New Findings from the Feeding Infants and Toddlers Study

The Feeding Infants and Toddlers Study (FITS) is a collaboration between three groups: researchers in nutrition, dietetics, and foods; statisticians; and the food industry. The findings presented here from the 2002 cross-sectional survey include electrolyte and supplement intakes, the average portions of foods consumed, the relationship of portion size and energy intake, nutrient intake of Hispanic infants and toddlers, and useful applications for caretakers. I found many items of interest in these reports that have been organized into several sections so as to highlight major findings.

IN THIS ISSUE

Two commentaries initiate the 11 papers. Stang (p S7) emphasizes the importance of developing in infants and toddlers eating behaviors and food preferences that will support good nutrition throughout their lives. In addition, Stang stresses the critical need for wise counseling of caretakers. Couch and Falciglia (p S10) focus on improving the diets of infants and toddlers, encouraging mothers to breastfeed, and advising caregivers on appropriate introduction of complementary foods. They point out that the large sample size and the random selection of the infants and toddlers are major strengths of the study. They suggest that professionals can be guided by behavioral theories in understanding eating patterns and implementing improvement while being sensitive to group patterns and attributes.

Ziegler (p S12), in the initial article, provides a valuable comparison of the FITS study to 18 other surveys of infant and toddler food intake. The surveys were published in the 21st century or the 1990s, with the exception of one survey dating back to 1975. The FITS protocol was developed from this analysis. In addition, an excellent table comparing the appropriate use and limitations of four prime dietary intake methods is presented. Applications for practitioners and researchers are provided.

The next section presents analyses of food, nutrient, electrolyte, and supplement intakes. Fox (p S28) describes the sources of energy and 24 nutrients in the diets of infants and toddlers. Among the subjects, 3,586 unique foods were reported. Key tables are contained in the article and other tables are to be found online only. It is quickly apparent that fruit and vegetable intake is limited; indeed, many toddlers and infants over 6 months of age consumed no fruits or vegetables during the day data were collected. Another issue is that the intakes of supplement users frequently exceeded the Tolerable Upper Intake Levels (ULs) for vitamin A, zinc, and folate: this observation needs continued surveillance.

Electrolyte intake calculations presented by Heird (p S43) indicate that both potassium and sodium intakes are above Adequate Intakes for 4- to 5-month-old infants and above Adequate Intakes for sodium for 12- to 24-month-old toddlers. It should be noted, however, that the electrolyte intake is estimated only from foods and dietary supplements and does not include the impact of any salt added to the foods. This means Heird's statement that sodium intake has not changed for the past 20 years is in need of substantiation.

Briefel and colleagues (p S52) discuss the contribution of supplements. One of the most provocative observations is the frequency of vitamin E intakes below the Estimated Average Requirement (EAR), although there is little clinical evidence of vitamin E deficiency. The authors suggest that the EAR for vitamin E may be too high and should be reexamined. Another observation I found compelling is that toddlers taking supplements frequently exceed the UL for vitamin A and zinc; notably, intakes in excess of the UL were also observed in nonsupplement users, albeit less frequently than in supplement users. Folate intake also exceeded the UL in a substantial number of supplement users. It is also worth comment that supplements need to be given with care to avoid iron excess as it is well known that excessive intake, particularly accidental ingestion of iron, is poisonous.

The third section, on average portion sizes, I found to be of keen interest. The first of two articles by Fox and colleagues (p S66) presents data on portion size, number of eating occasions, number of foods consumed, and the energy density of intake. The second article (p S77) utilizes multiple regressions to explore relationships of these variables and energy intake. When regulation variables are considered, analysis of the data indicates that infants 6 to 11 months of age exhibit a positive relationship between portion size and the number of unique foods consumed: children who eat less often during the day consume larger portion sizes and children consuming meals of higher energy density tend toward smaller portion sizes.

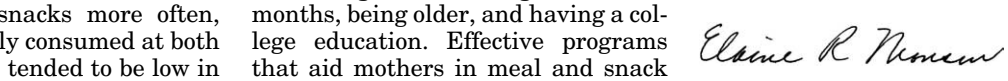
This compensatory behavior is less evident in toddlers. Obviously, as professionals we need to counsel caretakers to enhance these early self-regulating behaviors and avoid coercive and unnecessary environmental cues for excessive food consumption. This is very timely advice considering the high prevalence of obesity and overweight in the world.

A major contribution of these analyses of FITS is the evaluation of the Hispanic and non-Hispanic infants and toddlers that are presented in the next section. Briefel (p S84), Mennella (p S96), and Ziegler (p S107) and their respective co-authors discuss usual intakes, the types of foods consumed, and the comparison of meals and snacks in the three articles in this section. Many important findings are reported. Nutrient intakes tended to be high; in fact, many toddlers exceed the UL for vitamin A and zinc,

and a substantial number exceeded the UL for sodium. Hispanic toddlers had intakes higher than non-Hispanic toddlers for vitamins A, C, and E; folate; potassium; and fiber. Hispanic mothers more frequently breastfed their 4- to 5-month-old infants than non-Hispanic mothers. In addition, fruits in the Hispanic child's food intake were more commonly consumed fresh. In the following article by Ziegler and colleagues (p S107), data were evaluated by age, ethnicity, and eating occasion of the subjects. Three observations stand out: infants and toddlers were fed seven times a day on average, older children were reported to eat snacks more often, and food frequently consumed at both meals and snacks tended to be low in whole grains, vegetables, and fruits.

The last section is composed of two articles: one by Ziegler and colleagues (p S124) on the impact of location of lunches and snacks on the food choices of toddlers; and the other by Hendricks and colleagues (p S135) on the association of maternal characteristics and feeding practices of infants. Ziegler states that half of meals are consumed away from home while just over 40% are consumed at home and 8% at day care in this study group. Meals consumed by toddlers at day care tended to be more nutritious than those consumed at home primarily because of the dairy products served at day care. Hendricks reports that the profile of maternal characteristics associated with more nutritious feeding were initiating breastfeeding, continuing breastfeeding for 6 to 12 months, being older, and having a college education. Effective programs that aid mothers in meal and snack selection for their infants and toddlers need to be developed and implemented.

In looking over this supplement, many areas stand out where further investigation appears warranted and many excellent opportunities for researchers can be predicted. As professionals, we can enhance our profession by careful, thoughtful, well-designed, and ethical research, and by applying key findings to relevant populations. It has been an interesting and enjoyable experience to serve as guest editor of this supplement. I would like to thank the authors and the editorial offices in Chicago, in particular Claire Zulkey, and, especially, my excellent coworker, Deborah K. Shattuck, who is an outstanding professional skilled in editing.



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