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Ultra-processed Food Consumption in Youth and Adults: United States, August 2021–August 2023

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Key findings

Data from the National Health and Nutrition Examination Survey

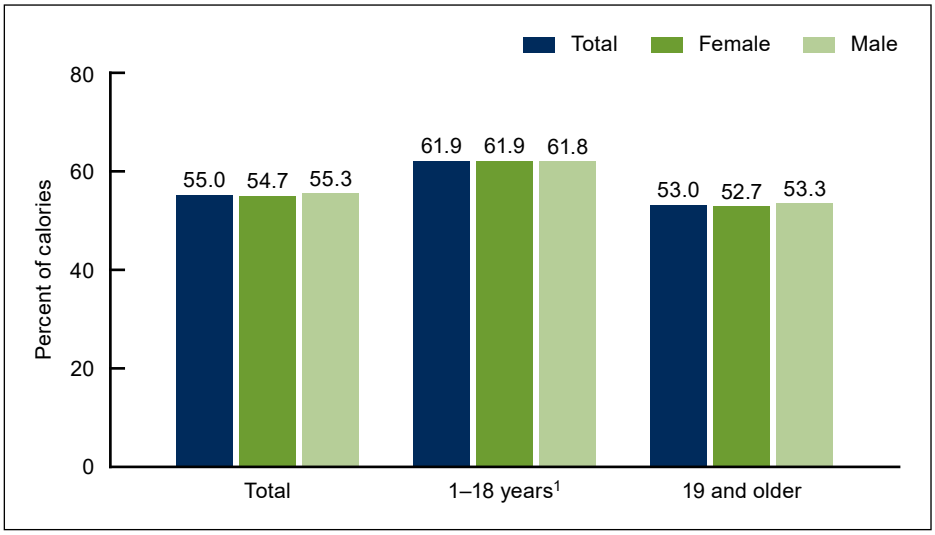
- During August 2021–August 2023, the mean percentage of total calories consumed from ultra-processed foods among those age 1 year and older was 55.0%.
- Youth ages 1–18 years consumed a higher percentage of calories from ultra-processed foods (61.9%) than adults age 19 and older (53.0%).
- Among adults, the mean percentage of total calories consumed from ultra-processed foods was lowest in the highest family income group.
- Sandwiches (including burgers), sweet bakery products, savory snacks, and sweetened beverages were four of the top five sources of calories from ultra-processed foods among youth and adults.
- Between 2013–2014 and August 2021–August 2023, the consumption of mean calories from ultra-processed foods among adults decreased.

Ultra-processed foods tend to be hyperpalatable, energy-dense, low in dietary fiber, and contain little or no whole foods, while having high amounts of salt, sweeteners, and unhealthy fats (1). Ultra-processed food consumption has been associated with higher risk of cardiovascular disease and all-cause mortality (2). This report presents estimates about ultra-processed foods during August 2021–August 2023 by top caloric contributors and mean percentage of total calories from ultra-processed foods by sex, age, family income, and 10-year trends.

What was the mean percentage of total calories consumed from ultra-processed foods during August 2021–August 2023, and were differences observed by sex and age?

The overall mean percentage of total calories consumed from ultra-processed foods among those age 1 year and older was 55.0% during

Figure 1. Mean percentage of total calories from ultra-processed foods consumed by youth and adults, by sex: United States, August 2021–August 2023



[1]Significantly different from adults.
NOTE: Ultra-processed food is based on the Nova classification.
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

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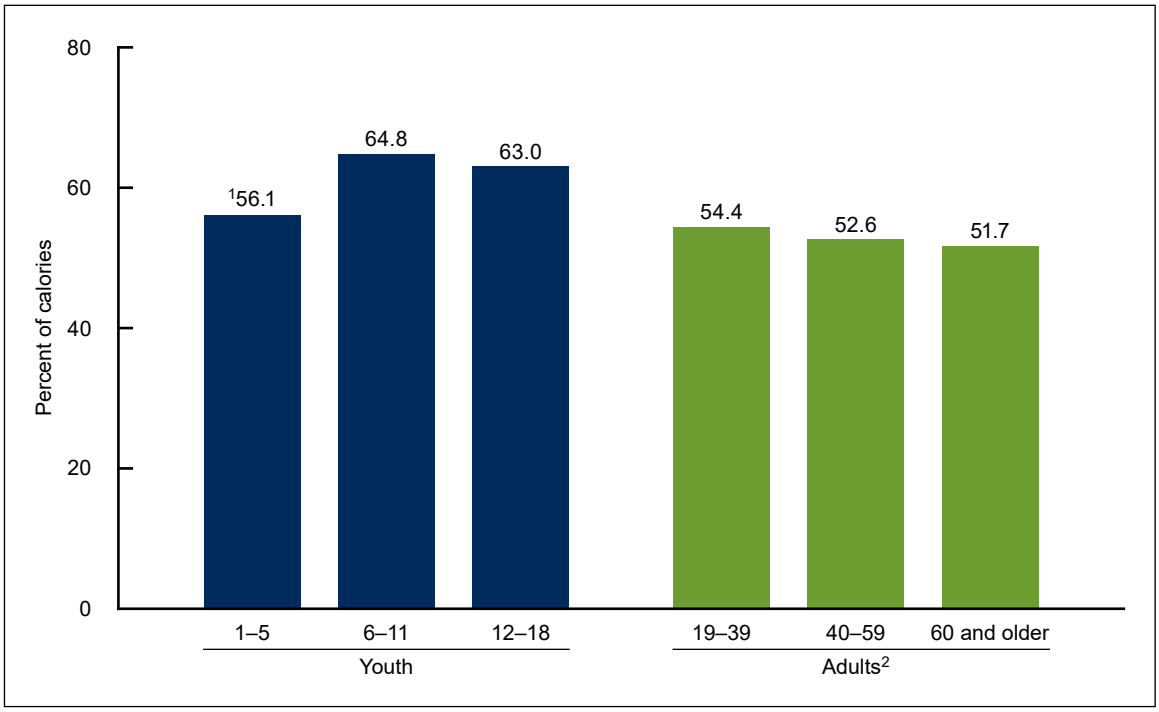
August 2021–August 2023 (Figure 1, Table 1). Youth ages 1–18 years consumed a higher percentage of calories from ultra-processed foods (61.9%) than adults age 19 and older (53.0%). No significant differences were noted between males and females for either youth or adults.

Did the percentage of calories consumed from ultra-processed foods differ by age among youth and adults?

Among youth, children ages 1–5 years consumed fewer calories from ultra-processed foods (56.1%) than youth ages 6–11 (64.8%) and 12–18 years (63.0%) (Figure 2, Table 2). Among adults, the percentage of calories from ultra-processed foods decreased with increasing age. Adults ages 19–39 consumed 54.4% of calories from ultra-processed foods, while adults 40–59 consumed 52.6% and adults 60 and older consumed 51.7%.

Figure 2. Mean percentage of total calories from ultra-processed foods consumed by youth and adults, by age: United States, August 2021–August 2023

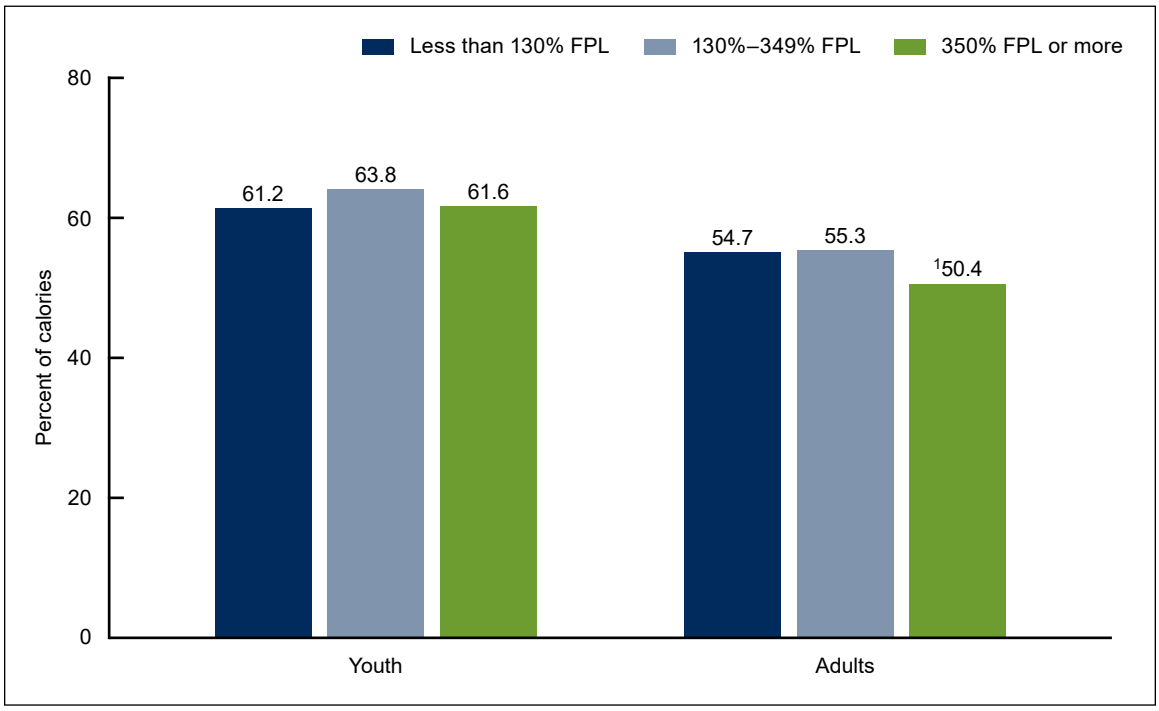


[1]Significantly different from age groups 6–11 and 12–18 years.
[2]Significant linear decrease across adult age groups.
NOTE: Ultra-processed food is based on the Nova classification.
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Did the percentage of calories from ultra-processed foods vary by family income and age?

Among youth, the mean percentage of total calories from ultra-processed foods did not differ by income level (Figure 3, Table 3). Among adults, the mean percentage of total calories consumed from ultra-processed foods was lower in those with the highest family income (50.4% in those with incomes 350% or more of the federal poverty level) compared with the lower income levels (54.7% in those with incomes less than 130% and 55.3% in those with incomes 130%–349% of the poverty level).

Figure 3. Mean percentage of total calories from ultra-processed foods consumed by youth and adults, by family income: United States, August 2021–August 2023

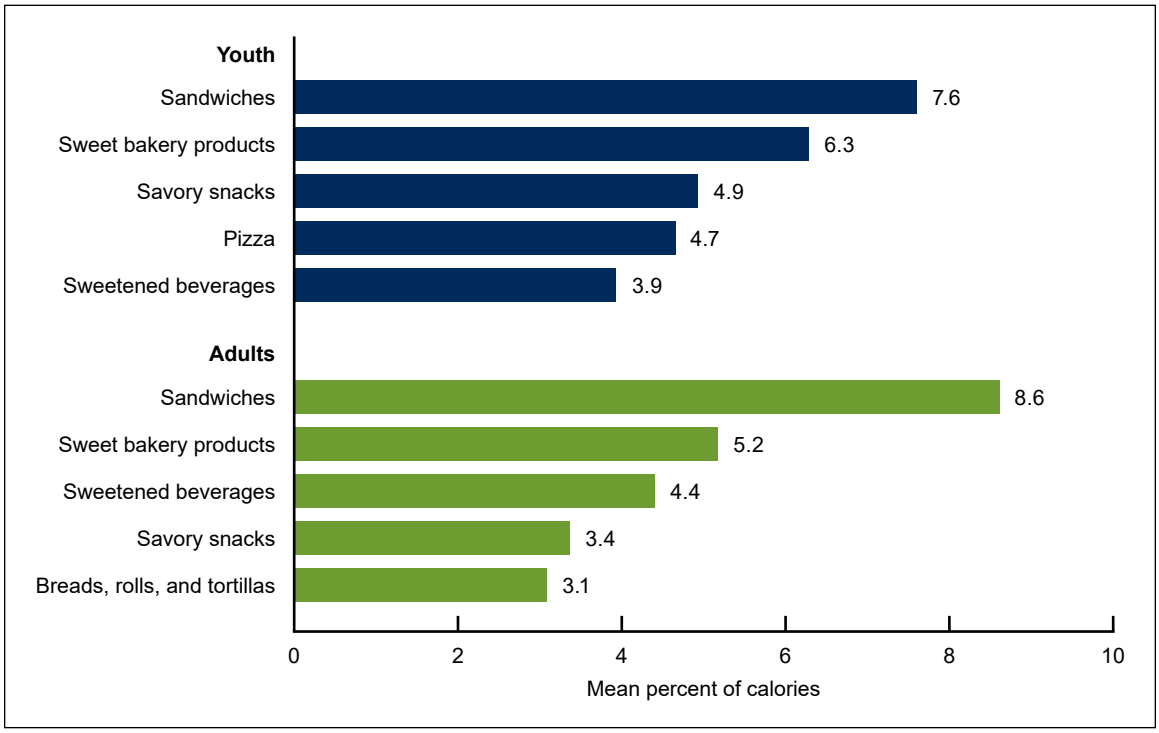


[1]Significantly different from other adult family income groups.
NOTES: Ultra-processed food is based on the Nova classification. Youth are ages 1–18 years, and adults are age 19 and older. Family income is defined as a percentage of the federal poverty level (FPL); 12.5% of records are missing family income information.
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Which ultra-processed food groups were the top sources of calories among youth and adults?

The top five sources of calories from ultra-processed foods among youth were sandwiches (including burgers), which contributed 7.6% of total calories, followed by sweet bakery products (6.3%), savory snacks (4.9%), pizza (4.7%), and sweetened beverages (3.9%) (Figure 4, Table 4). Similarly, the top five sources of calories from ultra-processed foods among adults were sandwiches (including burgers), which contributed 8.6% of total calories, followed by sweet bakery products (5.2%), sweetened beverages (4.4%), savory snacks (3.4%), and breads, rolls, and tortillas (3.1%).

Figure 4. Top caloric contributors of ultra-processed foods consumed by youth and adults: United States, August 2021–August 2023

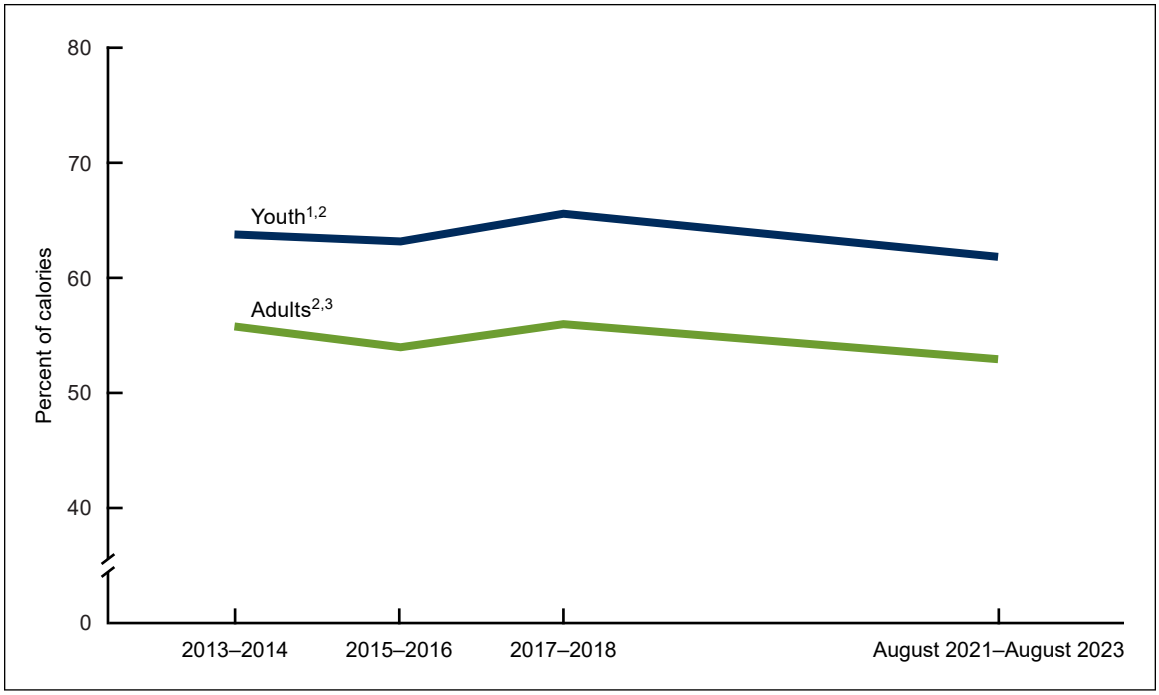


NOTES: Ultra-processed food is based on the Nova classification. Foods are grouped using the Department of Agriculture's "What We Eat in America" categories. Youth are ages 1–18 years, and adults are age 19 and older.
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

What were the recent trends in the consumption of ultra-processed foods among youth and adults?

The mean percentage of total calories consumed from ultra-processed foods among youth increased and then decreased between 2013–2014 and August 2021–August 2023 (Figure 5, Table 5). A significant decrease was seen between 2017–2018 (65.6%) and August 2021–August 2023 (61.9%) among youth. Among adults, the mean percentage of total calories consumed from ultra-processed foods decreased from 55.8% in 2013–2014 to 53.0% in August 2021–August 2023. A significant decrease was also noted between 2017–2018 (56.0%) and August 2021–August 2023.

Figure 5. Trends in the mean percentage of total calories from ultra-processed foods consumed by youth and adults: United States, 2013–2014 through August 2021–August 2023



[1]Significant quadratic trend across survey cycles.
[2]Significant decrease between 2017–2018 and August 2021–August 2023.
[3]Significant linear decrease across survey cycles.
NOTES: Ultra-processed food is based on the Nova classification. Youth are ages 1–18 years, and adults are age 19 and older.
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Summary

During August 2021–August 2023, youth consumed 61.9% of their daily calories, on average, from ultra-processed foods, while adults consumed 53.0% of their daily calories from ultra-processed foods. Although youth and adults consumed the majority of their calories from ultra-processed foods in the past decade, a decrease was seen in ultra-processed food consumption among youth and adults between 2017–2018 and August 2021–August 2023, and a decrease was seen among adults from 2013–2014 to August 2021–August 2023. Most dietary guidelines, including the Dietary Guidelines for Americans, 2020–2025, recommend eating a variety of whole foods and limiting intake of foods with added sugars (3).

Definitions

Food categories: The Nova classification system that categorizes foods by processing, from unprocessed to ultra-processed foods, was used in this analysis (4). The four main groups of the Nova classification system are: unprocessed or minimally processed foods; processed culinary ingredients; processed foods that typically have two or three ingredients, such as salt, oil, or sugar; and ultra-processed foods, which consist of industrial formulations of processed foods that typically contain unnatural additives, such as colorings or emulsifiers (1,4). Homemade foods and mixed dishes that may contain ultra-processed foods are disaggregated into their core ingredients to better categorize the sources of their calories (4). The 49 food categories in the U.S.

Department of Agriculture's What We Eat in America were used to categorize foods to describe the top caloric contributors of ultra-processed foods (5).

Family income: The poverty income ratio is the annual total family income divided by the dollar amount defined by the U.S. Department of Health and Human Services' poverty guidelines to account for inflation and family size (6) and was used to categorize people into income groups.

Data source and methods

Data from the August 2021–August 2023 National Health and Nutrition Examination Survey (NHANES) and data obtained from the National Cancer Institute that classifies foods into the Nova categories (4) were used to estimate the mean percentage of calories from ultra-processed foods. NHANES is a cross-sectional survey designed to monitor the health and nutritional status of the U.S. civilian noninstitutionalized population. The NHANES sample is selected through a complex, multistage probability design. NHANES is conducted by the National Center for Health Statistics and consists of home interviews followed by standardized health examinations conducted in mobile examination centers and two 24-hour (midnight-to-midnight) dietary recall interviews with trained interviewers (7). The August 2021–August 2023 survey cycle included a mode change for dietary data collection (8). In other survey cycles included in this report, the first 24-hour dietary recall interview was conducted in-person during the mobile examination center visit, while both 24-hour dietary recall interviews were conducted over the phone on separate days following the mobile examination center visit in the August 2021–August 2023 survey cycle (8).

This analysis included all examined NHANES participants age 1 year and older who had reliable dietary recall data from the Day 1 interview. Day 1 dietary interview sample weights, which accounted for the differential probabilities of selection and nonresponse, were used to calculate nationally representative estimates. All analyses accounted for the survey's complex, multistage probability design. For August 2021–August 2023, differences between estimates overall, among subgroups, and compared with 2017–2018 were evaluated using *t* tests at the 0.05 level. Polynomial regression was used to test the significance of linear and nonlinear trends, accounting for the unequal spacing of survey cycles.

Data management and statistical analyses were conducted using SAS version 9.4 (SAS Institute, Inc., Cary, N.C.) and SUDAAN version 11.0.4 (RTI International, Research Triangle Park, N.C.).

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References

1. Monteiro CA, Cannon G, Levy RB, Moubarac JC, Louzada ML, Rauber F, et al. Ultra-processed foods: What they are and how to identify them. Public Health Nutr. 2019 Apr;22(5):936–41.

2. Pagliai G, Dinu M, Madarena MP, Bonaccio M, Iacoviello L, Sofi F. Consumption of ultra-processed foods and health status: A systematic review and meta-analysis. Br J Nutr. 2021 Feb;125(3):308–18.

3. U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary guidelines for Americans, 2020–2025. 9th ed. Dec 2020. Available from: https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf.

4. Steele E, O'Connor L, Juul F, Khandpur N, Galastri Baraldi L, Monteiro CA, et al. Identifying and estimating ultraprocessed food intake in the US NHANES according to the Nova classification system of food processing. J Nutr. 2023 Jan;153(1):225–241.

5. Agricultural Research Service. What we eat in America food categories: 2021–2023. Available from: https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/2123/Food_Category_List_2021-2023.pdf.

6. Office of the Assistant Secretary for Planning and Evaluation. 2021 poverty guidelines. Available from: https://aspe.hhs.gov/2021-poverty-guidelines.

7. Terry AL, Chiappa MM, McAllister J, Woodwell DA, Graber JE. Plan and operations of the National Health and Nutrition Examination Survey, August 2021–August 2023. Vital Health Stat 1. 2024 May;(66):1–21. DOI: https://dx.doi.org/10.15620/cdc/151927.

8. Williams AM, Terry A, Akinbami LJ, Ansai N, Ogden CL. What we eat in America dietary data, NHANES: August 2021–August 2023 24-hour dietary recall interview mode change. 2025. Available from: https://wwwn.cdc.gov/nchs/data/Nhanes/Public/2021/Whitepapers/Aug2023-What-We-Eat-In-America-Dietary-Data-Whitepaper.pdf.

Figure tables

Data table for Figure 1. Mean percentage of total calories from ultra-processed foods consumed by youth and adults, by sex: United States, August 2021–August 2023

Sex	Sample size	Percent	Standard error
All			
Total	6,633	55.0	0.6
Female	3,613	54.7	0.7
Male	3,020	55.3	0.6
Youth[1]			
Total	1,752	61.9	0.7
Female	878	61.9	0.9
Male	874	61.8	0.9
Adults			
Total	4,881	53.0	0.7
Female	2,735	52.7	0.8
Male	2,146	53.3	0.7

[1]Significantly different from adults.

NOTES: Ultra-processed food is based on the Nova classification. Sample sizes are unweighted. Youth are ages 1–18 years, and adults are age 19 and older.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Data table for Figure 2. Mean percentage of total calories from ultra-processed foods consumed by youth and adults, by age: United States, August 2021–August 2023

Age group	Sample size	Percent	Standard error
Youth			
1–5[1]	474	56.1	1.1
6–11	609	64.8	0.7
12–18	669	63.0	1.2
Adults[2]			
19–39	1,201	54.4	1.0
40–59	1,328	52.6	0.8
60 and older	2,352	51.7	0.6

[1]Significantly different from age groups 6–11 and 12–18 years.
[2]Significant linear decrease across adult age groups.

NOTES: Ultra-processed food is based on the Nova classification. Sample sizes are unweighted.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Data table for Figure 3. Mean percentage of total calories from ultra-processed foods consumed by youth and adults, by family income: United States, August 2021–August 2023

Age group and percent of federal poverty level	Sample size	Percent	Standard error
Youth			
Less than 130%	521	61.2	1.9
130–349%	591	63.8	1.0
350% or more	433	61.6	0.8
Adults			
Less than 130%	895	54.7	0.9
130–349%	1,624	55.3	1.1
350% or more[1]	1,794	50.4	0.8

[1]Significantly different from other adult family income groups.

NOTES: Ultra-processed food is based on the Nova classification. Youth are ages 1–18 years, and adults are age 19 and older. Family income is defined as a percentage of the federal poverty level (775 participants, or 12.5%, are missing family income information). Sample sizes are unweighted.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Data table for Figure 4. Top caloric contributors of ultra-processed foods consumed by youth and adults: United States, August 2021–August 2023

Food category	Mean percent of calories	Standard error
Youth		
Sandwiches	7.6	0.5
Sweet bakery products	6.3	0.3
Savory snacks	4.9	0.2
Pizza	4.7	0.4
Sweetened beverages	3.9	0.2
Adults		
Sandwiches	8.6	0.3
Sweet bakery products	5.2	0.2
Sweetened beverages	4.4	0.3
Savory snacks	3.4	0.1
Breads, rolls, and tortillas	3.1	0.1

NOTES: Ultra-processed food is based on the Nova classification. Foods are grouped into categories using the What We Eat in America food categories. Unweighted sample sizes are n = 1,752 for youth and n = 4,881 for adults. Youth are ages 1–18 years, and adults are age 19 and older.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Data table for Figure 5. Trends in the mean percentage of total calories from ultra-processed foods consumed by youth and adults: United States, 2013–2014 through August 2021–August 2023

Age group and survey cycle	Sample size	Percent	Standard error
Youth[1,2]			
2013–2014	3,091	63.8	0.7
2015–2016	2,974	63.5	0.6
2017–2018	2,422	65.6	0.5
August 2021–August 2023	1,752	61.9	0.7
Adults[2,3]			
2013–2014	5,176	55.8	0.6
2015–2016	5,139	54.3	0.5
2017–2018	4,862	56.0	1.0
August 2021–August 2023	4,881	53.0	0.7

[1]Significant quadratic trend across survey cycles.
[2]Significant decrease between 2017–2018 and August 2021–August 2023.
[3]Significant linear decrease across survey cycles.

NOTES: Ultra-processed food is based on the Nova classification. Sample sizes are unweighted. Youth are ages 1–18 years, and adults are age 19 and older.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

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