



Food Surveys Research Group  
Dietary Data Brief No. 61  
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# Cheese Consumption by U.S. Adults

What We Eat in America, NHANES 2017 - 2018

Rhonda S. Sebastian, MA; Joseph D. Goldman, MA; and  
Alanna J. Moshfegh, MS, RDN

## Highlights

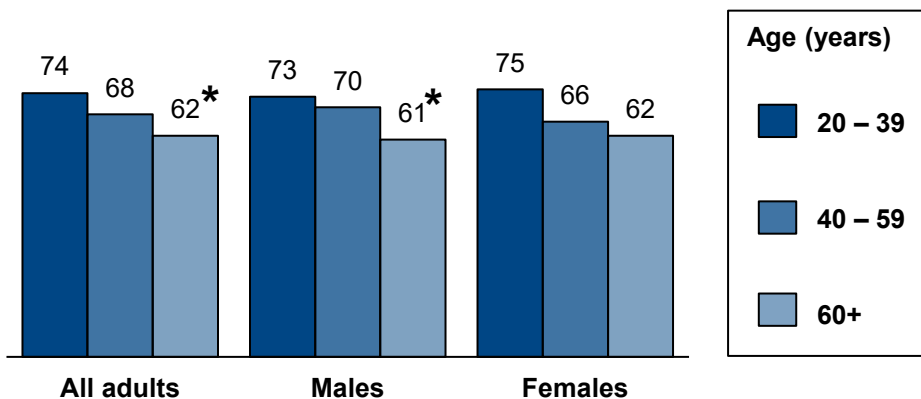
- ▶ Overall, 68% of adults consume cheese, alone or as an ingredient, on any given day. Intake does not differ by gender, but there is an inverse trend in prevalence of cheese consumption by age.
- ▶ A lower percentage of non-Hispanic Asian adults consume cheese relative to other race/ethnic groups.
- ▶ The majority (56%) of cheese consumed is obtained from grocery stores.
- ▶ Mean daily intake of cheese is 34 grams/day. Mixed dishes (e.g., sandwiches, pizza) account for 70% of total intake.
- ▶ More than half (54%) of adults consume a mixed dish containing cheese on any given day.
- ▶ On a 1,000 kilocalorie basis, relative to non-consumers, cheese consumers have higher intake of total and saturated fat, and calcium and lower intake of carbohydrate and dietary fiber.
- ▶ Among consumers, cheese accounts for 7% of total daily energy intake, 12% of protein, 13% of total fat, 23% of saturated fat, and 33% of calcium.

Cheese is a highly consumed food that is a rich source of energy and many nutrients (1, 2). It accounts for approximately half of per capita availability of dairy in the U.S. (3). However, because it is often consumed as an ingredient in foods such as sandwiches and pizza, assessing dietary intake of cheese is not straightforward. To date, research has described dairy intake in “cup equivalents”, a term that makes sense for milk and yogurt but less so for cheese (3, 4; see definition of “cup equivalents on page 8). The purpose of this report is to characterize cheese intake- inclusive of cheese consumed as an ingredient- by U.S. adults. Intake estimates in grams (g) are included. This analysis is based on one day of dietary intake data from What We Eat in America (WWEIA), National Health and Nutrition Examination Survey (NHANES) 2017- 2018. A complementary report (Dietary Data Brief No. 60) describes cheese intake among U.S. children 2-19 years.

## What percentage of adults consume cheese, and does it differ by gender and age?

Overall, 68% of adults consume cheese on any given day with no statistical difference by gender (69% of males versus 68% of females). An inverse linear trend in the percentage consuming cheese by age was found among all adults and among males ( $p < 0.001$ ; Figure 1).

**Figure 1. Prevalence (%) of cheese consumption among adults age 20+ years, by gender and age, WWEIA, NHANES 2017 - 2018**



\*For all adults and by gender, inverse linear trend in cheese consumption by age ( $p < 0.001$ ) based on regression analysis.

SOURCE: WWEIA, NHANES 2017 - 2018, day 1, adults 20 years of age and older.



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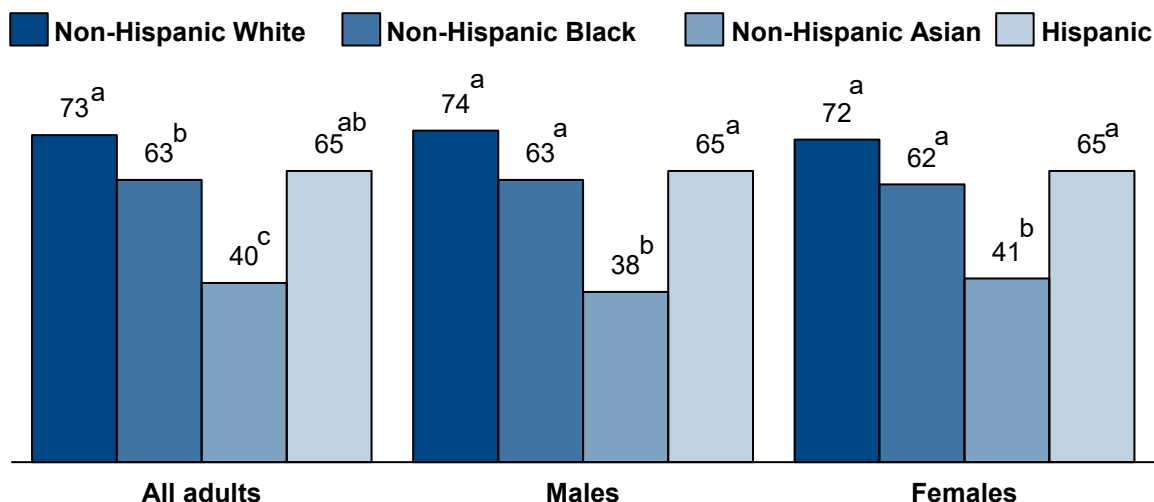
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## Does the prevalence of cheese consumption differ by race/ethnicity or family income?

Non-Hispanic (NH) Asian adults are less likely to consume cheese on the intake day as compared to NH White, NH Black, and Hispanic adults (Figure 2). This difference is seen among all adults as well as by gender.

As shown in Figure 3, there are no statistically significant differences in the prevalence of cheese consumption by income ( $p>0.001$ ).

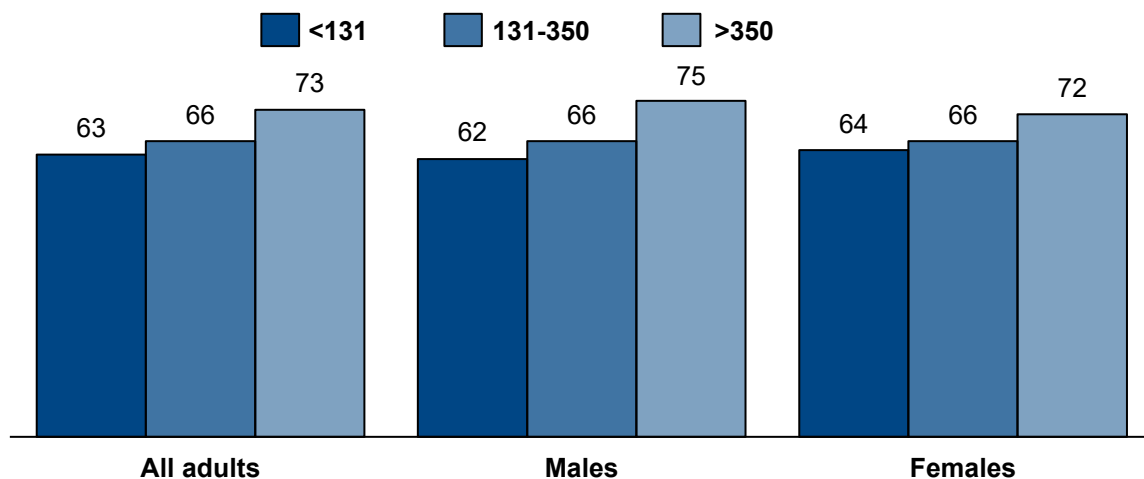
**Figure 2. Prevalence (%) of cheese consumption among adults age 20+ years, by gender and race/ethnicity, WWEIA, NHANES 2017- 2018**



<sup>a,b,c</sup>For all adults and by gender, percentage estimates with different superscripts differ by race/ethnicity ( $p<0.001$ ) based on a two-tailed *t*-test.

SOURCE: WWEIA, NHANES 2017 - 2018, day 1, adults 20 years of age and older.

**Figure 3. Prevalence (%) of cheese consumption among adults age 20+ years, by gender and family income as % of poverty level<sup>1</sup>, WWEIA, NHANES 2017- 2018**



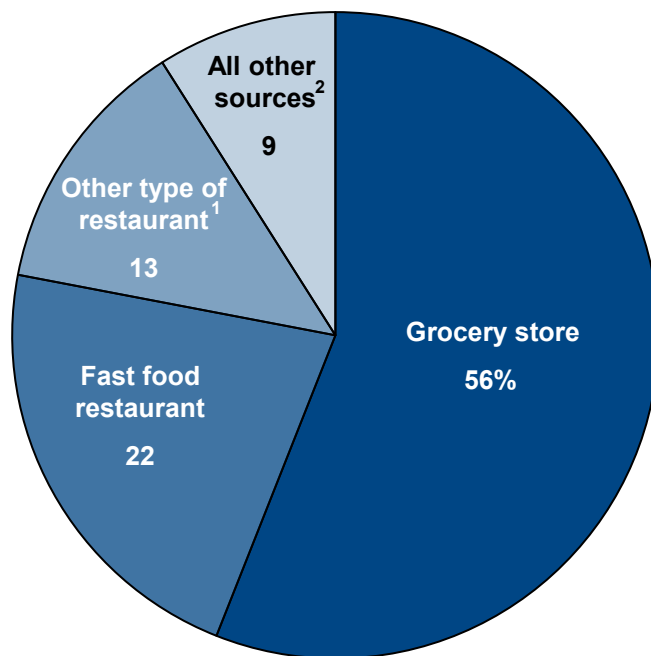
<sup>1</sup>Ratio of family income to the federal poverty guidelines expressed as a percentage. See definition of “family income” on page 8.

SOURCE: WWEIA, NHANES 2017 - 2018, day 1, adults 20 years of age and older.

## From what sources is cheese obtained?

The majority of cheese is obtained from grocery stores (Figure 4). Restaurants, fast food and other types, are the other main source of cheese.

**Figure 4. Source of cheese among adults age 20+ years, WWEIA, NHANES 2017- 2018**



<sup>1</sup>Includes restaurant with waiter/waitress service; bar/tavern/lounge; cafeteria; and restaurant, not further specified.

<sup>2</sup>Includes sources not specifically shown, e.g., someone else/gift and convenience store.

SOURCE: WWEIA, NHANES 2017 - 2018, day 1, adults 20 years of age and older.

## At what eating occasions is cheese consumed?

As shown in Table 1, adults consume cheese at all types of occasions, with nearly 4 in 10 (39%) consuming it at dinner. The mean intake ranges from 27 g at breakfast to about 1-1/2 times that amount- 39 g- at dinner.

**Table 1. Percentage consuming cheese at specified eating occasion<sup>1</sup> and mean intake when consumed at that occasion, adults age 20+ years, WWEIA, NHANES 2017- 2018**

	Breakfast	Lunch	Dinner	Snack
<b>Adults consuming (%)</b>	<b>13</b>	<b>31</b>	<b>39</b>	<b>15</b>
<b>Intake (grams)</b>	<b>27</b>	<b>33</b>	<b>39</b>	<b>31</b>

<sup>1</sup>See definition of "eating occasion" on page 8.

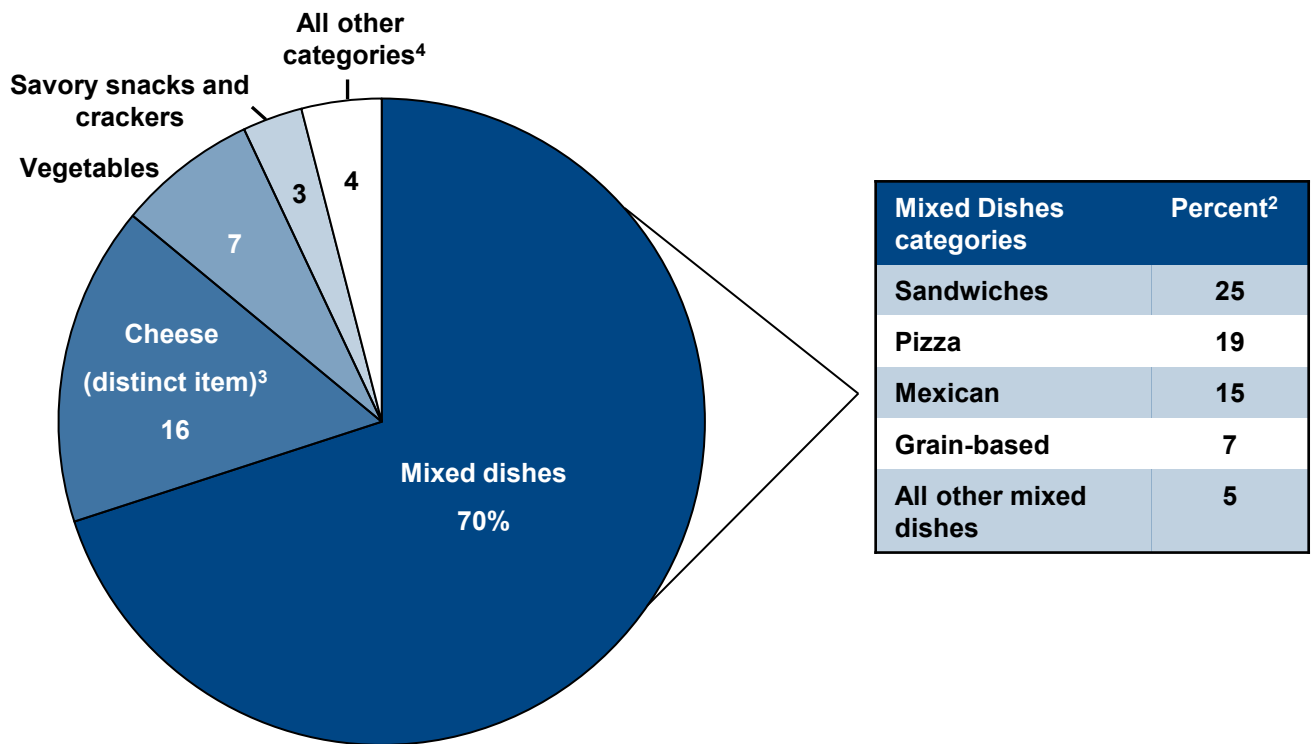
SOURCE: WWEIA, NHANES 2017 - 2018, day 1, adults 20 years of age and older.

### What types of foods account for cheese intake?

Among adults, total mean intake of cheese is 34 grams per day. Most of that intake is consumed in mixed dishes, including sandwiches, pizza, and Mexican foods such as tacos, burritos, and quesadillas (Figure 5).

By weight, natural cheese (e.g., cheddar), comprises 75% of intake by adults, processed cheese (e.g., American), 17%, and cottage cheese, 8% (*data not shown*).

**Figure 5. Percentage of total cheese intake consumed by WWEIA Food Category<sup>1</sup> among adults age 20+ years, WWEIA, NHANES 2017 – 2018**



<sup>1</sup>See definition of “WWEIA Food Categories” on page 8.

<sup>2</sup>Percentages do not add to total (70) due to rounding.

<sup>3</sup>Denotes cheese consumed that is not an ingredient in a multi-ingredient food or added to another item. Examples are a cheese stick or a dish of cottage cheese.

<sup>4</sup>Includes Protein foods (3%) and Grains (1%).

SOURCE: WWEIA, NHANES 2017 - 2018, day 1, adults 20 years of age and older.

## In what food categories is cheese commonly consumed?

A detailed way of characterizing contributors to cheese intake is to examine the prevalence of consumption and weight of report by food category. More than half of all U.S. adults consume cheese in a mixed dish on any given day (54 percent; Table 2). The amount of cheese consumed per report of a mixed dish is 32 g overall, but ranges from 16 g per report of macaroni and cheese to 53 g per report of pizza.

**Table 2. Percentage of adults consuming cheese-containing foods in WWEIA Food Categories and mean amount of cheese per report, age 20+ years, 2017 – 2018**

WWEIA Food Category <sup>1</sup>	Consumers <sup>2</sup> of cheese-containing item(s) in specified category (%)	Mean amount of cheese per report (grams)
<b>Mixed Dishes</b>	<b>54</b>	<b>32</b>
Sandwiches	27	27
Burgers	8	26
Deli/cured meat	8	29
Egg/breakfast	6	18
Cheese	3	40
Pizza	11	53
Mexican	11	36
Burritos and tacos	7	37
Grain-based	10	21
Pasta mixed dishes, excludes macaroni and cheese	6	25
Macaroni and cheese	3	16
<b>Cheese (distinct item)<sup>3</sup></b>	<b>10</b>	<b>50</b>
Cheese, natural and processed	9	37
Cottage cheese	1	153
<b>Vegetables</b>	<b>11</b>	<b>20</b>
Vegetables excluding potatoes	9	19
Lettuce/lettuce-based salads	6	19
<b>Savory snacks and crackers</b>	<b>9</b>	<b>13</b>
Savory snacks	5	6
Crackers	4	20
<b>Protein Foods</b>	<b>4</b>	<b>19</b>
<b>Grains</b>	<b>2</b>	<b>14</b>

<sup>1</sup>See definition of “WWEIA Food Categories” on page 8.

<sup>2</sup>See definition of “consumer/non-consumer” on page 8.

<sup>3</sup>Denotes cheese consumed that is *not* an ingredient in a multi-ingredient food or added to another item. Examples are a cheese stick or a dish of cottage cheese.

SOURCE: WWEIA, NHANES 2017 - 2018, day 1, adults 20 years of age and older.

## Does intake of nutrients per 1,000 kilocalories differ between cheese consumers and non-consumers?

When considered on a 1,000 kilocalories basis, intake of fat, saturated fat, and calcium is higher among cheese consumers (Table 3). Except for total fat intake among males, these differences are also seen by gender. In contrast, lower intakes of carbohydrate are seen among cheese consumers (all and by gender) and dietary fiber (all adults only). Intake of other nutrients shown below do not differ on this basis.

Overall, cheese is low in carbohydrate, added sugars, and dietary fiber. The daily intake of these nutrients among cheese consumers shown is attributable to foods other than cheese that are consumed.

**Table 3. Mean daily intake of selected nutrients per 1,000 kilocalories<sup>1</sup> by cheese consumption<sup>2</sup> status among adults age 20+ years, all and by gender, 2017 – 2018**

Nutrient	All adults		Males		Females	
	C	NC	C	NC	C	NC
<b>Macronutrients/food components:</b>						
Protein (g)	38	38	38	38	37	38
Carbohydrate (g)	113*	125	111*	123	114*	128
Added sugars (tsp eq.)	7	8	7	8	8	8
Dietary fiber (g)	8*	9	7	9	8	9
Total fat (g)	42*	38	42	38	43*	37
Saturated fat (g)	14*	11	14*	11	14*	11
Cholesterol	145	148	147	148	143	148
<b>Vitamins:</b>						
Vitamin A (mcg RAE)	316	329	289	289	341	366
Vitamin B12 (mcg)	2	2	2	2	2	2
Vitamin D (mcg)	2	2	2	2	2	2
<b>Minerals:</b>						
Calcium (mg)	478*	372	468*	350	489*	397
Sodium (mg)	1661	1580	1688	1579	1628	1581

Abbreviations: C, consumer; NC, non-consumer kcal, kilocalories; g, grams; tsp eq, teaspoon equivalents; mcg, micrograms; RAE, retinol activity equivalents; mg, milligrams.

<sup>1</sup>See definition of “kilocalories” on page 8.

<sup>2</sup>See definition of “consumer/nonconsumer” on page 8.

\*Intake is significantly different by cheese consumption status ( $p < 0.001$ ) based on a two-tailed t-test.

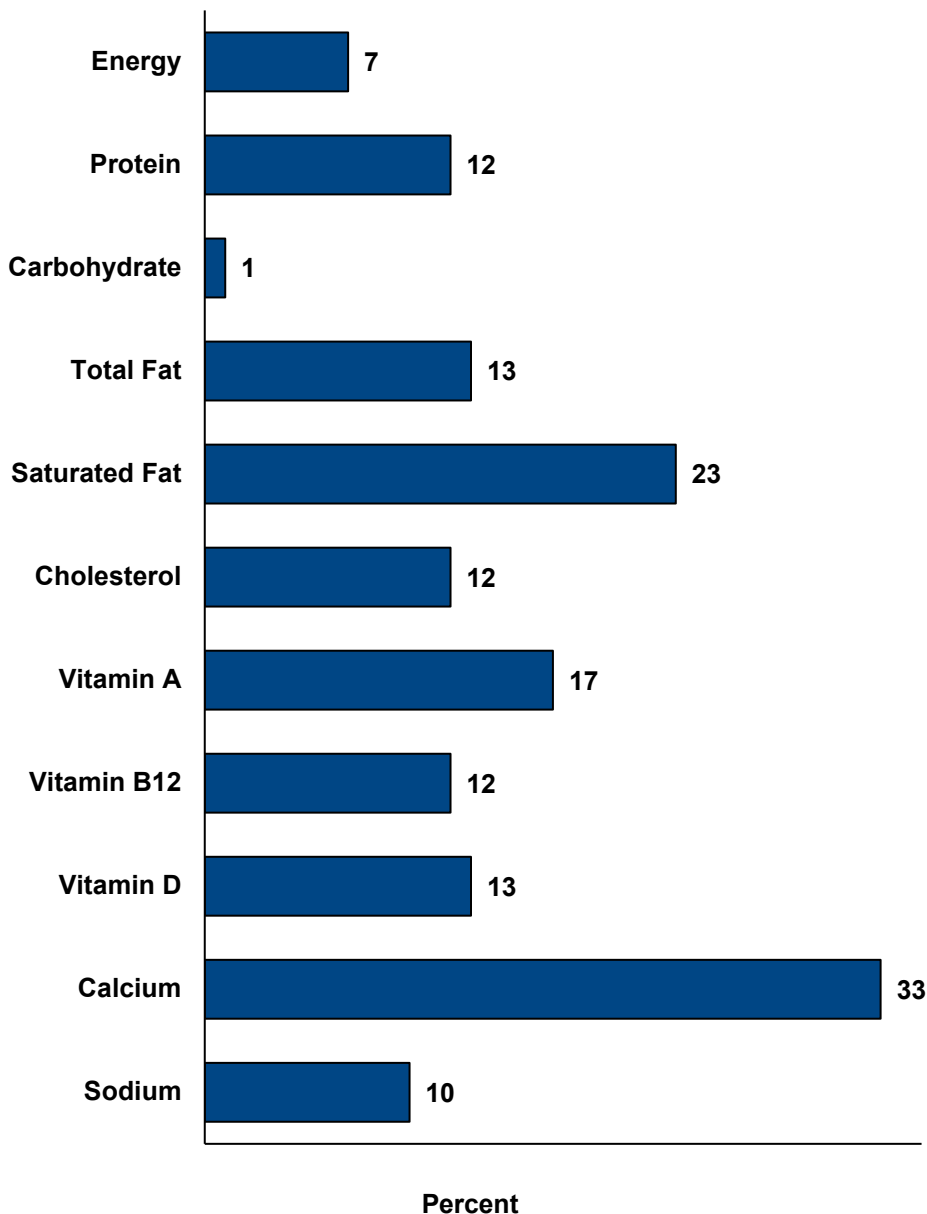
SOURCE: WWEIA, NHANES 2017 - 2018, day 1, adults 20 years of age and older.

## Among consumers, how much does cheese contribute to total daily intakes of energy and nutrients?

Cheese contributes an average of 164 kilocalories to the intakes of adult consumers, as well as 13 g of total fat, 7 g of saturated fat, and 365 mg of calcium (*data not shown*).

Except for carbohydrate, the percentage contributions of cheese to total daily intake of the nutrients shown are higher than its energy contribution. In fact, contributions to saturated fat and calcium intake are more than three and four times higher, respectively. Conversely, the contribution of cheese to intake of dietary fiber, added sugars, and potassium is no more than 2 percent of total daily intake (*data not shown*).

**Figure 6. Contributions of cheese to total daily intakes of energy and selected nutrients among cheese consumers<sup>1</sup>, adults age 20+ years, 2017 – 2018**



<sup>1</sup>See definition of “consumer/non-consumer” on page 8.

SOURCE: WWEIA, NHANES 2017 - 2018, day 1, adults 20 years of age and older.

## Definitions

**Consumer/non-consumer:** In general, anyone who consumed cheese alone or as an ingredient in any type of food was considered a “consumer,” whereas anyone who did not was considered a “non-consumer.” In all, 2,918 adults were classified as cheese consumers (1,433 males and 1,485 females), and 1,824 were classified as non-consumers (874 males and 950 females). Classification as a consumer or non-consumer for this analysis has no implications as to habitual consumption.

**Cup equivalents:** a standard that determines comparable amounts of various foods in a food group for the purpose of comparing dietary intake to national recommendations (5). In the dairy group, one cup equivalent is the amount of food considered equal to 1 cup of milk. In general, 1 cup of yogurt equals 1 cup equivalent of dairy. However, translation of cheese amounts to cup equivalents of dairy varies both by cheese type (e.g., natural, processed, cottage) and the specific cheese within that type (e.g., for natural cheese, Swiss, cheddar, blue). The ranges of cheese amounts that constitute one cup equivalent of dairy are as follows: natural cheese, 1 to 2 ounces; processed cheese, 1-1/2 to 2 ounces; cottage cheese, 4-1/2 to 10-1/2 ounces (6). (Note: 1 ounce = 28.35 grams). National intake estimates of cheese in cup equivalents are available at [www.ars.usda.gov/northeast-area/beltsville-md-bhnrc/beltsville-human-nutrition-research-center/food-surveys-research-group/docs/fped-data-tables/](http://www.ars.usda.gov/northeast-area/beltsville-md-bhnrc/beltsville-human-nutrition-research-center/food-surveys-research-group/docs/fped-data-tables/).

**Eating occasion:** Designated by the respondent, eating occasions with the following English and Spanish names were grouped together: breakfast, desayuno, and almuerzo; lunch, brunch, and comida; dinner, supper, and cena; and snack, drink, merienda, entre comida, botana, bocadillo, tentempie, bebida, and items consumed over an extended period of time. The time an eating occasion occurs has no implications as to its type, e.g., breakfast occasions could occur at all times of day and night.

**Family income (as percentage of poverty level):** the ratio of family income to poverty expressed as a percentage. The Department of Health and Human Services’ poverty guidelines were used as the poverty measure to calculate the ratio (7).

**Kilocalories:** Scientific unit used in reporting the energy content of food; shortened to “calories” in casual usage in the U.S.

**WWEIA Food Categories:** Available at [www.ars.usda.gov/Services/docs.htm?docid=23429](http://www.ars.usda.gov/Services/docs.htm?docid=23429) is a full list of the WWEIA Food Categories, a scheme for classifying each food and beverage reported in WWEIA, NHANES into one of 169 mutually exclusive categories. In contrast to the WWEIA Food Categories’ item-by-item classification, this analysis classified as a group any foods or beverages that were represented in the dietary data by two or more items linked as having been consumed together. In such cases, all the linked items were classified together into the most appropriate WWEIA Food Category. For example, a ham and cheese sandwich represented in the dietary data as white bread, deli ham, American cheese, and mayonnaise would be assigned to the “deli and cured meat sandwiches” group, along with similar sandwiches that were not represented by multiple items, i.e., the “single-code sandwiches” that make up the WWEIA Food Category “mixed dishes - sandwiches (single code) – deli and cured meat sandwiches.”



## Data source

Estimates in this data brief are based on one day of dietary intake data from WWEIA, NHANES 2017-2018 (8). Day 1 dietary data were collected in person using the 5-step USDA Automated Multiple-Pass Method for the 24-hour recall. A total of 4,742 individuals 20 years of age and older (2,307 males and 2,435 females) provided complete and reliable dietary intake data. Pregnant (n = 48) and lactating (n = 38) females were retained. In the race-specific analyses (see page 2), individuals who were multi-racial or of a racial group other than those listed (236 adults, of whom 150 were cheese consumers) were excluded. Likewise, in the income-specific analyses (also on page 2), individuals with missing family income information (558 adults, of whom 334 were cheese consumers) were excluded. Sample weights were applied in all analyses to produce estimates that were representative of the U.S. population for the years of collection. Intakes of energy and nutrients were calculated using the 2017-2018 version of USDA's Food and Nutrient Database for Dietary Studies (9). Intake of added sugars was calculated using the Food Patterns Equivalents Database 2017-2018 (6).

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## About the authors

Rhonda S. Sebastian, Joseph D. Goldman, and Alanna J. Moshfegh are with the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, MD.

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