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Chapter 11—Intake of Meats, Dairy Products, and Fats

11. INTAKE OF MEATS, DAIRY PRODUCTS, AND FATS

11.1. INTRODUCTION

The American food supply is generally considered to be one of the safest in the world. Nevertheless, meats, dairy products, and fats may become contaminated with toxic chemicals by several pathways. These foods sources can become contaminated if animals are exposed to contaminated media (i.e., soil, water, or feed crops). To assess exposure through this pathway, information on meat, dairy, and fat ingestion rates are needed.

A variety of terms may be used to define intake of meats, dairy products, and fats (e.g., consumer-only intake, per capita intake, total meat, dairy product, or fat intake, as-consumed intake, uncooked edible portion intake, dry-weight intake). As described in Chapter 9, Intake of Fruits and Vegetables, consumer-only intake is defined as the quantity of meats, dairy products, or fats consumed by individuals during the survey period averaged across only the individuals who consumed these food items during the survey period. Per capita intake rates are generated by averaging consumer-only intakes over the entire population. In general, per capita intake rates are appropriate for use in exposure assessment for which average dose estimates are of interest because they represent both individuals who ate the foods during the survey period and individuals who may eat the food items at some time, but did not consume them during the survey period. Per capita intake, therefore, represents an average across the entire population of interest, but does so at the expense of underestimating consumption for the subset of the population that consumes the food in question. Total intake refers to the sum of all meats, dairy products, or fats consumed in a day.

Intake rates may be expressed on the basis of the as-consumed weight (e.g., cooked or prepared) or on the uncooked or unprepared weight. As-consumed intake rates are based on the weight of the food in the form that it is consumed and should be used in assessments where the basis for the contaminant concentrations in foods is also indexed to the as-consumed weight. Some of the food ingestion values provided in this chapter are expressed as as-consumed intake rates because this is the fashion in which data were reported by survey respondents. Others are provided as uncooked weights based on analyses of survey data that account for weight changes that occur during cooking. This is of importance because concentration data to be used in the dose equation are often measured in uncooked food samples. It should be recognized that cooking

can either increase or decrease food weight. Similarly, cooking can increase the mass of contaminant in food (due to formation reactions, or absorption from cooking oils or water) or decrease the mass of contaminant in food (due to vaporization, fat loss, or leaching). The combined effects of changes in weight and changes in contaminant mass can result in either an increase or decrease in contaminant concentration in cooked food. Therefore, if the as-consumed ingestion rate and the uncooked concentration are used in the dose equation, dose may be under-estimated or over-estimated. It is important for the assessor to be aware of these issues and choose intake rate data that best match the concentration data that are being used. For more information on cooking losses and conversions necessary to account for such losses, refer to Chapter 13 of this handbook.

Sometimes contaminant concentrations in food are reported on a dry-weight basis. When these data are used in an exposure assessment, it is recommended that dry-weight intake rates also be used. Dry-weight food concentrations and intake rates are based on the weight of the food consumed after the moisture content has been removed. Similarly, when contaminant concentrations in food are reported on a lipid-weight basis, lipid-weight intake rates should be used. For information on converting the intake rates presented in this chapter to dry-weight or lipid-weight intake rates, refer to Sections 11.5 and 11.6 of this chapter.

The purpose of this chapter is to provide intake data for meats, dairy products, and fats. The recommendations for ingestion rates of meats, dairy products, and fats are provided in the next section, along with a summary of the confidence ratings for these recommendations. The recommended values are based on the key study identified by U.S. Environmental Protection Agency (EPA) for this factor. Following the recommendations, the key study on ingestion of meats, dairy products, and fats are summarized. Relevant data on ingestion of meats, dairy products, and fats are also provided. These studies are presented to provide the reader with added perspective on the current state-of-knowledge pertaining to ingestion of meats, dairy products, and fats.

11.2. RECOMMENDATIONS

Table 11-1 presents a summary of the recommended values for per capita and consumer-only intake of meats, dairy products, and fats. Table 11-2 provides confidence ratings for these recommendations.

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U.S. EPA analyses of data from the 2003–2006 National Health and Nutrition Examination Survey (NHANES) were used in selecting recommended intake rates for intake of meats and dairy products by the general population. The U.S. EPA analysis of meat and dairy products was conducted using childhood age groups that differed slightly from U.S. EPA’s *Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants* (U.S. EPA, 2005). However, for the purposes of the recommendations for children presented here, data were placed in the standardized age categories closest to those used in the analysis. The U.S. EPA analysis of fat intake data from the U.S. Department of Agriculture’s (USDA’s) Continuing Survey of Food Intake by Individuals [CSFII, U.S. EPA (2007)] were used in selecting recommended intake rates for fats. This study used the childhood age groups recommended by U.S. EPA (2005).

The NHANES data on which the recommendations for meats and dairy products are based, and the CSFII data on which the recommendations for fats are based are short-term survey data and may not necessarily reflect the long-term distribution of average daily intake rates. However, since these broad categories of food (i.e., total meats and dairy products), are eaten on a daily basis throughout the year with minimal seasonality, the short term distribution may be a reasonable approximation of the long-term distribution, although it will display somewhat increased variability. This implies that the upper percentiles shown here will tend to overestimate the corresponding percentiles of the true long-term distribution. In general, the recommended values based on U.S. EPA’s analyses of NHANES data and CSFII data represent the uncooked weight of the edible portion of meat, dairy, and fats. It should be noted that because the recommendations for fat intake are based on 1994–1996 and 1998 CSFII data, they may not reflect the most recent changes that may have occurred in consumption patterns.

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Table 11-1. Recommended Values for Intake of Meats, Dairy Products, and Fats, Edible Portion, Uncooked						
Age Group (years)	Per Capita		Consumers Only		Multiple Percentiles	Source
	Mean	95 th Percentile	Mean	95 th Percentile		
	g/kg-day	g/kg-day	g/kg-day	g/kg-day		
Total Meat^a						
Birth to 1	1.2	5.4 ^b	2.7	8.1 ^b	See Table 11-3 and Table 11-4	U.S. EPA Analysis of NHANES 2003–2006
1 to <2	4.0	10.0 ^b	4.1	10.1 ^b		
2 to <3	4.0	10.0 ^b	4.1	10.1 ^b		
3 to <6	3.9	8.5	3.9	8.6		
6 to <11	2.8	6.4	2.8	6.4		
11 to <16	2.0	4.7	2.0	4.7		
16 to <21	2.0	4.7	2.0	4.7		
21 to <50	1.8	4.1	1.8	4.1		
≥50	1.4	3.1	1.4	3.1		
Total Dairy Products^a						
Birth to 1	10.1	43.2 ^b	11.7	44.7 ^b	See Table 11-3 and Table 11-4	U.S. EPA Analysis of NHANES 2003–2006
1 to <2	43.2	94.7 ^b	43.2	94.7 ^b		
2 to <3	43.2	94.7 ^b	43.2	94.7 ^b		
3 to <6	24.0	51.1	24.0	51.1		
6 to <11	12.9	31.8	12.9	31.8		
11 to <16	5.5	16.4	5.5	16.4		
16 to <21	5.5	16.4	5.5	16.4		
21 to <50	3.5	10.3	3.5	10.3		
≥50	3.3	9.6	3.3	9.6		
Individual Meat and Dairy Products—See Table 11-5 and Table 11-6						

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Table 11-1. Recommended Values for Intake of Meats, Dairy Products, and Fats, Edible Portion, Uncooked (continued)						
Age Group	Per Capita		Consumers Only		Multiple Percentiles	Source
	Mean	95 th Percentile	Mean	95 th Percentile		
	g/kg-day	g/kg-day	g/kg-day	g/kg-day		
Total Fat						
Birth to <1 month	5.2	16	7.8	16		
1 to <3 months	4.5	12	6.0	12		
3 to <6 months	4.1	8.2	4.4	8.3		
6 to <12 months	3.7	7.0	3.7	7.0		
1 to <2 years	4.0	7.1	4.0	7.1		
2 to <3 years	3.6	6.4	3.6	6.4		
3 to <6 years	3.4	5.8	3.4	5.8		
6 to <11 years	2.6	4.2	2.6	4.2	See Table 11-31 and Table 11-33	U.S. EPA (2007)
11 to <16 years	1.6	3.0	1.6	3.0		
16 to <21 years	1.3	2.7	1.3	2.7		
21 to <31 years	1.2	2.3	1.2	2.3		
31 to <41 years	1.1	2.1	1.1	2.1		
41 to <51 years	1.0	1.9	1.0	1.9		
51 to <61 years	0.9	1.7	0.9	1.7		
61 to <71 years	0.9	1.7	0.9	1.7		
71 to <81 years	0.8	1.5	0.8	1.5		
≥81 years	0.9	1.5	0.9	1.5		
^a	Analysis was conducted using slightly different childhood age groups than those recommended in <i>Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants</i> (U.S. EPA, 2005). Data were placed in the standardized age categories closest to those used in the analysis.					
^b	Estimates are less statistically reliable based on guidance published in the <i>Joint Policy on Variance Estimation and Statistical Reporting Standards on NHANES III and CSFII Reports: NHIS/NCHS Analytical Working Group Recommendations</i> (NCHS, 1993).					

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Table 11-2. Confidence in Recommendations for Intake of Meats, Dairy Products, and Fats		
General Assessment Factors	Rationale	Rating
Soundness		
<i>Adequacy of Approach</i>	The survey methodology and data analysis were adequate. The surveys sampled approximately 16,000 for meats and dairy products and 20,000 individuals for fats. Analyses of primary data were conducted.	High
<i>Minimal (or Defined) Bias</i>	No physical measurements were taken. The method relied on recent recall of meats and dairy products eaten.	
Applicability and Utility		
<i>Exposure Factor of Interest</i>	The key studies were directly relevant to meat, dairy, and fat intake.	High for meats and dairy products; medium for fats
<i>Representativeness</i>	The data were demographically representative of the U.S. population (based on stratified random sample).	
<i>Currency</i>	Data were collected between 2003 and 2006 for meat and dairy products and between 1994 and 1998 for fats.	
<i>Data Collection Period</i>	Data were collected for two non-consecutive days.	
Clarity and Completeness		
<i>Accessibility</i>	The NHANES and CSFII data are publicly available.	High
<i>Reproducibility</i>	The methodology used was clearly described; enough information was included to reproduce the results.	
<i>Quality Assurance</i>	NHANES and CSFII follow strict QA/QC procedures. U.S. EPA analysis of NHANES data has only been reviewed internally.	
Variability and Uncertainty		
<i>Variability in Population</i>	Full distributions were provided for total meats, total dairy products, and total fats. Means were provided for individual meats and dairy products.	Medium to high for averages, low for long-term upper percentiles; low for individual foods
<i>Uncertainty</i>	Data collection was based on recall of consumption for a 2-day period; the accuracy of using these data to estimate long-term intake (especially at the upper percentiles) is uncertain. However, use of short-term data to estimate chronic ingestion can be assumed for broad categories of foods such as total meats, total dairy products, and total fats. Uncertainty is likely to be greater for individual meats and dairy products.	
Evaluation and Review		
<i>Peer Review</i>	Both the NCHS NHANES and the USDA CSFII survey received high levels of peer review. The U.S. EPA analysis of the NHANES data has not been peer reviewed outside the Agency, but methodology has been used in analysis of previous data.	Medium
<i>Number and Agreement of Studies</i>	There was one key study for intake of meat and dairy products (2003–2006 NHANES) and 1 key study for fat intake [U.S. EPA (2007), based on 1994–1996, 1998 CSFII].	
Overall Rating		Medium to high confidence in the averages; Low confidence in the long-term upper percentiles

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11.3. INTAKE OF MEAT AND DAIRY PRODUCTS**11.3.1. Key Meat and Dairy Intake Studies****11.3.1.1. U.S. EPA Analysis of Consumption Data From 2003–2006 National Health and Nutrition Examination Survey (NHANES)**

The key source of recent information on consumption rates of meat and dairy products is the U.S. Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics' (NCHS) NHANES. Data from NHANES have been used by the U.S. EPA, Office of Pesticide Programs (OPP) to generate per capita and consumer-only intake rates for both individual meat and dairy products and total meat and dairy products.

NHANES is designed to assess the health and nutritional status of adults and children in the United States. In 1999, the survey became a continuous program that interviews a nationally representative sample of approximately 7,000 persons each year and examines a nationally representative sample of about 5,000 persons each year, located in counties across the country, 15 of which are visited each year. Data are released on a 2 year basis, thus, for example, the 2003 data are combined with the 2004 data to produce NHANES 2003–2004.

The dietary interview component of NHANES is called *What We Eat in America* and is conducted by the U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services (DHHS). DHHS' NCHS is responsible for the sample design and data collection and USDA's Food Surveys Research Group is responsible for the dietary data collection methodology, maintenance of the databases used to code and process the data, and data review and processing. Beginning in 2003, 2 non-consecutive days of 24-hour intake data were collected. The first day is collected in-person, and the second day is collected by telephone 3 to 10 days later. These data are collected using USDA's dietary data collection instrument, the Automated Multiple Pass Method. This method provides an efficient and accurate means of collecting intakes for large-scale national surveys. It is fully computerized and uses a 5-step interview. Details can be found at USDA's Agriculture Research Service (<http://www.ars.usda.gov/ba/bhnrc/fsrg>).

For NHANES 2003–2004, there were 12,761 persons selected; of these, 9,643 were considered respondents to the mobile examination center (MEC) examination and data collection. However, only 9,034 of the MEC respondents provided complete dietary intakes for Day 1.

Furthermore, of those providing the Day 1 data, only 8,354 provided complete dietary intakes for Day 2. For NHANES 2005–2006, there were 12,862 persons selected; of these 9,950 were considered respondents to the MEC examination and data collection. However, only 9,349 of the MEC respondents provided complete dietary intakes for Day 1. Furthermore, of those providing the Day 1 data, only 8,429 provided complete dietary intakes for Day 2.

The 2003–2006 NHANES surveys are stratified, multistage probability samples of the civilian non-institutionalized U.S. population. The sampling frame was organized using 2000 U.S. population census estimates. NHANES oversamples low income persons, adolescents 12 to 19 years, persons 60 years and older, African Americans, and Mexican Americans. Several sets of sampling weights are available for use with the intake data. By using appropriate weights, data for all 4 years of the surveys can be combined. Additional information on NHANES can be obtained at <http://www.cdc.gov/nchs/nhanes.htm>.

In 2010, OPP used NHANES 2003–2006 data to update the Food Commodity Intake Database (FCID) that was developed in earlier analyses of data from the U.S. Department of Agriculture's (USDA's) CSFII (U.S. EPA, 2000; USDA, 2000) (see Section 11.3.2.3), NHANES data on the foods people reported eating were converted to the quantities of agricultural commodities eaten. "Agricultural commodity" is a term used by U.S. EPA to mean plant (or animal) parts consumed by humans as food; when such items are raw or unprocessed, they are referred to as "raw agricultural commodities." For example, beef stew may contain the commodities beef, potatoes, carrots, and other vegetables. FCID contains approximately 558 unique commodity names and 8-digit codes. The FCID commodity names and codes were selected and defined by U.S. EPA and were based on the U.S. EPA Food Commodity Vocabulary (<http://www.epa.gov/pesticides/foodfeed/>).

Intake rates were generated for a variety of food items/groups based on the agricultural commodities included in the FCID. These intake rates represent intake of all forms of the product (e.g., both home produced and commercially produced) for individuals who provided data for 2 days of the survey. Note that if the person reported consuming food for only one day, their 2-day average would be half the amount reported for the one day of consumption. Individuals who did not provide information on body weight or for whom identifying information was unavailable were excluded from the analysis. Two-day average intake rates were calculated for all individuals in the

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database for each of the food items/groups. These average daily intake rates were divided by each individual's reported body weight to generate intake rates in units of grams per kilogram of body weight per day (g/kg-day). The data were weighted according to the 4-year, 2-day sample weights provided in NHANES 2003–2006 to adjust the data for the sample population to reflect the national population. Summary statistics were generated on a consumer-only and on a per capita basis. Summary statistics, including number of observations, percentage of the population consuming the meats and dairy products being analyzed, mean intake rate, and standard error of the mean intake rate were calculated for total meats, total dairy products, and selected individual meats and dairy products. Percentiles of the intake rate distribution (i.e., 1st, 5th, 10th, 25th, 50th, 75th, 90th, 95th, 99th, and the maximum value) were also provided for total meats and dairy products. Data were provided for the following age groups: birth to 1 year, 1 to 2 years, 3 to 5 years, 6 to 12 years, 13 to 19 years, 20 to 49 years, and ≥50 years. Data on females 13 to 49 years were also provided. Because these data were developed for use in U.S. EPA's pesticide registration program, the childhood age groups used are slightly different than those recommended in U.S. EPA's *Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants* (U.S. EPA, 2005).

Table 11-3 presents per capita intake data for total meats and dairy products in g/kg-day; Table 11-4 provides consumer-only intake data for total meats and total dairy products in g/kg-day. Table 11-5 provides per capita intake data for individual meats and dairy products, and Table 11-6 provides consumer-only intake data for individual meats and dairy products. In general, these data represent intake of the edible portions of uncooked foods.

The results are presented in units of g/kg-day. Thus, the use of these data in calculating potential dose does not require the body-weight factor to be included in the denominator of the average daily dose (ADD) equation. It should be noted that converting these intake rates into units of g/day by multiplying by a single average body weight is inappropriate because individual intake rates were indexed to the reported body weights of the survey respondents. Also, it should be noted that the distribution of average daily intake rates generated using short-term data (e.g., 2-day) do not necessarily reflect the long-term distribution of average daily intake rates. The distributions generated from short-term and long-term data will differ to the extent that each individual's intake varies from day to day; the

distributions will be similar to the extent that individuals' intakes are constant from day to day. However, for broad categories of foods (e.g., total meats and total dairy) that are eaten on a daily basis throughout the year, the short-term distribution may be a reasonable approximation of the true long-term distribution, although it will show somewhat more variability. In this chapter, distributions are provided only for broad categories of meats and dairy (i.e., total meats and total dairy). Because of the increased variability of the short-term distribution, the short-term upper percentiles shown here may overestimate the corresponding percentiles of the long-term distribution. For individual foods, only the mean, standard error, and percent consuming are provided.

An advantage of using the U.S. EPA's analysis of NHANES data is that it provides distributions of intake rates for various age groups of children and adults, normalized by body weight. The data set was designed to be representative of the U.S. population and includes 4 years of intake data combined. Another advantage is the currency of the data; the NHANES data are from 2003–2006. However, short-term dietary data may not accurately reflect long-term eating patterns and may under-represent infrequent consumers of a given food. This is particularly true for the tails (extremes) of the distribution of food intake. Because these are 2-day averages, consumption estimates at the upper end of the intake distribution may be underestimated if these consumption values are used to assess acute (i.e., short-term) exposures. Also, the analysis was conducted using slightly different childhood age groups than those recommended in U.S. EPA's *Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants* (U.S. EPA, 2005). However, given the similarities in the age groups used, the data should provide suitable intake estimates for the age groups of interest.

11.3.2. Relevant Meat and Dairy Intake Studies

11.3.2.1. USDA (1996a, b, 1993, 1980)—Food and Nutrient Intakes of Individuals in 1 Day in the United States

USDA calculated mean per capita intake rates for meat and dairy products using Nationwide Food Consumption Survey (NFCS) data from 1977–1978 and 1987–1988 (USDA, 1993, 1980) and CSFII data from 1994 and 1995 (USDA, 1996a, b). The mean per capita intake rates for meat are presented in Table 11-7 through Table 11-9 based on intake data for 1 day from the 1977–1978 (see Table 11-7) and

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1987–1988 NFCSs (see Table 11-8), and 1994 and 1995 CSFII (see Table 11-9). Table 11-10 through Table 11-12 present similar data for dairy products. Note that the age classifications used in the later surveys were slightly different than those used in the 1977–1978 NFCS.

The advantages of using these data are that they provide mean intake estimates for all meat, poultry, and dairy products. The consumption estimates are based on short-term (i.e., 1-day) dietary data, which may not reflect long-term consumption. These data are based on older surveys and may not be entirely representative of current eating patterns.

11.3.2.2. USDA (1999a)—Food and Nutrient Intakes by Children 1994–1996, 1998, Table Set 17

USDA (1999a) calculated national probability estimates of food and nutrient intake by children based on 4 years of the CSFII (1994–1996 and 1998) for children age 9 years and under and on CSFII 1994–1996 only for individuals age 10 years and over. The CSFII was a series of surveys designed to measure the kinds and amounts of foods eaten by Americans. Intake data, based on 24-hour dietary recall, were collected through in-person interviews on 2 non-consecutive days. Section 11.3.2.3 provides additional information on these surveys.

USDA (1999a) used sample weights to adjust for non-response, to match the sample to the U.S. population in terms of demographic characteristics, and to equalize intakes over the 4 quarters of the year and the 7 days of the week. A total of 503 breast-fed children were excluded from the estimates, but both consumers and non-consumers were included in the analysis.

USDA (1999a) provided data on the mean per capita quantities (grams) of various food products/groups consumed per individual for 1 day, and the percent of individuals consuming those foods in 1 day of the survey. Table 11-13 and Table 11-14 present data on the mean quantities (grams) of meat and eggs consumed per individual for 1 day, and the percentage of survey individuals consuming meats and eggs on that survey day. Table 11-15 and Table 11-16 present similar data for dairy products. Data on mean intakes or mean percentages are based on respondents' Day-1 intakes.

The advantage of the USDA (1999a) study is that it uses the 1994–1996, 1998 CSFII data set, which includes 4 years of intake data, combined, and includes the supplemental data on children. These data are expected to be generally representative of the U.S. population, and they include data on a wide

variety of meats and dairy products. The data set is one of a series of USDA data sets that are publicly available. One limitation of this data set is that it is based on 1 day, and short-term dietary data may not accurately reflect long-term eating patterns. Other limitations of this study are that it only provides mean values of food intake rates, consumption is not normalized by body weight, and presentation of results is not consistent with U.S. EPA's recommended age groups. These data are based on older surveys and may not be entirely representative of current eating patterns.

11.3.2.3. U.S. EPA Analysis of CSFII 1994–1996, 1998 Based on USDA (2000) and U.S. EPA (2000)

U.S. EPA/OPP, in cooperation with USDA's Agricultural Research Service, used data from the 1994–1996, 1998 CSFII to develop the FCID (U.S. EPA, 2000; USDA, 2000), as described in Section 11.3.1.1. The CSFII 1994–1996 was conducted between January 1994 and January 1997 with a target population of non-institutionalized individuals in all 50 states and Washington, DC. In each of the 3 survey years, data were collected for a nationally representative sample of individuals of all ages. The CSFII 1998 was conducted between December 1997 and December 1998 and surveyed children 9 years of age and younger. It used the same sample design as the CSFII 1994–1996 and was intended to be merged with CSFII 1994–1996 to increase the sample size for children. The merged surveys are designated as CSFII 1994–1996, 1998 (USDA, 2000). Additional information on the CSFII can be obtained at <http://www.ars.usda.gov/Services/docs.htm?docid=14531>.

The CSFII 1994–1996, 1998 collected dietary intake data through in-person interviews on 2 non-consecutive days. The data were based on 24-hour recall. A total of 21,662 individuals provided data for the first day; of those individuals, 20,607 provided data for a second day. The 2-day response rate for the 1994–1996 CSFII was approximately 76%. The 2-day response rate for CSFII 1998 was 82%. The CSFII 1994–1996, 1998 surveys were based on a complex multistage area probability sample design. The sampling frame was organized using 1990 U.S. population census estimates, and the stratification plan took into account geographic location, degree of urbanization, and socioeconomic characteristics. Several sets of sampling weights are available for use with the intake data. By using appropriate weights, data for all 4 years of the

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surveys can be combined. USDA recommends that all 4 years be combined in order to provide an adequate sample size for children.

The meats and dairy items/groups selected for the U.S. EPA analysis included total meats and total dairy products, and individual meats and dairy such as beef, pork, poultry, and eggs. CSFII data on the foods people reported eating were converted to the quantities of agricultural commodities eaten. Intake rates for these food items/groups were calculated, and summary statistics were generated on both a per capita and a consumer-only basis using the same general methodology as in the U.S. EPA analysis of 2003–2006 NHANES data, as described in Section 11.3.1.1. Because these data were developed for use in U.S. EPA's pesticide registration program, the childhood age groups used are slightly different than those recommended in U.S. EPA's *Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants* (U.S. EPA, 2005).

Table 11-17 presents per capita intake data for total meat and total dairy products in g/kg-day; Table 11-18 provides consumer-only intake data for total meat and total dairy products in g/kg-day. Table 11-19 provides per capita intake data for certain individual meats and dairy products, and Table 11-20 provides consumer-only intake data for these individual meats and dairy products. In general, these data represent intake of the edible portions of uncooked foods.

The results are presented in units of g/kg-day. Thus, use of these data in calculating potential dose does not require the body-weight factor to be included in the denominator of the average daily dose equation. The cautions concerning converting these intake rates into units of g/day by multiplying by a single average body weight and the discussion of the use of short term data in the NHANES description in Section 11.3.1.1 apply to the CSFII estimates as well.

A strength of U.S. EPA's analysis is that it provides distributions of intake rates for various age groups, normalized by body weight. The analysis uses the 1994–1996, 1998 CSFII data set, which was designed to be representative of the U.S. population. The data set includes 4 years of intake data combined and is based on a 2-day survey period. As discussed above, short-term dietary data may not accurately reflect long-term eating patterns and may under-represent infrequent consumers of a given food. This is particularly true for the tails (extremes) of the distribution of food intake. Although the analysis as conducted used slightly different age groups than those recommended in U.S. EPA's *Guidance on Selecting Age Groups for Monitoring*

and Assessing Childhood Exposures to Environmental Contaminants (U.S. EPA, 2005), given the similarities in the age groups used, the data should provide suitable intake estimates for the childhood age groups of interest. While the CSFII data are older than the NHANES data, they provide relevant information on consumption by season, region of the United States, and urbanization, cohorts that are not available in the publicly released NHANES data.

11.3.2.4. Smiciklas-Wright et al. (2002)—Foods Commonly Eaten in the United States: Quantities Consumed per Eating Occasion and in a Day, 1994–1996

Using data gathered in the 1994–1996 USDA CSFII, Smiciklas-Wright et al. (2002) calculated distributions for the quantities of meat, poultry, and dairy products consumed per eating occasion by members of the U.S. population (i.e., serving sizes). The estimates of serving size are based on data obtained from 14,262 respondents, ages two years and above, who provided 2 days of dietary intake information. Only dietary intake data from users of the specified food were used in the analysis (i.e., consumer-only data).

Table 11-21 presents serving size data for meats and dairy products. These data are presented on an as-consumed basis (grams) and represent the quantity of meats and dairy products consumed per eating occasion. These estimates may be useful for assessing acute exposures to contaminants in specific foods, or other assessments where the amount consumed per eating occasion is necessary. Only the mean and standard deviation serving size data and percent of the population consuming the food during the 2-day survey period are presented in this handbook. Percentiles of serving sizes of the foods consumed by these age groups of the U.S. population can be found in Smiciklas-Wright et al. (2002).

The advantages of using these data are that they were derived from the USDA CSFII and are representative of the U.S. population. The analysis conducted by Smiciklas-Wright et al. (2002) accounted for individual foods consumed as ingredients of mixed foods. Mixed foods were disaggregated via recipe files so that the individual ingredients could be grouped together with similar foods that were reported separately. Thus, weights of foods consumed as ingredients were combined with weights of foods reported separately to provide a more thorough representation of consumption. However, it should be noted that since the recipes for the mixed foods consumed were not provided by the

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respondents, standard recipes were used. As a result, the estimates of quantity consumed for some food types are based on assumptions about the types and quantities of ingredients consumed as part of mixed foods. This study used data from the 1994–1996 CSFII; data from the 1998 children’s supplement were not included.

11.3.2.5. *Vitolins et al. (2002)—Quality of Diets Consumed by Older Rural Adults*

Vitolins et al. (2002) conducted a survey to evaluate the dietary intake, by food groups, of older (>70 years) rural adults. The sample consisted of 130 community dwelling residents from two rural counties in North Carolina. Data on dietary intake over the preceding year were obtained in face-to-face interviews conducted in participants’ homes, or in a few cases, a senior center. The food frequency questionnaire used in the survey was a modified version of the National Cancer Institute Health Habits and History Questionnaire; this modified version included an expanded food list containing a greater number of ethnic foods than the original food frequency form. Demographic and personal data collected included sex, ethnicity, age, education, denture use, marital status, chronic disease, and weight.

Food items reported in the survey were grouped into food groups similar to the USDA Food Guide Pyramid and the National Cancer Institute’s 5 A Day for Better Health program. These groups are: (1) fruits and vegetables; (2) bread, cereal, rice, and pasta; (3) milk, yogurt, and cheese; (4) meat, fish, poultry, beans, and eggs; and (5) fats, oils, sweets, and snacks. Medians, ranges, frequencies, and percentages were used to summarize intake of each food group, broken down by demographic and health characteristics. In addition, multiple regression models were used to determine which demographic and health factors were jointly predictive of intake of each of the five food groups.

Thirty-four percent of the survey participants were African American, 36% were European American, and 30% were Native American. Sixty-two percent were female, 62% were not married at the time of the interview, and 65% had some high school education or were high school graduates. Almost all of the participants (95%) had one or more chronic diseases. Sixty percent of the respondents were between 70 and 79 years of age; the median age was 78 years old. Table 11-22 presents the median servings of milk, yogurt, and cheese broken down by demographic and health characteristics. None of the demographic

characteristics were significantly associated with milk intake, and only ethnicity was found to be borderline ($p = 0.13$). In addition, none of the demographic characteristics were jointly predictive of milk, yogurt, and cheese consumption.

One limitation of the study, as noted by the study authors, is that the study did not collect information on the length of time the participants had been practicing the dietary behaviors reported in the survey. The questionnaire asked participants to report the frequency of food consumption during the past year. The study authors noted that, currently, there are no dietary assessment tools that allow the collection of comprehensive dietary data over years of food consumption. Another limitation of the study is the small sample size used, which makes associations by sex and ethnicity difficult.

11.3.2.6. *Fox et al. (2004)—Feeding Infants and Toddlers Study: What Foods Are Infants and Toddlers Eating*

Fox et al. (2004) used data from the Feeding Infants and Toddlers study (FITS) to assess food consumption patterns in infants and toddlers. The FITS was sponsored by Gerber Products Company and was conducted to obtain current information on food and nutrient intakes of children, ages 4 to 24 months old, in the 50 states and the District of Columbia. The FITS is described in detail in Devaney et al. (2004). FITS was based on a random sample of 3,022 infants and toddlers for which dietary intake data were collected by telephone from their parents or caregivers between March and July 2002. An initial recruitment and household interview was conducted, followed by an interview to obtain information on intake based on 24-hour recall. The interview also addressed growth, development, and feeding patterns. A second dietary recall interview was conducted for a subset of 703 randomly selected respondents. The study over-sampled children in the 4 to 6 and 9 to 11-months age groups; sample weights were adjusted for non-response, over-sampling, and under-coverage of some subgroups. The response rate for the FITS was 73% for the recruitment interview. Of the recruited households, there was a response rate of 94% for the dietary recall interviews (Devaney et al., 2004). Table 11-23 shows the characteristics of the FITS study population.

Fox et al. (2004) analyzed the first set of 24-hour recall data collected from all study participants. For this analysis, children were grouped into six age categories: 4 to 6 months, 7 to 8 months, 9 to 11 months, 12 to 14 months, 15 to 18 months, and 19 to 24 months. Table 11-24 provides the percentage of

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infants and toddlers consuming milk, meats, or other protein sources at least once in a day. The percentage of children consuming any type of meat or protein source ranged from 14.2% for 4 to 6-month olds to 97.2% for 19 to 24-month olds (see Table 11-24).

The advantages of this study are that the study population represented the U.S. population and the sample size was large. One limitation of the analysis done by Fox et al. (2004) was that only frequency data were provided; no information on actual intake rates was included. In addition, Devaney et al. (2004) noted several limitations associated with the FITS data. For the FITS, a commercial list of infants and toddlers was used to obtain the sample used in the study. Since many of the households could not be located and did not have children in the target population, a lower response rate than would have occurred in a true national sample was obtained (Devaney et al., 2004). In addition, the sample was likely from a higher socioeconomic status when compared with all U.S. infants in this age group (4 to 24 months old), and the use of a telephone survey may have omitted lower-income households without telephones (Devaney et al., 2004).

11.3.2.7. Ponza et al. (2004)—Nutrient Food Intakes and Food Choices of Infants and Toddlers Participating in WIC

Ponza et al. (2004) conducted a study using selected data from FITS to assess feeding patterns, food choices, and nutrient intake of infants and toddlers participating in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Ponza et al. (2004) evaluated FITS data for the following age groups: 4 to 6 months ($N = 862$), 7 to 11 months ($N = 1,159$), and 12 to 24 months ($N = 996$). Table 11-25 shows the total sample size described by WIC participants and non-participants.

The foods consumed were analyzed by tabulating the percentage of infants who consumed specific foods/food groups per day (Ponza et al., 2004). Weighted data were used in all of the analyses used in the study (Ponza et al., 2004). Table 11-25 presents the demographic data for WIC participants and non-participants. Table 11-26 provides the food choices for infants and toddlers. In general, there was little difference in food choices among WIC participants and non-participants, except for consumption of yogurt by infants 7 to 11 months of age and toddlers 12 to 24 months of age (see Table 11-26). Non-participants, 7 to 24 months of age, were more likely to eat yogurt than WIC participants (Ponza et al., 2004).

An advantage of this study is that it had a relatively large sample size and was representative of the U.S. general population of infants and children. A limitation of the study is that intake values for foods were not provided. Other limitations are associated with the FITS data and are described previously in Section 11.3.2.6.

11.3.2.8. Mennella et al. (2006)—Feeding Infants and Toddlers Study: The Types of Foods Fed to Hispanic Infants and Toddlers

Mennella et al. (2006) investigated the types of food and beverages consumed by Hispanic infants and toddlers in comparison to the non-Hispanic infants and toddlers in the United States. The FITS 2002 data for children between 4 and 24 months old were used for the study. The data represent a random sample of 371 Hispanic and 2,367 non-Hispanic infants and toddlers (Mennella et al., 2006). Mennella et al. (2006) grouped the infants as follows: 4 to 5 months ($N = 84$ Hispanic; 538 non-Hispanic), 6 to 11 months ($N = 163$ Hispanic; 1,228 non-Hispanic), and 12 to 24 months ($N = 124$ Hispanic; 871 non-Hispanic) of age.

Table 11-27 provides the percentages of Hispanic and non-Hispanic infants and toddlers consuming milk, meats, or other protein sources on a given day. In most instances, the percentages consuming the different types of meats and protein sources were similar (Mennella et al., 2006).

The advantage of the study is that it provides information on food preferences for Hispanic and non-Hispanic infants and toddlers. A limitation is that the study did not provide food intake data, but provided frequency of use data instead. Other limitations are those noted previously in Section 11.3.2.6 for the FITS data.

11.3.2.9. Fox et al. (2006)—Average Portion of Foods Commonly Eaten by Infants and Toddlers in the United States

Fox et al. (2006) estimated average portion sizes consumed per eating occasion by children 4 to 24 months of age who participated in the FITS. The FITS is a cross-sectional study designed to collect and analyze data on feeding practices, food consumption, and usual nutrient intake of U.S. infants and toddlers and is described in Section 11.3.2.6 of this chapter. It included a stratified random sample of 3,022 children between 4 and 24 months of age.

Using the 24-hour recall data, Fox et al. (2006) derived average portion sizes for six major food groups, including meats and other protein sources.

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Average portion sizes for select individual foods within these major groups were also estimated. For this analysis, children were grouped into six age categories: 4 to 5 months, 6 to 8 months, 9 to 11 months, 12 to 14 months, 15 to 18 months, and 19 to 24 months. Table 11-28 and Table 11-29 present the average portion sizes of meats and dairy products for infants and toddlers, respectively.

11.4. INTAKE OFFAT

11.4.1. Key Fat Intake Study

11.4.1.1. U.S. EPA (2007)—Analysis of Fat Intake Based on the U.S. Department of Agriculture's 1994–1996, 1998 Continuing Survey of Food Intakes by Individuals (CSFII)

U.S. EPA conducted an analysis to evaluate the dietary intake of fats by individuals in the United States using data from the USDA's 1994–1996, 1998 CSFII (USDA, 2000). Intakes of CSFII foods were converted to U.S. EPA food commodity codes using data provided in U.S. EPA's FCID (U.S. EPA, 2000). The FCID contains a "translation file" that was used to break down the USDA CSFII food codes into 548 U.S. EPA commodity codes. The method used to translate USDA food codes into U.S. EPA commodity codes is discussed in detail in U.S. EPA (2000).

Each of the 548 U.S. EPA commodity codes was assigned a value between zero and one that indicated the mass fraction of fat in that food item. For many sources of fat, a commodity code existed solely for the nutrient fat portion of the food. For example, beef is represented in the FCID database by 10 different commodity codes; several of these codes specifically exclude fat, and one code is described as "nutrient fat only." In these cases, the fat fraction could be expressed as 0 or 1, as appropriate. Most animal food products and food oils were broken down in this way. The fat contents of other foods in the U.S. EPA commodity code list were determined using the USDA Nutrient Database for Standard Reference, Release 13 (USDA, 1999b). For each food item in the U.S. EPA code list, the best available match in the USDA Nutrient Database was used. If multiple values were available for different varieties of the same food item (e.g., green, white, and red grapes), a mean value was calculated. If multiple values were available for different cooking methods (i.e., fried vs. dry cooked), the method least likely to introduce other substances, such as oil or butter, was preferred. In some cases, not all of the items that fall under a given food commodity code could be assigned a fat content. For example, the food commodity code list identified "turkey, meat byproducts" as including

gizzard, heart, neck, and tail. Fat contents could be determined only for the gizzard and heart. Because the relative amounts of the different items in the food commodity code were unknown, the mean fat content of these two items was assumed to be the best approximation of the fat content for the food code as a whole.

The analysis was based on respondents who had provided body weights and who had completed both days of the 2-day survey process. These individuals were grouped according to various age categories. The mean, standard error, and a range of percentiles of fat intake were calculated for 12 food categories (i.e., all fats, animal fats, meat and meat products, beef, pork, poultry, organ meats, milk and dairy products, fish, oils, nuts/seeds/beans/legumes/tubers, and others) and 98 demographic cohorts. Fat intake was calculated as a 2-day average consumption across both survey days in units of grams per day and grams per kilogram of body weight per day for the whole survey population and for consumers only.

A secondary objective of the study was to evaluate fat consumption patterns of individuals who consume high levels of animal fats. The entire data analysis was repeated for a subset of individuals who were identified as high consumers of animal fats. The selection of the high-consumption group was done for each age category individually, rather than on the whole population, because fat intake on a per body-weight basis is heavily skewed towards young children, and an analysis across the entire American population was desired. For infants, the "less-than-1-year-old" group was used instead of the smaller infant groups (<1 month, 1 to <3 months, etc.). Within each of the age categories, individuals that ranked at or above the 90th percentile of consumption of all animal fats on a per unit body-weight basis were identified. Because of the sample weighting factors, the high consumer group was not necessarily 10% of each age group. The selected individuals made up a survey population of 2,134 individuals. Fat intake of individuals in this group was calculated in g/day and g/kg-day for the whole population (i.e., per capita) and for consumers only.

The analysis presented in U.S. EPA (2007) was conducted before U.S. EPA published the guidance entitled *Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants* (U.S. EPA, 2005). Therefore, the age groups used for children in U.S. EPA (2007) were not entirely consistent with the age groups recommended in the 2005 guidance. A re-analysis of some of the data was conducted to conform with U.S. EPA's recommended age groups for children. The results of this re-analysis are

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included in Table 11-30 through Table 11-35 for all individuals. Only intake rates of all fats are provided in these tables; refer to U.S. EPA (2007) for fat intake rates from individual food sources. Table 11-30 and Table 11-31 present intake rates of all fats for the whole population (i.e., per capita) in g/day and g/kg-day, respectively. Table 11-32 and Table 11-33 present intake rates of all fats for consumers only in g/day and g/kg-day, respectively. Fat intake rates of all fats for the top decile of animal fat consumers from the consumers only group are presented in Table 11-34 in g/day and in Table 11-35 in g/kg-day (per capita total fat intake rates for the top decile of animal fat consumers are not provided because they are the same as those for consumers only).

11.4.2. Relevant Fat Intake Studies

11.4.2.1. *Cresanta et al. (1988)/Nicklas et al. (1993)/Frank et al. (1986)—Bogalusa Heart Study*

Cresanta et al. (1988), Nicklas et al. (1993), and Frank et al. (1986) analyzed dietary fat intake data as part of the Bogalusa heart study. The Bogalusa study, an epidemiologic investigation of cardiovascular risk-factor variables and environmental determinants, collected dietary data on subjects residing in Bogalusa, LA, beginning in 1973. Among other research, the study collected fat intake data for children, adolescents, and young adults. Researchers examined various cohorts of subjects, including (1) six cohorts of 10-year olds, (2) two cohorts of 13-year olds, (3) one cohort of subjects from 6 months to 4 years of age, and (4) one cohort of subjects from 10 to 17 years of age (Nicklas, 1995). To collect the data, interviewers used the 24-hour dietary recall method. According to Nicklas (1995), “the diets of children in the Bogalusa study are similar to those reported in national studies of children.” Thus, these data are useful in evaluating the variability of fat intake among the general population. Table 11-36 and Table 11-37 present data for 6-month-old to 17-year-old individuals collected during 1973 to 1982 (Frank et al., 1986). Data are presented for total fats, animal fats, vegetable fats, and fish fats in units of g/day (see Table 11-36) and g/kg-day (see Table 11-37).

11.5. CONVERSION BETWEEN WET- AND DRY-WEIGHT INTAKE RATES

The intake rates presented in this chapter are reported in units of wet weight (i.e., as-consumed or uncooked weight of meats and dairy products consumed per day or per eating occasion). However, data on the concentration of contaminants in meats

and dairy products may be reported in units of either wet or dry weight (e.g., mg contaminant per gram dry-weight of meats and dairy products). It is essential that exposure assessors be aware of this difference so that they may ensure consistency between the units used for intake rates and those used for concentration data (i.e., if the contaminant concentration is measured in dry weight of meats and dairy products, then the dry-weight units should be used for their intake values).

If necessary, wet weight (e.g., as-consumed) intake rates may be converted to dry-weight intake rates using the moisture content percentages presented in Table 11-38 and the following equation:

$$IR_{dw} = IR_{ww} \left[\frac{100 - W}{100} \right] \quad (\text{Eqn. 11-1})$$

where:

- IR_{dw} = dry-weight intake rate,
- IR_{ww} = wet-weight intake rate, and
- W = percent water content.

Alternatively, dry-weight residue levels in meat and dairy products may be converted to wet-weight residue levels for use with wet-weight (e.g., as-consumed) intake rates as follows:

$$C_{ww} = C_{dw} \left[\frac{100 - W}{100} \right] \quad (\text{Eqn. 11-2})$$

where:

- C_{ww} = wet-weight concentration,
- C_{dw} = dry-weight concentration, and
- W = percent water content.

The moisture content data presented in Table 11-38 are for selected meats and dairy products taken from USDA (2007).

11.6. CONVERSION BETWEEN WET-WEIGHT AND LIPID-WEIGHT INTAKE RATES

In some cases, the residue levels of contaminants in meat and dairy products may be reported as the concentration of contaminant per gram of fat. This may be particularly true for lipophilic compounds.

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When using these residue levels, the assessor should ensure consistency in the exposure assessment calculations by using consumption rates that are based on the amount of lipids consumed for the meat or dairy product of interest.

If necessary, wet-weight (e.g., as-consumed) intake rates may be converted to lipid-weight intake rates using the fat content percentages presented in Table 11-38 and the following equation:

$$IR_{lw} = IR_{ww} \left[\frac{L}{100} \right] \quad (\text{Eqn. 11-3})$$

where:

$$\begin{aligned} IR_{lw} &= \text{lipid-weight intake rate,} \\ IR_{ww} &= \text{wet-weight intake rate, and} \\ L &= \text{percent lipid (fat) content.} \end{aligned}$$

Alternately, wet-weight residue levels in meat and dairy products may be estimated by multiplying the levels based on fat by the fraction of fat per product as follows:

$$C_{ww} = C_{lw} \left[\frac{L}{100} \right] \quad (\text{Eqn. 11-4})$$

where:

$$\begin{aligned} C_{ww} &= \text{wet-weight concentration,} \\ C_{lw} &= \text{lipid-weight concentration, and} \\ L &= \text{percent lipid (fat) content.} \end{aligned}$$

The resulting residue levels may then be used in conjunction with wet-weight (e.g., as-consumed) consumption rates. Table 11-38 presents the total fat content data for selected meat and dairy products taken from USDA (2007).

11.7. REFERENCES FOR CHAPTER 11

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**Table 11-3. Per Capita Intake of Total Meat and Total Dairy Products Based on 2003–2006 NHANES
(g/kg-day, edible portion, uncooked weight)**

Population Group	N	% Consuming	Mean	SE	Percentiles									Max
					1 st	5 th	10 th	25 th	50 th	75 th	90 th	95 th	99 th	
Total Meat														
Whole Population	16,783	98	2.0	0.02	0.0	0.2	0.5	0.9	1.6	2.5	3.8	4.8	7.8	23.4*
Age Group														
Birth to 1 year	865	44	1.2	0.12	0.0*	0.0*	0.0	0.0	0.0	1.7	3.6	5.4*	9.3*	18.7*
1 to 2 years	1,052	98	4.0	0.12	0.0*	0.4*	0.8	2.0	3.4	5.5	8.0	10.0*	14.0*	23.4*
3 to 5 years	978	99	3.9	0.13	0.0*	0.7	1.4	2.1	3.3	5.0	7.6	8.5	12.4*	19.5*
6 to 12 years	2,256	99	2.8	0.06	0.1*	0.5	0.9	1.5	2.5	3.8	5.2	6.4	8.9*	13.6*
13 to 19 years	3,450	99	2.0	0.04	0.0	0.3	0.6	1.0	1.7	2.7	3.8	4.7	6.8	13.5*
20 to 49 years	4,289	99	1.8	0.03	0.0	0.3	0.5	1.0	1.6	2.4	3.4	4.1	5.7	12.0*
Females 13 to 49 years	4,103	99	1.6	0.04	0.0	0.2	0.4	0.8	1.3	2.1	3.0	3.6	5.1	12.2*
50 years and older	3,893	99	1.4	0.02	0.0	0.2	0.4	0.8	1.3	1.9	2.6	3.1	4.4	8.6*
Race														
Mexican American	4,450	98	2.2	0.05	0.0	0.2	0.5	1.0	1.8	3.0	4.2	5.4	8.3	18.9*
Non-Hispanic Black	4,265	99	2.2	0.05	0.0	0.3	0.6	1.0	1.7	2.9	4.5	5.8	9.0	23.4*
Non-Hispanic White	6,757	98	1.8	0.02	0.0	0.2	0.5	0.9	1.5	2.4	3.5	4.4	6.9	18.7*
Other Hispanic	562	97	2.2	0.08	0.0*	0.2	0.5	1.1	1.9	2.8	4.0	6.0	10.1*	19.5*
Other Race—Including Multiple	749	98	2.3	0.12	0.0*	0.1	0.5	1.0	1.9	2.9	4.5	6.4	9.6*	15.1*
Total Dairy Products														
Whole Population	16,783	99.7	6.6	0.16	0.0	0.2	0.5	1.3	3.2	7.1	15.4	25.0	56.8	185.3*
Age Group														
Birth to 1 year	865	86	10.1	0.76	0.0*	0.0*	0.0	1.2	6.4	11.5	19.6	43.2*	83.1*	163.9*
1 to 2 years	1,052	100	43.2	1.80	1.0*	5.7*	10.7	20.3	39.1	59.4	84.1	94.7*	141.22*	185.3*
3 to 5 years	978	100	24.0	0.76	0.9*	4.5	8.3	13.6	20.7	32.0	41.9	51.1	68.2*	154.5*
6 to 12 years	2,256	100	12.9	0.42	0.5*	1.5	2.6	5.6	10.8	17.8	26.0	31.8	42.9*	57.7*
13 to 19 years	3,450	100	5.5	0.25	0.1	0.4	0.6	1.6	4.0	7.6	12.3	16.4	24.9	45.0*
20 to 49 years	4,289	99.8	3.5	0.14	0.0	0.2	0.4	1.0	2.4	4.7	8.1	10.3	17.1	52.7*
Females 13 to 49 years	4,103	99.6	3.8	0.16	0.0	0.2	0.5	1.1	2.5	5.2	8.5	11.3	18.9	52.7*
50 years and older	3,893	100	3.3	0.09	0.0	0.2	0.4	1.0	2.3	4.5	7.3	9.6	15.2	28.8*
Race														
Mexican American	4,450	99.6	8.5	0.36	0.0	0.2	0.7	1.4	3.7	9.4	21.8	34.4	67.2	156.4*
Non-Hispanic Black	4,265	99.5	5.0	0.19	0.0	0.1	0.2	0.7	1.8	4.6	12.6	20.1	50.6	175.2*
Non-Hispanic White	6,757	99.8	6.6	0.19	0.1	0.3	0.6	1.4	3.3	7.1	14.8	24.5	54.1	185.3*
Other Hispanic	562	99	8.1	0.88	0.0*	0.1	0.4	1.2	3.1	7.0	20.5	39.2	69.2*	141.2*
Other Race—Including Multiple	749	99.6	6.7	0.50	0.0*	0.0	0.3	0.9	3.3	7.9	15.3	23.1	54.4*	112.2*
N	= Sample size.													
SE	= Standard error.													
Max	= Maximum value.													
*	Estimates are less statistically reliable based on guidance published in the <i>Joint Policy on Variance Estimation and Statistical Reporting Standards on NHANES III and CSFII Reports: NHIS/NCHS Analytical Working Group Recommendations</i> (NCHS, 1993).													
Source:	U.S. EPA analysis of 2003–2006 NHANES data.													

Table 11-4. Consumer-Only Intake of Total Meat and Total Dairy Products Based on 2003–2006 NHANES (g/kg-day, edible portion, uncooked weight)													
Population Group	N	Mean	SE	Percentiles									Max
				1 st	5 th	10 th	25 th	50 th	75 th	90 th	95 th	99 th	
Total Meat													
Whole Population	16,147	2.0	0.02	0.0	0.3	0.5	1.0	1.6	2.6	3.8	4.8	7.8	23.4*
Age Group													
Birth to 1 year	385	2.7	0.20	0.0*	0.1*	0.2*	1.0	1.9	3.4	6.0*	8.1*	16.6*	18.7*
1 to 2 years	1,030	4.1	0.10	0.1*	0.5*	1.0	2.2	3.5	5.6	8.0	10.1*	14.0*	23.4*
3 to 5 years	968	3.9	0.13	0.0*	0.9	1.4	2.1	3.3	5.0	7.7	8.6	12.4*	19.5*
6 to 12 years	2,250	2.8	0.06	0.1*	0.5	0.9	1.5	2.5	3.8	5.2	6.4	8.9*	13.6*
13 to 19 years	3,422	2.0	0.04	0.0	0.4	0.6	1.1	1.7	2.7	3.8	4.7	6.9	13.5*
20 to 49 years	4,248	1.8	0.03	0.0	0.3	0.5	1.0	1.6	2.4	3.4	4.1	5.8	12.0*
Females 13 to 49 years	4,054	1.6	0.04	0.0	0.3	0.4	0.8	1.3	2.1	3.0	3.6	5.1	12.2*
50 years and older	3,844	1.4	0.02	0.0	0.3	0.5	0.8	1.3	1.9	2.6	3.1	4.4	8.6*
Race													
Mexican American	4,229	2.3	0.05	0.1	0.3	0.6	1.1	1.9	3.0	4.2	5.5	8.3	18.9*
Non-Hispanic Black	4,154	2.2	0.05	0.1	0.4	0.6	1.1	1.7	2.9	4.5	5.8	9.0	23.4*
Non-Hispanic White	6,520	1.9	0.02	0.0	0.3	0.5	0.9	1.6	2.4	3.5	4.5	7.0	18.7*
Other Hispanic	535	2.3	0.08	0.1*	0.4	0.7	1.2	1.9	2.8	4.1	6.0	10.1*	19.5*
Other Race—including Multiple	709	2.3	0.12	0.0*	0.3	0.6	1.1	1.9	2.9	4.5	6.7	9.6*	15.1*
Total Dairy Products													
Whole Population	16,657	6.6	0.16	0.0	0.3	0.5	1.3	3.2	7.1	15.5	25.0	56.8	185.3*
Age Group													
Birth to 1 year	753	11.7	0.88	0.0*	0.1*	0.8*	3.1	7.8	12.3	22.1*	44.7*	86.4*	163.9*
1 to 2 years	1,052	43.2	1.79	1.0*	5.7*	10.6	20.3	39.1	59.4	84.0	94.7*	141.2*	185.3*
3 to 5 years	978	24.0	0.77	0.9*	4.7	8.3	13.7	20.7	32.0	41.9	51.1	68.2*	154.5*
6 to 12 years	2,256	12.9	0.42	0.5*	1.6	2.6	5.6	10.8	17.8	26.0	31.8	42.9*	57.7*
13 to 19 years	3,449	5.5	0.25	0.1	0.4	0.6	1.6	4.0	7.6	12.3	16.4	24.9	45.0*
20 to 49 years	4,280	3.5	0.14	0.0	0.2	0.4	1.0	2.4	4.7	8.1	10.3	17.1	52.7*
Females 13 to 49 years	4,095	3.8	0.16	0.0	0.2	0.5	1.1	2.5	5.3	8.5	11.3	18.9	52.7*
50 years and older	3,889	3.3	0.09	0.0	0.2	0.4	1.0	2.3	4.5	7.3	9.6	15.2	28.8*
Race													
Mexican American	4,406	8.6	0.36	0.0	0.3	0.5	1.4	3.8	9.5	21.8	34.4	67.1	156.4*
Non-Hispanic Black	4,246	5.0	0.19	0.0	0.1	0.2	0.7	1.8	4.7	12.7	20.3	50.6	175.2*
Non-Hispanic White	6,708	6.6	0.19	0.1	0.4	0.6	1.4	3.3	7.1	14.9	24.5	54.1	185.3*
Other Hispanic	553	8.1	0.87	0.0*	0.2	0.5	1.2	3.2	7.1	20.6	40.1	72.7*	141.2*
Other Race—including Multiple	742	6.7	0.51	0.0*	0.0	0.3	0.9	3.3	7.9	15.3	23.1	54.4*	112.2*
N = Sample size; SE = Standard error; Max = Maximum value. * Estimates are less statistically reliable based on guidance published in the <i>Joint Policy on Variance Estimation and Statistical Reporting Standards on NHANES III and CSFII Reports: NHIS/NCHS Analytical Working Group Recommendations</i> (NCHS, 1993). Source: U.S. EPA analysis of 2003–2006 NHANES data.													

**Table 11-5. Per Capita Intake of Individual Meats and Dairy Products Based on 2003–2006 NHANES
(g/kg-day, edible portion, uncooked weight)**

Population Group	N	% Consuming			% Consuming			% Consuming		
		Mean	SE		Mean	SE		Mean	SE	
		Beef			Pork			Poultry		
Whole Population	16,783	88	0.77	0.01	80	0.39	0.01	75	0.77	0.02
Age Group										
Birth to 1 year	865	27	0.34	0.07	19	0.17	0.04	37	0.69	0.09
1 to 2 years	1,052	84	1.38	0.08	73	0.75	0.06	81	1.87	0.07
3 to 5 years	978	91	1.42	0.08	79	0.79	0.06	82	1.65	0.07
6 to 12 years	2,256	92	1.11	0.04	84	0.52	0.02	77	1.18	0.06
13 to 19 years	3,450	91	0.83	0.03	79	0.36	0.02	74	0.80	0.02
20 to 49 years	4,289	88	0.73	0.02	81	0.36	0.02	77	0.71	0.02
Females 13 to 49 years	4,103	86	0.60	0.02	79	0.28	0.01	77	0.66	0.02
50 years and older	3,893	87	0.58	0.01	82	0.33	0.01	71	0.50	0.02
Race										
Mexican American	4,450	86	0.94	0.04	86	0.43	0.02	78	0.82	0.02
Non-Hispanic Black	4,265	88	0.79	0.03	79	0.40	0.03	84	1.01	0.03
Non-Hispanic White	6,757	88	0.74	0.01	81	0.38	0.01	72	0.70	0.02
Other Hispanic	562	80	0.89	0.07	73	0.36	0.03	79	0.97	0.06
Other Race—Including Multiple	749	84	0.84	0.06	78	0.41	0.03	80	1.00	0.10
N = Sample size. SE = Standard error.										
Source: U.S. EPA analysis of 2003–2006 NHANES data.										

Table 11-6. Consumer-Only Intake of Individual Meats and Dairy Products Based on 2003–2006 NHANES (g/kg-day, edible portion, uncooked weight)

Population Group	<i>N</i>	Mean	SE	<i>N</i>	Mean	SE	<i>N</i>	Mean	SE
	Beef			Pork			Poultry		
Whole Population	14,328	0.88	0.01	13,180	0.49	0.01	12,660	1.03	0.02
Age Group									
Birth to 1 year	233	1.28	0.20	172	0.93	0.17	315	1.89	0.16
1 to 2 years	893	1.65	0.08	781	1.03	0.08	880	2.32	0.07
3 to 5 years	879	1.56	0.08	784	1.00	0.07	800	2.02	0.08
6 to 12 years	2,102	1.20	0.04	1,922	0.62	0.02	1,813	1.54	0.08
13 to 19 years	3,140	0.91	0.03	2,770	0.46	0.02	2,652	1.07	0.03
20 to 49 years	3,767	0.84	0.02	3,539	0.44	0.01	3,360	0.92	0.02
Females 13 to 49 years old	3,585	0.70	0.02	3,283	0.36	0.01	3,224	0.86	0.03
50 years and older	3,314	0.66	0.01	3,212	0.40	0.01	2,840	0.70	0.02
Race									
Mexican American	3,679	1.09	0.03	3,595	0.50	0.02	3,371	1.05	0.03
Non-Hispanic Black	3,751	0.90	0.03	3,312	0.51	0.03	3,522	1.21	0.03
Non-Hispanic White	5,843	0.84	0.02	5,304	0.48	0.01	4,769	0.97	0.02
Other Hispanic	450	1.11	0.06	397	0.50	0.05	434	1.23	0.07
Other Race—including Multiple	605	1.00	0.06	572	0.53	0.04	564	1.26	0.10
<i>N</i> = Sample size. SE = Standard error.									
Source: U.S. EPA analysis of 2003–2006 NHANES data.									

Table 11-7. Mean Meat Intakes per Individual in a Day, by Sex and Age (g/day, as-consumed) ^a for 1977–1978								
Group Age (years)	Total Meat, Poultry and Fish	Beef	Pork	Lamb, Veal, Game	Frankfurters, Sausages, Luncheon Meats, Spreads	Total Poultry	Chicken Only	Meat Mixtures ^b
Males and Females								
1 and Under	72	9	4	3	2	4	1	51
1 to 2	91	18	6	- ^c	15	16	13	32
3 to 5	121	23	8	- ^c	15	19	19	49
6 to 8	149	33	15	1	17	20	19	55
Males								
9 to 11	188	41	22	3	19	24	21	71
12 to 14	218	53	18	- ^c	25	27	24	87
15 to 18	272	82	24	1	25	37	32	93
19 to 22	310	90	21	2	33	45	43	112
23 to 34	285	86	27	1	30	31	29	94
35 to 50	295	75	28	1	26	31	28	113
51 to 64	274	70	32	1	29	31	29	86
65 to 74	231	54	25	2	22	29	26	72
75 and Over	196	41	39	7	19	28	25	54
Females								
9 to 11	162	38	17	1	20	27	23	55
12 to 14	176	47	19	1	18	23	22	61
15 to 18	180	46	14	2	16	28	27	61
19 to 22	184	52	19	1	18	26	24	61
23 to 34	183	48	17	1	16	24	22	66
35 to 50	187	49	19	2	14	24	21	63
51 to 64	187	52	19	2	12	26	24	60
65 to 74	159	34	21	4	12	30	25	47
75 and Over	134	31	17	2	9	19	16	49
Males and Females								
All Ages	207	54	20	2	20	27	24	72
^a	Based on USDA Nationwide Food Consumption Survey 1977–1978 data for 1 day.							
^b	Includes mixtures containing meat, poultry, or fish as a main ingredient.							
^c	Less than 0.5 g/day, but more than 0.							
-	Indicates data are not available.							
Source:	USDA (1980).							

Table 11-8. Mean Meat Intakes per Capita in a Day, by Sex and Age (g/day, as-consumed)^a for 1987–1988

Group Age (years)	Total Meat, Poultry, and Fish	Beef	Pork	Lamb, Veal, Game	Frankfurters, Sausages, Luncheon Meats	Total Poultry	Chicken Only	Meat Mixtures ^b
Males and Females								
5 and Under	92	10	9	<0.5	11	14	12	39
Males								
6 to 11	156	22	14	<0.5	13	27	24	74
12 to 19	252	38	17	1	20	27	20	142
20 and over	250	44	19	23	2	31	25	108
Females								
6 to 11	151	26	9	1	11	20	17	74
12 to 19	169	31	10	<0.5	18	17	13	80
20 and over	170	29	12	1	13	24	18	73
All individuals	193	32	14	1	17	26	20	86
^a Based on USDA Nationwide Food Consumption Survey 1987–1988 data for 1 day.								
^b Includes mixtures containing meat, poultry, or fish as a main ingredient.								
Source: USDA (1993).								

Table 11-9. Mean Meat Intakes per Capita in a Day, by Sex and Age (g/day, as-consumed)^a for 1994 and 1995

Group Age (years)	Total Meat, Poultry, and Fish		Beef		Pork		Lamb, Veal, Game		Frankfurters, Sausages, Luncheon Meats		Total Poultry		Chicken Only		Meat Mixtures ^b	
	1994	1995	1994	1995	1994	1995	1994	1995	1994	1995	1994	1995	1994	1995	1994	1995
Males and Females																
5 and Under	94	87	10	8	6	4	- ^c	- ^c	17	18	16	15	14	14	41	39
Males																
6 to 11	131	161	19	18	9	7	0	- ^c	22	27	19	25	16	22	51	68
12 to 19	238	256	31	29	11	11	1	1	21	27	40	26	29	23	119	150
20 and over	266	283	35	41	17	14	2	1	29	27	39	31	30	27	124	149
Females																
6 to 11	117	136	18	16	5	5	- ^c	- ^c	18	20	19	17	15	14	51	69
12 to 19	164	158	23	22	5	7	- ^c	0	16	10	20	19	15	18	94	82
20 and over	168	167	18	21	9	11	1	1	16	15	25	22	20	19	87	83
All individuals	195	202	24	27	11	10	1	1	21	21	29	24	23	21	98	104
^a	Based on USDA CSFII 1994 and 1995 data for 1 day.															
^b	Includes mixtures containing meat, poultry, or fish as a main ingredient.															
^c	Less than 0.5 grams/day, but more than 0.															
Source: USDA (1996a, b).																

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Table 11-10. Mean Dairy Product Intakes per Capita in a Day, by Sex and Age (g/day, as-consumed)^a for 1977–1978				
Group Age (years)	Total Milk	Fluid Milk	Cheese	Eggs
Males and Females				
1 and Under	618	361	1	5
1 to 2	404	397	8	20
3 to 5	353	330	9	22
6 to 8	433	401	10	18
Males				
9 to 11	432	402	8	26
12 to 14	504	461	9	28
15 to 18	519	467	13	31
19 to 22	388	353	15	32
23 to 34	243	213	21	38
35 to 50	203	192	18	41
51 to 64	180	173	17	36
65 to 74	217	204	14	36
75 and Over	193	184	18	41
Females				
9 to 11	402	371	7	14
12 to 14	387	343	11	19
15 to 18	316	279	11	21
19 to 22	224	205	18	26
23 to 34	182	158	19	26
35 to 50	130	117	18	23
51 to 64	139	128	19	24
65 to 74	166	156	14	22
75 and Over	214	205	20	19
^a Based on USDA Nationwide Food Consumption Survey 1977–1978 data for 1 day.				
Source: USDA (1980).				

Chapter 11—Intake of Meats, Dairy Products, and Fats

Group Age (years)	Total Fluid Milk	Whole Milk	Lowfat/Skim Milk	Cheese	Eggs
Males and Females					
5 and under	347	177	129	7	11
Males					
6 to 11	439	224	159	10	17
12 to 19	392	183	168	12	17
20 and over	202	88	94	17	27
Females					
6 to 11	310	135	135	9	14
12 to 19	260	124	114	12	18
20 and over	148	55	81	15	17
All individuals	224	99	102	14	20

^a Based on USDA Nationwide Food Consumption Survey 1987–1988 data for 1 day.

Source: USDA (1993).

Group Age (years)	Total Fluid Milk		Whole Milk		Lowfat Milk		Cheese		Eggs	
	1994	1995	1994	1995	1994	1995	1994	1995	1994	1995
Males and Females										
5 and under	424	441	169	165	130	129	12	9	11	13
Males										
6 to 11	407	400	107	128	188	164	11	12	13	15
12 to 19	346	396	105	105	160	176	19	20	18	24
20 and over	195	206	50	57	83	88	19	16	23	23
Females										
6 to 11	340	330	101	93	136	146	17	13	12	15
12 to 19	239	235	75	71	88	107	14	13	13	17
20 and over	157	158	37	32	56	57	16	15	15	16
All individuals	229	236	65	66	89	92	17	15	17	19

^a Based on USDA CSFII 1994 and 1995 data for 1 day.

Source: USDA (1996a, b).

Table 11-13. Mean Quantities of Meat and Eggs Consumed Daily by Sex and Age, per Capita (g/day, as-consumed)^a

Age Group	Sample Size	Total	Beef	Pork	Lamb, Veal, Game	Organ Meats	Frankfurters, Sausages, Luncheon Meats	Poultry		Eggs	Mixtures, Mainly Meat/Poultry/Fish
								Total	Chicken		
Males and Females											
Under 1	1,126	24	1 ^b	₋ b,c	₋ b,c	₋ b,c	2	3	2	3	16
1	1,016	80	5	2	₋ b,c	₋ b,c	13	12	12	13	43
2	1,102	94	7	6	₋ b,c	₋ b,c	18	17	16	18	41
1 to 2	2,118	87	6	4	₋ b,c	₋ b,c	15	15	14	16	42
3	1,831	101	8	6	₋ b,c	₋ b,c	19	19	18	13	43
4	1,859	115	10	6	₋ b,c	₋ b,c	22	20	19	13	49
5	884	121	14	6	₋ b,c	₋ b,c	22	22	19	13	51
3 to 5	4,574	112	11	6	₋ c	₋ b,c	21	21	19	13	47
5 and under	7,818	93	8	5	₋ c	₋ b,c	17	16	15	13	42
Males											
6 to 9	787	151	18	7	₋ b,c	₋ b,c	24	23	21	11	71
6 to 11	1,031	154	19	7	₋ b,c	₋ b,c	24	22	20	12	72
12 to 19	737	250	30	12	1 ^b	0	28	31	26	22	134
Females											
6 to 9	704	121	17	4	₋ b,c	₋ b,c	18	19	16	10	55
6 to 11	969	130	18	5	₋ b,c	₋ b,c	19	20	17	11	60
12 to 19	732	158	21	5	₋ b,c	₋ b,c	15	21	19	13	85
Males and Females											
9 and under	9,309	110	12	5	₋ c	₋ b,c	19	18	17	12	50
19 and under	11,287	152	18	7	₋ b,c	₋ b,c	20	22	19	14	76
^a	Based on data from 1994–1996, 1998 CSFII.										
^b	Estimate is not statistically reliable due to small sample size reporting intake.										
^c	Value less than 0.5, but greater than 0.										
Note:	Consumption amounts shown are representative of the 1 st day of each participant's survey response.										
Source:	USDA (1999a).										

Table 11-14. Percentage of Individuals Consuming Meats and Eggs, by Sex and Age (%)^a

Age Group (years)	Sample Size	Total	Beef	Pork	Lamb, Veal, Game	Organ Meats	Frankfurters, Sausages, Luncheon Meats	Poultry		Eggs	Mixtures, Mainly Meat/Poultry/Fish
								Total	Chicken		
Males and Females											
Under 1	1,126	26.0	2.1	1.1 ^b	0.2 ^b	0.2 ^b	6.1	6.3	5.0	6.7	13.7
1	1,016	77.4	11.9	7.3	0.8 ^b	0.2 ^b	26.3	24.0	23.1	22.8	32.2
2	1,102	85.2	16.2	14.9	0.8 ^b	0.2 ^b	33.2	27.6	25.6	27.3	31.4
1 to 2	2,118	81.4	14.1	11.2	0.8 ^b	0.2 ^b	29.9	25.8	24.4	25.1	31.8
3	1,831	86.2	13.8	13.3	0.5 ^b	- ^{b,c}	36.4	28.3	26.0	19.8	29.2
4	1,859	86.2	16.1	13.8	0.5 ^b	0.2 ^b	37.0	27.4	25.1	16.9	30.5
5	884	87.1	18.2	13.2	0.6 ^b	0.2 ^b	35.1	27.7	24.8	16.4	30.8
3 to 5	4,574	86.5	16.0	13.4	0.5	0.2 ^b	36.1	27.8	25.3	17.7	30.2
5 and under	7,818	77.5	13.7	11.2	0.6	0.2 ^b	30.4	24.5	22.6	18.9	28.8
Males											
6 to 9	787	87.4	20.1	11.9	0.4 ^b	0.1 ^b	37.4	24.8	22.3	15.1	36.2
6 to 11	1,031	87.8	22.0	12.2	0.4 ^b	0.2 ^b	36.2	22.9	20.5	15.6	35.7
12 to 19	737	86.8	24.2	15.8	0.6 ^b	0.0	31.8	20.6	17.6	17.0	38.3
Females											
6 to 9	704	84.6	19.4	9.2	0.4 ^b	0.2 ^b	33.5	23.1	20.2	13.4	32.4
6 to 11	969	86.5	20.2	10.0	0.4 ^b	0.1 ^b	33.1	22.9	19.8	13.3	32.8
12 to 19	732	80.1	22.0	11.2	0.1 ^b	0.1 ^b	24.6	21.6	18.9	15.0	34.0
Males and Females											
9 and under	9,309	80.9	16.1	10.9	0.5	0.2 ^b	24.3	24.3	22.0	17.1	31.0
19 and under	11,287	82.8	19.6	12.1	0.4	0.1 ^b	22.7	22.7	20.1	16.4	33.3
^a	Based on data from 1994–1996, 1998 CSFII.										
^b	Estimate is not statistically reliable due to small sample size reporting intake.										
^c	Value less than 0.5, but greater than 0.										
Note:	Percentages shown are representative of the 1 st day of each participant's survey response.										
Source:	USDA (1999a).										

Table 11-15. Mean Quantities of Dairy Products Consumed Daily by Sex and Age, per Capita (g/day, as-consumed)^a

Age Group (year)	Sample Size	Total Milk and Milk Products	Milk, Milk Drinks, Yogurt							Cheese
			Total	Fluid Milk				Yogurt	Milk Desserts	
				Total	Whole	Lowfat	Skim			
Males and Females										
Under 1	1,126	762	757	61	49	11	^{b,c}	4	3	1
1	1,016	546	526	475	347	115	5 ^b	14	11	9
2	1,102	405	377	344	181	141	17	10	16	11
1 to 2	2,118	474	450	408	262	128	11	12	14	10
3	1,831	419	384	347	166	150	26	10	22	12
4	1,859	407	369	328	147	149	27	10	23	14
5	884	417	376	330	137	159	25	9	25	14
3 to 5	4,574	414	376	335	150	153	26	10	23	13
5 and under	7,818	477	447	327	177	127	18	10	18	11
Males										
6 to 9	787	450	405	343	127	176	29	6	31	13
6 to 11	1,031	450	402	335	121	172	33	6	35	12
12 to 19	737	409	358	303	99	158	40	3 ^b	29	19
Females										
6 to 9	704	380	337	288	105	146	26	4	29	13
6 to 11	969	382	336	283	108	136	29	4	30	14
12 to 19	732	269	220	190	66	92	30	4 ^b	29	14
Males and Females										
9 and under	9,309	453	417	323	153	141	22	8	23	12
19 and under	11,287	405	362	291	121	135	29	6	27	14

^a Based on data from 1994–1996, 1998 CSFII.
^b Estimate is not statistically reliable due to small sample size reporting intake.
^c Value less than 0.5, but greater than 0.

Note: Consumption amounts shown are representative of the 1st day of each participant’s survey response.

Source: USDA (1999a).

Table 11-16. Percentage of Individuals Consuming Dairy Products, by Sex and Age (%)^a

Age Group (year)	Sample Size	Total Milk and Milk Products	Milk, Milk Drinks, Yogurt							Milk Desserts	Cheese
			Total	Fluid Milk			Yogurt				
				Total	Whole	Lowfat		Skim			
Males and Females											
Under 1	1,126	85.4	84.6	11.1	8.3	2.4	0.2 ^b	3.1	4.5	6.0	
1	1,016	95.3	92.7	87.7	61.7	26.5	1.5 ^b	10.0	13.9	29.7	
2	1,102	91.6	87.3	84.3	44.8	36.3	5.2	6.8	17.5	32.6	
1 to 2	2,118	93.4	90.0	86.0	53.0	31.5	3.4	8.4	15.8	31.2	
3	1,831	94.3	88.3	84.6	42.5	39.5	6.8	7.3	21.4	37.0	
4	1,859	93.2	87.8	85.0	41.3	40.4	7.7	5.8	21.7	36.9	
5	884	93.1	86.4	81.2	38.1	41.7	6.5	5.5	21.4	34.9	
3 to 5	4,574	93.5	87.5	83.6	40.6	40.6	7.0	6.2	21.5	36.3	
5 and under	7,818	92.5	88.0	75.7	41.0	32.9	4.9	6.6	17.5	30.9	
Males											
6 to 9	787	93.2	85.5	80.7	32.4	44.3	8.6	3.8	24.0	34.6	
6 to 11	1,031	92.3	84.6	79.0	30.8	43.1	9.5	3.7	25.0	32.3	
12 to 19	737	81.3	65.8	59.6	22.6	30.7	7.0	1.7 ^b	13.6	37.1	
Females											
6 to 9	704	90.2	82.5	77.5	31.5	40.8	8.1	2.9	24.1	30.9	
6 to 11	969	90.2	81.5	76.0	33.2	37.8	8.4	3.0	22.4	31.9	
12 to 19	732	75.4	54.0	49.7	17.5	23.9	9.5	2.2 ^b	17.1	36.1	
Males and Females											
9 and under	9,309	92.2	86.4	77.1	37.4	36.8	6.3	5.3	20.1	31.7	
19 and under	11,287	86.7	75.6	68.1	30.1	33.1	7.5	3.8	18.6	33.5	
^a	Based on data from 1994–1996, 1998 CSFII.										
^b	Estimate is not statistically reliable due to small sample size reporting intake.										
Note:	Percentages shown are representative of the 1 st day of each participant's survey response.										
Source:	USDA (1999a).										

Table 11-17. Per Capita Intake of Total Meat and Total Dairy Products (g/kg-day, edible portion, uncooked weight)

Population Group	N	Percent Consuming	Mean	SE	Percentiles									
					1 st	5 th	10 th	25 th	50 th	75 th	90 th	95 th	99 th	Max
Total Meat														
Whole Population	20,607	97.5	2.1	0.02	0.0	0.2	0.5	1.0	1.7	2.7	4.0	5.3	8.7	30.3
Age Group														
Birth to 1 year	1,486	40.0	1.2	0.1	0.0	0.0	0.0	0.0	0.0	1.6	4.2	6.7	10.7	29.6
1 to 2 years	2,096	97.3	4.1	0.1	0.0	0.2	0.8	1.9	3.6	5.7	8.0	9.8	14.1	20.6
3 to 5 years	4,391	98.8	4.1	0.05	0.0	0.6	1.2	2.2	3.6	5.4	7.7	9.4	12.7	23.4
6 to 12 years	2,089	98.7	2.9	0.05	0.0	0.4	0.8	1.5	2.5	3.8	5.4	6.5	9.6	18.0
13 to 19 years	1,222	98.8	2.1	0.05	0.0	0.2	0.5	1.0	1.9	2.7	3.8	4.8	7.1	30.3
20 to 49 years	4,677	98.2	1.9	0.04	0.0	0.2	0.5	1.0	1.6	2.5	3.5	4.2	6.9	13.4
50+ years	4,646	98.2	1.5	0.02	0.0	0.2	0.4	0.8	1.3	1.9	2.7	3.3	4.8	9.7
Season														
Fall	4,687	96.8	2.1	0.06	0.0	0.1	0.5	1.0	1.7	2.8	4.2	5.4	8.7	21.2
Spring	5,308	97.6	2.1	0.04	0.0	0.2	0.5	1.0	1.7	2.7	4.0	5.2	8.7	23.6
Summer	5,890	97.4	2.1	0.03	0.0	0.1	0.5	0.9	1.6	2.7	4.0	5.4	8.6	30.3
Winter	4,722	98.0	2.0	0.04	0.0	0.2	0.5	1.0	1.6	2.6	3.8	5.0	7.9	29.6
Race														
American Indian, Alaska Native	177	98.4	2.4	0.25	0.0	0.3	0.5	1.0	2.0	3.3	4.3	6.3	9.0	12.4
Asian, Pacific Islander	557	96.8	2.5	0.17	0.0	0.1	0.3	1.1	2.1	3.5	4.5	6.0	9.6	13.0
Black	2,740	97.9	2.6	0.10	0.0	0.3	0.6	1.2	2.0	3.3	5.4	7.1	10.4	23.6
Other	1,638	96.5	2.5	0.08	0.0	0.2	0.5	1.1	2.0	3.1	4.9	6.5	10.8	29.6
White	15,495	97.5	1.9	0.02	0.0	0.2	0.5	0.9	1.6	2.5	3.7	4.8	7.7	30.3
Region														
Midwest	4,822	97.9	2.2	0.04	0.0	0.3	0.6	1.1	1.8	2.8	4.1	5.3	9.1	30.3
Northeast	3,692	96.3	2.1	0.07	0.0	0.0	0.4	0.9	1.6	2.7	4.1	5.4	8.7	20.5
South	7,208	97.7	2.0	0.03	0.0	0.2	0.5	0.9	1.7	2.6	3.9	5.2	8.3	23.4
Midwest	4,822	97.9	2.2	0.04	0.0	0.3	0.6	1.1	1.8	2.8	4.1	5.3	9.1	30.3
West	4,885	97.6	2.0	0.06	0.0	0.2	0.4	0.9	1.6	2.7	4.0	5.2	8.1	29.6
Urbanization														
MSA, Central City	6,164	97.3	2.1	0.04	0.0	0.1	0.5	0.9	1.7	2.7	4.2	5.6	8.9	23.6
MSA, Outside Central City	9,598	97.3	2.0	0.04	0.0	0.2	0.5	1.0	1.6	2.6	3.9	5.1	8.0	29.6
Non-MSA	4,845	98.1	2.1	0.03	0.0	0.3	0.6	1.0	1.7	2.7	4.1	5.1	8.6	30.3

**Table 11-17. Per Capita Intake of Total Meat and Total Dairy Products Based on 1994–1996, 1998 CSFII
(g/kg-day, edible portion, uncooked weight) (continued)**

Population Group	N	Percent Consuming	Mean	SE	Percentiles									
					1 st	5 th	10 th	25 th	50 th	75 th	90 th	95 th	99 th	Max
Total Dairy Product														
Whole population	20,607	99.5	6.7	0.1	0.01	0.2	0.4	1.2	3.2	7.3	16.1	25.4	52.1	223
Age Group														
Birth to 1 year	1,486	79.5	12.6	0.9	0.0	0.0	0.0	1.0	8.0	14.1	24.1	48.7	127	186
1 to 2 years	2,096	99.8	36.7	0.7	0.4	3.9	7.7	17.4	31.3	49.8	72.1	88.3	126	223
3 to 5 years	4,391	100.0	23.3	0.3	1.1	4.2	7.0	13.0	20.8	30.9	42.0	49.4	67.7	198
6 to 12 years	2,089	100.0	13.6	0.4	0.3	1.8	3.5	6.7	11.7	18.5	26.0	31.5	42.7	80.6
13 to 19 years	1,222	99.8	5.6	0.2	0.01	0.2	0.5	1.5	4.2	8.1	12.5	15.5	25.4	32.7
20 to 49 years	4,677	99.8	3.3	0.1	0.01	0.2	0.3	0.9	2.2	4.6	7.6	9.9	14.9	36.4
50+ years	4,646	99.8	3.2	0.1	0.02	0.2	0.4	1.0	2.4	4.5	6.9	8.9	14.1	42.5
Season														
Fall	4,687	99.7	7.0	0.2	0.0	0.2	0.4	1.3	3.4	8.0	16.9	26.9	55.3	156.8
Spring	5,308	99.5	6.6	0.2	0.0	0.2	0.4	1.3	3.1	7.3	16.2	25.0	52.0	185.6
Summer	5,890	99.6	6.4	0.2	0.0	0.2	0.4	1.2	3.1	6.8	15.2	24.7	52.8	164.8
Winter	4,722	99.4	6.7	0.1	0.0	0.2	0.5	1.3	3.4	7.3	16.4	25.0	49.1	223.2
Race														
American Indian, Alaska Native														
Native	177	99.8	8.0	1.1	0.0	0.0	0.1	0.8	3.1	11.0	21.2	30.2	68.9	146.2
Asian, Pacific Islander														
Asian, Pacific Islander	557	97.0	6.4	0.4	0.0	0.0	0.0	0.6	3.0	7.4	14.9	28.1	51.7	164.8
Black														
Black	2,740	99.6	5.6	0.2	0.0	0.1	0.2	0.6	2.1	6.5	14.7	23.3	45.4	185.6
Other														
Other	1,638	99.1	9.5	0.6	0.0	0.1	0.4	1.3	4.2	11.5	25.4	36.3	69.3	185.2
White														
White	15,495	99.6	6.6	0.1	0.0	0.3	0.5	1.4	3.4	7.2	15.6	24.7	51.2	223.2
Region														
Midwest	4,822	99.7	7.0	0.3	0.0	0.3	0.5	1.4	3.5	7.7	16.9	25.8	52.7	198.4
Northeast	3,692	99.6	6.7	0.2	0.0	0.3	0.6	1.5	3.4	7.3	15.9	25.7	54.2	185.6
South	7,208	99.6	6.0	0.1	0.0	0.2	0.3	1.0	2.8	6.3	14.5	23.7	48.6	223.2
West	4,885	99.2	7.4	0.4	0.0	0.2	0.4	1.4	3.7	8.5	17.5	27.6	54.5	185.2
Urbanization														
MSA, Central City	6,164	99.6	6.5	0.2	0.0	0.2	0.4	1.1	3.2	7.1	15.8	25.1	49.8	198.4
MSA, Outside Central City	9,598	99.4	7.0	0.1	0.0	0.2	0.5	1.4	3.4	7.7	16.9	26.3	54.3	223.2
Non-MSA	4,845	99.7	6.3	0.3	0.0	0.2	0.4	1.1	3.0	6.8	15.0	23.9	51.4	180.7
N = Sample size. SE = Standard error. MSA = Metropolitan statistical area.														
Source: U.S. EPA analysis of 1994–1996, 1998 CSFII.														

Table 11-18. Consumer-Only Intake of Total Meat and Total Dairy Products Based on 1994–1996, 1998 CSFII (g/kg-day, edible portion, uncooked weight)													
Population Group	N	Mean	SE	Percentiles									
				1 st	5 th	10 th	25 th	50 th	75 th	90 th	95 th	99 th	Max
Total Meat													
Age Group													
Birth to 1 year	575	3.0	0.2	0.01	0.1	0.3	1.0	2.2	4.2	7.4	9.2	12.9	29.6
1 to 2 years	2,044	4.2	0.1	0.04	0.6	1.0	2.1	3.6	5.7	8.1	9.8	14.1	20.6
3 to 5 years	4,334	4.2	0.1	0.04	0.8	1.2	2.2	3.6	5.5	7.7	9.4	12.7	23.4
6 to 12 years	2,065	2.9	0.1	0.1	0.5	0.9	1.5	2.5	3.9	5.4	6.5	9.6	18.0
13 to 19 years	1,208	2.1	0.05	0.02	0.3	0.6	1.1	1.9	2.8	3.8	4.8	7.1	30.3
20 to 49 years	4,593	1.9	0.04	0.04	0.4	0.6	1.0	1.6	2.5	3.5	4.2	6.9	13.4
50+ years	4,565	1.5	0.02	0.03	0.3	0.5	0.8	1.3	2.0	2.7	3.3	4.8	9.7
Whole population	19,384	2.1	0.02	0.04	0.4	0.6	1.0	1.7	2.7	4.0	5.3	8.7	30.3
Season													
Fall	4,423	96.8	2.2	0.06	0.0	0.4	0.6	1.0	1.7	2.8	4.2	5.5	8.7
Spring	4,995	97.6	2.1	0.04	0.0	0.3	0.6	1.0	1.7	2.7	4.1	5.2	8.8
Summer	5,510	97.4	2.1	0.03	0.0	0.3	0.5	1.0	1.7	2.7	4.0	5.5	8.7
Winter	4,456	98.0	2.0	0.04	0.0	0.4	0.6	1.0	1.7	2.6	3.9	5.0	7.9
Race													
American Indian, Alaska Native	171	98.4	2.5	0.27	0.2	0.4	0.5	1.1	2.1	3.3	4.3	6.3	9.0
Asian, Pacific Islander	503	96.8	2.6	0.18	0.0	0.3	0.6	1.2	2.3	3.5	4.5	6.0	9.6
Black	2,588	97.9	2.6	0.10	0.0	0.5	0.7	1.2	2.0	3.3	5.4	7.2	10.5
Other	1,508	96.5	2.6	0.09	0.1	0.4	0.7	1.2	2.0	3.2	5.0	6.6	10.9
White	14,614	97.5	2.0	0.02	0.0	0.3	0.5	1.0	1.6	2.5	3.7	4.8	7.7
Region													
Midwest	4,573	97.9	2.2	0.04	0.1	0.4	0.7	1.1	1.8	2.8	4.1	5.3	9.2
Northeast	3,448	96.3	2.1	0.07	0.0	0.4	0.5	1.0	1.7	2.7	4.2	5.5	8.7
South	6,798	97.7	2.1	0.03	0.0	0.3	0.5	1.0	1.7	2.7	3.9	5.2	8.3
West	4,565	97.6	2.1	0.06	0.0	0.3	0.5	1.0	1.6	2.7	4.0	5.2	8.1
Urbanization													
MSA, Central City	5,783	97.3	2.2	0.04	0.0	0.3	0.5	1.0	1.7	2.8	4.2	5.6	9.1
MSA, Outside Central City	9,004	97.3	2.1	0.04	0.0	0.3	0.6	1.0	1.7	2.6	3.9	5.2	8.0
Non-MSA	4,597	98.1	2.2	0.02	0.0	0.4	0.6	1.1	1.7	2.8	4.1	5.1	8.6

Table 11-18. Consumer-Only Intake of Total Meat and Total Dairy Products Based on 1994–1996, 1998 CSFII (g/kg-day, edible portion, uncooked weight) (continued)													
Population Group	N	Mean	SE	Percentiles									
				1 st	5 th	10 th	25 th	50 th	75 th	90 th	95 th	99 th	Max
Total Dairy Product													
Whole population	20,287	6.7	0.1	0.02	0.2	0.4	1.3	3.3	7.4	16.2	25.5	52.2	223.2
Age Group													
Birth to 1 year	1,192	15.9	1.0	0.03	0.8	1.9	5.8	10.2	16.0	27.7	57.5	141.8	185.6
1 to 2 years	2,093	36.8	0.7	0.4	4.2	7.8	17.4	31.3	49.8	72.1	88.3	126.2	223.2
3 to 5 years	4,390	23.3	0.3	1.1	4.2	7.0	13.0	20.8	30.9	42.0	49.4	67.7	198.4
6 to 12 years	2,089	13.6	0.4	0.3	1.8	3.5	6.7	11.7	18.5	26.0	31.5	42.7	80.6
13 to 19 years	1,221	5.6	0.2	0.01	0.3	0.5	1.5	4.2	8.1	12.5	15.5	25.4	32.7
20 to 49 years	4,666	3.3	0.1	0.01	0.2	0.3	0.9	2.3	4.6	7.6	9.9	14.9	36.4
50+ years	4,636	3.2	0.1	0.02	0.2	0.4	1.1	2.4	4.5	6.9	8.9	14.1	42.5
Season													
Fall	4,630	99.7	7.1	0.2	0.0	0.2	0.5	1.3	3.4	8.0	16.9	26.9	55.4
Spring	5,210	99.5	6.6	0.2	0.0	0.2	0.4	1.3	3.2	7.3	16.3	25.1	52.1
Summer	5,801	99.6	6.4	0.2	0.0	0.2	0.4	1.2	3.1	6.8	15.2	24.7	53.0
Winter	4,646	99.4	6.7	0.1	0.0	0.2	0.5	1.3	3.4	7.3	16.5	25.1	49.2
Race													
American Indian, Alaskan Native	176	99.8	8.0	1.1	0.0	0.0	0.1	0.8	3.1	11.1	21.2	30.2	68.9
Asian, Pacific Islander	537	97.0	6.6	0.4	0.0	0.0	0.1	0.6	3.1	7.6	15.6	28.1	51.7
Black	2,708	99.6	5.7	0.2	0.0	0.1	0.2	0.6	2.1	6.6	14.8	23.4	45.4
Other	1,607	99.1	9.6	0.7	0.0	0.2	0.4	1.3	4.3	11.6	25.5	36.5	69.3
White	15,259	99.6	6.7	0.1	0.0	0.3	0.6	1.4	3.4	7.2	15.7	24.7	51.3
Region													
Midwest	4,765	99.7	7.1	0.3	0.1	0.3	0.6	1.4	3.5	7.8	16.9	25.8	52.7
Northeast	3,638	99.6	6.8	0.2	0.0	0.3	0.6	1.5	3.4	7.3	16.0	25.8	54.3
South	7,104	99.6	6.0	0.1	0.0	0.2	0.3	1.0	2.8	6.3	14.6	23.8	48.6
West	4,780	99.2	7.4	0.4	0.0	0.2	0.5	1.5	3.8	8.5	17.8	27.7	54.6
Urbanization													
MSA, Central City	6,072	99.6	6.5	0.2	0.0	0.2	0.4	1.2	3.2	7.2	15.9	25.2	49.8
MSA, Outside Central City	9,440	99.4	7.0	0.1	0.0	0.3	0.5	1.4	3.5	7.8	17.0	26.4	54.3
Non-MSA	4,775	99.7	6.3	0.3	0.0	0.2	0.4	1.1	3.0	6.8	15.0	23.9	51.5
<i>N</i> = Sample size. <i>SE</i> = Standard error. <i>MSA</i> = Metropolitan statistical area.													
Source: U.S. EPA analysis of 1994–1996, 1998 CSFII.													

Table 11-19. Per Capita Intake of Individual Meats and Dairy Products Based on 1994–1996, 1998 CSFII (g/kg-day, edible portion, uncooked weight)

Population Group	N	Beef			Pork			Poultry			Eggs		
		Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE
Whole population	20,607	85.9	0.9	0.02	78.5	0.42	0.01	67.6	0.71	0.01	93.4	0.40	0.01
Age Group													
Birth to 1 year	1,486	25.3	0.4	0.04	17.7	0.15	0.02	30.1	0.66	0.05	27.9	0.30	0.04
1 to 2 years	2,096	85.5	1.7	0.06	69.7	0.72	0.03	73.7	1.7	0.05	92.3	1.3	0.04
3 to 5 years	4,391	90.8	1.8	0.04	79.8	0.84	0.02	73.0	1.5	0.03	95.1	0.91	0.03
6 to 12 years	2,089	92.7	1.3	0.04	82.4	0.59	0.03	67.1	0.93	0.03	95.8	0.51	0.02
13 to 19 years	1,222	91.1	1.0	0.05	81.5	0.40	0.03	65.5	0.68	0.03	95.4	0.33	0.02
20 to 49 years	4,677	86.1	0.8	0.03	78.9	0.37	0.01	69.0	0.64	0.02	94.1	0.31	0.01
50+ years	4,646	83.5	0.6	0.02	79.3	0.34	0.01	66.5	0.52	0.02	94.0	0.33	0.01
Season													
Fall	4,687	85.0	0.9	0.05	78.5	0.41	0.02	69.7	0.76	0.03	93.1	0.39	0.02
Spring	5,308	86.4	0.9	0.03	78.1	0.44	0.02	66.8	0.70	0.02	93.5	0.41	0.02
Summer	5,890	85.7	0.9	0.03	78.1	0.42	0.02	65.4	0.69	0.02	93.3	0.39	0.01
Winter	4,722	86.7	0.9	0.02	79.1	0.40	0.02	68.6	0.70	0.02	93.8	0.39	0.02
Race													
American Indian, Alaskan Native	177	87.9	1.3	0.21	85.2	0.49	0.06	78.1	0.62	0.07	94.5	0.49	0.06
Asian, Pacific Islander	557	78.6	0.9	0.08	71.5	0.63	0.11	78.1	0.90	0.09	84.7	0.46	0.05
Black	2,740	85.3	1.1	0.10	82.1	0.53	0.04	73.3	0.93	0.05	93.9	0.48	0.01
Other	1,638	85.0	1.1	0.05	79.4	0.48	0.03	68.7	0.83	0.06	89.9	0.62	0.05
White	15,495	86.4	0.9	0.02	78.0	0.39	0.01	66.1	0.66	0.01	93.9	0.36	0.01
Region													
Midwest	4,822	89.8	1.0	0.02	83.1	0.47	0.02	66.9	0.69	0.03	95.1	0.38	0.01
Northeast	3,692	82.0	0.8	0.08	72.1	0.41	0.02	68.3	0.78	0.04	91.2	0.36	0.02
South	7,208	86.1	0.9	0.02	79.8	0.42	0.02	67.2	0.70	0.02	94.2	0.39	0.01
West	4,885	85.1	0.9	0.04	77.0	0.36	0.03	68.4	0.70	0.03	92.5	0.44	0.02
Urbanization													
MSA, Central City	6,164	84.0	0.9	0.04	77.1	0.41	0.02	70.6	0.78	0.02	92.8	0.41	0.01
MSA, Outside Central City	9,598	85.9	0.9	0.02	77.2	0.39	0.01	68.5	0.72	0.02	93.4	0.39	0.01
Non-MSA	4,845	88.9	1.0	0.04	83.3	0.49	0.02	61.1	0.60	0.03	94.5	0.39	0.01

N = Sample size.
 SE = Standard error.
 MSA = Metropolitan statistical area.

Source: U.S. EPA analysis of 1994–1996, 1998 CSFII.

Table 11-20. Consumer-Only Intake of Individual Meats and Dairy Products Based on 1994–1996, 1998 CSFII
(g/kg-day, edible portion, uncooked weight)

Population Group	Beef			Pork			Poultry			Eggs		
	N	Mean	SE	N	Mean	SE	N	Mean	SE	N	Mean	SE
Whole population	17,116	1.1	0.02	15,431	0.53	0.01	13,702	1.1	0.01	18,450	0.42	0.01
Age Group												
Birth to 1 year	361	1.6	0.2	248	0.83	0.08	434	2.2	0.1	402	1.1	0.1
1 to 2 years	1,795	2.0	0.06	1,488	1.0	0.04	1,552	2.2	0.06	1,936	1.4	0.04
3 to 5 years	3,964	1.9	0.04	3,491	1.1	0.03	3,210	2.0	0.04	4,171	0.96	0.03
6 to 12 years	1,932	1.4	0.04	1,731	0.72	0.03	1,421	1.4	0.04	2,001	0.53	0.02
13 to 19 years	1,118	1.1	0.05	1,002	0.50	0.03	808	1.0	0.04	1,167	0.34	0.02
20 to 49 years	4,058	1.0	0.04	3,732	0.47	0.01	3,221	0.9	0.02	4,399	0.33	0.01
50+ years	3,888	0.7	0.02	3,739	0.43	0.01	3,056	0.8	0.02	4,374	0.35	0.01
Season												
Fall	3,894	1.1	0.06	3,547	0.5	0.02	3,217	1.1	0.03	4,211	0.4	0.02
Spring	4,429	1.0	0.03	3,979	0.6	0.02	3,491	1.1	0.02	4,751	0.4	0.02
Summer	4,855	1.1	0.03	4,354	0.5	0.02	3,810	1.1	0.03	5,245	0.4	0.01
Winter	3,938	1.0	0.02	3,551	0.5	0.02	3,184	1.0	0.03	4,243	0.4	0.02
Race												
American Indian, Alaskan Native	157	1.5	0.15	144	0.6	0.05	116	0.8	0.08	159	0.5	0.07
Asian, Pacific Islander	413	1.2	0.08	359	0.9	0.14	410	1.2	0.11	434	0.5	0.06
Black	2,280	1.3	0.11	2,122	0.6	0.04	2,025	1.3	0.05	2,462	0.5	0.02
Other	1,296	1.3	0.06	1,152	0.6	0.04	1,125	1.2	0.07	1,404	0.7	0.05
White	12,970	1.0	0.02	11,654	0.5	0.01	10,026	1.0	0.02	13,991	0.4	0.01
Region												
Midwest	4,179	1.1	0.02	3,856	0.6	0.01	3,115	1.0	0.03	4,398	0.4	0.01
Northeast	2,936	1.0	0.08	2,502	0.6	0.02	2,522	1.1	0.03	3,236	0.4	0.02
South	6,029	1.0	0.02	5,517	0.5	0.02	4,770	1.0	0.02	6,510	0.4	0.01
West	3,972	1.1	0.04	3,556	0.5	0.03	3,295	1.0	0.03	4,306	0.5	0.02
Urbanization												
MSA, Central City	4,992	1.1	0.05	4,516	0.5	0.02	4,275	1.1	0.02	5,475	0.4	0.01
MSA, Outside Central City	7,937	1.0	0.02	7,028	0.5	0.02	6,461	1.0	0.02	8,565	0.4	0.01
Non-MSA	4,187	1.1	0.03	3,887	0.6	0.02	2,966	1.0	0.03	4,410	0.4	0.01
<p>N = Sample size. SE = Standard error. MSA = Metropolitan statistical area.</p> <p>Source: U.S. EPA analysis of 1994–1996, 1998 CSFII.</p>												

Table 11-21. Quantity (as-consumed) of Meat and Dairy Products Consumed per Eating Occasion and Percentage of Individuals Using These Foods in Two Days

Food category	Quantity Consumed per Eating Occasion (g)											
	2 to 5 years old			6 to 11 years old			12 to 19 years old					
	Males and Females (N = 2,109)			Males and Females (N = 1,432)			Males (N = 696)			Females (N = 702)		
	PC	Mean	SE	PC	Mean	SE	PC	Mean	SE	PC	Mean	SE
	Meat											
Beef steaks	11.1	58	4	11.3	87	9	9.5	168	14	9.4	112	10
Beef roasts	5.2	49	5	4.8	67	7	5.1	233 ^a	149 ^a	5.5	97 ^a	16 ^a
Ground beef	59.5	31	1	63.7	41	1	73.4	66	3	61.5	52	3
Ham	6.9	35	4	8.5	40	4	11.6	68	7	9.9	40	5
Pork chops	11.0	48	3	10.1	62	4	11.6	100	8	8.5	72	7
Bacon	10.4	15	1	9.7	19	2	14.9	25	2	11.1	18	1
Pork breakfast sausage	5.3	33	2	6.0	32	3	6.3	40 ^a	4 ^a	3.3	40 ^a	5 ^a
Frankfurters and luncheon meats	51.7	49	1	50.9	57	2	46.7	76	3	38.5	57	3
Total chicken and turkey	63.8	46	1	53.8	62	2	58.4	100	4	54.1	71	2
Chicken	44.6	52	1	36.0	70	3	34.3	117	5	36.1	80	3
Turkey	5.1	63	7	5.7	66	5	8.2	117	14	5.8	60 ^a	9 ^a
	Dairy Product											
Fluid milk (all)	92.5	196	3	89.2	241	4	72.3	337	8	64.4	262	8
Fluid milk consumed with cereal	68.1	149	4	64.7	202	5	44.4	276	10	42.7	222	8
Whole milk	50.0	202	3	39.5	244	7	30.0	333	13	22.4	258	7
Whole milk consumed with cereal	33.8	161	5	26.2	212	11	14.8	265	18	14.1	235	13
Lowfat milk	47.5	189	3	52.8	238	4	39.6	326	8	32.4	262	13
Lowfat milk consumed with cereal	31.5	136	4	32.7	198	4	24.3	277	12	21.1	227	12
Skim milk	7.8	171	9	11.1	225	9	9.7	375	38	13.5	255	14
Skim milk consumed with cereal	4.9	131	11	7.5	188	14	6.5	285 ^a	23 ^a	8.3	181	13
Cheese, other than cream or cottage	53.2	24	1	50.4	29	1	61.1	38	2	53.9	27	1
Ice cream and ice milk	18.4	92	3	21.1	135	4	14.2	221	12	15.2	187	14
Boiled, poached, and baked eggs	8.0	36	3	8.2	34	3	5.0	44 ^a	9 ^a	7.7	45	7
Fried eggs	17.3	48	1	14.0	58	2	14.9	83	5	13.5	59	3
Scrambled eggs	10.4	59	4	7.1	72	5	7.1	72	5	8.9	103	9

Table 11-21. Quantity (as-consumed) of Meat and Dairy Products Consumed per Eating Occasion and Percentage of Individuals Using These Foods in Two Days (continued)

Food category	Quantity Consumed per Eating Occasion (g)																	
	20 to 39 years old						40 to 59 years old						60 years and older					
	Males (N = 1,543)			Females (N = 1,449)			Males (N = 1,663)			Females (N = 1,694)			Males (N = 1,545)			Females (N = 1,429)		
	PC	Mean	SE	PC	Mean	SE	PC	Mean	SE	PC	Mean	SE	PC	Mean	SE	PC	Mean	SE
Meat																		
Beef steaks	17.1	202	20	11.8	121	8	18.3	159	7	10.7	117	6	13.4	129	7	9.5	95	6
Beef roasts	6.9	132	14	5.8	85	8	9.9	119	8	9.6	74	5	11.7	102	6	8.8	80	4
Ground beef	65.3	80	4	51.5	52	2	50.0	82	3	44.6	57	2	40.7	73	3	36.2	62	3
Ham	10.8	78	7	9.7	47	4	13.5	68	5	12.2	50	4	15.2	56	3	14.4	45	3
Pork chops	12.8	117	8	12.5	71	4	14.3	108	6	13.0	67	4	16.4	89	3	13.1	62	3
Bacon	14.1	26	1	12.4	18	1	17.5	22	1	14.8	18	1	20.6	19	1	17.4	16	1
Pork breakfast sausage	6.6	57	4	5.1	37	3	6.6	48	4	5.8	38	4	10.7	48	4	5.5	34	3
Frankfurters and luncheon meats	46.2	88	6	35.6	61	2	44.9	79	2	34.3	59	2	41.6	62	2	33.9	51	2
Total chicken and turkey	57.3	112	4	57.8	78	2	56.8	111	4	58.7	80	2	53.8	87	3	57.8	71	2
Chicken	37.1	122	3	35.5	92	3	34.5	124	4	36.0	87	2	32.1	99	3	34.0	79	2
Turkey	6.8	131	21	5.6	76	6	8.5	115	12	8.8	81	8	7.7	80	7	7.2	77	7
Dairy Product																		
Fluid milk (all)	58.0	291	9	61.3	209	6	60.5	238	6	60.2	169	5	73.9	189	5	71.6	154	4
Fluid milk consumed with cereal	26.9	275	12	32.4	198	5	30.1	211	7	30.2	166	5	48.1	170	5	46.6	140	6
Whole milk	22.9	278	11	22.4	202	10	20.3	223	15	19.0	142	7	22.3	188	9	19.7	137	8
Whole milk consumed with cereal	7.9	272	16	8.7	216	14	6.2	216	16	6.1	183	10	10.1	177	10	9.9	156	13
Lowfat milk	29.4	298	15	29.4	198	7	31.2	242	7	27.7	159	5	40.2	189	5	37.8	161	6
Lowfat milk consumed with cereal	14.0	284	22	15.2	181	5	16.1	212	10	13.1	151	7	26.5	165	5	24.4	134	5
Skim milk	9.3	318	13	15.5	235	11	15.1	244	12	19.2	193	7	17.7	186	9	21.6	154	9
Skim milk consumed with cereal	5.6	260	12	9.3	207	10	8.7	197	11	11.8	173	7	12.4	174	9	14.2	135	9
Cheese, other than cream or cottage	63.8	39	2	52.6	30	1	48.3	36	1	46.3	29	1	40.9	33	2	35.4	26	1
Ice cream and ice milk	14.7	200	2	13.6	136	6	18.0	173	6	14.2	141	8	22.7	138	5	18.9	107	4
Boiled, poached, and baked eggs	9.4	50	4	10.4	39	3	12.0	45	3	14.2	38	2	15.7	45	3	16.1	39	2
Fried eggs	15.2	86	2	14.6	61	3	20.9	83	2	17.5	60	2	24.6	70	2	18.3	56	2
Scrambled eggs	10.7	89	4	7.8	74	3	11.1	83	3	8.0	66	3	12.0	73	4	9.3	64	5
^a Indicates a statistic that is potentially unreliable because of small sample size or large coefficient of variation. N = Sample size. PC = Percent consuming at least once in 2 days. SE = Standard error of the mean.																		
Source: Smiciklas-Wright et al. (2002), based on 1994–1996 CSFII data.																		

Table 11-22. Consumption of Milk, Yogurt, and Cheese: Median Daily Servings (and ranges) by Demographic and Health Characteristics		
Subject Characteristic	<i>N</i>	Milk, Yogurt, and Cheese
Sex		
Females	80	1.6 (0.2–5.6)
Males	50	1.5 (0.3–7.4)
Ethnicity		
African American	44	1.9 (0.2–4.5)
European American	47	1.6 (0.2–5.6)
Native American	39	1.3 (0.5–7.4)
Age		
70 to 74 years	42	1.8 (0.3–7.4)
75 to 79 years	36	1.6 (0.2–5.6)
80 to 84 years	36	1.4 (0.2–4.5)
85+ years	16	1.6 (0.2–3.8)
Marital Status		
Married	49	1.5 (0.2–7.4)
Not Married	81	1.7 (0.2–5.4)
Education		
8 th grade or less	37	1.8 (0.2–5.4)
9 th to 12 th grades	47	1.6 (0.2–5.6)
> High School	46	1.4 (0.3–7.4)
Denture		
Yes	83	1.5 (0.2–7.4)
No	47	1.6 (0.3–5.6)
Chronic Disease		
0	7	2.0 (0.8–4.5)
1	31	1.8 (0.3–5.6)
2	56	1.6 (0.2–7.4)
3	26	1.2 (0.2–4.8)
4+	10	1.5 (0.5–4.5)
Weight^a		
≤130 pounds	18	1.3 (0.3–5.4)
131 to 150 pounds	32	1.6 (0.5–5.6)
151 to 170 pounds	27	1.8 (0.2–4.5)
171 to 190 pounds	22	1.6 (0.2–3.7)
≥191 pounds	29	1.5 (0.2–7.4)
^a = Two missing values.		
<i>N</i> = Number of subjects.		
Source: Vitolins et al. (2002).		

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Table 11-23. Characteristics of the Feeding Infants and Toddlers Study (FITS) Sample Population		
	Sample Size	Percentage of Sample
Sex		
Males	1,549	51.3
Females	1,473	48.7
Age of Child		
4 to 6 months	862	28.5
7 to 8 months	483	16.0
9 to 11 months	679	22.5
12 to 14 months	374	12.4
15 to 18 months	308	10.2
19 to 24 months	316	10.4
Child's Ethnicity		
Hispanic or Latino	367	12.1
Non-Hispanic or Latino	2,641	87.4
Missing	14	0.5
Child's Race		
White	2,417	80.0
Black	225	7.4
Other	380	12.6
Urbanicity		
Urban	1,389	46.0
Suburban	1,014	33.6
Rural	577	19.1
Missing	42	1.3
Household Income		
Under \$10,000	48	1.6
\$10,000 to \$14,999	48	1.6
\$15,000 to \$24,999	221	7.3
\$25,000 to \$34,999	359	11.9
\$35,000 to \$49,999	723	23.9
\$50,000 to \$74,999	588	19.5
\$75,000 to \$99,999	311	10.3
\$100,000 and Over	272	9.0
Missing	452	14.9
Receives WIC		
Yes	821	27.2
No	2,196	72.6
Missing	5	0.2
Sample Size (Unweighted)	3,022	100.0
WIC = Special Supplemental Nutrition Program for Women, Infants, and Children.		
Source: Devaney et al. (2004).		

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Food Group/Food	Percentage of Infants and Toddlers Consuming at Least Once in a Day					
	4 to 6 months	7 to 8 months	9 to 11 months	12 to 14 months	15 to 18 months	19 to 24 months
Cow's Milk	0.8	2.9	20.3	84.8	88.3	87.7
Whole	0.5	2.4	15.1	68.8	71.1	58.8
Reduced-fat or Non-fat	0.3	0.5	5.3	17.7	20.7	38.1
Unflavored	0.8	2.9	19.5	84.0	87.0	86.5
Flavored	0.0	0.0	0.9	1.8	4.4	5.6
Soy Milk	0.0	0.5	1.7	1.5	3.9	3.8
Any Meat or Protein Source	14.2	54.9	79.2	91.3	92.7	97.2
Baby Food Meat	1.7	4.0	3.1	1.1	0.0	0.0
Non-baby Food Meat	1.5	8.4	33.7	60.3	76.3	83.7
Other Protein Sources	2.7	9.7	36.1	59.2	66.8	68.9
Dried Beans and Peas, Vegetarian Meat Substitutes	0.6	1.3	3.3	7.0	6.6	9.9
Eggs	0.7	2.9	7.3	17.0	25.0	25.2
Peanut Butter, Nuts, and Seeds	0.0	0.5	1.9	8.8	11.6	10.4
Cheese	0.4	2.1	18.5	34.0	39.1	41.1
Yogurt	1.2	4.1	15.7	14.9	20.2	15.3
Protein Sources in Mixed Dishes	11.0	43.3	46.2	30.1	25.5	20.5
Baby Food Dinners	9.5	39.8	33.5	10.2	2.4	1.3
Beans and Rice, Chili, Other Bean Mixtures	0.0	0.0	0.9	1.2	2.1	2.0
Mixtures with Vegetables and/or Rice/Pasta	0.9	1.2	4.7	8.2	9.0	7.8
Soup ^a	0.9	3.4	10.1	12.5	13.8	11.5
Types of Meat ^b						
Beef	0.9	2.6	7.7	16.1	16.3	19.3
Chicken or Turkey	2.0	7.3	22.4	33.0	46.9	47.3
Fish and Shellfish	0.0	0.5	1.9	5.5	8.7	7.1
Hotdogs, Sausages, and Cold cuts	0.0	2.1	7.1	16.4	20.1	27.0
Pork/Ham	0.3	1.7	4.0	9.7	11.2	13.9
Other	0.3	0.6	2.5	2.8	2.1	3.9
^a	The amount of protein actually provided by soups varies. Soups could not be sorted reliably into different food groups because all soups were assigned the same 2-digit food code and many food descriptions lacked detail about major soup ingredients.					
^b	Includes baby food and non-baby food sources.					

Source: Fox et al. (2004).

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Table 11-25. Characteristics of WIC Participants and Non-Participants^a (percentages)

	Infants 4 to 6 months		Infants 7 to 11 months		Toddlers 12 to 24 months	
	WIC Participant	Non-Participant	WIC Participant	Non-Participant	WIC Participant	Non-Participant
Sex						
Males	55	54	55	51	57	52
Females	45	46 ^b	45	49	43	48 ^b
Child's Ethnicity						
Hispanic or Latino	20	11	24	8	22	10
Non-Hispanic or Latino	80	89 ^b	76	92	78	89 ^b
Child's Race						
White	69	84	63	86	67	84
Black	15	4	17	5	13	5
Other	22	11	20	9 ^b	20	11 ^c
Child In Daycare						
Yes	39	38	34	46	43	53
No	61	62	66	54	57	47
Age of Mother						
14 to 19 years	18	1	13	1	9	1
20 to 24 years	33	13	38	11	33	14
25 to 29 years	29	29	23	30	29	26
30 to 34 years	9	33	15	36	18	34
35 years or Older	9	23	11	21	11	26
Missing	2	2 ^b	1	1 ^b	0	1 ^b
Mother's Education						
11 th Grade or Less	23	2	15	2	17	3
Completed High School	35	19	42	20	42	19
Some Postsecondary	33	26	32	27	31	28
Completed College	7	53	9	51	9	48
Missing	2	1 ^b	2	0 ^b	1	2 ^b
Parent's Marital Status						
Married	49	93	57	93	58	88
Not Married	50	7	42	7	41	11
Missing	1	1	1	0 ^c	1	1 ^c
Mother or Female Guardian Work						
Yes	46	51	45	60	55	61
No	53	48	54	40	45	38
Missing	1	1 ^b	1	0 ^b	0	1 ^b
Urbanicity						
Urban	34	55	37	50	35	48
Suburban	36	31	31	34	35	35
Rural	28	13	30	15	28	16
Missing	2	1	2	1	2	2
Sample Size (Unweighted)	265	597	351	808	205	791

^a χ^2 test were conducted to test for statistical significance in the differences between WIC participants and non-participants within each age group for each variable. The results of χ^2 test are listed next to the variable under the column labeled non-participants for each of the three age groups.

^b = $p > 0.01$; non-participants significantly different from WIC participants on the variable.

^c = $p < 0.05$; non-participants significantly different from WIC participants on the variable.

WIC = Special Supplemental Nutrition Program for Women, Infants, and Children.

Source: Ponza et al. (2004).

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Table 11-26. Food Choices for Infants and Toddlers by WIC Participation Status

	Infants 4 to 6 months		Infants 7 to 11 months		Toddlers 12 to 24 months	
	WIC Participant	Non-Participant	WIC Participant	Non-Participant	WIC Participant	Non-Participant
Cow's Milk	1.0	0.6	11.4	13.2	92.3	85.8 ^a
Meat or Other Protein Source						
Baby Food Meat	0.9	2.0	3.3	3.6	0.0	0.3
Non-baby Meat	3.7	0.5 ^b	25.0	22.0	77.7	75.1
Eggs	0.9	0.6	8.5	4.2 ^b	24.1	23.0
Peanut Butter, Nuts, Seeds	0.0	0.0	1.4	1.3	12.9	9.8
Cheese	0.0	0.6	9.0	12.5	38.5	38.8
Yogurt	0.8	1.4	5.5	13.3 ^b	9.3	18.9 ^b
Sample Size (unweighted)	265	597	351	808	205	791

^a = $p < 0.05$; non-participants significantly different from WIC participants.
^b = $p < 0.01$; non-participants significantly different from WIC participants.
WIC = Special Supplemental Nutrition Program for Women, Infants, and Children.

Source: Ponza et al. (2004).

Table 11-27. Percentage of Hispanic and Non-Hispanic Infants and Toddlers Consuming Different Types of Milk, Meats, or Other Protein Sources on a Given Day

	Age 4 to 5 months		Age 6 to 11 months		Age 12 to 24 months	
	Hispanic (N = 84)	Non-Hispanic (N = 538)	Hispanic (N = 163)	Non-Hispanic (N = 1,228)	Hispanic (N = 124)	Non-Hispanic (N = 871)
Milk						
Fed Any Cow's or Goat Milk	-	-	7.5 [†]	11.3	85.6	87.7
Fed Cow's Milk						
Whole	-	-	5.6 [†]	8.3	61.7	66.3
Reduced Fat or Non-fat	-	-	2.2 [†]	3.0	29.0	27.0
Meat or Other Protein Source						
Any Meat or Protein Source ^a	9.7 [†]	5.3	71.6	62.0	90.3	94.7
Non-baby Food Meat	-	-	22.5	19.2	72.3	76.0
Other Protein Sources	1.4 [†]	-	26.5	21.2	70.1	65.3
Beans and Peas	1.4 [†]	-	5.8 [†]	1.8	19.1 ^c	6.5
Eggs	-	-	9.5	4.2	26.4	22.5
Cheese	-	-	11.2	9.4	29.3	40.2
Yogurt	-	-	7.7	9.8	15.7	17.0
Protein Sources in Mixed Dishes	7.5 [†]	4.4	44.8	41.6	33.3	22.7
Baby Food dinners	6.9 [†]	3.9	24.7 ^c	35.3	3.5 [†]	3.9
Soup ^b	-	-	16.3 ^d	5.1	23.4 ^c	10.7
Types of Meat ^a						
Beef	-	-	5.0 [†]	4.6	25.2	16.0
Chicken and Turkey	-	-	11.2	11.9	46.5	43.6
Hotdogs, Sausages, and Cold Cuts	-	-	7.2 [†]	3.4	14.8	23.3
Pork/Ham	-	-	3.8 [†]	1.7	11.7	12.1

^a Includes baby food and non-baby food sources.
^b The amount of protein actually provided by soups varies. Soups could not be sorted reliably into different food groups because many food descriptions lacked detail about major soup ingredients.
^c = Significantly different from non-Hispanic at $p < 0.05$.
^d = Significantly different from non-Hispanic at $p > 0.01$.
- = Less than 1% of the group consumed this food on a given day.
[†] = Statistic is potentially unreliable because of a high coefficient of variation.
N = Sample size.

Source: Mennella et al. (2006).

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Table 11-28. Average Portion Sizes per Eating Occasion of Meats and Dairy Products Commonly Consumed by Infants From the 2002 Feeding Infants and Toddlers Study

Food Group	Reference Unit	4 to 5 months	6 to 8 months	9 to 11 months
		(N = 624)	(N = 708)	(N = 687)
Mean ± SE				
Non-baby food meats	ounce	-	0.9 ± 0.16	0.8 ± 0.05
Cheese	ounce	-	-	0.7 ± 0.05
Scrambled eggs	cup	-	-	0.2 ± 0.02
Yogurt	ounce	-	-	3.1 ± 0.20
Baby food dinners	ounce	2.9 ± 0.24	3.3 ± 0.09	3.8 ± 0.11
- = Cell size was too small to generate a reliable estimate.				
N = Number of respondents.				
SE = Standard error of the mean.				

Source: Fox et al. (2006).

Table 11-29. Average Portion Sizes per Eating Occasion of Meats and Dairy Products Commonly Consumed by Toddlers From the 2002 Feeding Infants and Toddlers Study

Food Group	Reference Unit	12 to 14 months	15 to 18 months	19 to 24 months
		(N = 371)	(N = 312)	(N = 320)
Mean ± SE				
Milk				
Milk	fluid ounce	5.6± 0.14	5.9± 0.14	6.2± 0.17
Milk, as a beverage	fluid ounce	5.7± 0.14	6.1± 0.14	6.4± 0.17
Milk, on cereal	fluid ounce	3.4± 0.37	2.7± 0.26	3.6± 0.29
Meats and other protein source				
All meats	ounce	1.2± 0.06	1.3± 0.08	1.3± 0.07
Beef	ounce	0.8± 0.08	1.2± 0.15	1.2± 0.14
Chicken or turkey, plain	ounce	1.3± 0.10	1.3± 0.16	1.3± 0.10
Hot dogs, luncheon meats, sausages	ounce	1.3± 0.13	1.5± 0.13	1.5± 0.12
Chicken, breaded ^a	ounce	1.5 ± 0.14	1.5± 0.13	1.8± 0.12
	nugget	2.4 ± 0.22	2.4± 0.21	2.8± 0.19
Scrambled eggs	cup	0.2± 0.02	0.3± 0.03	0.3± 0.02
Peanut butter	tablespoon	0.7± 0.08	0.7± 0.09	0.9± 0.13
Yogurt	ounce	3.4± 0.19	3.8± 0.26	3.8± 0.28
Cheese	ounce	0.8± 0.05	0.8± 0.05	0.7± 0.04
^a Not included in total for all meats because weight includes breading.				
N = Number of respondents.				
SE = Standard error of the mean.				

Source: Fox et al. (2006).

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Table 11-30. Per Capita Total Fat Intake (g/day)									
Age Group ^a	N	Mean	SE	Percentiles					
				10 th	25 th	50 th	75 th	95 th	Max
Birth to <1 year									
All	1,422	29	18	0	19	31	40	59	107
Females	728	28	17	0	18	30	39	57	92
Males	694	30	18	0	20	32	40	61	107
Birth to <1 month									
All	88	17	16	0	0	19	32	52	64
Females	50	19	15	0	0	18	29	39	52
Males	38	15	18	0	0	19	31	43	64
1 to <3 months									
All	245	22	18	0	0	27	34	47	75
Females	110	20	16	0	0	24	33	45	50
Males	135	23	19	0	0	28	34	55	75
3 to <6 months									
All	411	28	17	0.1	20	31	39	52	107
Females	223	27	17	0	16	29	38	51	74
Males	188	30	18	0.2	22	31	39	50	107
6 to <12 months									
All	678	33	17	8.5	25	34	43	62	100
Females	345	32	17	5.1	24	33	43	62	92
Males	333	34	16	11	25	34	44	62	100
1 to <2 years									
All	1,002	46	19	24	33	43	55	79	159
Females	499	45	18	25	33	43	54	77	116
Males	503	46	20	23	32	44	56	80	159
2 to <3 years									
All	994	51	21	27	37	48	60	87	197
Females	494	49	20	24	35	46	59	83	127
Males	500	52	21	29	39	50	61	89	197
3 to <6 years									
All	4,112	59	22	34	44	56	70	99	218
Females	2,018	56	21	33	43	54	68	96	194
Males	2,094	61	23	35	45	59	72	103	218
6 to <11 years									
All	1,553	68	24	41	50	66	81	111	179
Females	742	64	22	38	48	61	77	101	156
Males	811	72	25	43	55	70	86	115	179
11 to <16 years									
All	975	80	38	42	56	74	97	145	342
Females	493	69	29	37	49	65	82	123	259
Males	482	91	42	50	64	84	111	163	342

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Table 11-30. Per Capita Total Fat Intake (g/day) (continued)

Age Group ^a	N	Mean	SE	Percentiles						
				10 th	25 th	50 th	75 th	95 th	Max	
16 to <21 years										
All	743	85	47	37	54	76	108	168	463	
Females	372	79	39	35	49	75	96	154	317	
Males	371	92	53	41	57	77	114	186	463	
21 to <31 years										
All	1,412	84	45	36	53	76	104	164	445	
Females	682	65	31	30	43	59	81	126	201	
Males	730	103	48	50	68	93	125	181	445	
31 to <41 years										
All	1,628	83	43	36	52	74	106	162	376	
Females	781	64	31	29	42	58	79	121	228	
Males	847	101	45	49	69	96	127	190	376	
41 to <51 years										
All	1644	78	39	36	50	70	99	153	267	
Females	816	63	29	31	43	59	78	114	208	
Males	828	93	42	46	63	87	119	166	267	
51 to <61 years										
All	1,578	73	37	31	46	66	90	137	306	
Females	768	58	26	27	39	56	73	104	165	
Males	810	88	40	39	57	82	110	156	306	
61 to <71 years										
All	1,507	66	33	29	42	60	80	123	235	
Females	719	53	24	26	36	49	68	96	184	
Males	788	78	35	37	53	73	98	138	235	
71 to <81 years										
All	888	60	27	28	41	55	72	104	201	
Females	421	51	22	27	37	49	62	86	158	
Males	467	68	29	34	48	67	86	114	201	
81+ years										
All	392	57	29	24	36	54	69	102	227	
Females	190	49	23	22	32	48	64	84	132	
Males	202	64	32	31	43	61	82	106	227	

^a Age groups are based on U.S. EPA (2005) *Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants*.
N = Sample size.
SE = Standard error.

Source: U.S. EPA (2007).

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Table 11-31. Per Capita Total Fat Intake (g/kg-day)									
Age Group ^a	N	Mean	SE	Percentiles					
				10 th	25 th	50 th	75 th	95 th	Max
Birth to <1 year									
All	1,422	4.0	2.8	0	2.3	4.1	5.6	8.9	20
Females	728	4.1	2.8	0	2.4	4.3	5.8	8.7	18
Males	694	4.0	2.8	0	2.3	4.0	5.5	9.2	20
Birth to <1 month									
All	88	5.2	4.9	0	0	5.7	9.1	16	20
Females	50	5.9	4.6	0	0	6.2	8.4	13	16
Males	38	4.3	5.3	0	0	4.7	9.7	18	20
1 to <3 months									
All	245	4.5	3.8	0	0	4.9	6.8	12	18
Females	110	4.3	3.6	0	0	4.8	6.5	11	14
Males	135	4.7	3.9	0	0	4.9	7.0	10	18
3 to <6 months									
All	411	4.1	2.7	0	2.4	4.3	5.7	8.2	18
Females	223	4.2	2.8	0	2.3	4.5	6.0	8.2	18
Males	188	4.1	2.5	0	2.6	4.1	5.5	8.2	16
6 to <12 months									
All	678	3.7	1.8	1.0	2.7	3.8	4.8	7.0	11
Females	345	3.7	1.9	0.7	2.8	3.8	5.0	7.0	9.8
Males	333	3.6	1.7	1.3	2.6	3.7	4.6	6.8	11
1 to <2 years									
All	1,002	4.0	1.7	2.1	2.8	3.7	4.7	7.1	12
Females	499	4.1	1.6	2.2	3.0	3.7	5.0	6.9	9.7
Males	503	3.9	1.7	1.9	2.6	3.6	4.5	7.2	12
2 to <3 years									
All	994	3.6	1.5	1.9	2.6	3.4	4.4	6.4	12
Females	494	3.7	1.6	1.8	2.4	3.4	4.4	6.6	10
Males	500	3.6	1.5	2.0	2.6	3.4	4.3	6.1	12
3 to <6 years									
All	4,112	3.4	1.3	1.9	2.4	3.2	4.0	5.8	11
Females	2,018	3.4	1.3	1.8	2.4	3.1	4.0	5.8	11
Males	2,094	3.5	1.4	1.9	2.4	3.2	4.1	5.8	11
6 to <11 years									
All	1,553	2.6	1.1	1.3	1.7	2.3	3.0	4.2	9.9
Females	742	2.4	1.0	1.3	1.6	2.2	2.8	4.0	7.7
Males	811	2.7	1.1	1.4	1.8	2.4	3.1	4.4	9.9
11 to <16 years									
All	975	1.6	0.8	0.8	1.1	1.4	2.0	3.0	5.7
Females	493	1.4	0.7	0.7	0.9	1.3	1.7	2.6	5.0
Males	482	1.8	0.9	0.9	1.2	1.6	2.1	3.3	5.7

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Table 11-31. Per Capita Total Fat Intake (g/kg-day) (continued)

Age Group ^a	N	Mean	SE	Percentiles					
				10 th	25 th	50 th	75 th	95 th	Max
16 to <21 years									
All	743	1.3	0.66	0.54	0.81	1.2	1.6	2.7	6.0
Females	372	1.1	0.56	0.48	0.75	1.1	1.4	2.1	4.4
Males	371	1.4	0.73	0.63	0.85	1.2	1.7	2.9	6.0
21 to <31 years									
All	1,412	1.2	0.61	0.53	0.72	1.1	1.5	2.3	7.3
Females	682	1.0	0.52	0.44	0.65	0.9	1.3	2.0	3.7
Males	730	1.3	0.66	0.63	0.85	1.2	1.6	2.4	7.3
31 to <41 years									
All	1,628	1.1	0.55	0.49	0.69	1.0	1.4	2.1	4.7
Females	781	1.0	0.52	0.45	0.61	0.9	1.3	1.9	4.7
Males	847	1.2	0.54	0.59	0.85	1.2	1.5	2.3	4.3
41 to <51 years									
All	1,644	1.0	0.49	0.48	0.66	0.9	1.3	1.9	4.4
Females	816	0.9	0.43	0.43	0.61	0.9	1.2	1.7	2.9
Males	828	1.1	0.53	0.53	0.72	1.0	1.4	2.0	4.4
51 to <61 years									
All	1,578	0.9	0.46	0.42	0.61	0.86	1.2	1.7	3.8
Females	768	0.8	0.38	0.39	0.56	0.79	1.1	1.5	2.4
Males	810	1.0	0.50	0.47	0.65	0.95	1.3	1.9	3.8
61 to <71 years									
All	1,507	0.9	0.43	0.40	0.55	0.79	1.1	1.7	3.2
Females	719	0.8	0.39	0.36	0.50	0.74	1.0	1.5	3.2
Males	788	1.0	0.45	0.46	0.61	0.87	1.2	1.8	3.1
71 to <81 years									
All	888	0.8	0.37	0.40	0.56	0.78	1.0	1.5	3.2
Females	421	0.8	0.37	0.39	0.53	0.72	1.0	1.4	3.2
Males	467	0.9	0.37	0.42	0.61	0.82	1.1	1.5	2.6
81+ years									
All	392	0.9	0.43	0.37	0.56	0.82	1.1	1.5	3.7
Females	190	0.8	0.39	0.35	0.54	0.82	1.1	1.5	2.1
Males	202	0.9	0.47	0.39	0.56	0.82	1.1	1.6	3.7

^a Age groups are based on U.S. EPA (2005) *Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants*.
N = Sample size.
SE = Standard error.

Source: U.S. EPA (2007).

Table 11-32. Consumer-Only Total Fat Intake (g/day)										
Age Group ^a	N	Mean	SE	Percentiles						
				10 th	25 th	50 th	75 th	95 th	Max	
Birth to <1 year										
All	1,301	31	16	7.0	24	32	41	61	107	
Females	664	30	16	5.1	24	32	40	58	92	
Males	637	32	16	9.0	25	33	41	62	107	
Birth to <1 month										
All	59	26	13	6.7	17	27	32	52	64	
Females	37	26	11	7.8	17	25	32	39	52	
Males	22	25	17	-	-	-	-	-	64	
1 to <3 months										
All	182	29	14	5.8	24	31	35	53	75	
Females	79	28	12	4.3	21	30	35	46	50	
Males	103	31	16	8.5	27	31	38	59	75	
3 to <6 months										
All	384	30	16	2.5	24	32	40	54	107	
Females	205	29	16	1.2	24	31	39	52	72	
Males	179	31	17	4.6	25	33	39	53	107	
6 to <12 months										
All	676	33	16	8.9	25	34	43	62	100	
Females	343	32	17	6.2	24	34	43	62	92	
Males	333	34	16	11	25	34	44	62	100	
1 to <2 year										
All	1,002	46	19	24	33	43	55	79	159	
Females	499	45	18	25	33	43	54	77	116	
Males	503	46	20	23	32	44	56	80	159	
2 to <3 years										
All	994	51	21	27	37	48	60	87	197	
Females	494	49	20	24	35	46	59	83	127	
Males	500	52	21	29	39	50	61	89	197	
3 to <6 years										
All	4,112	59	22	34	44	56	70	99	218	
Females	2,018	56	21	33	43	54	68	96	194	
Males	2,094	61	23	35	45	59	72	103	218	
6 to <11 years										
All	1,553	68	24	41	50	66	81	111	179	
Females	742	64	22	38	48	61	77	101	156	
Males	811	72	25	43	55	70	86	115	179	
11 to <16 years										
All	975	80	38	42	56	74	97	145	342	
Females	493	69	29	37	49	65	82	123	259	
Males	482	91	42	50	64	84	111	163	342	

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Table 11-32. Consumer-Only Total Fat Intake (g/day) (continued)

Age Group ^a	N	Mean	SE	Percentiles						
				10 th	25 th	50 th	75 th	95 th	Max	
16 to <21 years										
All	743	85	47	37	54	76	108	168	463	
Females	372	79	39	35	49	75	96	154	317	
Males	371	92	53	41	57	77	114	186	463	
21 to <31 years										
All	1,412	84	45	36	53	76	104	164	445	
Females	682	65	31	30	43	59	81	126	201	
Males	730	103	48	50	68	93	125	181	445	
31 to <41 years										
All	1,628	83	43	36	52	74	106	162	376	
Females	781	64	31	29	42	58	79	121	228	
Males	847	101	45	49	69	96	127	190	376	
41 to <51 years										
All	1,644	78	39	36	50	70	99	153	267	
Females	816	63	29	31	43	59	78	114	208	
Males	828	93	42	46	63	87	119	166	267	
51 to <61 years										
All	1,578	73	37	31	46	66	90	137	306	
Females	768	58	26	27	39	56	73	104	165	
Males	810	88	40	39	57	82	110	156	306	
61 to <71 years										
All	1,507	66	33	29	42	60	80	123	235	
Females	719	53	24	26	36	49	68	96	184	
Males	788	78	35	37	53	73	98	138	235	
71 to <81 years										
All	888	60	27	28	41	55	72	104	201	
Females	421	51	22	27	37	49	62	86	158	
Males	467	68	29	34	48	67	86	114	201	
81+ years										
All	392	57	29	24	36	54	69	102	227	
Females	190	49	23	22	32	48	64	84	132	
Males	202	64	32	31	43	61	82	106	227	

^a Age groups are based on U.S. EPA (2005) *Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants*.
 - = Percentiles were not calculated for sample sizes less than 30.
 N = Sample size.
 SE = Standard error.

Source: U.S. EPA (2007).

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Table 11-33. Consumer-Only Total Fat Intake (g/kg-day)									
Age Group ^a	N	Mean	SE	Percentiles					
				10 th	25 th	50 th	75 th	95 th	Max
Birth to <1 year									
All	1,301	4.4	2.6	0.94	2.9	4.3	5.8	9.2	20
Females	664	4.5	2.6	0.67	3.1	4.5	6.0	8.9	18
Males	637	4.3	2.6	1.2	2.8	4.1	5.6	9.3	20
Birth to <1 month									
All	59	7.8	4.1	1.4	5.4	8.0	9.7	16	20
Females	37	8.0	3.5	2.0	5.3	7.7	9.1	13	16
Males	22	7.4	4.9	-	-	-	-	-	20
1 to <3 months									
All	182	6.0	3.1	1.0	4.1	6.0	7.8	12	18
Females	79	5.9	2.9	0.80	4.3	6.0	7.7	12	14
Males	103	6.1	3.3	1.8	4.1	6.0	7.8	12	18
3 to <6 months									
All	384	4.4	2.5	0.35	3.1	4.5	5.8	8.3	18
Females	205	4.5	2.6	0.14	3.1	4.7	6.1	8.2	18
Males	179	4.3	2.4	0.57	3.1	4.2	5.6	8.8	16
6 to <12 months									
All	676	3.7	1.8	1.0	2.7	3.8	4.8	7.0	11
Females	343	3.7	1.9	0.75	2.8	3.8	5.0	7.0	9.8
Males	333	3.6	1.7	1.3	2.6	3.7	4.6	6.8	11
1 to <2 years									
All	1,002	4.0	1.7	2.1	2.8	3.7	4.7	7.1	12
Females	499	4.1	1.6	2.2	3.0	3.7	5.0	6.9	9.7
Males	503	3.9	1.7	1.9	2.6	3.6	4.5	7.2	12
2 to <3 years									
All	994	3.6	1.5	1.9	2.6	3.4	4.4	6.4	12
Females	494	3.7	1.6	1.8	2.4	3.4	4.4	6.6	10
Males	500	3.6	1.5	2.0	2.6	3.4	4.3	6.1	12
3 to <6 years									
All	4,112	3.4	1.3	1.9	2.4	3.2	4.0	5.8	11
Females	2,018	3.4	1.3	1.8	2.4	3.1	4.0	5.8	11
Males	2,094	3.5	1.4	1.9	2.4	3.2	4.1	5.8	11
6 to <11 years									
All	1,553	2.6	1.1	1.3	1.7	2.3	3.0	4.2	9.9
Females	742	2.4	1.0	1.3	1.6	2.2	2.8	4.0	7.7
Males	811	2.7	1.1	1.4	1.8	2.4	3.1	4.4	9.9
11 to <16 years									
All	975	1.6	0.80	0.77	1.1	1.4	2.0	3.0	5.7
Females	493	1.4	0.69	0.67	0.91	1.3	1.7	2.6	5.0
Males	482	1.8	0.86	0.88	1.2	1.6	2.1	3.3	5.7

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Table 11-33 Consumer-Only Total Fat Intake (g/kg-day) (continued)

Age Group ^a	N	Mean	SE	Percentiles						
				10 th	25 th	50 th	75 th	95 th	Max	
16 to <21 years										
All	743	1.3	0.66	0.54	0.81	1.2	1.6	2.7	6.0	
Females	372	1.1	0.56	0.48	0.75	1.1	1.4	2.1	4.4	
Males	371	1.4	0.73	0.63	0.85	1.2	1.7	2.9	6.0	
21 to <31 years										
All	1,412	1.2	0.61	0.53	0.72	1.1	1.5	2.3	7.3	
Females	682	1.0	0.52	0.44	0.65	0.93	1.3	2.0	3.7	
Males	730	1.3	0.66	0.63	0.85	1.2	1.6	2.4	7.3	
31 to <41 years										
All	1,628	1.1	0.55	0.49	0.69	1.0	1.4	2.1	4.7	
Females	781	0.98	0.52	0.45	0.61	0.91	1.3	1.9	4.7	
Males	847	1.2	0.54	0.59	0.85	1.2	1.5	2.3	4.3	
41 to <51 years										
All	1,644	1.0	0.49	0.48	0.66	0.94	1.3	1.9	4.4	
Females	816	0.92	0.43	0.43	0.61	0.86	1.2	1.7	2.9	
Males	828	1.1	0.53	0.53	0.72	1.0	1.4	2.0	4.4	
51 to <61 years										
All	1,578	0.94	0.46	0.42	0.61	0.86	1.2	1.7	3.8	
Females	768	0.83	0.38	0.39	0.56	0.79	1.1	1.5	2.4	
Males	810	1.0	0.50	0.47	0.65	0.95	1.3	1.9	3.8	
61 to <71 years										
All	1,507	0.88	0.43	0.40	0.55	0.79	1.1	1.7	3.2	
Females	719	0.79	0.39	0.36	0.50	0.74	0.99	1.5	3.2	
Males	788	0.95	0.45	0.46	0.61	0.87	1.2	1.8	3.1	
71 to <81 years										
All	888	0.82	0.37	0.40	0.56	0.78	1.0	1.5	3.2	
Females	421	0.77	0.37	0.39	0.53	0.72	0.95	1.4	3.2	
Males	467	0.87	0.37	0.42	0.61	0.82	1.1	1.5	2.6	
81+ years										
All	392	0.86	0.43	0.37	0.56	0.82	1.1	1.5	3.7	
Females	190	0.83	0.39	0.35	0.54	0.82	1.1	1.5	2.1	
Males	202	0.89	0.47	0.39	0.56	0.82	1.1	1.6	3.7	

^a Age groups are based on U.S. EPA (2005) *Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants*.
- = Percentiles were not calculated for sample sizes less than 30.
N = Sample size.
SE = Standard error.

Source: U.S. EPA (2007).

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Table 11-34. Consumer-Only Total Fat Intake—Top 10% of Animal Fat Consumers (g/day)									
Age Group ^a	N	Mean	SE	Percentiles					
				10 th	25 th	50 th	75 th	95 th	Max
Birth to <1 year									
All	140	45	16	28	35	45	54	77	100
Females	70	45	15	26	35	45	54	69	92
Males	70	45	17	28	34	44	53	79	100
1 to <2 years									
All	109	75	20	52	61	74	85	108	159
Females	54	68	16	52	57	70	78	89	114
Males	55	81	22	54	67	78	90	125	159
2 to <3 years									
All	103	79	20	55	64	74	85	116	133
Females	58	77	16	55	65	74	79	109	116
Males	45	81	24	52	61	73	90	121	133
3 to <6 years									
All	461	88	25	62	72	84	102	135	218
Females	217	84	24	59	68	80	95	130	194
Males	244	92	25	66	76	90	103	136	218
6 to <11 years									
All	198	94	25	66	77	88	105	140	178
Females	71	88	21	58	70	86	100	123	156
Males	127	97	27	69	78	91	112	168	178
11 to <16 years									
All	96	133	53	85	95	121	154	223	342
16 to <21 years									
All	68	167	64	98	122	154	189	278	463
11 to <21 years									
All	165	146	60	90	105	139	168	254	463
Females	53	117	30	81	92	111	140	162	195
Males	112	160	65	94	117	151	191	276	463
21 to <31 years									
All	150	151	55	97	113	139	173	236	445
Females	44	115	31	80	97	108	131	160	201
Males	106	166	56	107	128	161	177	254	445
31 to <41 years									
All	148	147	51	93	110	135	172	352	376
Females	48	120	33	79	93	106	132	160	228
Males	100	160	53	110	125	149	201	352	376
41 to <51 years									
All	166	137	42	88	110	136	156	208	267
Females	49	110	30	72	86	103	130	150	208
Males	117	148	41	106	119	142	166	218	267

Chapter 11—Intake of Meats, Dairy Products, and Fats

Table 11-34. Consumer-Only Total Fat Intake—Top 10% of Animal Fat Consumers (g/day) (continued)

Age Group ^a	N	Mean	SE	Percentiles					
				10 th	25 th	50 th	75 th	95 th	Max
51 to <61 years									
All	183	127	41	80	98	118	144	206	306
Females	39	96	27	63	74	86	106	126	165
Males	144	135	41	96	112	122	151	214	306
61 to <71 years									
All	168	114	35	74	88	108	133	183	235
Females	47	91	24	68	74	87	103	120	184
Males	121	123	35	87	102	117	140	197	235
71 to <81 years									
All	104	98	28	65	76	92	109	144	201
81+ years									
All	40	97	37	60	67	86	104	137	227
71+ years									
All	144	98	30	62	72	91	107	144	227
Females	50	83	25	54	63	72	95	123	147
Males	94	105	30	76	88	97	115	165	227

^a Age groups are based on U.S. EPA (2005) *Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants*.

N = Sample size.

SE = Standard error.

Source: U.S. EPA (2007).

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Age Group ^a	N	Mean	SE	Percentiles					
				10 th	25 th	50 th	75 th	95 th	Max
Birth to <1 year									
All	140	4.7	1.7	2.8	3.7	4.6	6.0	7.7	11
Females	70	4.8	1.6	2.7	3.7	4.7	6.0	7.7	9.5
Males	70	4.6	1.7	2.8	3.6	4.4	5.8	7.5	11
1 to <2 years									
All	109	6.9	1.5	5.1	5.7	6.8	7.7	9.5	12
Females	54	6.6	1.2	5.1	5.7	6.7	7.4	9.3	9.7
Males	55	7.1	1.6	5.1	5.8	6.9	8.0	9.4	12
2 to <3 years									
All	103	6.1	1.3	4.6	5.2	5.8	6.7	8.3	9.5
Females	58	6.2	1.2	4.6	5.2	5.9	6.8	7.9	9.5
Males	45	6.1	1.3	4.5	5.2	5.6	6.6	8.4	9.5
3 to <6 years									
All	461	5.6	1.3	4.2	4.7	5.3	6.2	8.3	11
Females	217	5.5	1.3	4.2	4.5	5.3	6.0	7.8	11
Males	244	5.7	1.3	4.2	4.8	5.3	6.2	8.4	11
6 to <11 years									
All	198	4.2	1.1	3.0	3.4	3.8	4.6	6.0	9.9
Females	71	4.2	1.1	2.9	3.3	3.8	4.8	5.8	7.7
Males	127	4.2	1.1	3.0	3.4	3.8	4.5	6.3	9.9
11 to <16 years									
All	96	3.0	0.85	2.0	2.4	2.8	3.3	4.6	5.7
16 to <21 years									
All	68	2.5	0.74	1.7	2.0	2.4	2.9	3.7	6.0
11 to <21 years									
All	165	2.8	0.84	1.9	2.1	2.7	3.1	4.4	6.0
Females	53	2.6	0.65	1.7	2.0	2.3	2.7	3.4	4.6
Males	112	2.9	0.90	1.9	2.3	2.8	3.1	4.5	6.0
21 to <31 years									
All	150	2.2	0.73	1.5	1.7	2.1	2.4	3.2	7.3
Females	44	2.0	0.54	1.5	1.8	1.9	2.3	3.1	3.7
Males	106	2.2	0.79	1.6	1.7	2.1	2.4	3.2	7.3
31 to <41 years									
All	148	2.1	0.59	1.5	1.7	1.9	2.4	3.9	4.7
Females	48	2.1	0.62	1.5	1.7	1.9	2.2	2.8	4.7
Males	100	2.1	0.58	1.5	1.6	2.0	2.6	3.9	4.3
41 to <51 years									
All	166	1.8	0.49	1.3	1.5	1.8	2.1	2.8	4.0
Females	49	1.8	0.45	1.3	1.4	1.8	2.1	2.6	2.9
Males	117	1.9	0.50	1.4	1.6	1.8	2.0	2.8	4.0

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Table 11-35. Consumer-Only Total Fat Intake—Top 10% of Animal Fat Consumers (g/kg-day)(continued)

Age Group ^a	N	Mean	SE	Percentiles					
				10 th	25 th	50 th	75 th	95 th	Max
51 to <61 years									
All	183	1.7	0.46	1.2	1.3	1.6	1.9	2.5	3.8
Females	39	1.5	0.34	1.1	1.3	1.4	1.7	2.0	2.4
Males	144	1.7	0.48	1.2	1.4	1.6	1.9	2.6	3.8
61 to <71 years									
All	168	1.6	0.42	1.2	1.3	1.5	1.8	2.5	3.2
Females	47	1.6	0.42	1.1	1.3	1.5	1.7	2.3	3.2
Males	121	1.6	0.43	1.2	1.3	1.5	1.8	2.5	3.1
71 to <81 years									
All	104	1.4	0.37	1.0	1.1	1.3	1.5	2.0	3.2
81+ years									
All	40	1.6	0.48	1.1	1.2	1.4	1.7	2.0	3.7
71+ years									
All	144	1.4	0.41	1.0	1.1	1.3	1.6	2.0	3.7
Females	50	1.4	0.41	0.96	1.1	1.4	1.6	1.8	3.2
Males	94	1.5	0.41	1.1	1.2	1.3	1.5	2.1	3.7

^a Age groups are based on U.S. EPA (2005) *Guidance on Selecting Age Groups for Monitoring and Assessing Childhood Exposures to Environmental Contaminants*.

N = Sample size
SE = Standard error.

Source: U.S. EPA (2007).

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Age	N	Mean	SD	Percentiles					Minimum	Maximum
				10 th	25 th	50 th	75 th	90 th		
Total Fat Intake										
6 months	125	37.1	17.5	18.7	25.6	33.9	46.3	60.8	3.4	107.6
1 year	99	59.1	26.0	29.1	40.4	56.1	71.4	94.4	21.6	152.7
2 years	135	86.7	41.3	39.9	55.5	79.2	110.5	141.1	26.5	236.4
3 years	106	91.6	38.8	50.2	63.6	82.6	114.6	153.0	32.6	232.5
4 years	219	98.6	56.1	46.0	66.8	87.0	114.6	163.3	29.3	584.6
10 years	871	93.2	50.8	45.7	60.5	81.4	111.3	154.5	14.6	529.5
13 years	148	107.0	53.9	53.0	69.8	90.8	130.7	184.1	9.8	282.2
15 years	108	97.7	48.7	46.1	65.2	85.8	124.0	165.2	10.0	251.3
17 years	159	107.8	64.3	41.4	59.7	97.3	140.2	195.1	8.5	327.4
Total Animal Fat										
6 months	125	18.4	16.0	0.7	4.2	13.9	28.4	42.5	0.0	61.1
1 year	99	36.5	20.0	15.2	23.1	33.0	45.9	65.3	0.0	127.1
2 years	135	49.5	28.3	20.1	28.9	42.1	66.0	81.4	10.0	153.4
3 years	106	50.1	29.4	21.3	29.1	42.9	64.4	88.9	14.1	182.6
4 years	219	50.8	31.7	21.4	28.1	42.6	66.4	92.6	5.9	242.2
10 years	871	54.1	39.6	20.3	30.6	45.0	64.6	97.5	0.0	412.3
13 years	148	56.2	39.8	19.8	28.5	44.8	72.8	109.4	4.7	209.6
15 years	108	53.8	35.1	15.9	28.3	44.7	67.9	105.8	0.6	182.1
17 years	159	64.4	48.5	15.2	30.7	51.6	86.6	128.8	2.6	230.3
Total Vegetable Fat Intake										
6 months	125	9.2	12.8	0.6	1.2	2.8	11.6	29.4	0.0	53.2
1 year	99	15.4	14.3	3.7	6.1	11.3	18.1	38.0	0.2	70.2
2 years	135	19.3	16.3	3.8	7.9	14.8	26.6	42.9	0.7	96.6
3 years	106	21.1	15.5	3.9	8.6	18.7	26.6	45.2	1.0	70.4
4 years	219	24.5	18.6	5.7	10.4	21.8	33.3	48.5	0.9	109.0
10 years	871	23.7	21.6	4.3	9.5	18.3	30.6	49.0	0.6	203.7
13 years	148	34.3	27.4	8.4	17.9	31.2	44.6	57.5	0.0	238.3
15 years	108	27.3	22.8	5.1	11.9	22.6	38.1	54.4	0.7	132.2
17 years	159	25.7	21.3	4.2	11.7	20.8	32.9	47.6	0.0	141.5
Total Fish Fat Intake										
6 months	125	0.05	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.9
1 year	99	0.05	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.9
2 years	135	0.04	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.9
3 years	106	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	4.5
4 years	219	2.3	31.1	0.0	0.0	0.0	0.0	0.0	0.0	459.2
10 years	871	0.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	19.2
13 years	148	0.3	2.2	0.0	0.0	0.0	0.0	0.0	0.0	25.4
15 years	108	0.4	1.5	0.0	0.0	0.0	0.0	1.5	0.0	9.5
17 years	159	0.5	2.0	0.0	0.0	0.0	0.0	0.4	0.0	15.3
N = Sample size. SD = Standard deviation. Source: Frank et al. (1986).										

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Table 11-37. Fat Intake Among Children Based on Data From the Bogalusa Heart Study, 1973–1982 (g/kg-day)

Age	N	Mean	SD	Percentiles					Minimum	Maximum
				10 th	25 th	50 th	75 th	90 th		
Total Fat Intake										
6 months	125	4.9	2.3	2.4	3.3	4.7	6.2	8.0	0.4	13.2
1 year	99	6.1	2.8	3.0	4.1	5.7	7.5	9.5	2.3	16.4
2 years	132	7.0	3.3	3.4	4.5	6.2	8.6	11.9	2.1	18.7
3 years	106	6.4	2.7	3.6	4.6	5.5	8.2	9.9	2.2	16.7
4 years	218	6.1	3.7	2.9	4.0	5.2	7.0	10.0	2.0	38.2
10 years	861	2.7	1.5	1.2	1.7	2.4	3.3	4.5	0.3	13.9
13 years	147	2.3	1.3	1.0	1.5	2.0	2.8	3.8	0.2	10.2
15 years	105	1.7	0.8	0.8	1.2	1.5	2.1	3.1	0.2	4.7
17 years	149	1.8	1.0	0.7	0.9	1.6	2.2	3.1	0.2	6.2
Total Animal Fat										
6 months	125	2.4	2.1	0.08	0.6	2.0	3.7	5.5	0.0	9.0
1 year	99	3.8	2.1	1.7	2.4	3.4	4.9	6.5	0.0	13.6
2 years	132	4.0	2.3	1.7	2.3	3.4	5.2	6.7	0.7	13.4
3 years	106	3.5	2.0	1.6	2.1	3.1	4.2	6.1	0.9	13.1
4 years	218	3.1	2.1	1.3	1.7	2.6	4.0	5.4	0.4	15.4
10 years	861	16	1.2	0.6	0.8	1.3	1.9	2.8	0.00	10.8
13 years	147	1.2	0.9	0.4	0.6	0.9	1.6	2.3	0.08	5.2
15 years	105	1.0	0.6	0.3	0.5	0.8	1.3	1.9	0.01	3.1
17 years	149	1.0	0.8	0.3	0.5	0.8	1.4	2.0	0.05	4.2
Total Vegetable Fat Intake										
6 months	125	1.2	1.8	0.08	0.2	0.4	1.6	4.1	0.0	8.2
1 year	99	1.6	1.6	0.4	0.6	1.2	1.9	3.8	0.02	7.6
2 years	132	1.6	1.4	0.3	0.7	1.1	2.0	3.5	0.06	8.5
3 years	106	1.5	1.1	0.3	0.6	1.4	2.0	3.0	0.08	5.1
4 years	218	1.5	1.2	0.4	0.6	1.2	2.1	2.8	0.06	7.3
10 years	861	0.7	0.6	0.1	0.3	0.5	0.9	1.4	0.02	4.2
13 years	147	0.8	0.8	0.2	0.4	0.6	0.9	1.3	0.0	8.6
15 years	105	0.5	0.4	0.09	0.2	0.4	0.7	0.9	0.01	2.2
17 years	149	0.4	0.4	0.07	0.2	0.4	0.6	0.9	0.0	2.1
Total Fish Fat Intake										
6 months	125	0.01	0.02	0.0	0.0	0.0	0.0	0.02	0.0	0.1
1 year	99	0.01	0.03	0.0	0.0	0.0	0.0	0.0	0.0	0.2
2 years	132	0.003	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.2
3 years	106	0.01	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.3
4 years	218	0.2	2.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0
10 years	861	0.01	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.6
13 years	147	0.01	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.4
15 years	105	0.01	0.03	0.0	0.0	0.0	0.0	0.04	0.0	0.2
17 years	149	0.01	0.03	0.0	0.0	0.0	0.0	0.008	0.0	0.2

N = Sample size.
SD = Standard deviation.
Source: Frank et al. (1986).

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Table 11-38. Mean Percent Moisture and Total Fat Content of Selected Meat and Dairy Products^a

Product	Moisture Content (%)	Total Fat Content (%)	Comment
Meat			
Beef (composite of trimmed retail cuts; all grades)	70.62	6.16	Raw; lean only
	59.25	9.91	Cooked; lean only
	60.44	19.24	Raw; lean and fat, 1/4 in fat trim
Pork (composite of trimmed retail cuts)	51.43	21.54	Cooked; lean and fat, 1/4 in fat trim
	72.34	5.88	Raw; lean only
	60.31	9.66	Cooked; lean only
	65.11	14.95	Raw; lean and fat
Cured ham	54.55	17.18	Cooked; lean and fat
	63.46	12.90	Center slice, unheated; lean and fat
Cured bacon	55.93	8.32	Raw, center slice, country style; lean only
	40.20	45.04	Raw
	12.52	43.27	Cooked, baked
	12.32	41.78	Cooked, broiled
	12.12	40.30	Cooked, pan-fried
Lamb (composite of trimmed retail cuts)	16.49	37.27	Cooked, microwaved
	73.42	5.25	Raw; lean only
	61.96	9.52	Cooked; lean only
	60.70	21.59	Raw; lean and fat, 1/4 in fat trim
Veal (composite of trimmed retail cuts)	53.72	20.94	Cooked; lean and fat, 1/4 in fat trim
	75.91	2.87	Raw; lean only
	60.16	6.58	Cooked; lean only
Rabbit (domesticated)	72.84	6.77	Raw; lean and fat, 1/4 in fat trim
	57.08	11.39	Cooked; lean and fat, 1/4 in fat trim
	72.82	5.55	Raw
	60.61	8.05	Cooked, roasted
	58.82	8.41	Cooked, stewed
Chicken (broilers or fryers)	75.46	3.08	Raw; meat only
	66.81	6.71	Cooked, stewed; meat only
	63.79	7.41	Cooked, roasted; meat only
	57.53	9.12	Cooked, fried; meat only
	65.99	15.06	Raw; meat and skin
	63.93	12.56	Cooked, stewed; meat and skin
	59.45	13.60	Cooked, roasted; meat and skin
Duck (domesticated)	52.41	14.92	Cooked, fried, flour; meat and skin
	73.77	5.95	Raw; meat only
	64.22	11.20	Cooked, roasted; meat only
	48.50	39.34	Raw; meat and skin
Turkey (all classes)	51.84	28.35	Cooked, roasted; meat and skin
	74.16	2.86	Raw; meat only
	64.88	4.97	Cooked, roasted; meat only
	70.40	8.02	Raw; meat and skin
	61.70	9.73	Cooked, roasted; meat and skin
	71.97	8.26	Raw; ground
	59.42	13.15	Cooked; ground

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Table 11-38. Mean Percent Moisture and Total Fat Content of Selected Meat and Dairy Products^a (continued)

Product	Moisture Content (%)	Total Fat Content (%)	Comment
Dairy			
Milk			
Whole	88.32	3.25	3.25% milkfat
Human	87.50	4.38	Whole, mature, fluid
Lowfat (1%)	89.81	0.97	Fluid, with added non-fat milk solids and vitamin A
Reduced fat (2%)	88.86	1.92	Fluid, with added non-fat milk solids and vitamin A
Skim or fat free	90.38	0.25	Fluid, with added non-fat milk solids and vitamin A
Cream			
Half and half	80.57	11.50	Fluid
Light (coffee cream or table cream)	73.75	19.31	Fluid
Heavy-whipping	57.71	37.00	Fluid
Sour	70.95	20.96	Cultured
Sour, reduced fat	80.14	12.00	Cultured
Butter	15.87	81.11	Salted
Cheese			
American	39.16	31.25	Pasteurized
Cheddar	36.75	33.14	
Swiss	37.12	27.80	
Cream	53.75	34.87	
Parmesan	29.16; 20.84	25.83; 28.61	Hard; grated
Cottage, lowfat	82.48; 79.31	1.02; 1.93	1% fat; 2% fat
Colby	38.20	32.11	
Blue	42.41	28.74	
Provolone	40.95	26.62	
Mozzarella	50.01; 53.78	22.35; 15.92	Whole milk; Skim milk
Yogurt	85.07; 87.90	1.55; 3.25	Plain, lowfat; Plain, with fat
Egg	75.84	9.94	Chicken, whole raw, fresh

^a Based on the water and lipid content in 100 grams, edible portion. Total Fat Content = saturated, monosaturated, and polyunsaturated. For additional information, consult the USDA nutrient database.

Source: USDA (2007).