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Sodium Intake Among Children and Adolescents and Adults: United States, 2013–2014 Through August 2021–August 2023

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At a glance: Sodium intake

What do the data show?

From 2013–2014 through August 2021–August 2023, mean sodium intake on a given day declined among people age 1 and older.

Introduction

Excess sodium intake contributes to chronic disease risk, including hypertension. The Chronic Disease Risk Reduction intake for sodium of 2,300 milligrams (mg) per day was established in 2019 (1). Sodium intake in the U.S. population remains above this level (2,3). This report presents trends in mean sodium intake on a given day among people age 1 and older in the United States.

Results

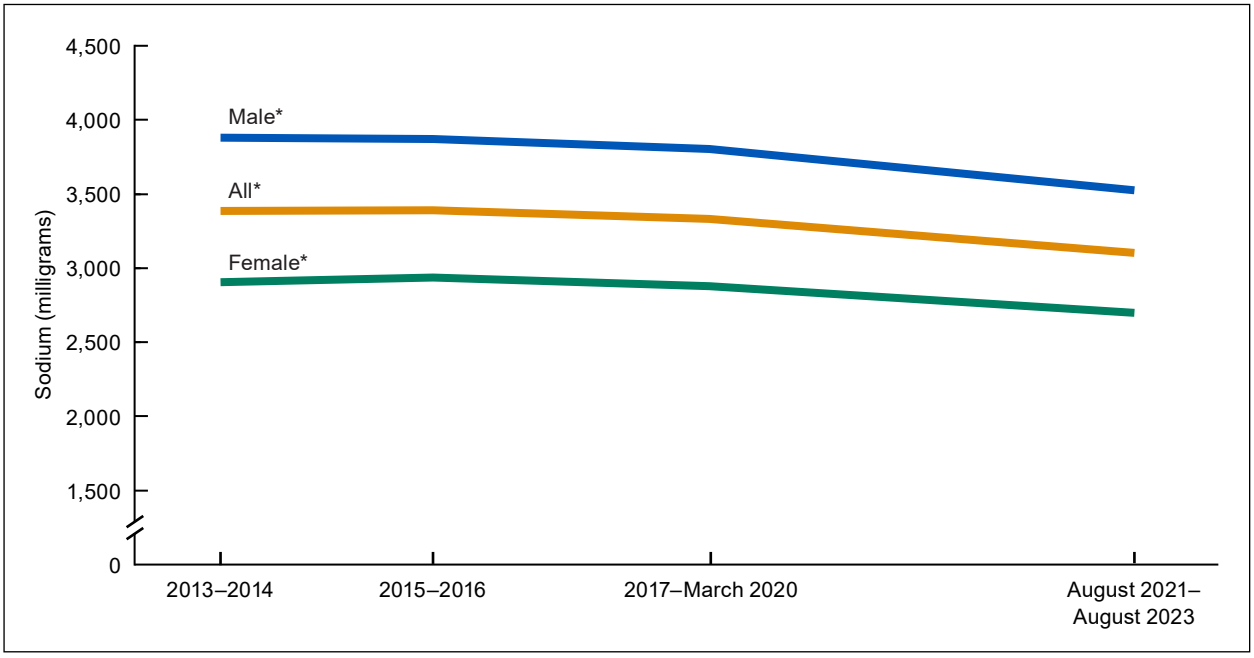
From 2013–2014 through August 2021–August 2023, mean sodium intake decreased among people age 1 and older, overall and by sex (Figure 1, Table):

- People age 1 and older:
  - 2013–2014: 3,385.6 mg
  - 2015–2016: 3,392.6 mg

- 2017–March 2020: 3,330.6 mg
- August 2021–August 2023: 3,104.0 mg

- Males, age 1 and older:
  - 2013–2014: 3,882.2 mg
  - 2015–2016: 3,871.3 mg
  - 2017–March 2020: 3,803.6 mg
  - August 2021–August 2023: 3,524.3 mg
- Females, age 1 and older:
  - 2013–2014: 2,903.7 mg
  - 2015–2016: 2,935.9 mg
  - 2017–March 2020: 2,879.6 mg
  - August 2021–August 2023: 2,698.3 mg

Figure 1. Trends in mean sodium intake on a given day among children and adolescents and adults age 1 and older, by sex: United States, 2013–2014 through August 2021–August 2023

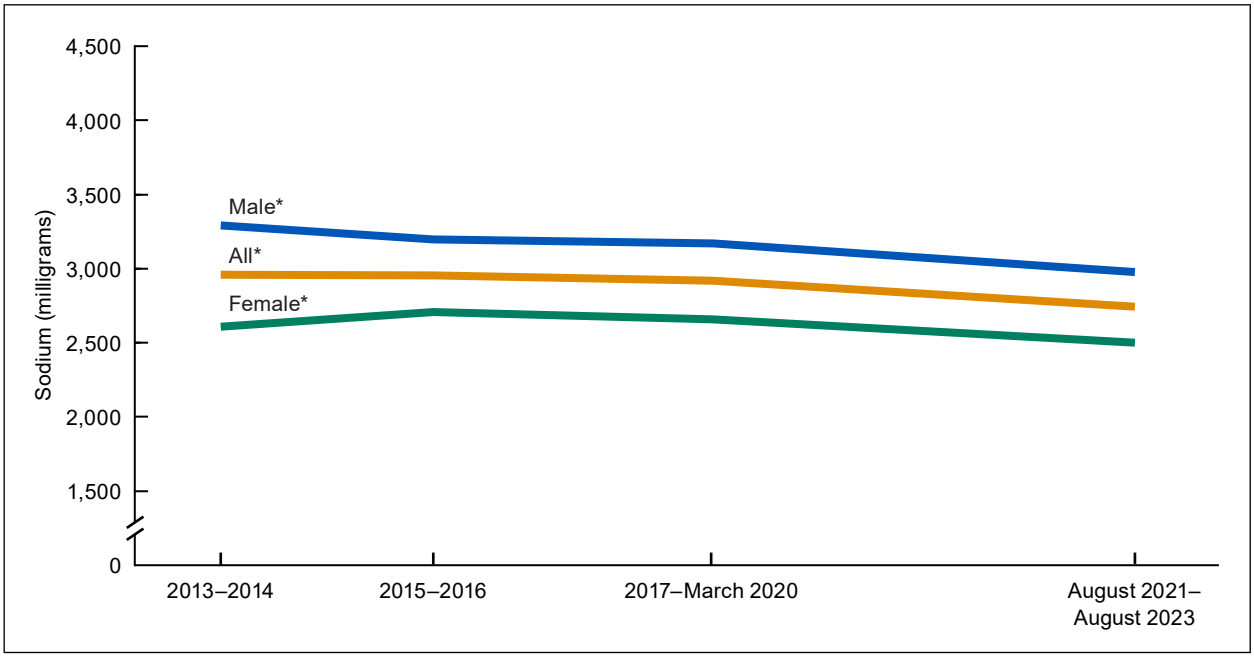


* Significant quadratic trend ($p < 0.05$).
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 2013–2014 through August 2021–August 2023.

From 2013–2014 through August 2021–August 2023, mean sodium intake decreased among children and adolescents ages 1–19, overall and by sex (Figure 2, Table):

- All children and adolescents:
  - 2013–2014: 2,959.8 mg
  - 2015–2016: 2,957.4 mg
  - 2017–March 2020: 2,918.6 mg
  - August 2021–August 2023: 2,745.0 mg
- Male children and adolescents:
  - 2013–2014: 3,290.9 mg
  - 2015–2016: 3,197.1 mg
  - 2017–March 2020: 3,170.5 mg
  - August 2021–August 2023: 2,977.5 mg
- Female children and adolescents:
  - 2013–2014: 2,608.1 mg
  - 2015–2016: 2,708.7 mg
  - 2017–March 2020: 2,657.6 mg
  - August 2021–August 2023: 2,502.8 mg

Figure 2. Trends in mean sodium intake on a given day among children and adolescents ages 1–19, by sex: United States, 2013–2014 through August 2021–August 2023



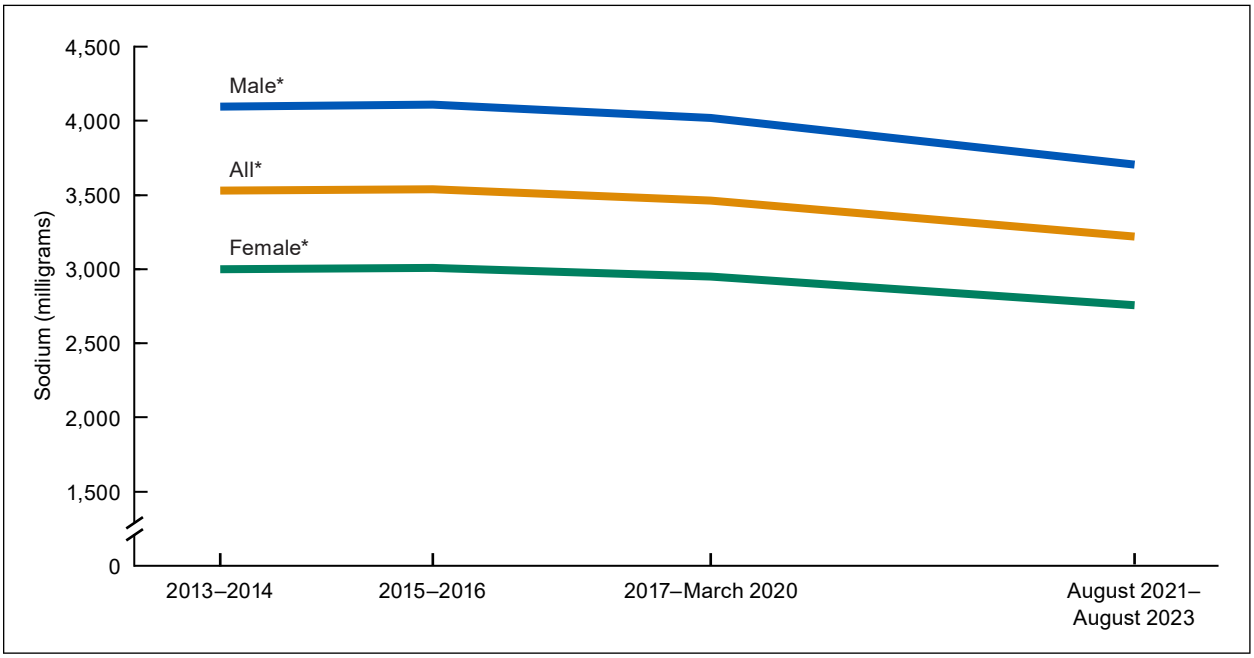
* Significant decreasing linear trend ($p < 0.05$).
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 2013–2014 through August 2021–August 2023.

From 2013–2014 through August 2021–August 2023, mean sodium intake decreased among adults age 20 and older, overall and by sex (Figure 3, Table):

- All adults:
  - 2013–2014: 3,528.9 mg
  - 2015–2016: 3,536.3 mg
  - 2017–March 2020: 3,463.2 mg
  - August 2021–August 2023: 3,217.3 mg
- Male adults:
  - 2013–2014: 4,093.5 mg
  - 2015–2016: 4,106.9 mg
  - 2017–March 2020: 4,019.2 mg
  - August 2021–August 2023: 3,705.8 mg
- Female adults:
  - 2013–2014: 2,997.4 mg

- 2015–2016: 3,006.9 mg
- 2017–March 2020: 2,947.2 mg
- August 2021–August 2023: 2,757.0 mg

Figure 3. Trends in mean sodium intake on a given day among adults age 20 and older, by sex: United States, 2013–2014 through August 2021–August 2023



* 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.

Table. Trends in mean sodium intake on a given day among children and adolescents and adults, by age group and sex: United States, 2013–2014 through August 2021–August 2023

Sex, age group, and survey period	Sample size	Sodium (milligrams)	95% confidence interval	Standard error
All, age 1 and older				
2013–2014	8,265	3,385.6	(3,333.4–3,437.8)	26.6
2015–2016	8,113	3,392.6	(3,327.3–3,457.8)	33.3
2017–March 2020	12,076	3,330.6	(3,278.5–3,382.7)	26.6
August 2021–August 2023	6,614	3,104.0*	(3,045.4–3,162.6)	29.9
Males, age 1 and older				
2013–2014	4,045	3,882.2	(3,791.5–3,972.8)	46.3
2015–2016	3,984	3,871.3	(3,761.2–3,981.3)	56.2
2017–March 2020	5,965	3,803.6	(3,728.0–3,879.2)	38.6
August 2021–August 2023	3,005	3,524.3*	(3,445.7–3,602.8)	40.1

Females, age 1 and older				
2013–2014	4,220	2,903.7	(2,865.4–2,941.9)	19.5
2015–2016	4,129	2,935.9	(2,875.1–2,996.8)	31.1
2017–March 2020	6,111	2,879.6	(2,820.2–2,938.9)	30.3
August 2021–August 2023	3,609	2,698.3*	(2,627.0–2,769.6)	36.4
Children and adolescents, ages 1–19				
2013–2014	3,218	2,959.8	(2,885.8–3,033.8)	37.7
2015–2016	3,096	2,957.4	(2,887.3–3,027.4)	35.7
2017–March 2020	4,371	2,918.6	(2,812.6–3,024.7)	54.1
August 2021–August 2023	1,821	2,745.0†	(2,635.4–2,854.6)	55.9
Males, ages 1–19				
2013–2014	1,631	3,290.9	(3,168.7–3,413.2)	62.4
2015–2016	1,569	3,197.1	(3,083.9–3,310.2)	57.7
2017–March 2020	2,221	3,170.5	(3,055.4–3,285.6)	58.7
August 2021–August 2023	892	2,977.5†	(2,801.9–3,153.2)	89.6
Females, ages 1–19				
2013–2014	1,587	2,608.1	(2,533.9–2,682.3)	37.9
2015–2016	1,527	2,708.7	(2,622.3–2,795.1)	44.1
2017–March 2020	2,150	2,657.6	(2,515.6–2,799.7)	72.5
August 2021–August 2023	929	2,502.8†	(2,390.3–2,615.3)	57.4
Adults, age 20 and older				
2013–2014	5,047	3,528.9	(3,470.0–3,587.8)	30.1
2015–2016	5,017	3,536.3	(3,457.9–3,614.7)	40.0
2017–March 2020	7,705	3,463.2	(3,408.2–3,518.3)	28.1
August 2021–August 2023	4,793	3,217.3*	(3,141.4–3,293.2)	38.7
Males, age 20 and older				
2013–2014	2,414	4,093.5	(3,989.1–4,198.0)	53.3
2015–2016	2,415	4,106.9	(3,981.2–4,232.6)	64.1
2017–March 2020	3,744	4,019.2	(3,936.3–4,102.0)	42.3
August 2021–August 2023	2,113	3,705.8*	(3,610.9–3,800.7)	48.4
Females, age 20 and older				
2013–2014	2,633	2,997.4	(2,954.1–3,040.6)	22.1
2015–2016	2,602	3,006.9	(2,931.5–3,082.4)	38.5
2017–March 2020	3,961	2,947.2	(2,872.4–3,022.1)	38.2
August 2021–August 2023	2,680	2,757.0*	(2,672.0–2,842.1)	43.4

* Significant quadratic trend ($p < 0.05$).
† Significant decreasing linear trend ($p < 0.05$).
SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, August 2021–August 2023.

Data source and methods

National Health and Nutrition Examination Survey (NHANES) data were used to estimate mean sodium intake. NHANES is a nationally representative, cross-sectional survey of the U.S. civilian noninstitutionalized population. The sample is selected through a complex, multistage probability design. NHANES consists of home interviews followed by health examinations in a mobile examination center and two 24-hour dietary recall interviews (4). NHANES was conducted continuously from 1999 through March 2020, when data collection was paused due to the COVID-19 pandemic. In August 2021, NHANES resumed data collection with altered operations and procedures, including a mode change in dietary data collection for the August 2021–August 2023 cycle (5,6).

This report includes all participants age 1 and older with reliable day 1 dietary recall data. Those reporting breast milk consumption were excluded. Day 1 dietary interview sample weights were used to account for probability of selection, noncoverage, nonresponse, and day of the week. Polynomial regression models were used to test for linear and quadratic trends, adjust for age, and account for unequal spacing and lengths of survey cycles. Statistical significance was set at $p < 0.05$. Statistical analyses were conducted using R version 4.4.1.

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