



Nonalcoholic Beverage Consumption Among Youth and Adults: United States, August 2021–August 2023

Nicholas Ansai, M.P.H., Catharine A. Couch, Ph.D., R.D., and Ann Goding Sauer, M.S.P.H.

Key findings

Data from the National Health and Nutrition Examination Survey

- During August 2021–August 2023, water was the top contributor to total nonalcoholic beverage consumption, and the proportion was similar between youth ages 2–19 and adults 20 and older at about 57% of total grams on a given day.
- Among youth, the contributions from water, coffee and tea, sweetened beverages, and diet beverages to total nonalcoholic beverage consumption increased with age, while contributions from milk and 100% fruit juice decreased.
- Among adults, the contributions from milk, coffee and tea, and diet beverages generally increased with age, while contributions from water and sweetened beverages decreased.
- Between 2013–2014 and August 2021–August 2023, the contribution of water to total nonalcoholic beverage consumption increased while contributions from milk, 100% fruit juice, and sweetened beverages decreased for both youth and adults.

Introduction

Beverages are a significant source of calories and essential nutrients and are vital for meeting water intake needs (1,2). The 2025–2030 Dietary Guidelines for Americans (DGA) recommend water and unsweetened beverages as primary drink choices (3). DGA also recommends consuming 100% fruit juice in limited portions and avoiding sugar-sweetened beverages. This report updates previous reports (4,5) on the contribution of beverage types (in grams) to total nonalcoholic beverage consumption for U.S. youth ages 2–19 and adults age 20 and older

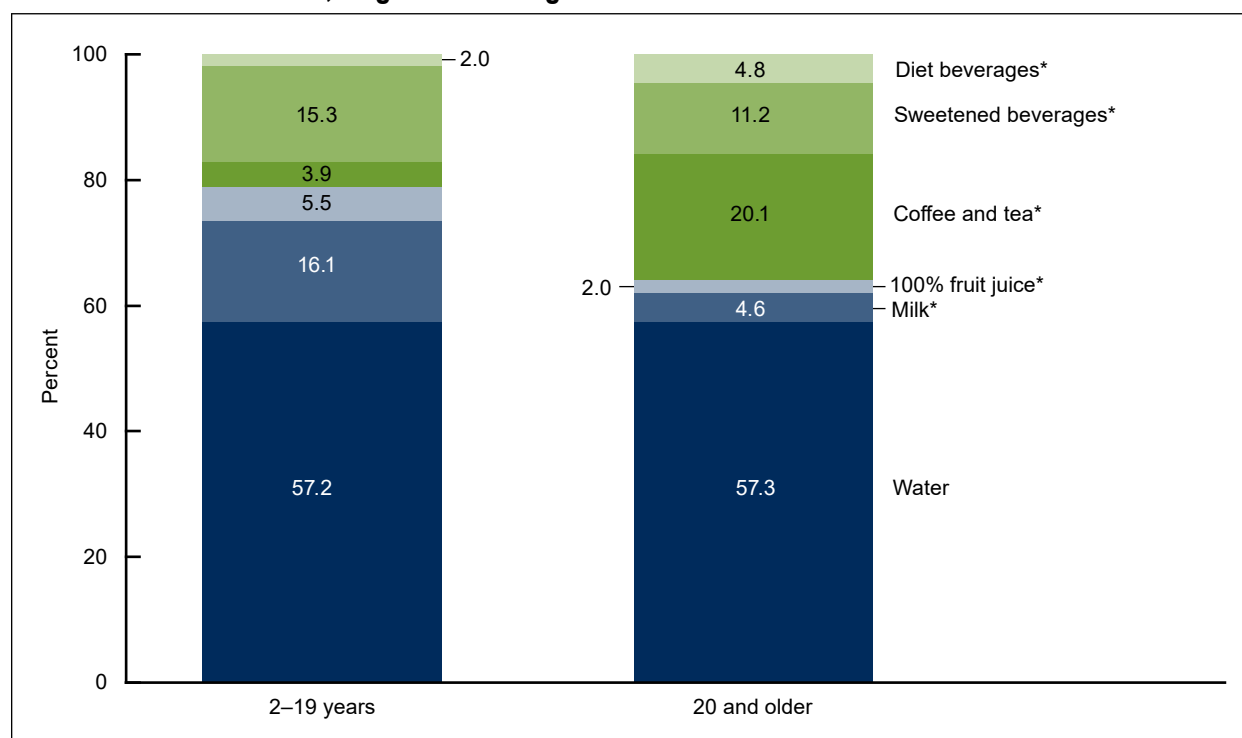


during August 2021–August 2023. Trends in the contribution of beverage types to total nonalcoholic beverage intake over the past decade are also presented.

Youth compared with adults

- In August 2021–August 2023, water accounted for the largest percentage of total nonalcoholic beverage consumption among youth (57.2%) followed by milk (16.1%), sweetened beverages (15.3%), 100% fruit juice (5.5%), coffee and tea (3.9%), and diet beverages (2.0%) (Figure 1, Table 1).
- Among adults, water was also the top contributor to total nonalcoholic beverage consumption (57.3%), followed by coffee and tea (20.1%), sweetened beverages (11.2%), diet beverages (4.8%), milk (4.6%), and 100% fruit juice (2.0%).
- Contributions from water were similar between youth and adults.
- Contributions from milk, 100% fruit juice, and sweetened beverages were higher among youth compared with adults, while contributions from coffee and tea and diet beverages were lower.

Figure 1. Contribution of beverage types to total nonalcoholic beverage consumption among youth and adults: United States, August 2021–August 2023



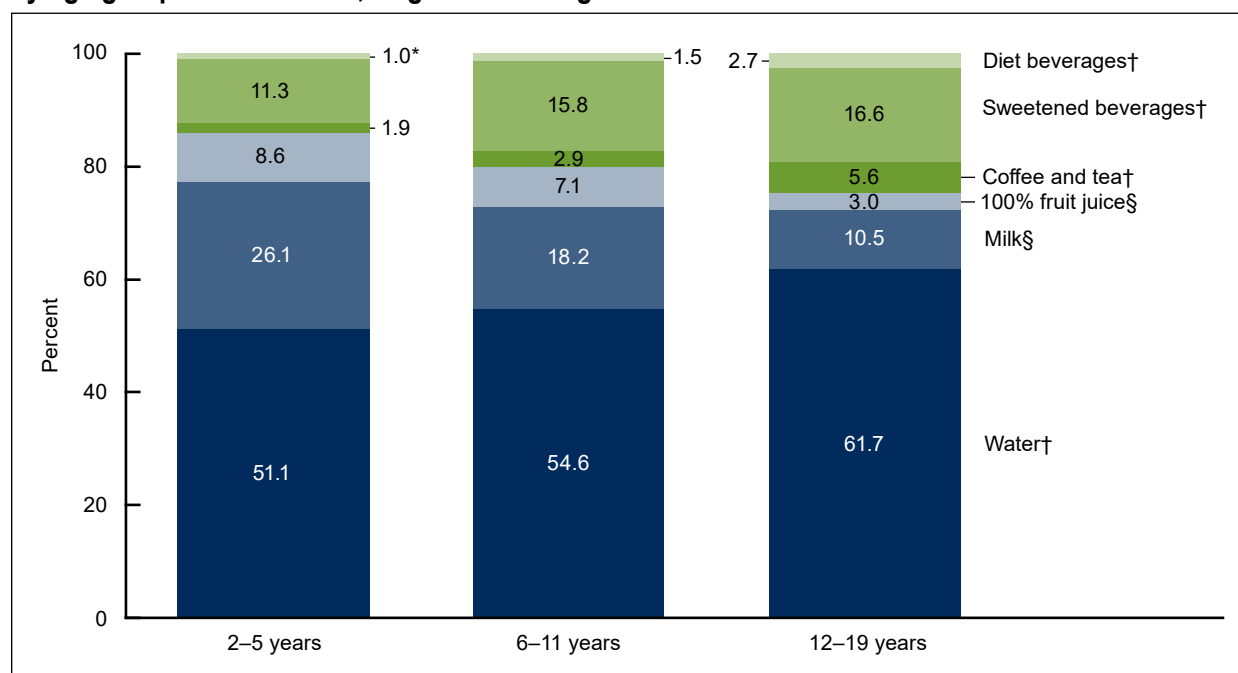
* Significant difference between youth and adults ($p < 0.05$).

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

Youth by age group

- Contributions from water to total nonalcoholic beverage consumption increased with age, from 51.1% among ages 2–5, to 54.6% among ages 6–11, and 61.7% among ages 12–19 (Figure 2, Table 2).
- Coffee and tea consumption also increased with age, from 1.9% among ages 2–5 to 2.9% among ages 6–11 and 5.6% among ages 12–19. Likewise, sweetened beverage consumption increased with age (from 11.3% to 15.8% and 16.6%) as did diet beverage consumption (from 1.0% to 1.5% and 2.7%).
- Milk consumption decreased with age, from 26.1% among ages 2–5 to 18.2% among ages 6–11 and 10.5% among ages 12–19. Consumption of 100% fruit juice also decreased (from 8.6% to 7.1% and 3.0%).

Figure 2. Contribution of beverage types to total nonalcoholic beverage consumption among youth, by age group: United States, August 2021–August 2023



* Estimate does not meet National Center for Health Statistics standards of reliability.

† Significant increasing linear trend by age group ($p < 0.05$).

§ Significant decreasing linear trend by age group ($p < 0.05$).

NOTE: Percentages may not sum to 100% due to rounding.

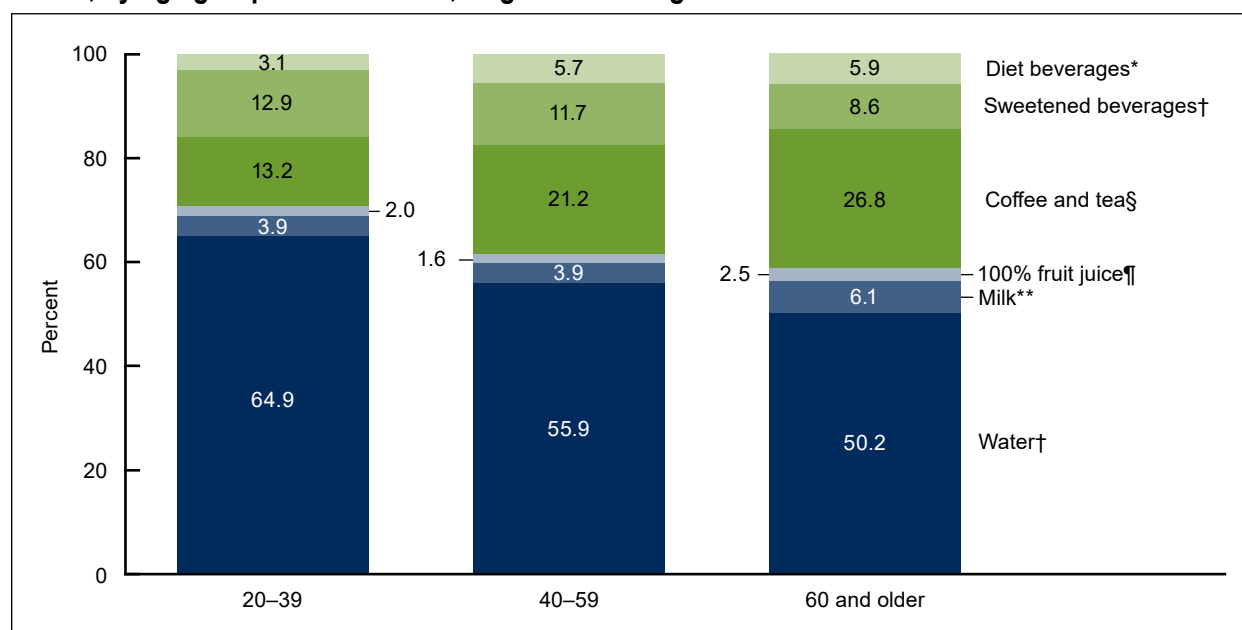
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Adults by age group

- Contributions from water to total nonalcoholic beverage consumption decreased with age among adults, from 64.9% for ages 20–39 to 55.9% for ages 40–59 and 50.2% for age 60 and older (Figure 3, Table 3). Contributions from sweetened beverages also decreased with age, from 12.9% to 11.7% and 8.6%.

- Coffee and tea consumption as a percentage of total nonalcoholic beverage consumption increased with age, from 13.2% for ages 20–39 to 21.2% for ages 40–59 and 26.8% for age 60 and older.
- Milk consumption as a percentage of total nonalcoholic beverage consumption was lower among adults ages 20–39 and 40–59 (3.9% each) compared with adults age 60 and older (6.1%).
- The contribution of 100% fruit juice to total nonalcoholic beverage consumption was lower among adults ages 40–59 (1.6%) compared with adults age 60 and older (2.5%).
- The contribution of diet beverages to total nonalcoholic beverage consumption was lower among adults ages 20–39 (3.1%) compared with adults ages 40–59 (5.7%) and 60 and older (5.9%).

Figure 3. Contribution of beverage types to total nonalcoholic beverage consumption among adults, by age group: United States, August 2021–August 2023



* Age group 20–39 significantly different from 40–59 and 60 and older ($p < 0.05$).

† Significant decreasing linear trend by age group ($p < 0.05$).

§ Significant increasing linear trend ($p < 0.05$).

¶ Age group 40–59 significantly different from 60 and older ($p < 0.05$).

** Age groups 20–39 and 40–59 significantly different from 60 and older ($p < 0.05$).

NOTE: Percentages may not sum to 100% due to rounding.

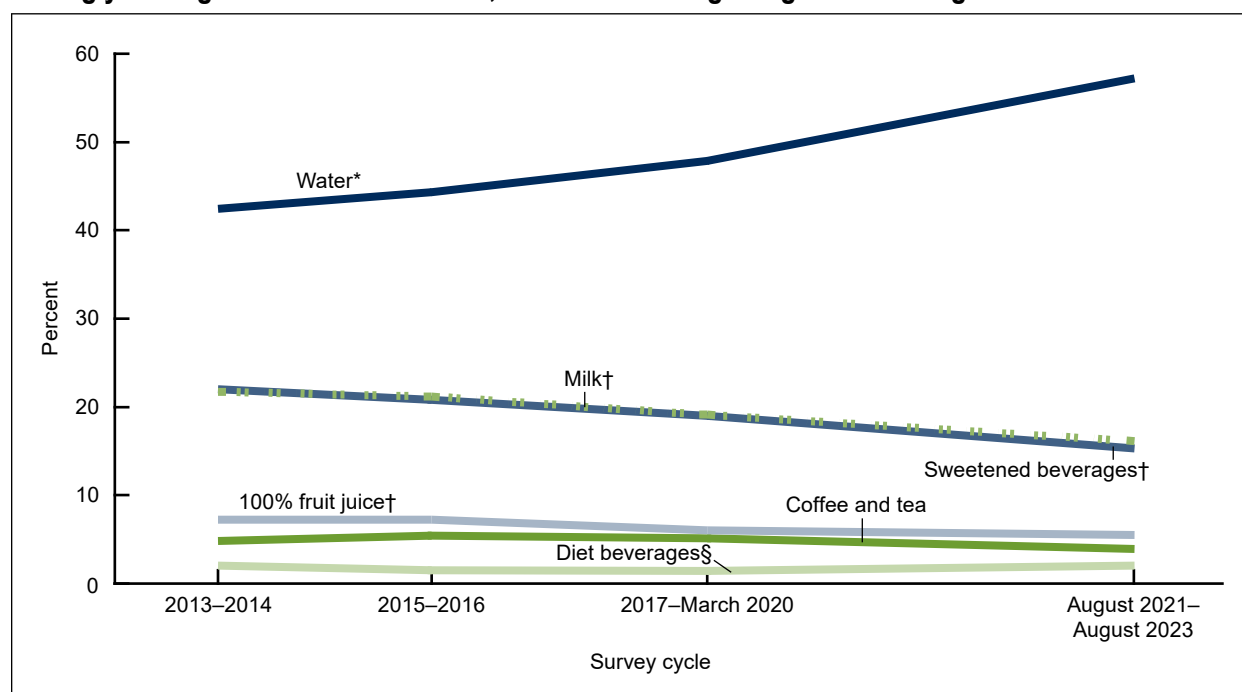
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Youth trends

- Between 2013–2014 and August 2021–August 2023, the contribution of water to total nonalcoholic beverage consumption for youth increased from 42.4% to 57.2% (Figure 4, Table 4).

- Over the same period, decreases were seen in the contributions from milk (from 21.7% to 16.1%), 100% fruit juice (7.2% to 5.5%), and sweetened beverages (22.0% to 15.3%) to total nonalcoholic beverage consumption.
- The contribution from diet beverages decreased from 2.0% during 2013–2014 to 1.4% during 2017–March 2020 and then increased to 2.0% during August 2021–August 2023.
- No significant trend was observed for contributions from coffee and tea.

Figure 4. Trends in the contribution of beverage types to total nonalcoholic beverage consumption among youth ages 2–19: United States, 2013–2014 through August 2021–August 2023



* Significant increasing linear trend ($p < 0.05$).

† Significant decreasing linear trend ($p < 0.05$).

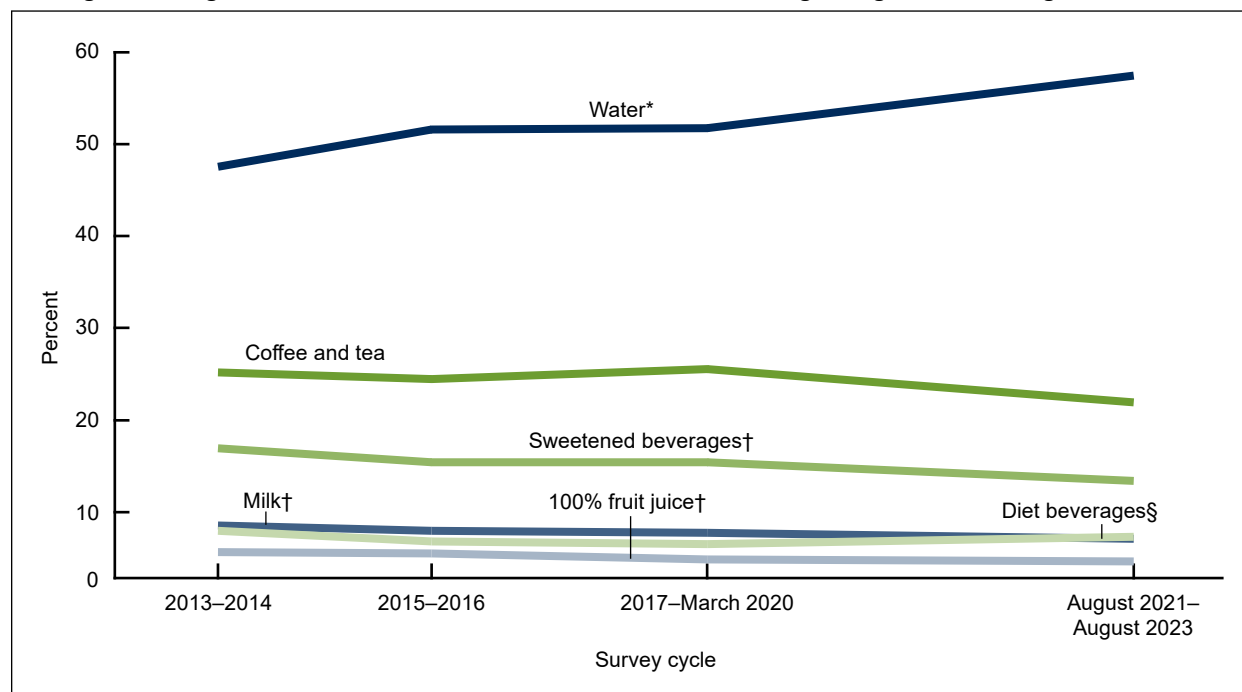
§ Significant quadratic trend ($p < 0.05$).

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 2013–2014 through August 2021–August 2023.

Adult trends

- Between 2013–2014 and August 2021–August 2023, the contribution of water to total nonalcoholic beverage consumption for adults increased from 46.9% to 57.3% (Figure 5, Table 5).
- Over the same period, decreases were seen in the contributions from milk (from 6.1% to 4.6%), 100% fruit juice (3.1% to 2.0%), and sweetened beverages (14.9% to 11.2%).
- The contribution from diet beverages decreased from 5.5% during 2013–2014 to 4.0% during 2017–March 2020 and then increased to 4.8% in August 2021–August 2023.
- No significant trend was observed for contributions from coffee and tea.

Figure 5. Trends in the contribution of beverage types to total nonalcoholic beverage consumption among adults age 20 and older: United States, 2013–2014 through August 2021–August 2023



* Significant increasing linear trend ($p < 0.05$).

† Significant decreasing linear trend ($p < 0.05$).

‡ Significant decreasing linear trend ($p < 0.05$).

§ Significant quadratic trend ($p < 0.05$).

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 2013–2014 through August 2021–August 2023.

Summary

During August 2021–August 2023, water was the top contributor to total nonalcoholic beverage consumption, accounting for around 57% of beverage consumption for both youth and adults on a given day. According to prior research, water accounted for 43.7% of youth total nonalcoholic beverage consumption during 2013–2016 (4) and 51.2% of adult total nonalcoholic beverage consumption during 2015–2018 (5). Compared with adults, youth consumed a higher proportion of milk, 100% fruit juice, and sweetened beverages and a lower proportion of coffee and tea and diet beverages in August 2021–August 2023. Water and sweetened beverage contributions increased with age for youth but decreased with age for adults. Previous research has shown similar trends by age (4,5).

Between 2013–2014 and August 2021–August 2023, significant increases were seen in the contribution of water to total nonalcoholic beverage consumption along with corresponding decreases in the contributions of milk, 100% fruit juice, and sweetened beverages for both youth and adults. Over time, these changes come closer to meeting ongoing DGA recommendations emphasizing water as a primary beverage for youth and adults (3,6).

Definition

Beverages: Nonalcoholic beverages are grouped as water, milk, 100% fruit juice, coffee and tea, sweetened beverages, and diet beverages based on the U.S. Department of Agriculture's What We Eat in America food categories (7). Water includes tap, bottled, carbonated, and noncarbonated water. Milk includes flavored varieties, dairy milk substitutes (such as soy or almond milk), and milk consumed as part of a combination food (as in milk added to cereal). Coffee includes brewed and instant coffee as well as prepared coffee drinks that may contain lighteners or sweeteners. Tea includes brewed, prepared, or herbal teas as well as prepared tea drinks that may contain sweeteners. The category 100% fruit juice includes 100% fruit and vegetable juices. Sweetened beverages include soft drinks, sports and energy drinks, fruit drinks, fruit and vegetable smoothies, nutritional beverages, and grain drinks. Diet beverages include diet soft drinks, diet sports and energy drinks, and other diet drinks. Alcoholic beverages are not included.

The contribution of each beverage type to total nonalcoholic beverage consumption was computed for each participant who reported any nonalcoholic beverage intake on a given day as the grams of that beverage divided by the total grams of all included (nonalcoholic) beverages, multiplied by 100.

Data source and methods

National Health and Nutrition Examination Survey (NHANES) data from 2013–2014 through August 2021–August 2023 were used for these analyses. NHANES is a cross-sectional survey with a complex, multistage probability design that is conducted by the National Center for Health Statistics. It is designed to monitor the health and nutritional status of the civilian noninstitutionalized U.S. population and consists of home interviews followed by standardized health examinations conducted in mobile examination centers (MECs), as well as two 24-hour (midnight-to-midnight) dietary recall interviews with trained interviewers (8). For youth younger than age 6, interviews were conducted with a proxy knowledgeable about their intake, while interviews with youth ages 6–11 were conducted with the youth and a proxy, and youth age 12 and older answered for themselves (9). The August 2021–August 2023 survey cycle included a mode change for dietary data collection (10). In prior survey cycles included in this report, the first 24-hour dietary recall interview was conducted in person during the MEC visit, whereas in the August 2021–August 2023 survey cycle, both 24-hour dietary recall interviews were conducted over the phone following the MEC visit (10).

This analysis included all examined NHANES participants age 2 and older who had reliable dietary recall data from the Day 1 interview. Day 1 dietary sample weights were used to account for the differential probabilities of selection, nonresponse, and noncoverage (8). Taylor series linearization was used to calculate variance estimates. Differences between groups were tested using a univariate *t* statistic. Tests for linear trends by age group were evaluated using orthogonal polynomials. Linear and quadratic trends over time were tested using polynomial regression models, accounting for the unequal spacing and lengths of survey cycles. Statistical significance was set at *p* less than 0.05.

Analyses were conducted using SAS System for Windows version 9.4 (SAS Institute, Inc., Cary, N.C.), SUDAAN version 11.0 (RTI International, Research Triangle Park, N.C.), and R version 4.4.0, including the R survey package version 4.4–2.

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Figure tables

Data table for Figure 1. Contribution of beverage types to total nonalcoholic beverage consumption among youth and adults: United States, August 2021–August 2023

Beverage type	2–19 years (<i>n</i> = 1,760)	20 and older (<i>n</i> = 4,790)
	Percent (95% confidence interval)	
Water	57.2 (54.9–59.5)	57.3 (55.9–58.8)
Milk*	16.1 (15.0–17.3)	4.6 (4.0–5.2)
100% fruit juice*	5.5 (4.6–6.3)	2.0 (1.7–2.3)
Coffee and tea*	3.9 (3.0–4.8)	20.1 (19.2–21.0)
Sweetened beverages*	15.3 (13.7–16.9)	11.2 (10.0–12.3)
Diet beverages*	2.0 (1.3–2.6)	4.8 (4.4–5.3)

* Significant difference between youth and adults ($p < 0.05$).
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Data table for Figure 2. Contribution of beverage types to total nonalcoholic beverage consumption among youth, by age group: United States, August 2021–August 2023

Beverage type	2–5 years (<i>n</i> = 397)	6–11 years (<i>n</i> = 607)	12–19 years (<i>n</i> = 756)
	Percent (95% confidence interval)		
Water*	51.1 (47.0–55.2)	54.6 (51.1–58.1)	61.7 (58.8–64.5)
Milk†	26.1 (24.0–28.3)	18.2 (16.7–19.7)	10.5 (8.9–12.0)
100% fruit juice†	8.6 (6.5–10.7)	7.1 (5.7–8.4)	3.0 (2.2–3.8)
Coffee and tea*	1.9 (1.1–2.7)	2.9 (1.9–3.8)	5.6 (4.1–7.1)
Sweetened beverages*	11.3 (8.4–14.1)	15.8 (12.5–19.0)	16.6 (14.5–18.7)
Diet beverages*	1.0§ (0.3–1.8)	1.5 (0.7–2.3)	2.7 (1.8–3.5)

* Significant increasing linear trend by age group ($p < 0.05$).
† Significant decreasing linear trend by age group ($p < 0.05$).
§ Estimate does not meet National Center for Health Statistics standards of reliability.
NOTE: Percentages may not sum to 100% due to rounding.
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Data table for Figure 3. Contribution of beverage types to total nonalcoholic beverage consumption among adults, by age group: United States, August 2021–August 2023

Beverage type	20–39 (<i>n</i> = 1,112)	40–59 (<i>n</i> = 1,329)	60 and older (<i>n</i> = 2,349)
	Percent (95% confidence interval)		
Water*	64.9 (62.9–66.8)	55.9 (53.8–58.1)	50.2 (49.0–51.4)
Milk†	3.9 (2.9–4.8)	3.9 (3.5–4.4)	6.1 (5.4–6.8)
100% fruit juice§	2.0 (1.4–2.6)	1.6 (1.1–2.0)	2.5 (2.1–2.9)
Coffee and tea¶	13.2 (11.9–14.6)	21.2 (19.7–22.6)	26.8 (25.0–28.6)
Sweetened beverages*	12.9 (11.2–14.6)	11.7 (10.0–13.4)	8.6 (7.6–9.5)
Diet beverages**	3.1 (2.3–4.0)	5.7 (4.6–6.8)	5.9 (4.7–7.0)
* Significant decreasing linear trend by age group ($p < 0.05$). † Age groups 20–39 and 40–59 significantly different from 60 and older ($p < 0.05$). § Age group 40–59 significantly different from 60 and older ($p < 0.05$). ¶ Significant increasing linear trend ($p < 0.05$). ** Age group 20–39 significantly different from 40–59 and 60 and older ($p < 0.05$). NOTE: Percentages may not sum to 100% due to rounding. SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.			

Data table for Figure 4. Trends in the contribution of beverage types to total nonalcoholic beverage consumption among youth ages 2–19: United States, 2013–2014 through August 2021–August 2023

Beverage type and survey cycle	Sample size	Percent (95% confidence interval)
Water*		
2013–2014	3,017	42.4 (40.0–44.8)
2015–2016	2,897	45.2 (42.3–48.1)
2017–March 2020	4,079	49.4 (47.2–51.6)
August 2021–August 2023	1,760	57.2 (54.9–59.5)
Milk†		
2013–2014	3,017	21.7 (20.5–22.8)
2015–2016	2,897	20.7 (18.3–23.1)
2017–March 2020	4,079	19.1 (18.0–20.2)
August 2021–August 2023	1,760	16.1 (15.0–17.3)
100% fruit juice‡		
2013–2014	3,017	7.2 (6.1–8.3)
2015–2016	2,897	7.0 (5.7–8.2)
2017–March 2020	4,079	6.0 (5.3–6.6)
August 2021–August 2023	1,760	5.5 (4.6–6.3)
Coffee and tea		
2013–2014	3,017	4.8 (3.8–5.7)
2015–2016	2,897	5.4 (3.8–6.9)
2017–March 2020	4,079	5.1 (4.3–6.0)
August 2021–August 2023	1,760	3.9 (3.0–4.8)
Sweetened beverages†		
2013–2014	3,017	22.0 (20.3–23.7)
2015–2016	2,897	20.3 (19.0–21.5)
2017–March 2020	4,079	19.0 (17.6–20.4)
August 2021–August 2023	1,760	15.3 (13.7–16.9)
Diet beverages§		
2013–2014	3,017	2.0 (1.5–2.4)
2015–2016	2,897	1.5 (0.9–2.1)
2017–March 2020	4,079	1.4 (1.0–1.8)
August 2021–August 2023	1,760	2.0 (1.3–2.6)
* Significant increasing linear trend ($p < 0.05$). † Significant decreasing linear trend ($p < 0.05$). ‡ Significant quadratic trend ($p < 0.05$). § SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 2013–2014 through August 2021–August 2023.		

Data table for Figure 5. Trends in the contribution of beverage types to total nonalcoholic beverage consumption among adults age 20 and older: United States, 2013–2014 through August 2021–August 2023

Beverage type and survey cycle	Sample size	Percent (95% confidence interval)
Water*		
2013–2014	5,032	46.9 (45.1–48.7)
2015–2016	5,007	51.2 (49.1–53.3)
2017–March 2020	7,688	51.3 (49.9–52.8)
August 2021–August 2023	4,790	57.3 (55.9–58.8)
Milk†		
2013–2014	5,032	6.1 (5.7–6.5)
2015–2016	5,007	5.5 (5.1–6.0)
2017–March 2020	7,688	5.3 (4.7–5.8)
August 2021–August 2023	4,790	4.6 (4.0–5.2)
100% fruit juice‡		
2013–2014	5,032	3.1 (2.7–3.4)
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2017–March 2020	7,688	2.2 (2.0–2.5)
August 2021–August 2023	4,790	2.0 (1.7–2.3)
Coffee and tea		
2013–2014	5,032	23.5 (21.7–25.4)
2015–2016	5,007	22.8 (21.2–24.4)
2017–March 2020	7,688	23.9 (22.9–24.9)
August 2021–August 2023	4,790	20.1 (19.2–21.0)
Sweetened beverages‡		
2013–2014	5,032	14.9 (13.6–16.2)
2015–2016	5,007	13.3 (12.2–14.4)
2017–March 2020	7,688	13.3 (12.2–14.5)
August 2021–August 2023	4,790	11.2 (10.0–12.3)
Diet beverages§		
2013–2014	5,032	5.5 (4.8–6.3)
2015–2016	5,007	4.3 (3.6–5.1)
2017–March 2020	7,688	4.0 (3.3–4.7)
August 2021–August 2023	4,790	4.8 (4.4–5.3)
* Significant increasing linear trend ($p < 0.05$). † Significant decreasing linear trend ($p < 0.05$). ‡ Significant quadratic trend ($p < 0.05$). SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 2013–2014 through August 2021–August 2023.		

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