



Consumption of Eggs/Omelets and Egg Sandwiches by U.S. Children

What We Eat in America, NHANES 2017 – March 2020

Food Surveys Research Group
Dietary Data Brief No. 65
May 2025

Rhonda S. Sebastian, MA; Sara B. Crawford, PhD;
and Alanna J. Moshfegh, MS, RDN

Highlights

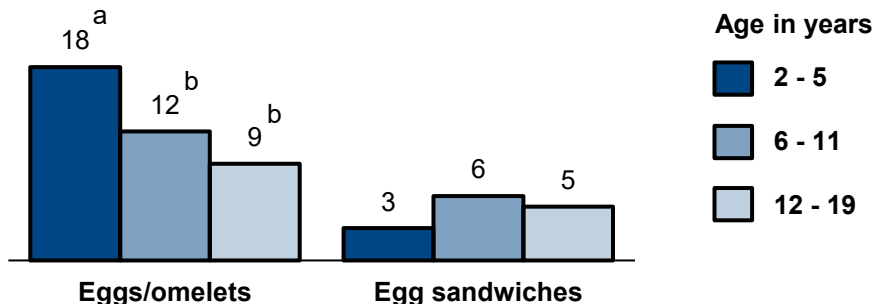
- ▶ On any given day, 12% of children consume eggs as an individual item or in an omelet, and 5% consume an egg sandwich.
- ▶ A higher percentage of children 2-5 years consumed eggs/omelets as compared to older children.
- ▶ Hispanic children are more likely to consume eggs/omelets than are non-Hispanic Black and White children.
- ▶ Over 2/3 of eggs/omelets and egg sandwiches are consumed at breakfast.
- ▶ Eggs/omelets provide an average of 179 kilocalories when consumed on the intake day, whereas egg sandwiches provide 447 kilocalories.
- ▶ On a 1,000 kilocalorie basis, consumers of these egg items have lower intakes of carbohydrate and higher intakes of fat, monounsaturated fat, choline and (egg/omelet consumers only) Vitamin D.
- ▶ Among consumers, eggs/omelets and egg sandwiches account for 48-49% of daily intake of choline and 24 to 31% of vitamins A and D.

Consumption of nutritious foods is key to growth and development in childhood. Eggs are a rich source of high-quality protein, several vitamins, selenium, and other nutritionally beneficial food components (1,2). Research has shown that consumption of eggs promotes higher intake of several nutrients (3) and may reduce risk of inadequate intake of those that are typically low in the diets of children (4). Eggs are an ingredient in a wide range of foods; however, among U.S. children, 71% of eggs are consumed as an individual item (e.g., scrambled eggs) or in an omelet (hereafter termed “eggs/omelets”), or in an egg sandwich (see definition of “eggs” on page 8). In this report, intake of eggs/omelets and egg sandwiches by children 2 - 19 years is presented. 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 – March 2020. A complementary report (Dietary Data Brief No. 66) describes egg consumption by U.S. adults 20 years of age and older.

What percentage of children consume eggs/omelets and egg sandwiches, and does it differ by age or sex?

On any given day, 12% of children consume eggs/omelets and 5% consume egg sandwiches (data not shown). Children 2-5 years more likely to consume eggs/omelets as compared to those 6-11 years and 12-19 years (Figure 1; $p < 0.01$). However, egg sandwich consumption is not statistically different by age. Furthermore, the percentage of children consuming eggs/omelets and egg sandwiches does not differ by sex (data not shown).

Figure 1. Prevalence (%) of consumption of eggs/omelets and egg sandwiches¹ among children 2-19 years by age, WWEIA, NHANES 2017 – March 2020



¹See definition of “eggs” on page 8.

^{a,b}Within egg category, estimates with different superscripts differ by age ($p < 0.01$) based on a two-sided t-test.

SOURCE: WWEIA, NHANES 2017 – March 2020, day 1, children 2 - 19 years of age.



U.S. DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Beltsville Human Nutrition Research Center
Food Surveys Research Group

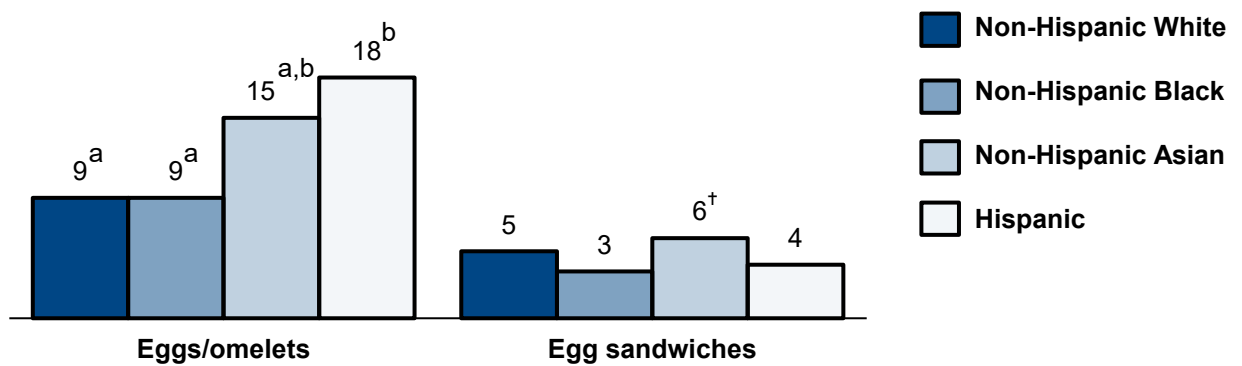
www.ars.usda.gov/nea/bhnrc/fsrg

Does consumption of eggs/omelets and egg sandwiches differ by race/ethnicity or family income?

Compared to non-Hispanic (NH) White and Black children, those of Hispanic origin are more likely to consume eggs/omelets. This finding is driven by differences in the younger age groups. Among 2-5 year olds, 31% of Hispanic children consume eggs/omelets versus 14% and 9% of NH White and NH Black children, respectively ($p < 0.01$; *data not shown*). Moreover, Hispanic children 6-11 years are more likely than NH Black children to consume eggs/omelets on the intake day (18% versus 7%). However, the percentage of children consuming egg sandwiches does not differ by race/ethnicity (Figure 2).

Prevalence of egg/omelet consumption among children in the lowest family income group is higher than among those in the middle family income group (Figure 3).

Figure 2. Prevalence (%) of consumption of eggs/omelets and egg sandwiches¹ among children 2-19 years, by race/ethnicity, WWEIA, NHANES 2017 – March 2020



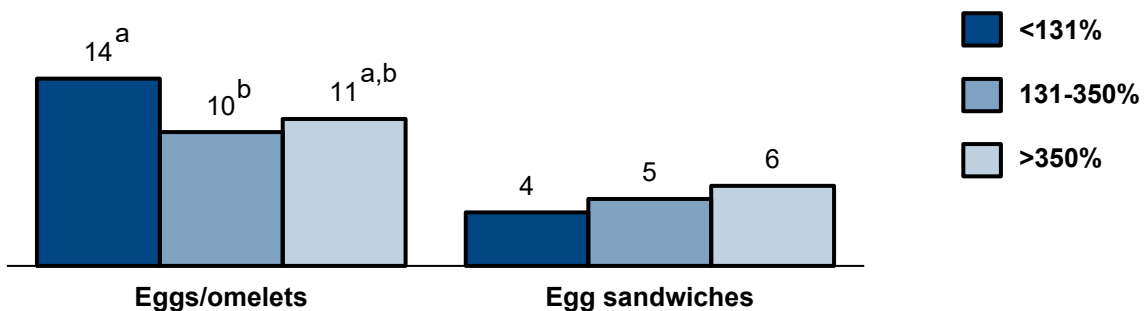
¹See definition of “eggs” on page 8.

^{a,b}Within egg category, percentage estimates with different superscripts differ by race/ethnicity ($p < 0.01$) based on a two-tailed t-test.

[†]Estimate is less precise than others presented due to small sample size.

SOURCE: WWEIA, NHANES 2017 – March 2020, day 1, adults 20 years of age and older.

Figure 3. Prevalence (%) of consumption of eggs/omelets and egg sandwiches¹ among children 2-19 years, by family income as % of poverty level², WWEIA, NHANES 2017- March 2020



¹See definition of “eggs” on page 8.

²Ratio of family income to the federal poverty guidelines expressed as a percentage. See definition of “family income” on page 8.

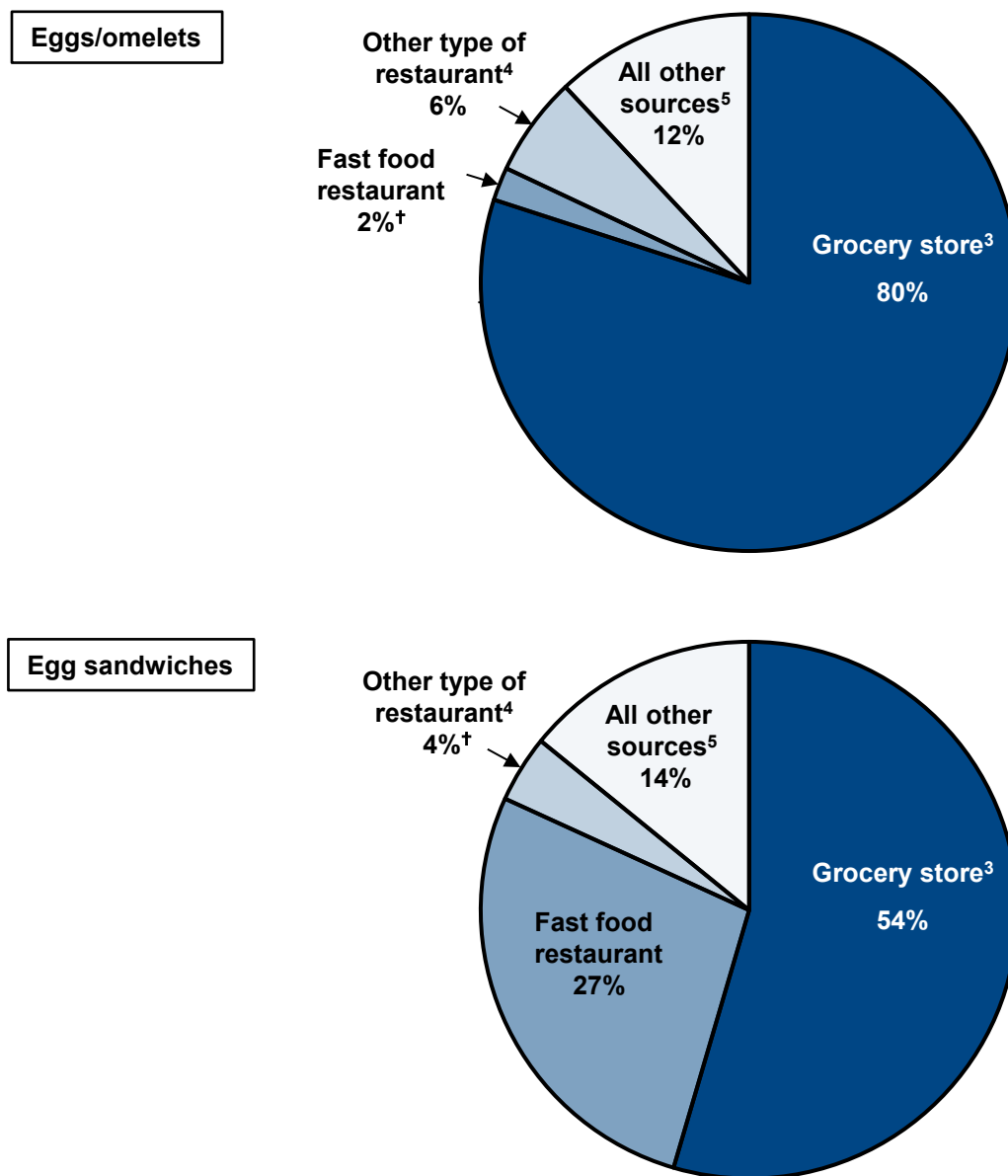
^{a,b}Within egg category, percentage estimates with different superscripts differ by family income ($p > 0.01$) based on a two-tailed t-test.

SOURCE: WWEIA, NHANES 2017 – March 2020, day 1, adults 20 years of age and older.

From what sources are eggs/omelets and egg sandwiches obtained?

The principal source of both eggs/omelets and egg sandwiches among children is grocery stores (Figure 4). Fast food restaurants are also a notable source of egg sandwiches, accounting for more than one quarter of all reports.

Figure 4. Percentage (%)¹ of egg/omelet and egg sandwich² reports by source, children 2 - 19 years, WWEIA, NHANES 2017- March 2020



¹Estimates may not add to 100 due to rounding.

²See definition of “eggs” on page 8.

³Includes supermarkets, warehouse clubs, specialty stores, and ethnic food stores.

⁴Includes restaurant with waiter/waitress service; cafeteria; and restaurant, not further specified.

⁵Includes sources not specifically shown, e.g., someone else/gift and convenience store.

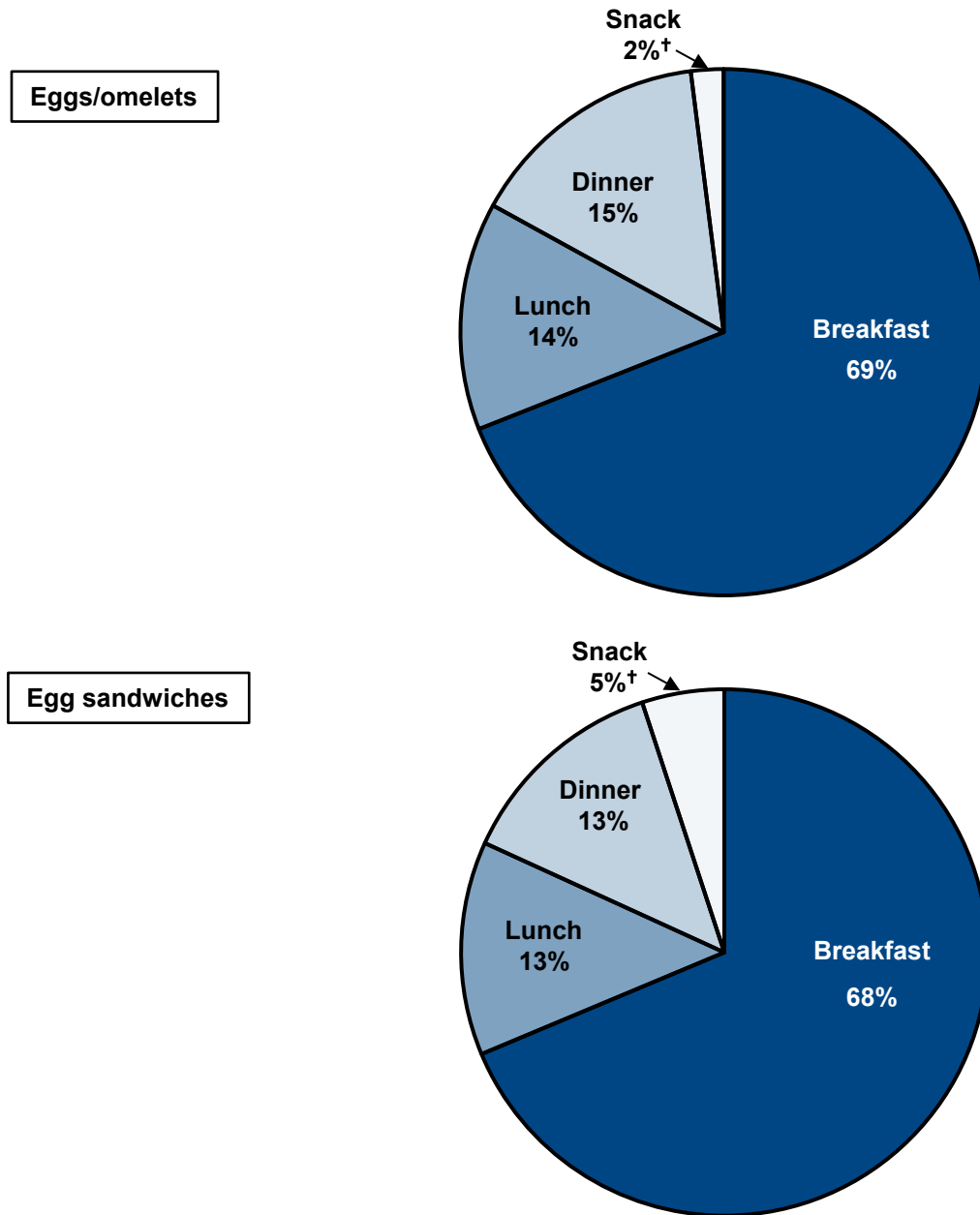
[†]Estimate is less precise than others presented due to small sample size.

SOURCE: WWEIA, NHANES 2017 – March 2020, day 1, children 2-19 years.

At what eating occasions are eggs/omelets and egg sandwiches consumed?

For both eggs/omelets and egg sandwiches, over two-thirds of items in these categories are consumed at breakfast (Figure 5). Among all age groups of children, over 50% of reports of these foods are consumed at breakfast (*data not shown*).

Figure 5. Percentage (%)¹ of egg/omelet and egg sandwich² reports by eating occasion³ at which they are consumed, children 2 - 19 years, WWEIA, NHANES 2017- March 2020



¹Estimates may not add to 100 due to rounding.

²See definition of “eggs” on page 8.

³See definition of “eating occasion” on page 8.

[†]Estimate is less precise than others presented due to small sample size.

SOURCE: WWEIA, NHANES 2017 – March 2020, day 1, children 2-19 years.

How much energy do eggs/omelets and egg sandwiches provide to children who consume them?

Eggs/omelets provide on average 179 kilocalories to children who consume them on any given day, and egg sandwiches average more than double that amount (447 kilocalories; *data not shown*). This pattern of greater energy contribution from egg sandwiches is seen for all age groups of children (Table 1). Common non-egg ingredients such as bread, cheese, and meat explain why 46% of children who consume an egg sandwich on the intake day obtain a fifth or more of their total daily energy intake from these foods (*data not shown*).

Table 1. Mean daily contribution to energy per consumer¹ of eggs/omelets and egg sandwiches² and examples, children 2 – 19 years, WWEIA, NHANES 2017 – March 2020

	Mean energy contribution per consumer (kilocalories ³)			Examples of egg in category; portion size (energy content) ⁴
	2 - 5 years	6 - 11 years	12 - 19 years	
Eggs/omelets	146	166	224	Egg omelet or scrambled egg, made with fat 3 eggs (318)
Egg sandwiches	219 [†]	419 [†]	525	Egg, cheese and ham on an English muffin 1 regular sandwich (322)

¹See definition of “consumer/nonconsumer” on page 8.

²See definition of “eggs” on page 8.

³See definition of “kilocalories” on page 8.

⁴Portion sizes and associated energy content available in the Food and Nutrient Database for Dietary Studies (FNDDS; 5).

⁵In this example, the energy contributions of the individual ingredients are as follows: egg, whole 214 calories; oil, 104 calories.

⁶In this example, the energy contributions of the individual ingredients are as follows: English muffin, 135 calories; egg, whole, fried, 101 calories; ham, 12 calories; cheese, 74 calories.

[†]Estimate is less precise than others presented due to small sample size.

SOURCE: WWEIA, NHANES 2017 – March 2020, day 1, children 2 – 19 years.

Does total daily intake of nutrients per 1,000 kilocalories differ between consumers and non-consumers of eggs/omelets and egg sandwiches?

Total daily intake of several nutrients differ between consumers and non-consumers of eggs/omelets on a 1,000 kilocalorie basis (Table 2). Protein, total fat, cholesterol, vitamin A, choline, vitamin D, and potassium intake are higher among consumers, but carbohydrate is lower. Findings related to total fat, cholesterol, carbohydrate, and choline are consistent across all age groups of children (*data not shown*). Some, but not all of these same differences are seen between children who consume an egg sandwich on the intake day and those who do not (Table 2).

Table 2. Mean daily intake from all foods and beverages of select nutrients per 1,000 kilocalories¹ among consumers¹ of eggs/omelets and egg sandwiches², children 2 – 19 years, 2017 – March 2020

Nutrient	Eggs/omelets		Egg sandwiches	
	Consumers	Non-consumers	Consumers	Non-consumers
Macronutrients/food components:				
Protein (g)	39*	35	37	35
Carbohydrate (g)	119*	130	119*	129
Added sugars (tsp eq.)	7*	9	8	9
Dietary fiber (g)	8	8	6*	8
Total fat (g)	42*	39	42*	39
Saturated fat (g)	14	13	15*	13
Monounsaturated fat (g)	14*	13	14*	13
Polyunsaturated fat (g)	9	9	9	9
Cholesterol (mg)	277*	100	201*	117
Vitamins:				
Vitamin A (mcg RAE)	363*	295	292	303
Vitamin B12 (mcg)	2.3	2.3	2.1	2.3
Choline (mg)	230*	119	170*	130
Vitamin D (mcg)	3.6*	2.5	2.7	2.6
Vitamin E (mg)	4.2	4.0	3.6*	4.0
Minerals:				
Calcium (mg)	535	528	532	528
Potassium (mg)	1192*	1115	973*	1131
Sodium (mg)	1542	1563	1591	1559

Abbreviations: g, grams; tsp eq, teaspoon equivalents; mcg, micrograms; RAE, retinol activity equivalents; mg, milligrams.

¹See definitions on page 8.

²See definition of “eggs” on page 8.

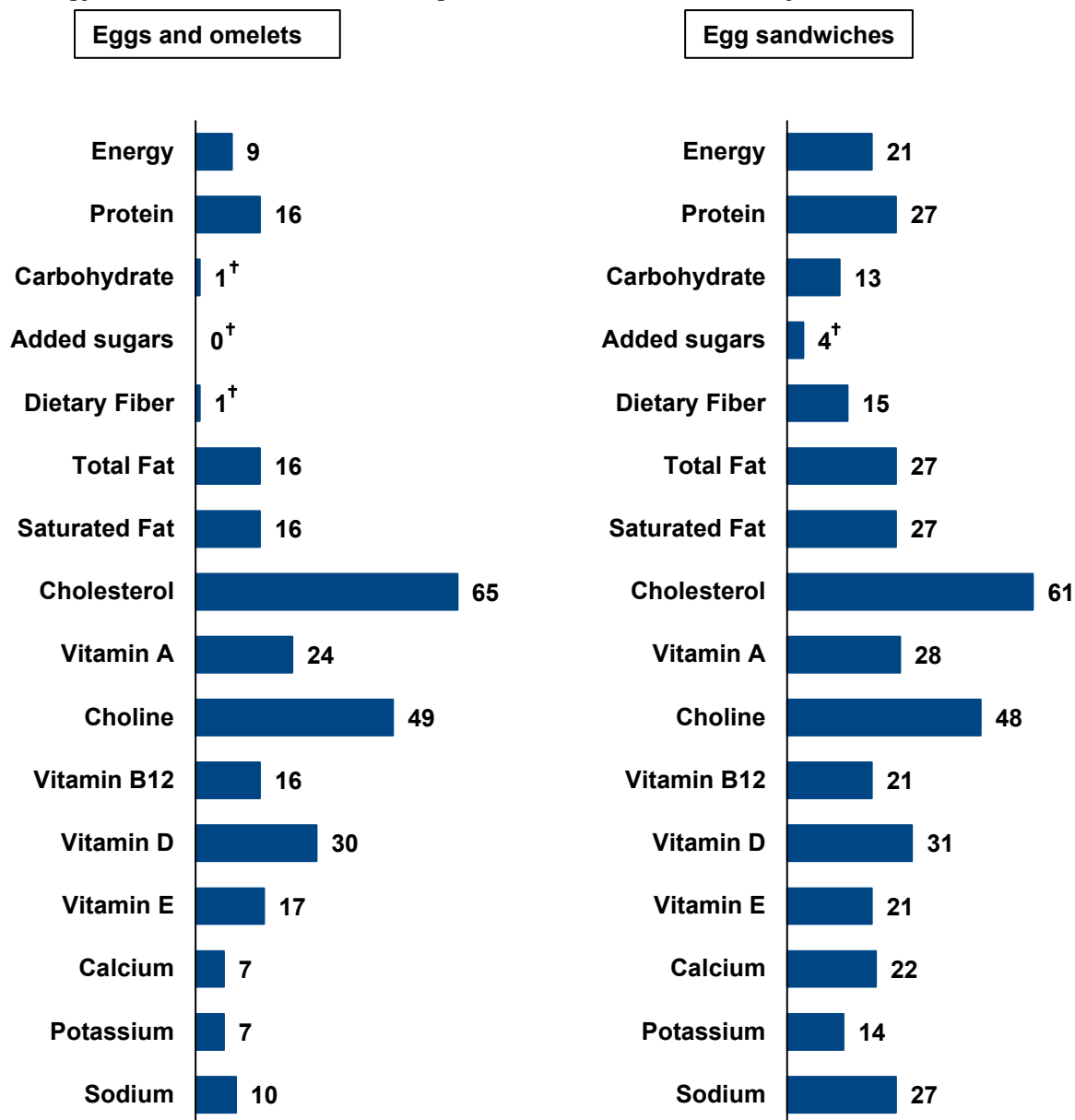
*Within egg group, intake is significantly different from non-consumers ($p < 0.01$) based on a two-tailed t-test.

SOURCE: WWEIA, NHANES 2017 - 2018, day 1, children 2 – 19 years of age.

How much do eggs/omelets and egg sandwiches contribute to mean daily intakes of energy and nutrients among children who consume them?

Among consumers, nutrients provided by these foods that meet or exceed their average energy contributions are protein; total fat; saturated fat, vitamins A, B12, D, and E; sodium; and most notably, cholesterol and choline (Figure 7). Vitamin D is underconsumed by most children, whereas saturated fat and sodium are regularly consumed above their recommended limits (6). Common ingredients of egg sandwiches explain their overall larger contributions to nutrients relative to eggs/omelets. These ingredients include bread, which contributes carbohydrate and dietary fiber, components that are very low/not present in eggs, and cheese, which contributes protein, fat, saturated fat, calcium, and sodium.

Figure 7. Percentage (%) contributions of eggs/omelets and egg sandwiches to mean daily intakes of energy and selected nutrients among consumers², children 2 – 19 years, 2017 – March 2020



¹See definition of “eggs” on page 8.

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

[†]Estimate less statistically reliable than other estimates presented due to small sample size.

SOURCE: WWIEA, NHANES 2017 – March 2020, day 1, children 2 – 19 years of age..

Definitions

Consumer/non-consumer: In general, children who consumed eggs as eggs/omelets and/or an egg sandwich on the intake day were considered a “consumer,” whereas those who did not were considered a “non-consumer.” A total of 502 children were classified as consumers of eggs/omelets (252 males and 250 females), and 181 were consumers of egg sandwiches (92 males and 89 females). Classification as a consumer or non-consumer for this analysis has no implications as to habitual consumption.

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.

Eggs: For this report, refers to items that are included in the What We Eat in America (WWEIA) Food Categories “Eggs and omelets” and “Egg/breakfast sandwiches” (*see definition of “WWEIA Food Categories” below*). Among children 2 – 19 years, these two Categories account for 71% of egg consumption, as measured in egg ounce equivalents (*see definition of Food Patterns component- eggs” below*). Notable exclusions from this analysis are eggs that 1) are a distinct component in a multi-component food other than sandwiches (e.g., cooked egg in fried rice; 1% of all egg consumed), or 2) serve as a functional ingredient (28% of all egg consumed). Eggs are included as functional ingredients in a variety of foods, including bakery products (e.g., cakes, cookies), bread items (e.g., waffles, cornbread), coatings on meat and vegetables (e.g., chicken nuggets/tenders, fried peppers), sauces and condiments (e.g., Hollandaise sauce, mayonnaise) and mixed dishes (e.g., meat loaf, lasagna).

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, which are based upon the number of persons in the family/household, were used as the poverty measure to calculate the ratio (7).

Food Patterns component-eggs: As described at <https://www.ars.usda.gov/nea/bhnrc/fsrg/fped>, the Food Patterns Equivalents Database defines all foods and beverages reported in WWEIA, NHANES in terms of amounts of 37 Food Patterns (FP) components. Translating intakes to FP components permits them to be evaluated with respect to the Dietary Guidelines for Americans (3). The Protein Foods group, of which eggs are included, are measured in ounce equivalents. Egg intake in ounce equivalents, inclusive of egg in all foods, is available on the FSRG website at <https://www.ars.usda.gov/nea/bhnrc/fsrg/fpeddatatables>.

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 https://www.ars.usda.gov/nea/bhnrc/fsrg/wweia_categories, classifies each food and beverage reported in WWEIA, NHANES into one of 169 mutually exclusive categories. In contrast to the Categories’ item-by-item classification, this analysis classified as a group any foods that were represented in the dietary data by two or more items linked as having been consumed together into the most appropriate WWEIA Food Category. For example, if an egg sandwich was represented in the dietary data as white bread, butter, fried egg, and cheese, all these components would be assigned to the “egg sandwiches/breakfast sandwich” WWEIA Food Category along with similar items that were not represented by multiple foods, e.g., an item that assigned the food code 34001110 “Egg sandwich on white bread with cheese.” It is important to note that breakfast sandwiches that do not include egg (e.g., sausage biscuit) were excluded from this analysis. Consequently, in this brief, this category is termed “Egg sandwiches.”

Data source

Estimates in this data brief are based on one day of dietary intake data from WWEIA, NHANES 2017-March 2020 Prepandemic (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 4,091 individuals 2 – 19 years of age (2,068 males and 2,023 females) provided complete and reliable dietary intake data. In the race-specific analyses (see page 2), individuals who were multi-racial or of a racial group other than those listed (385 children, of whom 38 were consumers of eggs/omelets and 14 were consumers of an egg sandwich) were excluded. Likewise, in the income-specific analyses (also on page 2), individuals with missing family income information (413 children, of whom 41 were consumers of eggs/omelets and 18 were consumers of an egg sandwich) 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 and 2019-2020 versions of USDA’s Food and Nutrient Database for Dietary Studies (3). Intake of added sugars was calculated using the Food Patterns Equivalents Database for Use with WWEIA, NHANES 2017- March 2020 Prepandemic (9).

References

1. USDA Agricultural Research Service. *Food Data Central*. <https://fdc.nal.usda.gov>. Accessed November 1, 2024.
2. Puglisi MJ, Fernandez ML. The health benefits of egg protein. *Nutrients*. 2020;14(14):2904. Published 2022 Jul 15. doi: 10.3390/nu14142904.
3. Papanikolaou Y, Fulgoni VL 3rd. Egg consumption in U.S. children is associated with greater daily nutrient intakes, including protein, lutein + zeaxanthin, choline, α -linolenic acid, and docosahexanoic acid. *Nutrients*. 2019;11(5):1137. Published 2018 May 22. doi:10.3390/nu11051137.
4. Morales-Juárez A, Cowan-Pyle AE, Bailey RL, Eicher-Miller HA. Eating egg-rich diets and modeling the addition of one daily egg reduced risk of nutrient inadequacy among United States adolescents with and without food insecurity. *J Nutr*. 2024;154(11):3475-3484. doi: 10.1016/j.tjnut.2024.09.019.
5. USDA Food Surveys Research Group. *FNDDS Documentation and Databases*. www.ars.usda.gov/fsrg/fndds/download. Accessed January 13, 2025.
6. U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines 2020-2025*. 9th edition. December 2020. Available at: <https://www.dietaryguidelines.gov>. Accessed January 7, 2025.
7. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. *Poverty guidelines*. <https://aspe.hhs.gov/poverty-guidelines>. Accessed January 10, 2025.
8. Centers for Disease Control and Prevention, National Center for Health Statistics. *NHANES Questionnaires, Datasets, and Related Documentation*. <https://www.cdc.gov/nchs/nhanes/>. Accessed January 10, 2025.
9. USDA Food Surveys Research Group. *Food Patterns Equivalents Databases and SAS Datasets*. www.ars.usda.gov/fsrg/fped/download. Accessed January 13, 2025.

About the authors

Rhonda S. Sebastian, Sara B. Crawford, 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.

Suggested citation

Sebastian RS, Crawford SB, Moshfegh AJ. *Consumption of Eggs/Omelets and Egg Sandwiches by U.S. Children: What We Eat in America, NHANES 2017- March 2020*. Food Surveys Research Group Dietary Data Brief No. 65. May 2025.

Copyright information

All material appearing in this report is in the public domain and may be reproduced or copied without permission. However, citation as to source is appreciated.

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation from prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotope, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at [How to File a Program Discrimination Complaint](#) and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov. USDA is an equal opportunity provider, employer and lender.

