



Fruit and Vegetable Consumption Among Children and Adolescents: United States, August 2021–August 2023

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At a glance: Fruit and vegetable consumption, August 2021–August 2023

What do the data show?

The percentage of youth consuming fruit on a given day decreased with age across all fruit types. Although the percentage of youth consuming any vegetables did not change by age, the percentage of youth consuming dark green vegetables increased with age.

Who is most affected?

Adolescents ages 12–19 were the least likely to consume any fruit and children ages 2–5 were the least likely to consume dark green vegetables.

Introduction

Fruits and vegetables are important sources of essential nutrients, including vitamins, minerals, and fiber that are needed to support the growth and development of children and adolescents (1–3). Different fruits and vegetables contain varying amounts and types of nutrients, so consuming an assortment of colorful, nutrient-dense fruits and vegetables is important (1). During 2015–2018, 75.3% of U.S. children and adolescents consumed any fruit on a given day and 91.0% consumed any vegetables (3). This report provides updated estimates of the percentage of U.S. children and adolescents ages 2–19 who consumed fruit and vegetables, including the types of fruit and vegetables, on a given day during August 2021–August 2023.

Results

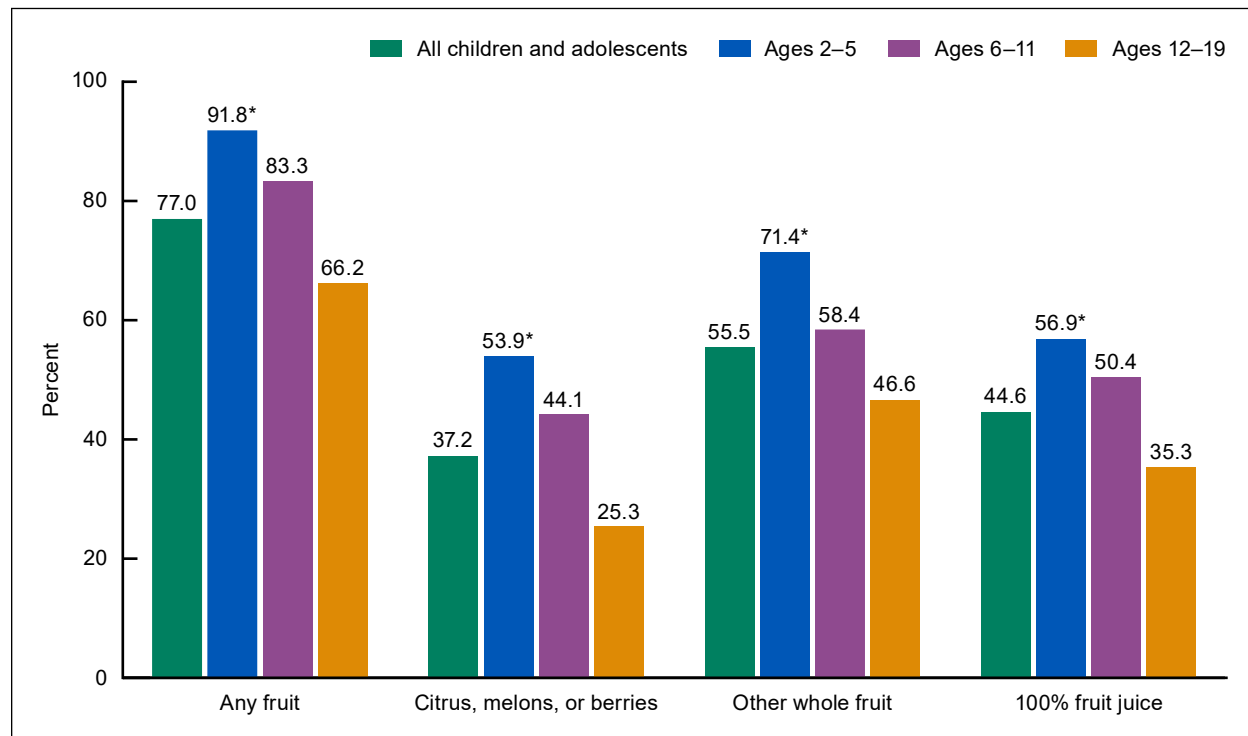
During August 2021–August 2023, the percentage of children and adolescents who consumed any fruit on a given day decreased with age ([Figure 1](#), [Table 1](#)):

- All children and adolescents: 77.0%
- Ages 2–5: 91.8%
- Ages 6–11: 83.3%
- Ages 12–19: 66.2%

The percentage of children and adolescents who consumed each fruit type or fruit juice decreased with age ([Figure 1](#), [Table 1](#)):

- Citrus, melons, or berries:
 - All children and adolescents: 37.2%
 - Ages 2–5: 53.9%
 - Ages 6–11: 44.1%
 - Ages 12–19: 25.3%
- Other whole fruit:
 - All children and adolescents: 55.5%
 - Ages 2–5: 71.4%
 - Ages 6–11: 58.4%
 - Ages 12–19: 46.6%
- 100% fruit juice:
 - All children and adolescents: 44.6%
 - Ages 2–5: 56.9%
 - Ages 6–11: 50.4%
 - Ages 12–19: 35.3%

Figure 1. Percentage of children and adolescents who consumed fruit on a given day, by age group: United States, August 2021–August 2023



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

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

Data table for Figure 1. Percentage of children and adolescents who consumed fruit on a given day, by age group: United States, August 2021–August 2023

Fruit type and age group	Sample size	Percent (95% confidence interval)	Standard error
Any fruit			
All children and adolescents	1,765	77.0 (74.2–79.8)	1.3
Ages 2–5	398	91.8* (88.2–95.3)	1.7
Ages 6–11	609	83.3 (80.5–86.1)	1.3
Ages 12–19	758	66.2 (61.3–71.1)	2.3
Citrus, melons, or berries			
All children and adolescents	1,765	37.2 (34.1–40.4)	1.5
Ages 2–5	398	53.9* (47.5–60.2)	3.0
Ages 6–11	609	44.1 (37.9–50.3)	2.9
Ages 12–19	758	25.3 (20.9–29.7)	2.1
Other whole fruit			
All children and adolescents	1,765	55.5 (52.2–58.8)	1.5
Ages 2–5	398	71.4* (66.9–75.9)	2.1
Ages 6–11	609	58.4 (53.6–63.1)	2.2
Ages 12–19	758	46.6 (41.1–52.2)	2.6
100% fruit juice			
All children and adolescents	1,765	44.6 (41.9–47.3)	1.3
Ages 2–5	398	56.9* (49.1–64.7)	3.6
Ages 6–11	609	50.4 (44.8–55.9)	2.6
Ages 12–19	758	35.3 (30.7–39.9)	2.1

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

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

During August 2021–August 2023, no significant change was seen by age in the percentage of children and adolescents who consumed any vegetables on a given day ([Figure 2](#), [Table 2](#)):

- All children and adolescents: 91.2%
- Ages 2–5: 91.0%
- Ages 6–11: 90.0%
- Ages 12–19: 92.0%

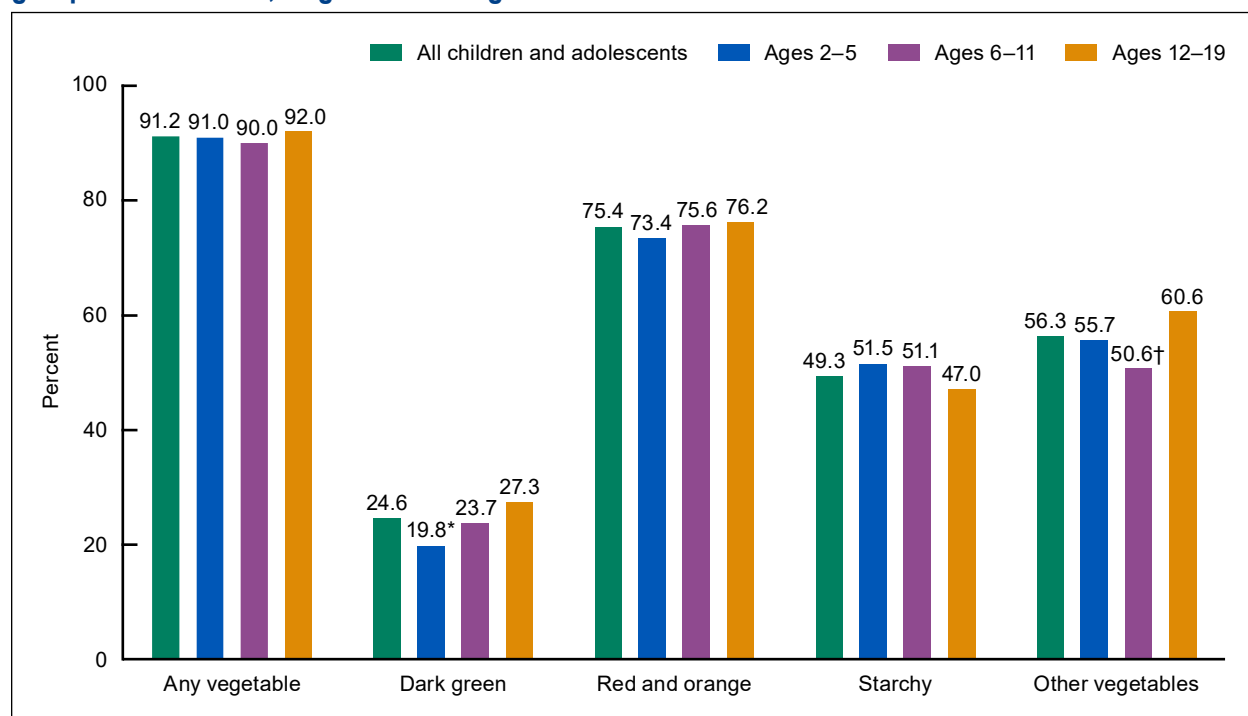
The percentage of children and adolescents consuming dark green vegetables increased with age (Figure 2, Table 2):

- All children and adolescents: 24.6%
- Ages 2–5: 19.8%
- Ages 6–11: 23.7%
- Ages 12–19: 27.3%

The percentage of children and adolescents consuming other vegetables was lower among children ages 6–11 than among adolescents ages 12–19, with no other significant differences by age (Figure 2, Table 2):

- All children and adolescents: 56.3%
- Ages 2–5: 55.7%
- Ages 6–11: 50.6%
- Ages 12–19: 60.6%

Figure 2. Percentage of children and adolescents who consumed vegetables on a given day, by age group: United States, August 2021–August 2023



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

† Significantly different from ages 12–19 ($p < 0.05$).

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

Data table for Figure 2. Percentage of children and adolescents who consumed vegetables on a given day, by age group: United States, August 2021–August 2023

Vegetable type and age group	Sample size	Percent (95% confidence interval)	Standard error
Any vegetable			
All children and adolescents	1,765	91.2 (89.2–93.1)	0.9
Ages 2–5	398	91.0 (87.8–94.3)	1.5
Ages 6–11	609	90.0 (86.7–93.3)	1.5
Ages 12–19	758	92.0 (89.6–94.4)	1.1
Dark green			
All children and adolescents	1,765	24.6 (22.7–26.4)	0.9
Ages 2–5	398	19.8* (14.8–24.8)	2.3
Ages 6–11	609	23.7 (20.6–26.8)	1.4
Ages 12–19	758	27.3 (24.0–30.5)	1.5
Red and orange			
All children and adolescents	1,765	75.4 (72.8–78.1)	1.2
Ages 2–5	398	73.4 (67.0–79.7)	3.0
Ages 6–11	609	75.6 (70.7–80.5)	2.3
Ages 12–19	758	76.2 (73.2–79.3)	1.4
Starchy			
All children and adolescents	1,765	49.3 (46.5–52.0)	1.3
Ages 2–5	398	51.5 (45.7–57.3)	2.7
Ages 6–11	609	51.1 (43.7–58.5)	3.5
Ages 12–19	758	47.0 (44.2–49.8)	1.3
Other vegetables			
All children and adolescents	1,765	56.3 (52.7–60.0)	1.7
Ages 2–5	398	55.7(48.5–63.0)	3.4
Ages 6–11	609	50.6† (46.2–55.1)	2.1
Ages 12–19	758	60.6(55.5–65.6)	2.4
* Significant increasing linear trend by age ($p < 0.05$). † Significantly different from ages 12–19 ($p < 0.05$). SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.			

Data source and methods

Data from the August 2021–August 2023 National Health and Nutrition Examination Survey (NHANES) were used to estimate the percentage of children and adolescents consuming fruits and vegetables on a given day. NHANES is a nationally representative, cross-sectional survey that collects data from children and adults in the United States to assess health, nutrition, diet, and health behaviors. NHANES includes two 24-hour (midnight-to-midnight) dietary recalls collected using the U.S. Department of Agriculture’s (USDA) standardized Automated Multiple-Pass Method. For the August 2021–August 2023 survey cycle, day 1 dietary recalls were collected via telephone interviews conducted 3–7 days after the mobile examination center (MEC) visit, rather than in the MEC as in previous cycles (4). Limitations of dietary recall include misreporting and recall bias. However, dietary recall has been shown to be reliable for estimating population-level dietary intake (5,6).

Food groups (types) were defined in this analysis using a custom Food Patterns Equivalents Database (FPED) file because the August 2021–August 2023 file was not yet available. The custom FPED file was developed by applying the established USDA procedures used to create earlier FPED files (7) and using the 2017–2018 food pattern equivalents assignments for ingredients.

All estimates were calculated using day 1 dietary recall sample weights and testing accounted for the complex survey design. Linear trends by age were assessed using orthogonal polynomials, and pairwise *t* tests were used to compare groups. All analyses were conducted using SAS version 9.4 (SAS Institute, Cary, N.C.) and SUDAAN version 11.0 (RTI International, Research Triangle Park, N.C.).

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