

Feeding Infants and Toddlers Study

Part 1: Purpose and Methodology

Synopsis — Although nutrition plays a major part in every child’s health, many parents are unsure of when to start feeding their babies solid foods, what to feed them, and how much to feed. Moreover, pediatricians and dietitians often do not know just what and how much their young patients are eating.

The Feeding Infants and Toddlers Study (FITS), a large-scale, scientific survey sponsored by Gerber Products Company and conducted by Mathematica Policy Research, Inc., examined the eating habits and nutrient intakes of more than 3,000 infants and toddlers ranging in age from 4 to 24 months. Their food choices and nutrient intakes were then compared to published nutrient requirements and current professional and public health feeding recommendations. FITS is the first large-scale study to use the Institute of Medicine’s (IOM) newly adopted Dietary Reference Intakes (DRIs) to assess energy intakes and nutritional adequacy of US children under two years of age.

This article presents an overview of the methodology used to collect the FITS data. Subsequent articles in the series will provide detailed analysis of critical areas of concern.

The first two years of a child’s life are a critical period of rapid physiological growth and development, setting the stage for the rest of their childhood and their adult life. Perhaps no one factor has a greater influence on a child’s growth—physical, cognitive, and emotional—than nutrition. As young infants make the transition from an all-milk diet to one that includes foods from the family table, their eating habits necessarily evolve to include a wide range of foods that will help meet the rapidly growing older infant’s changing nutritional requirements. Eating habits formed during this critical phase may set the stage for food and nutrition choices well into adulthood, as well as affect long-term health and risk of chronic diseases such as obesity, heart disease, diabetes, cancer and stroke.

Although a child’s daily nutrition is a vital component of overall health, parents often need guidance about when to start feeding their baby solid foods, what foods to introduce, and how much to feed them. Pediatric professionals need to provide this guidance and to gauge exactly what and how much food their





youngest patients consume on a daily basis. To that end, the Gerber Products Company sponsored the Feeding Infants and Toddlers Study (FITS) to update current knowledge of the food and nutrient intakes of infants and toddlers in the United States. The study included a dietary survey of infants and toddlers ranging in age from 4 to 24 months, and subsequent analysis of the survey data. Although completely accurate dietary assessments may be elusive due to many factors,¹ the sampling design, data collection procedures, and survey methodology all contribute to make FITS a unique benchmark survey assessing what infants and toddlers are actually eating on any given day in America.

FITS Updates Nutritional Knowledge

FITS updates and enhances a rich history of surveys focusing on infant and toddler nutrition. Over the past three decades, Gerber Products Company sponsored five infant nutrition surveys, tracking infant feeding practices and assessing the nutritional adequacy of infants' diets. Most recently, a 1994 survey utilized food diaries to

document all foods eaten over a four-day period for nearly 2000 children aged 1 to 36 months. The data collected were then analyzed to determine nutrient intakes, feeding frequency, the quantities, food groups, and food type (table or baby food) consumed, and the relationship between household demographics and feeding patterns.²

Recent national surveys have also focused on infant and toddler nutrition. These include the Continuing Survey of Food Intakes by Individuals (CSFII), the National Health and Nutrition Examination Survey (NHANES), and the Ross Mothers' Survey.^{3,4,5} While the 1994-96 and 1998 CSFII and the NHANES from both 1988-1994 and 1999-2000 provide data on food consumption for a nationally representative sample of infants and toddlers, the sample sizes are small, and published results often omit data on breastfed infants. The Ross Mothers Survey tracks breastfeeding rates and the use of infant formula and cow's milk, but includes no data on solid foods.

FITS is a beneficial and important undertaking that provides valuable updates to earlier surveys and fills some of the gaps left by them. For example, FITS is the first large-scale study to use the Institute of Medicine's (IOM) newly adopted Dietary Reference Intakes (DRIs) to assess energy intakes and nutritional adequacy in US children under two years of age.⁶ In addition, FITS data compare current infant and toddler feeding practices to nutrition guidelines currently set forth by professional organizations such as the American Academy of Pediatrics.⁷ By conducting 24-hour dietary recall surveys, with two days of recall available for a random subsample, FITS also follows the recommended dietary methodologies for estimating the usual nutrient intake of groups.⁸ The findings from FITS can be used to promote both healthy early eating patterns and long-term child health and development, at a time when overweight, obesity, and Type II diabetes in youth is a major public health concern.⁹



Typically, infants are introduced to complementary infant cereals and other baby foods at 4 to 6 months old, and begin to transition to table foods when they are 9 to 11 months old. To examine these transition periods in greater depth, larger samples were drawn for these two age groups.

Sample Design

Sample design is a critical phase of research development. A good sample design is essential for generalizing the study results to all infants and toddlers in the United States. However, to generalize the study results to all infants and toddlers requires a sample frame—that is, a comprehensive list or mechanism to enumerate all infants and toddlers 4 to 24 months in the US. Unfortunately, such a sample frame of US infants and toddlers does not exist. That is, there is no list or mechanism available to create a list of all infants and toddlers in a timely manner. Commercial lists are available, however, and many have fairly good and up-to-date lists of names and contact information of new parents. FITS researchers chose the New Parent Database compiled by Experian, Inc.,¹⁰ which contains approximately 3.1 million families with newborns annually, and includes both prenatal and postnatal records. Postnatal names are tracked from birth to 36 months of age. Experian compiles this weekly-updated database from over 2,500 different sources, including hospitals, maternity clothing stores, hospital photographers, baby furniture suppliers, diaper companies, hospital “welcome” gift packs, bank surveys, and other public and proprietary sources. Each record contains a parent’s name, address, and the child’s month and year of birth. Comparing the list of children eligible for this survey to the list of national Vital Statistic Reports,¹¹ FITS researchers estimated that the sample frame covered 51 to 67 percent of all children in the target ages.

Statisticians stratified the sample frame by age of the child and region of the country, and subsequently selected a simple random sample from each stratum. Children were divided by age in months into six target age groups: 4 to 6, 7 to 8, 9 to 11, 12 to 14, 15 to 18, and 19 to 24 months old. Typically, infants are introduced to complementary infant cereals and other baby foods at 4 to 6 months old, and begin to transition to table foods when they are 9 to 11 months old. To examine these transition periods in greater depth, larger samples were drawn for these two age groups.

Data Collection Procedures and Survey Methodology

For the survey, interviewers conducted up to three separate interviews by telephone: (1) a brief recruitment and household interview; (2) a 24-hour dietary recall with supplementary questions on growth, developmental milestones, and feeding patterns and transitions; and (3) a second dietary recall interview for a random subsample of respondents.

During the recruitment interview, interviewers confirmed household eligibility, requested participation, collected household characteristics such as income and parental employment status, determined whether the child spent part of his or her day in non-parental care, and identified the most knowledgeable adult with regard to the child’s eating habits for future interviews. All interviewed adults understood that their participation in the study was voluntary, and were assured of the confidentiality of all data received.

Following the initial phone interview, an information packet written in both English and Spanish was mailed to the most knowledgeable adult. The packet included useful tools such as a permission form for child care providers and a food measurement booklet created by researchers with the aid of a graphic designer. Parents and caregivers could accurately estimate portion size with the help of the diagrams and drawn-to-scale pictures of cups, bowls and spoons commonly used to feed infants and toddlers. Researchers also relied on parents to develop and test the booklet, ensuring that it was easy to use and specifically geared toward infants and toddlers in terms of portion sizes and feeding utensils, rather than simply using standard recall methods used for the general population. In addition, the first page of the measurement guide included a list of frequently forgotten foods, such as water, juice, milk, granola bars, ready-to-eat cereal, cookies, cooked or soft fruits and vegetables, ground meats and cheeses.

Seven to ten days after sending the information packet, an interviewer called the participating household to conduct the 24-hour dietary recall. To collect this data, the study utilized the Nutrition Data System for

To account statistically for their day-to-day variation in foods consumed, interviewers called a random subset of respondents three to ten days after the first recall.



Research (NDS-R) from the University of Minnesota Nutrition Coordination Center (NCC), which includes a well-tested computerized 24-hour dietary recall data collection linked to a comprehensive food and nutrient database.¹² With this system, food and nutrient analyses can be conducted at the ingredient level, food level, meal level, or daily total level.



Interviewers asked the most knowledgeable adult about all foods and liquids that the child consumed from midnight through midnight on the previous day, including vitamin and mineral supplements. For breastfed infants, interviewers documented the duration of each feeding in minutes. If the interviewed adult did not know what the child ate while under the care of someone else, they were asked to contact the child care provider to acquire detailed information. In the few cases where the interviewed adult could not obtain the dietary recall information from the caregiver, interviewers obtained permission to call the caregiver directly. In either case, this additional dietary information was acquired within 72 hours of the original interview.

Nutritionists reviewed each 24-hour recall for missing foods, unrealistic quantities reported, supplement use, and breastfeeding status. The most common problem was that the nutrient database did not include all brand name baby foods. Researchers identified missing foods, obtained nutrient information, and sent the list to the NCC to update the database. Nutrient calculations were performed using the NDS-R software version 4.03, developed by the NCC.¹² In the event that an analytic value was not available for a nutrient in a food, NCC calculated the value based on the content of other nutrients in the same food, on a product ingredient list, or on the nutrient content of similar foods.

Based on published estimates of breast milk consumed by breastfeeding infants,¹³ it was assumed that exclusively breastfed infants under 7 months of age consumed 780 mL of breast milk per day. For infants under 7 months fed both breast milk and formula, the volume of formula was subtracted from 780 mL to obtain an estimate of the quantity of breast milk consumed.¹³ For infants 7 months and older, the same method was used, based on 600 mL per day of

breast milk for those consuming only breast milk as their milk source. As with younger infants, the volume of formula or cow's milk was subtracted from 600 mL for older infants who consumed both breast milk and other milk products to estimate the quantity of breast milk consumed.

After completing the 24-hour dietary recall, interviewers asked the parent or caretaker an additional set of questions relating to breastfeeding history, introduction of foods, growth and development, WIC participation, and child care. Background information about the parents, such as age, race, education and income levels, was also obtained.

The amount and types of foods that infants and toddlers eat vary considerably from day to day, yet "usual" intakes, rather than intakes on a given day, affect their growth and development. To account statistically for the day-to-day variation in foods consumed, interviewers called a random subset of respondents three to ten days after the first recall and asked them to complete a second 24-hour recall. 703 sample members completed this second interview, which was conducted on a different day of the week from the first interview. As with the first recall, interviewers contacted child care providers when necessary to complete the picture of what the child ate during the day. Data from the two days of recalls were used in statistical programs to calculate usual nutrient intake distributions^{6,8} and to assess whether infants and toddlers were getting enough nutrients to meet their requirements.

Once the data were collected, it was time to crunch the numbers. FITS involved a comprehensive analysis of the food and nutrient intakes of infants and toddlers. Analysis questions focused on a wide range of issues.

Response Rates

Of those sampled households who could be located and had a child in the eligible age range, the response rate to the recruitment interview was 73%. Despite considerable effort, approximately 37% of households could not be located, and, among all those located, 38% did not have a child within the eligible age range. Including, then, households that could not be located for the calculation of response rates, the response rate for the recruitment interview was 46%, which is comparable with response rates from other telephone dietary studies.¹⁴

For the 3,224 households that participated in the household recruitment interview, interviewers successfully completed 3,022 dietary recalls, making the

dietary recall response rate 94%. In addition, 703 randomly selected respondents completed the second recall (approximately 23% of the first dietary recall sample), which was 85% of the cases contacted for the second-day recall.



Analysis Questions and Sample Weights

Once the data were collected, it was time to crunch the numbers. FITS

involved a comprehensive analysis of the food and nutrient intakes of infants and toddlers. Analysis questions focused on a wide range of issues:

- Do infants and toddlers have nutritionally adequate diets? That is, do they consume enough nutrients to meet their requirements without having excessive consumption?
- What are the foods consumed by infants and toddlers and how do they vary with age?
- Are infants being breastfed, and if so, for how long? What happens to infant diets as infants transition from breast milk and infant formula to complementary foods?

- What happens to the infant and toddler diets as they progress from infant foods to table foods?
- When do infants start consuming non-milk beverages, what kind of beverages are consumed, and how do these beverage consumption patterns change as toddlers get older?
- How are infant and toddler self-feeding skills related to food and nutrient intakes?
- Are infants and toddlers picky eaters and how often do parents try new foods with their babies?
- What are the meal and snack patterns of infants and toddlers?
- What are the food choices and nutrient intakes of infants and toddlers participating in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)?

To provide reliable answers to these analysis questions, it was necessary to adjust the data for some aspects of the sample design. Recall that two age groups were oversampled—infants 4 to 6 months and 9 to 11 months. In addition, the lack of a comprehensive list frame meant that some racial and ethnic groups may have been less well represented in the New Parent Database than in the population as a whole. To account for these factors in conducting the analysis and generalizing to all infants and toddlers, statisticians calculated a sample weight for each infant and toddler based on the probabilities of selection. For example, since infants 4 to 6 months were roughly twice as likely to be sampled as toddlers 12 to 14 months old, sample weights for toddlers 12 to 14 months were about twice the sample weights of infants 4 to 6 months. These sampling weights were used in the in-depth analysis of each research topic listed above.

FITS sample characteristics, including gender, weight-for-age, and household income, are presented in Table 1 (page 8). Although the data presented in this table are unweighted (i.e., do not use the sample weights), all analyses in subsequent papers based on the FITS data use the sample weights in calculating means, distributions, and tests of statistical significance. The large sample size allows for analyses to be conducted separately by age group, and by many of the sample characteristics presented in Table 1.

continued on page 8

Putting Research Into Practice

John T. Cook, PhD



Food and feeding practices are more than just essential components of human health and survival—they also form core elements of society's most cherished beliefs and understandings about nurturance and success. These fundamental beliefs influence well-meaning parents as they navigate a challenging course of opportunities and obstacles provided by our technologically advanced food systems and the demands of raising children in a modern economy. The information culled from the Feeding Infants and Toddlers Study (FITS) findings can help pediatricians and parents chart that course together more effectively.

What FITS Provides That Other Studies Have Not

FITS is unique in that its sampling design and resulting large sample sizes ensure the statistical power to carry out subgroup comparisons and sophisticated associational analyses that are of great value in understanding food intake and feeding practices in this age group. Importantly, unlike NHANES and other national food intake surveys, FITS includes breastfeeding infants, who currently comprise three-quarters of infants aged 4-24 months.

FITS data was gathered from 24-hour dietary recalls, rather than caregiver-completed food diaries, which improves the quality of data initially collected vs. previous dietary intake surveys. In theory, a food diary correctly filled out would be the same as or better than a dietary recall done correctly. However, since a food diary demands meticulous recording,¹ which parents may put off and later have trouble remembering, it is a less accurate method of dietary intake assessment than multiple 24-hour recalls. Finally, keeping a food diary may affect what a parent feeds the child.



Not that dietary recalls are perfect. For example, we know that adults underreport what they eat,¹ and FITS researchers suspect that parents might also overreport what kids eat. However, better data collection tends to result when someone external to the respondent asks the questions and when a well-tested and validated (computerized) recall methodology (which knows the right prompts, such as what kind of oil was used to fry the potatoes) is used.

Judging for Yourself

With so many nutrition and health studies published every day, it can be difficult to know which provide findings that merit changes to your existing clinical practice and which serve only as important guideposts or updates, not warranting action on a practice level. In judging the validity and reliability of dietary intake data, clinicians and researchers should look for:

- 1) Methods for obtaining data and estimating intakes that are consistent with a clear purpose, and conform to the most current standards within the fields of nutrition and health
- 2) A clearly identified population of interest and a sampling approach that permits generalizing results to that population
- 3) An overall sample size sufficient to support statistically valid inferences about subgroups of interest, and adequate response rates
- 4) An up-to-date and complete food composition and nutrient database used to translate food intakes into nutrient intakes

- 5) Competent and accurate data collection and estimation processes
- 6) High quality and sufficient quantity of resources and effort committed to design and implementation of the activity to support the validity and reliability of results, including their face validity
- 7) Peer reviewed methods, data and results from the study made available to the public in accordance with accepted standards of scientific inquiry
- 8) Absence of conflicts of interest that might raise doubts as to the validity of the data or results

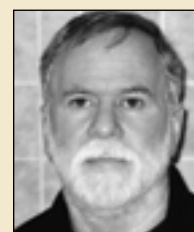
While sometimes only implicitly stated, these hallmarks comprise the core of accepted standards on which the validity and reliability of scientific research rests.

How Pediatricians Can Use FITS

The Feeding Infants and Toddlers Study comes at a critical time, as parents and health professionals alike struggle to adapt to the realities of increasingly complex nutrition environments. The FITS results presented in this issue of *Pediatric Basics* are a “must read” for pediatric clinicians who, as a primary resource of nutrition information for parents, have a growing need for up-to-date information about children's usual food and nutrient intakes. The articles in this edition provide an extraordinary opportunity for pediatricians to expand their knowledge base and clinical toolboxes. ●

¹ Kubena KS: Accuracy in dietary assessment: on the road to good science. *J Am Diet Assoc* 100:775-6, 2000.

John Cook is an Associate Professor in Boston University's School of Medicine, Department of Pediatrics. Dr. Cook conducts and participates in research related to poverty, food insecurity, hunger and social policy, and their effects on child health.



Despite the limitation of not having a true national sample frame of all US infants and toddlers, FITS applied statistical methods and procedures to select a random sample and calculate sample weights.

continued from page 6

Limitations

Although the data collected for FITS are extensive and rich in detail, three key limitations do exist. First, researchers had to rely on published estimates of the quantity of breast milk consumed by infants, because precise estimation of breast milk consumption for each child in the study was impossible.¹³ However, while these estimates for infants 4 to 6 months old are based on data from exclusively breastfed infants, a large proportion of infants from this age group are fed non-milk foods such as juices and infant cereals, which likely led to overestimates of nutrient intakes.¹⁵ Although the same issue arose when estimating the quantity of breast milk consumed by older breastfed infants, the estimates used account for the fact that infants will get fewer of their calories from breast milk as solid foods are introduced into their diets.

Second, many of the households from the commercial list used as the sample frame could not be located or did not have children in the target age group, resulting in a lower response rate than what would have occurred with a true national sample frame. The final limitation, also related to the sample frame used, is that it included retail establishments among its sources, so it is likely that the sample obtained is of higher socioeconomic status compared with all infants and toddlers 4 to 24 months of age. In addition, because FITS involved telephone surveys, households without telephones were necessarily omitted from the study.

Despite the limitation of not having a true national sample frame of all US infants and toddlers, FITS applied statistical methods and procedures to select a random sample and calculate sample weights. All

**Table 1:
Feeding Infants and Toddlers Study: Sample Characteristics**

Characteristic	Sample Size	Percent of Sample	Characteristic	Sample Size	Percent of Sample	Characteristic	Sample Size	Percent of Sample
Gender			Child's Ethnicity			Receives WIC		
Male	1,549	51.3	Hispanic or Latino	367	12.1	Yes	821	27.2
Female	1,473	48.7	Non-Hispanic or Latino	2,641	87.4	No	2,196	72.6
Birth Order			Missing	14	0.5	Missing	5	0.2
First born	1,455	48.1	Child's Race			Household Income (in Dollars)		
Second born	951	31.5	White	2,417	80.0	Under 10,000	48	1.6
Third born or higher	604	20.0	Black or African American	225	7.4	10,000 to 14,999	48	1.6
Missing	12	0.4	Other	380	12.6	15,000 to 24,999	221	7.3
Age of Child			Age of Mother at Birth (in Years)			25,000 to 34,999	359	11.9
4 to 6 months	862	28.5	< 20	121	4.0	35,000 to 49,999	723	23.9
7 to 8 months	483	16.0	20 to 24	562	18.6	50,000 to 74,999	588	19.5
9 to 11 months	679	22.5	25 to 29	838	27.7	75,000 to 99,999	311	10.3
12 to 14 months	374	12.4	30 to 34	891	29.5	100,000 and over	272	9.0
15 to 18 months	308	10.2	35 or older	587	19.4	Missing	452	14.9
19 to 24 months	316	10.4	Missing	23	0.8	Mother or Female Guardian Works		
Child's Weight-For-Age Percentile			Mother's Education			Yes	1,673	55.4
< 25th percentile	741	24.5	11th grade or less	190	6.3	No	1,320	43.7
25th-50th percentile	640	21.2	Completed high school	753	24.9	Missing	29	0.9
50th-75th percentile	663	21.9	Some post secondary	857	28.4	Urbanicity		
75th percentile	893	29.6	Completed college	1,192	39.4	Urban	1,389	46.0
Missing	85	2.8	Missing	30	1.0	Suburban	1,014	33.6
Ever Breastfed			Parent's Marital Status			Rural	577	19.1
Yes	2,336	77.3	Married	2,479	82.0	Missing	42	1.3
No	680	22.5	Not married	518	17.1	Sample Size	3,022	100.0
Missing	6	0.2	Missing	25	0.8			

SOURCE: Feeding Infants and Toddlers Study, unweighted sample characteristics.

With the data provided by the exacting methodology of FITS, researchers, government and commercial organizations, and pediatric professionals can make strides in developing new recommendations and suggestions for parents to feed their children for optimum health.



subsequent FITS analyses used these sample weights so that results can be generalized to all US infants and toddlers. The large sample size, along with the detailed information on food and nutrient intakes, infant feeding practices and developmental milestones, make FITS data a valuable resource for anyone interested in infant and toddler nutrition.

Application

FITS provides a wealth of data on the food and nutrient intakes, background characteristics, growth and development, and feeding patterns and transitions for a nationally representative sample of 3,022 infants and toddlers. The large sample sizes and dietary recall methodology make FITS unique, allowing for in-depth analysis of food and nutrient intake of different age subgroups of infants and toddlers, as well as analyses of specific subgroups such as low-income families, birth order, mother's employment status, and WIC participation status. These characteristics, applied to the large sample size that FITS utilized, illustrate why this study will serve as a valuable update to and improvement on past food intake studies. With the data provided by the exacting methodology of FITS, researchers, government and commercial organizations, and pediatric professionals can make strides in developing new recommendations and suggestions for parents to feed their children for optimum health.

Importantly, the FITS data showed that while infants are meeting their vitamin and mineral requirements, they are showing signs of the unhealthy diet adopted by much of the American population, which is currently experiencing an overweight and obesity epidemic. The results of this study will add to current knowledge of child feeding practices, and allow for further analysis of the early feeding patterns that effect children's health and well-being throughout their lifetimes. •

Barbara Devaney is an economist and senior fellow at Mathematica Policy Research, Inc. in Princeton, New Jersey, and Co-Principal Investigator of the Gerber Feeding Infants and Toddlers Study (FITS). She has worked on numerous evaluations of food and nutrition assistance programs, including the school nutrition programs, the Food Stamp Program, and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). She served on the Institute of Medicine's Subcommittee on Interpretation and Uses of the Dietary Reference Intakes.

References

- 1 Kubena KS: Accuracy in dietary assessment: On the road to good science. *JADA* 100:775, 2000.
- 2 Ryan C, Dwyer J, Ziegler P, Yang E, Moore L, Song WO: What should infants eat and what do infants really eat? *Nutrition Today* 37:50-6, 2002.
- 3 US Department of Agriculture: Continuing Survey of Food Intakes by Individuals 1994-96. CD-ROM. Beltsville, MD: Agricultural Research Service, 1998.
- 4 National Center for Health Statistics: National Health and Nutrition Examination Survey. <http://www.cdc.gov/nchs/nhanes.htm>.
- 5 Ross Products Division: Breastfeeding trends through 2000. <http://www.ross.com>.
- 6 Institute of Medicine: Dietary reference intakes: Applications in dietary assessment. Washington, DC: National Academy Press, 2000.
- 7 American Academy of Pediatrics, Committee on Nutrition: Pediatric Nutrition Handbook, 5th ed. R. Kleinman (ed.). Elk Grove, IL: American Academy of Pediatrics, 2004.
- 8 Nusser SM, Carriquiry AL, Dodd KW, Fuller WA: A semiparametric transformation approach to estimating usual daily intake distributions. *J Am Stat Assoc* 91:1440-9, 1996.
- 9 US Department of Health and Human Services, Maternal and Child Nutrition: The Surgeon General's report on nutrition and health. PHS Publication No. 88-50210. Washington, DC: US Department of Health and Human Services, 1988.
- 10 Experian: New Parent Data File. <http://www.experian.com>.
- 11 US Department of Health and Human Services: Births: Final Data for 2000. National Vital Statistics Reports 50(5). Washington, DC: National Center for Health Statistics, 2000.
- 12 Schakel SF, Sievert YA, and Buzzard IM: Sources of data for developing and maintaining a nutrient database. *J Am Diet Assoc* 88:1268-71, 1988.
- 13 Heinig MJ, Nommsen LA, Peerson JM, Lonnderal B, Dewey KG: Energy and protein intakes of breast-fed and formula-fed infants during the first year of life and their association with growth velocity: The DARLING study. *Am J Clin Nutr* 58:152-61, 1993.
- 14 Life Sciences Research Office, Federation of American Societies for Experimental Biology: Third report on nutrition monitoring in the United States. Washington, DC: US Government Printing Office, 1995.
- 15 Stuff JE, Nichols BL: Nutrient intake and growth performance of older infants fed human milk. *J Pediatr* 115:959-68, 1989.