevalence of iron deficiency in the supplemented mothers was only 16%, compared to 29% in the control women ( $p < 0.005$ ). There was no difference among the groups in frequency of gastrointestinal complaints, serum zinc levels, pregnancy outcomes, or reported mother's well-being.

*Conclusion and Implications: This study is one of the first randomized, double-blind, clinical trials in an industrialized country to demonstrate that a low dose of iron, routinely prescribed during pregnancy, can be an effective and safe strategy to prevent iron deficiency and anemia in the mother.*

Source: Makrides M, Crowther CA, Gibson RA, Gibson RS, Skeaff CM. Efficacy and tolerability of low-dose iron supplements during pregnancy: a randomized controlled trial. *Am J Clin. Nutr.* 2003; 78: 145-53.

## **Strategies to Prevent Food Allergy in Infants and Children**

Between 4-6% of children are known to have a food allergy. Over the past ten years, the rate of food allergy has increased. The foods most commonly linked to allergy are egg, cow's milk, peanut, tree nuts, fish, wheat, and soy. In some cases, the allergy seems to disappear as the child grows, but allergies to peanut, nuts, and fish tend to continue into adulthood. Food avoidance is the main strategy, whether the aim is to avoid becoming sensitized to a food (primary prevention) or to stop the allergy from developing after sensitization occurs (secondary prevention). Of course, once the allergy has developed, tertiary prevention also involves eliminating certain foods from the diet to avoid the symptoms. Ideally, primary

prevention would be the goal. To achieve that goal, being able to target high-risk individuals is particularly important.

**How can health practitioners identify infants at high-risk for food allergy?** There are many early biological indicators that seem to predict later development of food allergy, but none are sensitive or powerful enough to be practical for population screening. *A careful assessment of family history of food allergy, obtained from both parents, is the best way to determine risk in large-scale screening. Health practitioners should also probe for food allergies occurring in older siblings of the infant.*

**Is breastfeeding really protective against food allergies?** Breast milk contains many substances that enhance immune function. However, debate continues as to what extent breastfeeding prevents or delays the onset of food allergies. Much of the confusion may be due to serious limitations in research studies that have not controlled for confounding factors, failed to accurately estimate the extent or duration of exclusive breastfeeding, or lacked clear measurement of outcomes. *When only the best designed studies are considered, the protective effect of exclusive breastfeeding for at least 3 months ranges from 20-36% against developing asthma, eczema, or other symptoms related to allergies.* For that and other reasons, the AAP strongly recommends exclusive breastfeeding for 6 months, whether or not a positive family history of food allergy is present.

**Should mothers avoid certain foods during pregnancy and/or lactation?** Studies in pregnant women with a positive family history of food allergy have failed to show any effect of avoiding cow's milk or eggs on preventing allergy in the babies. Furthermore, avoidance of these foods may adversely affect prenatal weight gain. However, some evidence suggests that avoiding peanuts may be helpful. *Since avoiding peanuts is unlikely to cause nutritional problems, the American Academy of Pediatrics (AAP) states that pregnant women with a positive family history of food allergy might consider eliminating peanuts from their diet.*

Studies on the benefits of avoiding allergenic foods during lactation have yielded mixed results. In a select group at high-risk of food allergy, sensitization and symptoms of food allergy occurred in up to 6% of the exclusively breastfed infants. Taken together, the results of several studies

suggest that maternal avoidance of cow's milk, fish, and eggs may prevent the development of eczema in young children at high-risk due to family history. However, such protection may not be long-lasting. *Many pediatricians feel that more studies are needed before advising nursing mothers of high-risk infants to eliminate foods in their own diets-- other than possibly peanuts and nuts-- as part of a primary prevention strategy.* However, in infants who already have a food allergy, exclusive breastfeeding up to 6 months of age and maternal and infant avoidance of the causal food is recommended. Consequently, these women should be advised to take appropriate vitamin and mineral supplements.

### **How should solids be introduced to infants at high-risk of food allergy?**

Exposing a baby to a variety of new foods before the age of 4 months is associated with eczema in early childhood. In high-risk children, introduction to cow's milk should be delayed until 12 months; eggs until 24 months; and peanut, nuts, and fish until 3 years of age.

The AAP also recommends avoiding soy formula if the infant is at high-risk of developing a food allergy. Instead, a hypoallergenic protein hydrolyzate (extensive preferred), such as Nutramigen or Alimentum, is the first choice for non-breastfed infants.

#### **Sources:**

Oddy WH, Peat JK, Breastfeeding, Asthma, and Atopic Disease : An epidemiological review of the literature, *J Hum Lact* 19(3) :250-261,

Zeiger RS. Food allergen avoidance in the prevention of food allergy in infants and children. *Pediatrics* 2003; 111: 1662-1671

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