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## Mean Body Weight, Height, Waist Circumference, and Body Mass Index Among Children and Adolescents: United States, 1999–2018

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### Abstract

**Objective**—This report presents trends in mean weight, recumbent length, height, waist circumference, and body mass index (BMI) among children and adolescents in the United States from 1999 through 2018.

**Methods**—Data were obtained from physical examinations of nationally representative samples of children and adolescents ranging in age from birth through 19 years in the National Health and Nutrition Examination Surveys during 1999–2018. Means and standard errors for weight ( $n = 43,321$ ), recumbent length ( $n = 11,397$ ), height ( $n = 36,538$ ), waist circumference ( $n = 35,014$ ), and BMI ( $n = 36,142$ ) are presented separately for boys and girls, and by single year of age for 4-year survey periods. Trends in body measures over time for continuous 2-year periods by sex and age group (2–5, 6–11, 12–15, 16–19 years) are shown in figures. Trends in mean estimates were evaluated using age-adjusted linear regression.

**Results**—No significant trends over time were observed in any of the body measures for children aged 2–5 years, except for an increase in mean BMI among girls. Among girls aged 6–11, mean height and waist circumference significantly increased from 1999–2000 through 2003–2004, and then significantly decreased for height but remained stable for waist circumference through 2017–2018. Among those aged 12–15, mean body weight and waist circumference increased over time among boys, and BMI increased among both boys and girls. Among adolescent boys aged 16–19, body weight significantly increased from 1999–2000 through 2009–2010 and then significantly decreased through 2017–2018. In addition, height remained stable through 2009–2010 and then significantly decreased through 2017–2018. Among adolescent girls aged 16–19, mean body weight, waist circumference, and BMI significantly increased from 1999–2000 through 2017–2018.

**Keywords:** anthropometry • body measures • BMI • National Health and Nutrition Examination Survey (NHANES)

### Introduction

Since 1999, the prevalence of obesity (sex-specific body mass index [BMI]-for-age at or above the 95th percentile of the CDC [Centers for Disease Control and Prevention] growth charts) among persons aged 2–19 years has increased in the United States (1–3). This is due in part to an increase in obesity among adolescents (2). This report presents updated trends (4) in mean body weight, recumbent length, height, waist circumference, and BMI for the U.S. population under age 20 years from 1999–2002 through 2015–2018 by sex and age.

### Methods

The National Health and Nutrition Examination Survey (NHANES) is conducted by the National Center for Health Statistics (NCHS). NHANES is a complex, multistage probability sample of the civilian noninstitutionalized U.S. population. Various subgroups have been oversampled over the years (5). Household interviews followed by health examinations, conducted in mobile examination centers (MEC), are used to collect data. The examination centers are staffed by full-time personnel,



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including health technicians who conduct body measurements using standardized examination procedures. Participants aged 18 and over provided written consent, parents provided written permission for youth under age 18 years, and documented assent was obtained for youth aged 7–17 years.

NHANES was approved by the NCHS research ethics review board. A series of cross-sectional surveys were conducted periodically from 1960 through 1994. Beginning in 1999, NHANES became a continuous survey. The procedures followed to select the sample and conduct the interview and examination were similar to those for previous surveys (6). Nationally representative data from the continuous NHANES are collected and released in 2-year cycles (7). The overall examination response rates for children and adolescents under age 20 ranged from 84% during 1999–2000 to 61% during 2017–2018 (8).

## Analytic sample

Data on anthropometric measurements were available for 44,368 examined persons ranging in age from birth to 19 years from 10 consecutive NHANES 2-year cycles from 1999 through 2018. Results are presented in combined 2-year cycles (4 years) to provide stable estimates. Age of children and adolescents was based on age in months at the time of the examination in the MEC ( $n = 141$  persons missing age in months or age greater than 239 months). Pregnant females under age 20 were excluded from the tabulations of body weight, BMI, and waist circumference ( $n = 241$ ). Body measurement data were missing for recumbent length ( $n = 457$ ), weight ( $n = 665$ ), height ( $n = 734$ ), weight or height for calculation of BMI ( $n = 889$ ), and waist circumference ( $n = 2,017$ ) within the relevant age range for each measurement (see “Body Measurements”).

Final sample sizes were 43,321 for body weight, 11,397 for recumbent length, 36,538 for height, 35,014 for waist circumference, and 36,142 for BMI. Technical Notes [Tables I–V](#) show the unweighted sample size for each body measure by survey and age separately

for boys and girls under age 20 years. Age is presented by single age in years, except for infants under 1 year, for whom it is presented by age in months. For trends analysis, age was categorized into four groups: 2–5, 6–11, 12–15, and 16–19 years to increase sample size and reliability of estimates.

## Body measurements

Body measurements methodology in NHANES has remained consistent over time and is standardized across MEC examiners. Weight was measured to the nearest 0.1 kilogram (kg) using a digital weight scale. Waist circumference measurements were made to the nearest 0.1 centimeter (cm) using a tape measure at the uppermost lateral border of the hip crest (ilium) (9). Recumbent length was measured in children from birth through 47 months of age to the nearest 0.1 cm using a digital infantometer, a specialized piece of equipment for measuring infant length (10). Standing height was measured with a wall-mounted digital stadiometer. Weight, recumbent length, and standing height values were recorded automatically to reduce errors. Waist circumference measures were recorded using computer-assisted data entry, and all results were based on a single body measurement at examination. The “NHANES Anthropometry Procedures Manual” describes the protocol, equipment, quality control, and measurement procedures in detail (10). BMI was calculated as weight in kilograms, divided by height in meters squared ( $\text{kg}/\text{m}^2$ ) rounded to one decimal.

## Statistical analysis

NHANES examination sample weights were applied to adjust for oversampling of certain populations, noncoverage, and nonresponse (from screener to interview and from interview to examination) to calculate estimates representative of the U.S. civilian noninstitutionalized population. Standard errors of the means were estimated using Taylor series linearization, which incorporates the design variables for weighting, stratification, and clustering (11). The statistical reliability of means was evaluated according to whether the

relative standard error ( $\text{RSE} = [\text{standard error of the mean} / \text{mean}] \cdot 100$ ) exceeded 30%. All of the RSEs for estimates in this report met the reliability criterion. All results presented are stratified by sex. Stratified estimates for boys and girls are presented by single year of age. Results for both English (inches [in] and pounds [lb]) and metric (cm and kg) measurements are presented in the tables.

Trends over time were conducted using 2-year cycles for each of four age groups (2–5, 6–11, 12–15, and 16–19 years) adjusted for age in years to increase sample sizes and statistical reliability compared with single year of age. For recumbent length, trends over time were evaluated using 2-year cycles for ages 0–11 months and 12–47 months separately and adjusted for age in months. Linear and quadratic trends were initially assessed using the same linear regression models, and statistical significance was determined using the Satterthwaite adjusted  $F$  test (12) at the  $\alpha = 0.05$  level. If a quadratic trend was present, age-adjusted means and standard errors for each age group and survey cycle were calculated using predicted marginals from a linear regression model that included age in years. The estimated age-adjusted means and standard errors from the predicted marginals were used with JoinPoint software (13) (using the Bayesian Information Criteria test and specifying a minimum of three data points per segment) to determine change points in the trend. If at least one significant change point was detected, piecewise linear regression was used to test the significance of the slope for each line segment, and the significance of the difference between slopes for the two line segments for each age group was adjusted for age in years. A secondary analysis of sex- and age-group-specific trends adjusted for both age in years and race and Hispanic origin (non-Hispanic white, non-Hispanic black, Mexican American, and other) were modeled. Results were similar to trends of those adjusted for age only and are not reported.

## Results

### Weight

Estimates of mean body weight for children and adolescents from birth to age 19 years from 1999–2002 through 2015–2018 are presented in [Tables 1](#) (kg) and [2](#) (lb).

A significant increase in body weight over time was observed for boys aged 12–15 ([Figure 1](#)). The age-adjusted mean body weight in this age group increased from 59.0 kg in 1999–2000 to 62.3 kg in 2017–2018. In boys aged 16–19, age-adjusted mean body weight increased from 75.5 kg in 1999–2000 to 79.3 kg in 2009–2010 and then decreased to 75.5 kg in 2017–2018. From 1999–2000 through 2017–2018, no significant trends in body weight were observed for boys aged 2–5 (17.1 kg to 17.7) or 6–11 (32.9 kg to 34.4).

Among girls aged 16–19, age-adjusted mean body weight increased from 63.7 kg in 1999–2000 to 67.0 kg in 2017–2018 ([Figure 2](#)). From 1999–2000 through 2017–2018, no significant trends

in body weight were observed for girls aged 2–5 (16.8 kg to 16.9), 6–11 (33.4 kg to 35.2), or 12–15 (58.3 kg to 59.6).

### Recumbent length

Estimates of mean recumbent length for children from birth to age 3 years from 1999–2002 through 2015–2018 are presented in [Tables 3](#) (cm) and [4](#) (in).

A significant increase in mean recumbent length over time was observed for boys aged 12–47 months ([Figure 3](#)). Age-adjusted mean recumbent length in this age group increased from 90.4 cm in 1999–2000 to 91.5 cm in 2017–2018. No significant trends in recumbent length were observed for boys aged 0–11 months (66.4 cm to 66.5). Among girls aged 0–11 months, age-adjusted mean recumbent length decreased from 65.7 cm in 1999–2000 to 65.2 cm in 2017–2018 ([Figure 3](#)). No significant trends in recumbent length were observed among girls aged 12–47 months (89.4 cm to 90.1).

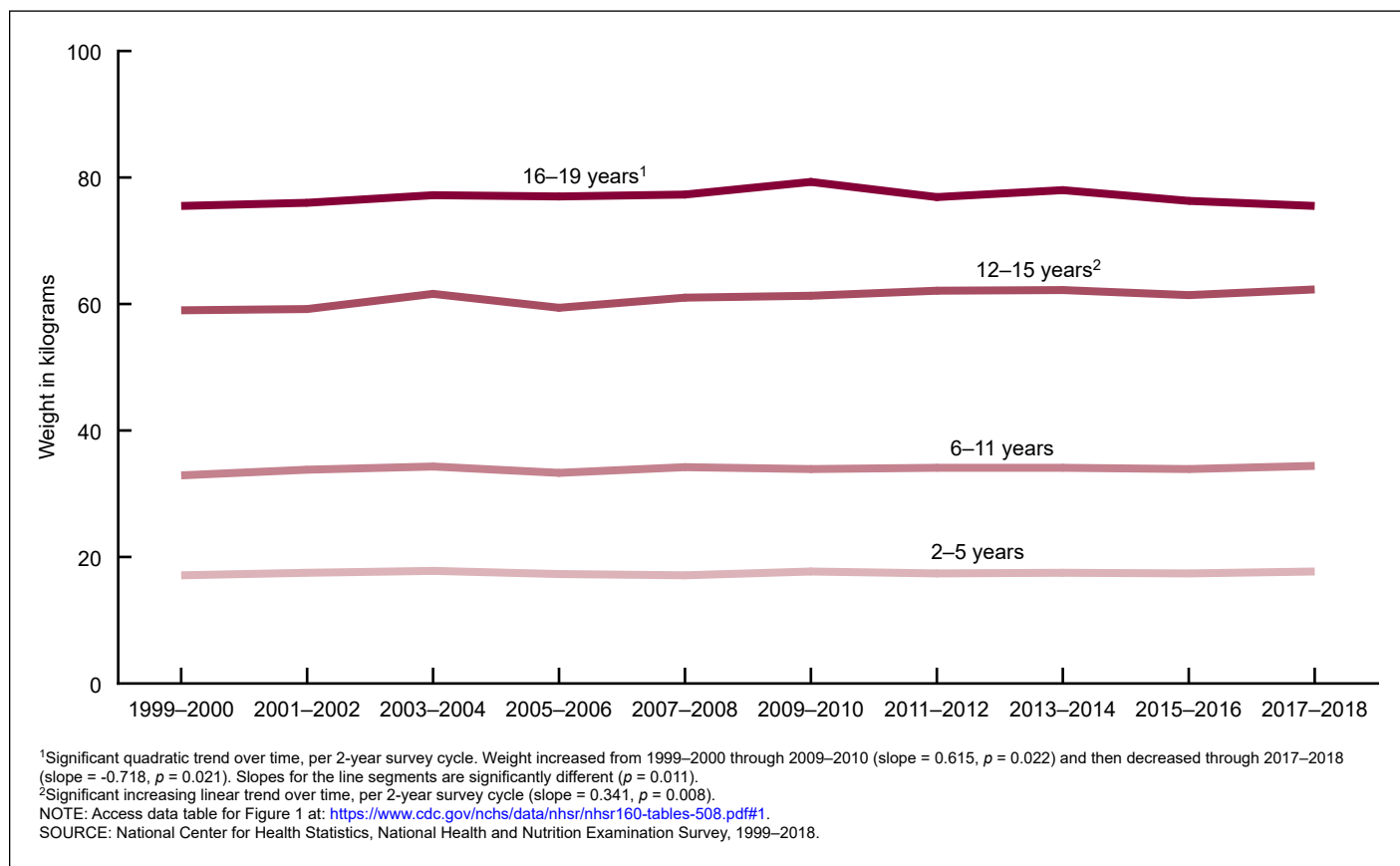
### Standing height

[Tables 5](#) (cm) and [6](#) (in) show mean height for children and adolescents aged 2–19 years from 1999–2002 through 2015–2018.

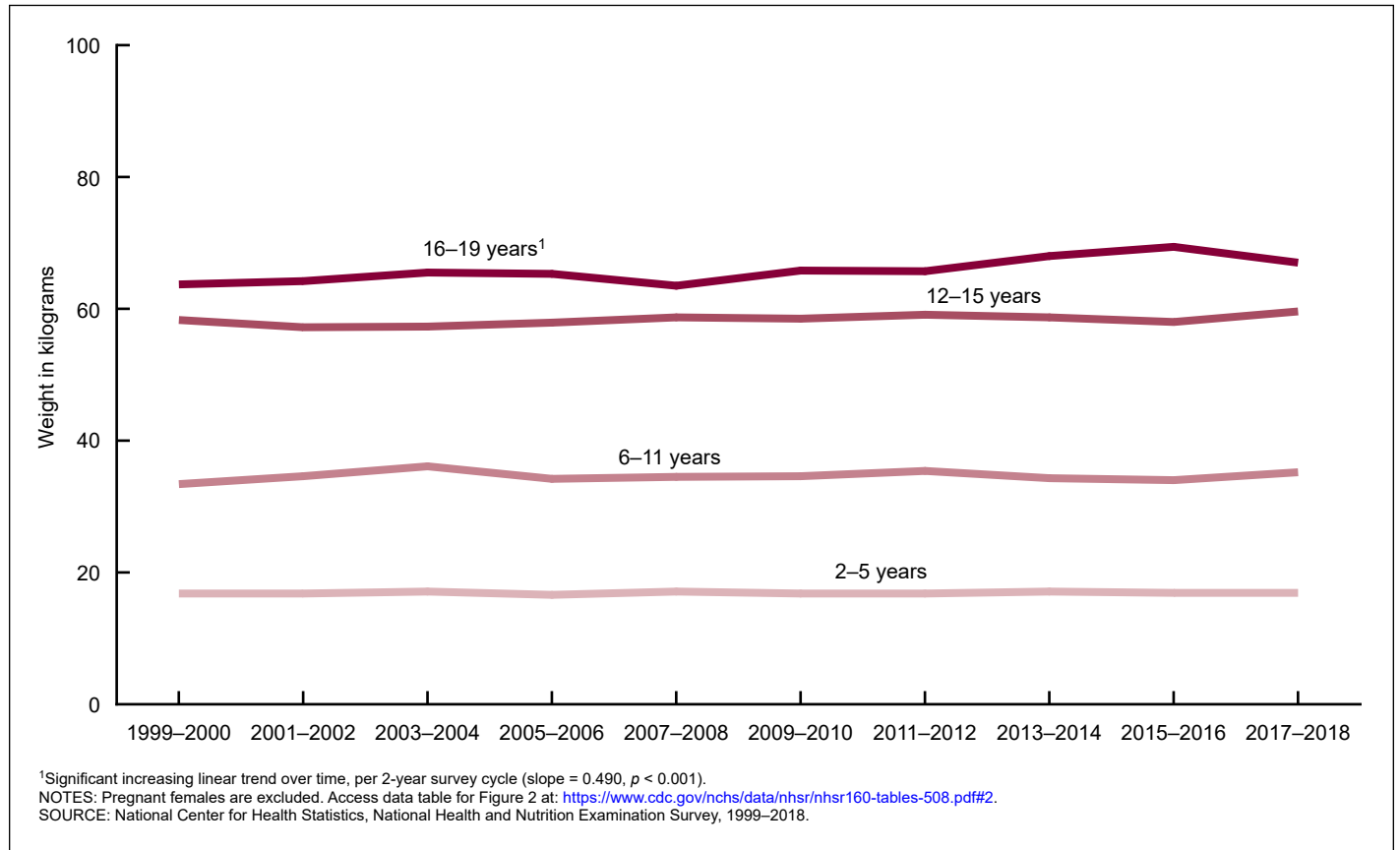
Among boys aged 16–19, age-adjusted mean height remained stable from 175.8 cm in 1999–2000 to 176.6 cm in 2009–2010 and then significantly decreased to 174.6 cm in 2017–2018 ([Figure 4](#)). From 1999–2000 through 2017–2018, no significant trends in height were observed for boys aged 2–5 (102.5 cm to 102.6), 6–11 (133.7 cm to 134.1), or 12–15 (164.1 cm to 164.6).

Among girls aged 6–11, age-adjusted mean height increased from 133.5 cm in 1999–2000 to 135.7 cm in 2003–2004 and then decreased to 134.5 cm in 2017–2018 ([Figure 5](#)). From 1999–2000 through 2017–2018, no significant trends in height were observed for girls aged 2–5 (101.7 cm to 101.3), 12–15 (160.2 cm to 159.2), or 16–19 (162.2 cm to 162.4).

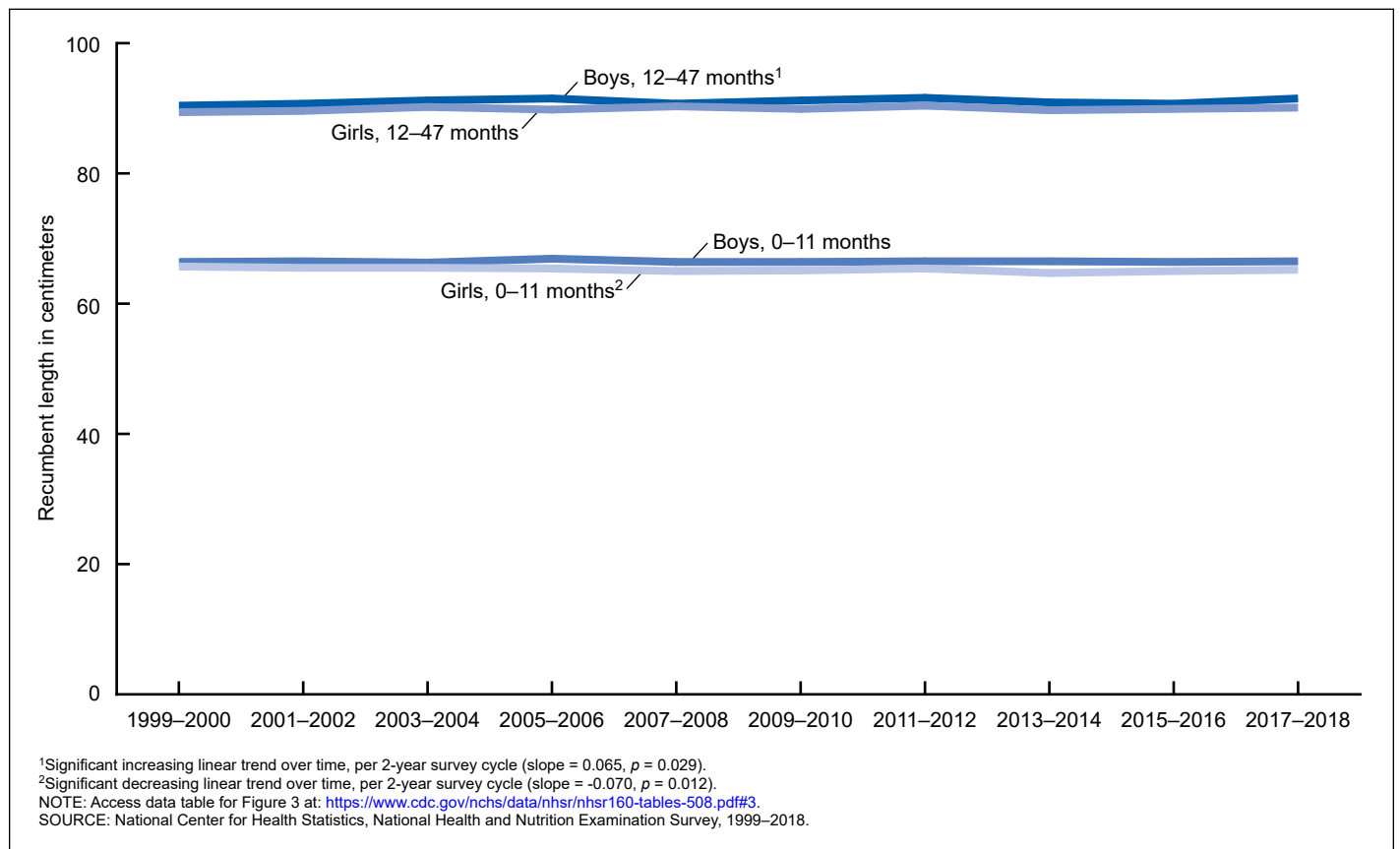
**Figure 1. Age-adjusted trends in mean body weight among boys aged 2–19 years: United States, 1999–2000 through 2017–2018**



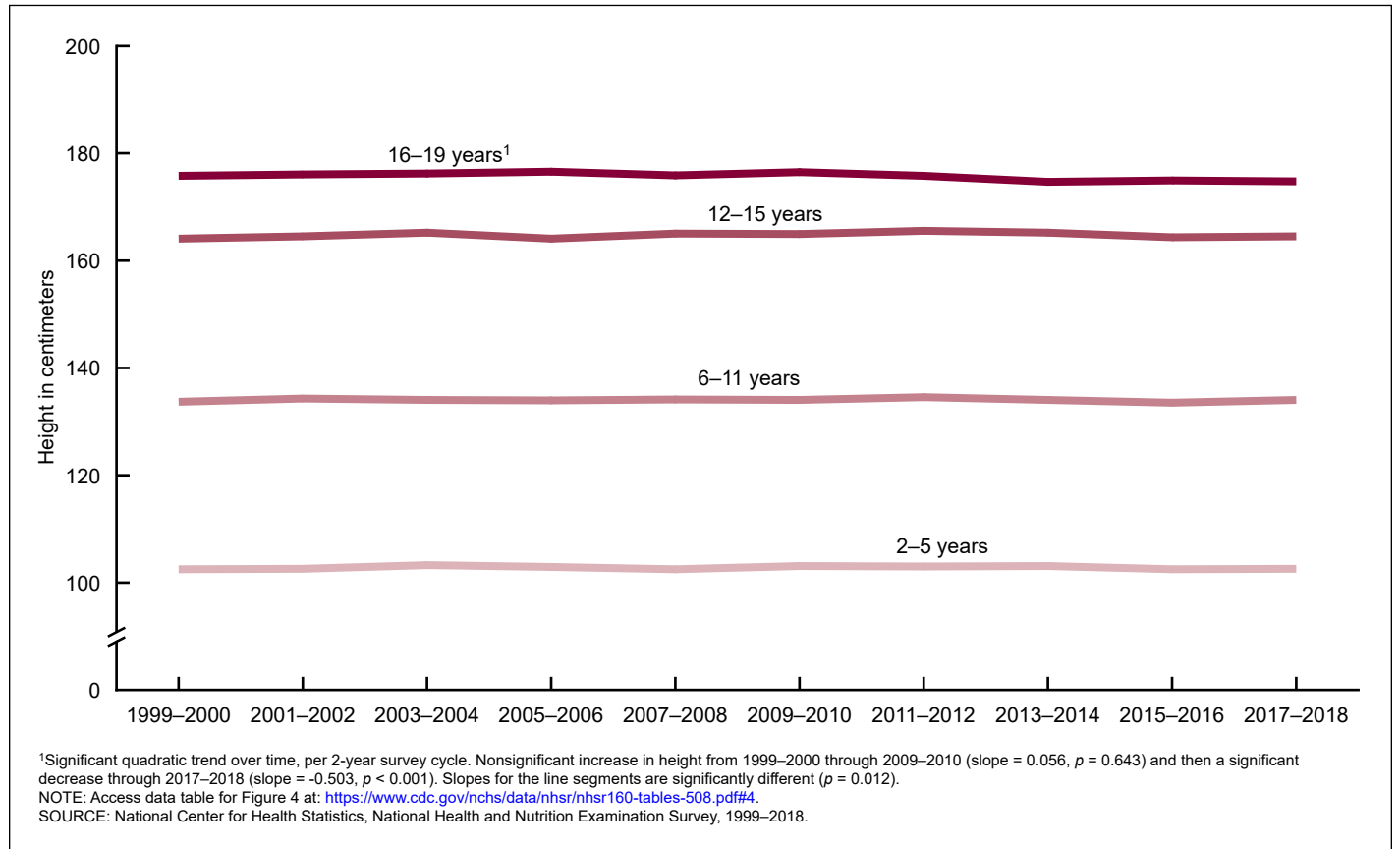
**Figure 2. Age-adjusted trends in mean body weight among girls aged 2–19 years: United States, 1999–2000 through 2017–2018**



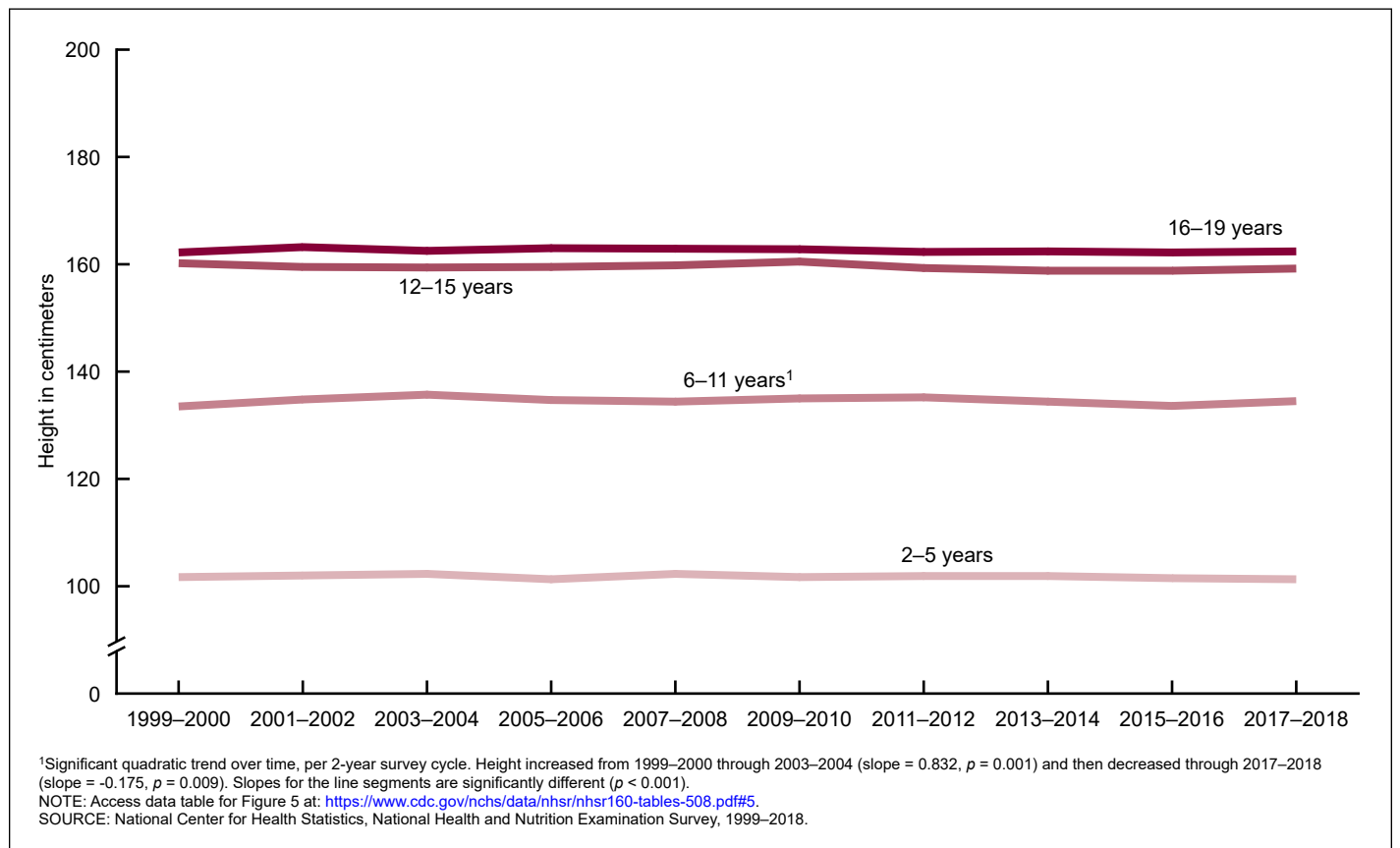
**Figure 3. Age-adjusted trends in mean recumbent length among boys and girls aged 0–47 months: United States, 1999–2000 through 2017–2018**



**Figure 4. Age-adjusted trends in mean height among boys aged 2–19 years: United States, 1999–2000 through 2017–2018**



**Figure 5. Age-adjusted trends in mean height among girls aged 2–19 years: United States, 1999–2000 through 2017–2018**



## Waist circumference

Estimates of mean waist circumference for children and adolescents aged 2–19 years from 1999–2002 through 2015–2018 are presented in [Tables 7](#) (cm) and [8](#) (in).

A significant increase in waist circumference over time was observed for boys aged 12–15 ([Figure 6](#)), where the age-adjusted mean waist circumference increased from 76.6 cm in 1999–2000 to 80.0 cm in 2017–2018. From 1999–2000 through 2017–2018, no significant trends in waist circumference were observed for boys aged 2–5 (51.5 cm to 52.5), 6–11 (63.2 cm to 65.1), or 16–19 (84.5 cm to 85.3).

Among girls aged 6–11, age-adjusted mean waist circumference increased from 63.2 cm in 1999–2000 to 66.6 cm in 2003–2004 and then remained stable through 2017–2018 (65.3) ([Figure 7](#)). For girls aged 16–19, a significant increase in age-adjusted mean waist circumference was observed, from 81.0 cm in 1999–2000 to 83.9 cm in 2017–2018. From 1999–2000 through 2017–2018, no significant trends in waist circumference

were observed among girls aged 2–5 (51.3 cm to 51.9) or 12–15 (78.0 cm to 79.5).

## BMI

Estimates of mean BMI for children and adolescents aged 2–19 years from 1999–2002 through 2015–2018 are presented in [Table 9](#).

Similar to body weight and waist circumference, a significant increase in BMI over time was observed for boys aged 12–15 ([Figure 8](#)). Age-adjusted mean BMI in this age group increased from 1999–2000 (21.5) through 2017–2018 (22.6). From 1999–2000 through 2017–2018, no significant trends in BMI were observed for boys aged 2–5 (16.2 to 16.8), 6–11 (18.0 to 18.6), or 16–19 (24.3 to 24.7).

Among girls of all age groups, except those aged 6–11, a significant increase in BMI over time was observed ([Figure 9](#)). From 1999–2000 through 2017–2018, age-adjusted mean BMI increased for those aged 2–5 (16.1 to 16.4), 12–15 (22.6 to 23.4), and 16–19

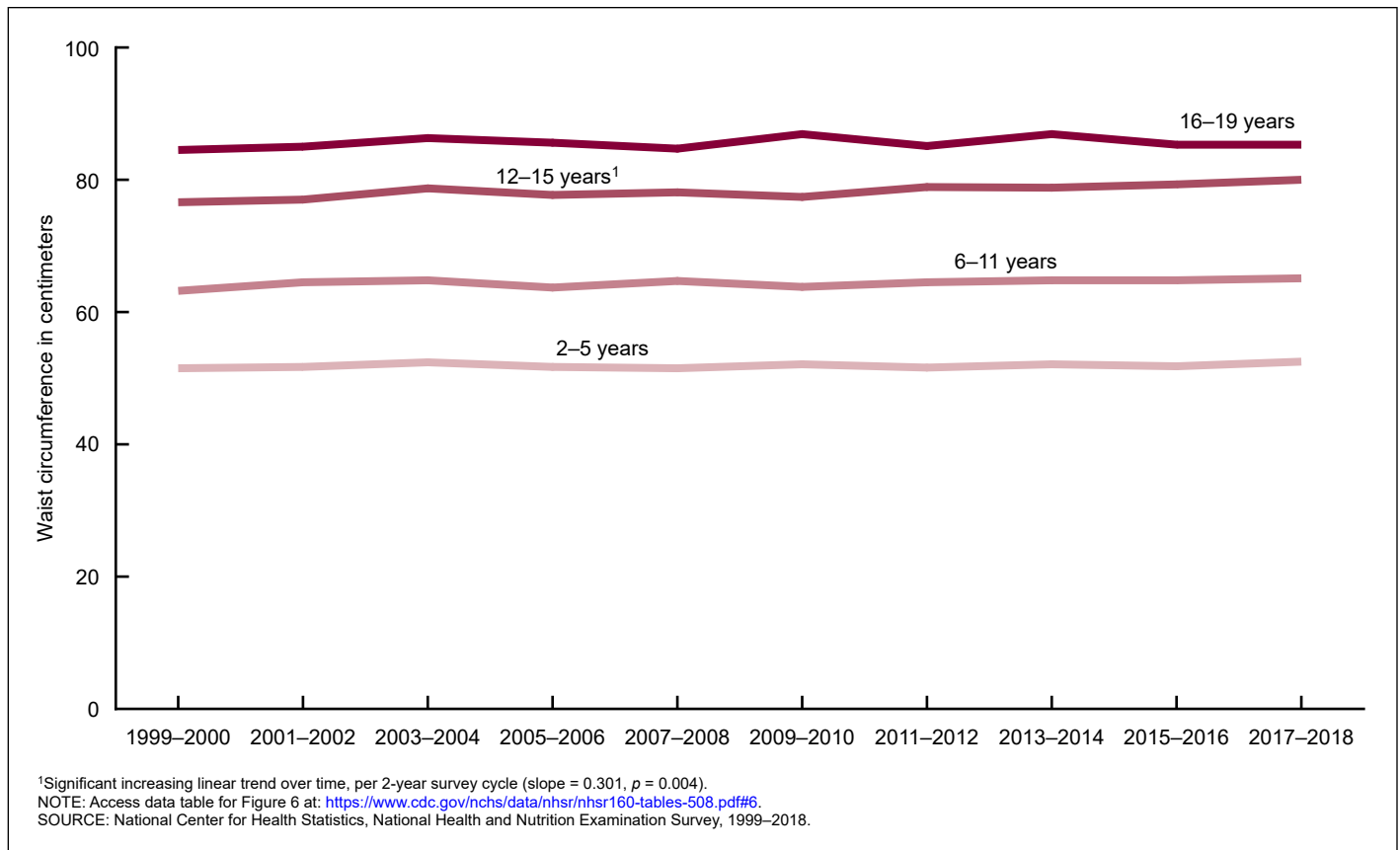
(24.1 to 25.4). No significant trend over time in BMI was observed among girls aged 6–11 (18.1 to 18.8).

## Discussion and Conclusions

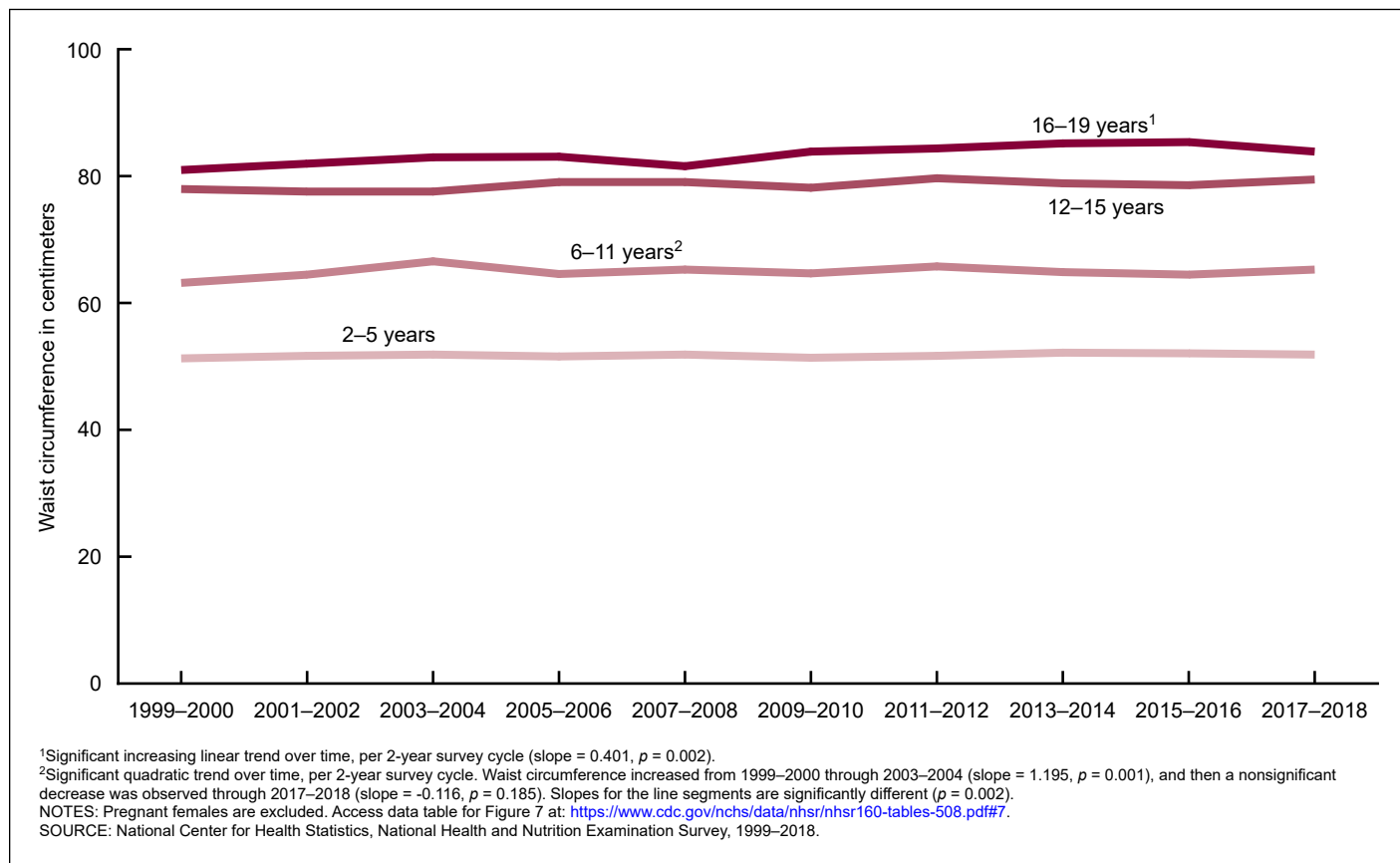
A previous report using NHANES data showed increases in mean weight, height, and BMI among children and adolescents from 1960–1962 through 1999–2002 (4). This report shows that mean body weight, waist circumference, and BMI generally increased among adolescents aged 12–15 and 16–19 since 1999–2000. No change in height was observed during this time, except for a decrease in mean height among boys aged 16–19 since 2009–2010 and girls aged 6–11 since 2003–2004.

The strengths of using NHANES to monitor weight, height, length, and waist circumference among U.S. children and adolescents include national representativeness and high-quality, standardized measurements by trained examiners.

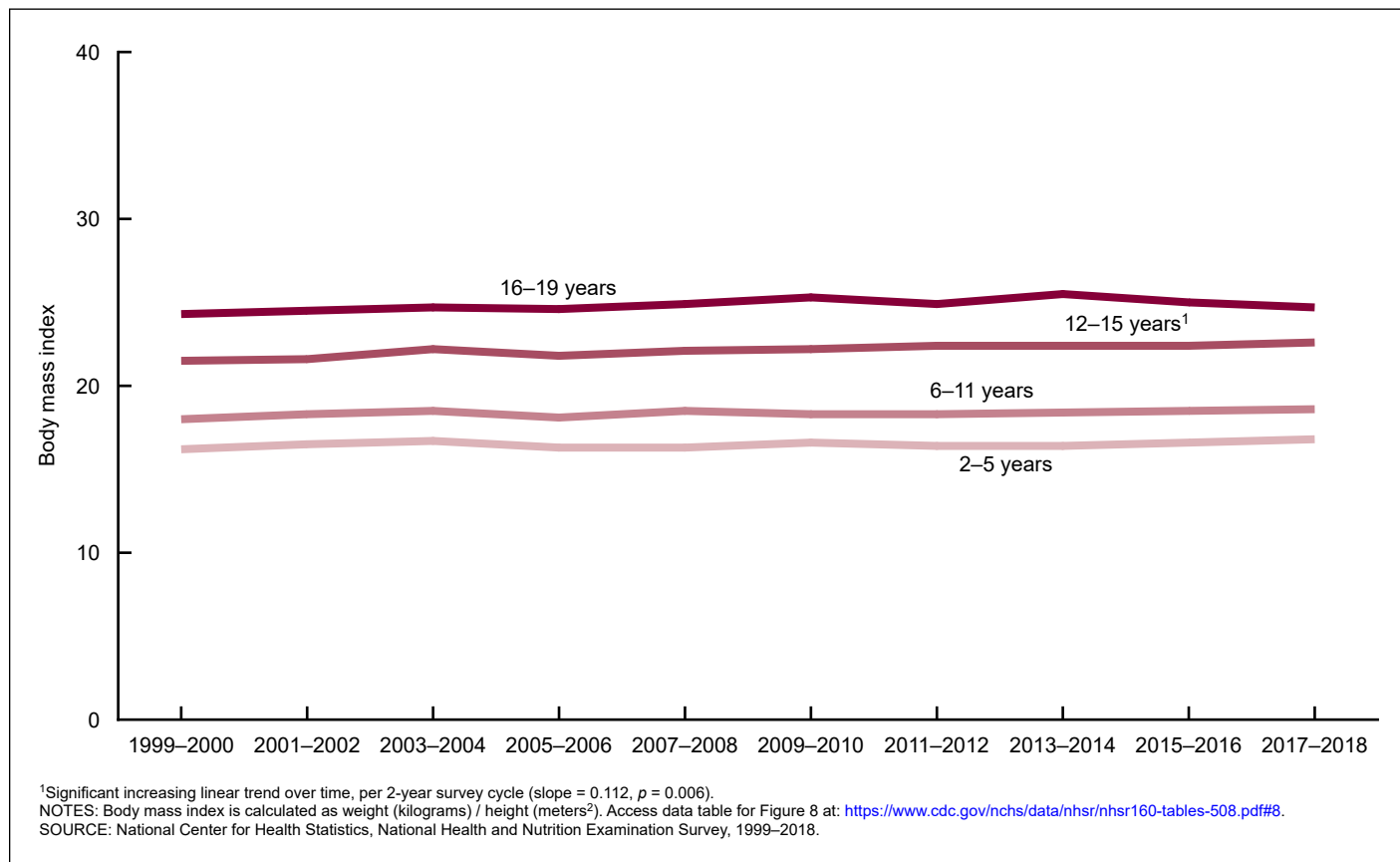
**Figure 6. Age-adjusted trends in mean waist circumference among boys aged 2–19 years: United States, 1999–2000 through 2017–2018**

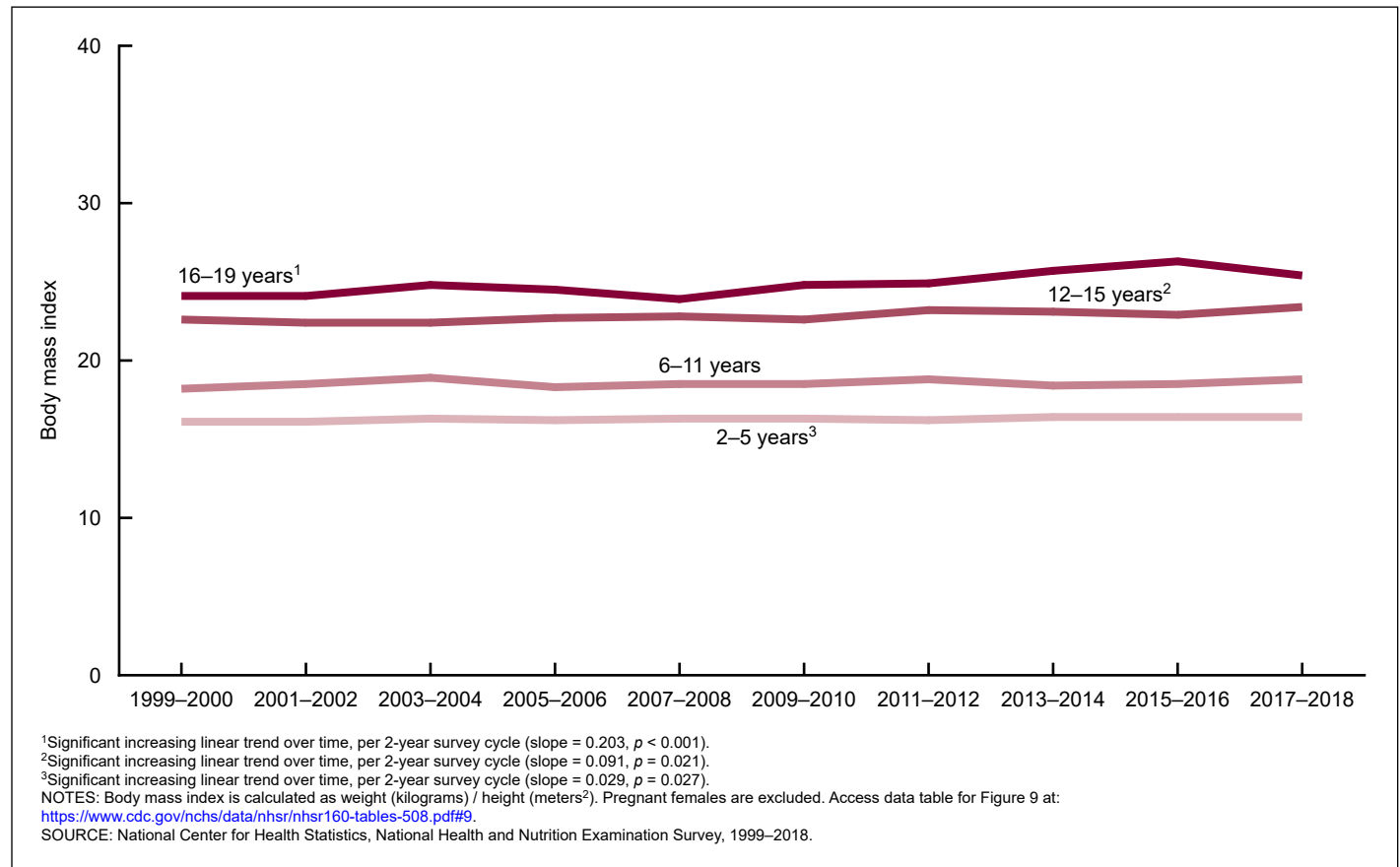


**Figure 7. Age-adjusted trends in mean waist circumference among girls aged 2–19 years: United States, 1999–2000 through 2017–2018**



**Figure 8. Age-adjusted trends in mean body mass index among boys aged 2–19 years: United States, 1999–2000 through 2017–2018**



**Figure 9. Age-adjusted trends in mean body mass index among girls aged 2–19 years: United States, 1999–2000 through 2017–2018**

A limitation of NHANES is small sample sizes for analyzing subgroups. Additionally, small sample sizes and the limited number of time points currently available for the continuous NHANES (10 cycles) limit the ability to detect a single change point and, especially, more than one change point in a trend. NHANES response rates have declined over the years; however, an investigation of bias in 2017–2018 data showed that errors in representation from sample variation and nonresponse were minimized with weighting adjustments (14).

## References

- Hales CM, Fryar CD. QuickStats: Prevalence of obesity and severe obesity among persons aged 2–19 years—National Health and Nutrition Examination Survey, 1999–2000 through 2017–2018. *MMWR Morb Mortal Wkly Rep* 69(13):390. 2020. DOI: <https://dx.doi.org/10.15585/mmwr.mm6913a6>.
- Ogden CL, Fryar CD, Martin CB, Freedman DS, Carroll MD, Gu Q, Hales CM. Trends in obesity prevalence by race and Hispanic origin—1999–2000 to 2017–2018. *JAMA* 324(12):1208–10. 2020. DOI: <https://www.doi.org/10.1001/jama.2020.14590>.
- Fryar CD, Carroll MD, Afful J. Prevalence of overweight, obesity, and severe obesity among children and adolescents aged 2–19 years: United States, 1963–1965 through 2017–2018. *NCHS Health E-Stats*. 2020. Available from: <https://www.cdc.gov/nchs/data/hestat/obesity-child-17-18/overweight-obesity-child-H.pdf>.
- Ogden CL, Fryar CD, Carroll MD, Flegal KM. Mean body weight, height, and body mass index, United States 1960–2002. *Advance data from vital and health statistics; no 347*. Hyattsville, MD: National Center for Health Statistics. 2004.
- National Center for Health Statistics. National Health and Nutrition Examination Survey: Analytic guidelines, 2011–2014 and 2015–2016. 2018. Available from: <https://www.cdc.gov/nchs/data/nhanes/analyticguidelines/11-16-analytic-guidelines.pdf>.
- Chen TC, Clark J, Riddles MK, Mohadjer LK, Fakhouri THI. National Health and Nutrition Examination Survey, 2015–2018: Sample design and estimation procedures. *National Center for Health Statistics. Vital Health Stat* 2(184). 2020.
- National Center for Health Statistics. NHANES questionnaires, datasets, and related documentation. Available from: <https://www.cdc.gov/nchs/nhanes/Default.aspx>.
- National Center for Health Statistics. NHANES: Response rates and population totals. Available from: <https://www.cdc.gov/nchs/nhanes/ResponseRates.aspx>.
- Cornier MA, Després JP, Davis N, Grossniklaus DA, Klein S, Lamarche B, et al. Assessing adiposity: A scientific statement from the American Heart Association. *Circulation* 124(18):1996–2019. 2011.



- DOI: <https://www.ahajournals.org/doi/10.1161/CIR.0b013e318233bc6a>.
10. National Center for Health Statistics. National Health and Nutrition Examination Survey (NHANES) anthropometry procedures manual. 2017. Available from: [https://wwwn.cdc.gov/nchs/data/nhanes/2017-2018/manuals/2017\\_Anthropometry\\_Procedures\\_Manual.pdf](https://wwwn.cdc.gov/nchs/data/nhanes/2017-2018/manuals/2017_Anthropometry_Procedures_Manual.pdf).
  11. Wolter KM. Introduction to variance estimation. 2nd ed. New York, NY: Springer. 2007.
  12. Skinner CJ, Holt D, Smith TMF. Analysis of complex surveys. 1st ed. Hoboken, NJ: John Wiley & Sons. 1989.
  13. National Cancer Institute. Joinpoint trend analysis software (Version 4.8.0.1) [computer software]. Available from: <https://surveillance.cancer.gov/joinpoint/>.
  14. National Center for Health Statistics. An investigation of nonresponse bias and sample characteristics in the 2017–2018 National Health and Nutrition Examination Survey. 2020. Available from: <https://wwwn.cdc.gov/nchs/data/nhanes/analyticguidelines/17-18-sampling-variability-nonresponse-508.pdf>.

**Table 1. Mean weight in kilograms among children and adolescents from birth to age 19 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup>	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
<b>Boys</b>					
	Mean (standard error)				
0–2 months . . . . .	5.5 (0.2)	5.2 (0.1)	5.2 (0.1)	5.4 (0.1)	5.2 (0.1)
3–5 months . . . . .	7.2 (0.1)	7.3 (0.1)	7.1 (0.1)	7.3 (0.1)	7.4 (0.1)
6–8 months . . . . .	8.6 (0.1)	8.4 (0.1)	8.7 (0.1)	8.5 (0.1)	8.8 (0.1)
9–11 months . . . . .	9.8 (0.1)	9.7 (0.1)	9.6 (0.1)	9.7 (0.2)	9.7 (0.1)
1 year . . . . .	11.2 (0.1)	11.6 (0.1)	11.3 (0.1)	11.4 (0.1)	11.5 (0.1)
2 years . . . . .	13.8 (0.1)	14.1 (0.1)	14.0 (0.1)	14.2 (0.1)	14.0 (0.2)
3 years . . . . .	15.9 (0.2)	15.8 (0.2)	16.2 (0.2)	16.0 (0.2)	16.6 (0.4)
4 years . . . . .	18.5 (0.2)	18.6 (0.3)	18.5 (0.2)	18.5 (0.2)	18.6 (0.2)
5 years . . . . .	21.3 (0.5)	22.1 (0.5)	21.2 (0.3)	21.2 (0.4)	21.1 (0.4)
6 years . . . . .	23.5 (0.4)	24.2 (0.3)	24.3 (0.5)	23.9 (0.4)	23.9 (0.4)
7 years . . . . .	27.2 (0.4)	26.6 (0.6)	26.7 (0.4)	28.1 (0.5)	27.7 (0.7)
8 years . . . . .	32.7 (1.0)	31.4 (0.9)	31.3 (0.7)	31.5 (0.6)	31.6 (0.6)
9 years . . . . .	36.0 (0.7)	34.6 (0.7)	36.6 (1.2)	33.8 (0.7)	35.4 (1.0)
10 years . . . . .	38.6 (0.8)	40.1 (0.9)	40.0 (0.9)	40.3 (1.3)	40.8 (1.0)
11 years . . . . .	43.7 (1.1)	46.8 (1.6)	46.6 (1.1)	48.5 (1.4)	46.5 (1.6)
12 years . . . . .	50.4 (1.3)	50.8 (1.2)	51.5 (1.3)	50.6 (1.4)	48.9 (1.4)
13 years . . . . .	53.9 (1.9)	57.8 (1.4)	59.2 (1.5)	60.7 (1.6)	60.4 (1.5)
14 years . . . . .	63.9 (1.6)	63.1 (1.7)	63.9 (1.9)	65.9 (1.8)	65.1 (1.8)
15 years . . . . .	68.3 (1.1)	70.2 (1.4)	70.1 (2.0)	71.3 (1.9)	72.7 (1.9)
16 years . . . . .	74.4 (1.4)	76.1 (1.5)	75.1 (1.5)	74.4 (1.2)	71.3 (1.5)
17 years . . . . .	75.6 (1.4)	75.0 (1.3)	77.4 (2.4)	75.1 (2.1)	77.1 (1.9)
18 years . . . . .	75.6 (1.1)	77.2 (1.7)	81.3 (2.0)	81.4 (3.2)	75.6 (2.0)
19 years . . . . .	78.2 (1.3)	80.2 (1.6)	79.5 (1.4)	78.9 (2.2)	79.9 (1.6)
<b>Girls</b>					
0–2 months . . . . .	5.1 (0.1)	4.9 (0.1)	5.0 (0.1)	4.8 (0.1)	5.0 (0.1)
3–5 months . . . . .	7.0 (0.1)	6.8 (0.1)	6.7 (0.1)	6.8 (0.1)	6.7 (0.1)
6–8 months . . . . .	8.1 (0.1)	8.1 (0.1)	8.1 (0.1)	8.0 (0.1)	8.0 (0.2)
9–11 months . . . . .	9.2 (0.2)	9.2 (0.1)	9.0 (0.1)	9.3 (0.2)	9.0 (0.1)
1 year . . . . .	10.9 (0.1)	10.9 (0.1)	10.9 (0.1)	11.2 (0.1)	11.0 (0.1)
2 years . . . . .	13.3 (0.1)	13.4 (0.1)	13.4 (0.1)	13.3 (0.1)	13.2 (0.1)
3 years . . . . .	15.2 (0.2)	15.8 (0.2)	15.7 (0.2)	15.7 (0.2)	15.4 (0.2)
4 years . . . . .	17.9 (0.3)	17.9 (0.2)	17.7 (0.2)	18.3 (0.3)	18.1 (0.3)
5 years . . . . .	20.6 (0.6)	20.5 (0.4)	21.1 (0.5)	20.4 (0.3)	21.0 (0.4)
6 years . . . . .	22.4 (0.5)	23.4 (0.5)	23.6 (0.5)	23.8 (0.5)	23.7 (0.4)
7 years . . . . .	25.9 (0.5)	27.3 (0.6)	26.8 (0.5)	26.6 (0.6)	27.3 (0.5)
8 years . . . . .	31.9 (1.2)	30.7 (0.9)	31.9 (1.0)	31.7 (0.6)	31.3 (0.9)
9 years . . . . .	35.4 (0.7)	36.7 (1.0)	35.5 (1.0)	37.5 (0.9)	34.9 (0.8)
10 years . . . . .	40.0 (1.0)	42.4 (1.1)	41.1 (0.7)	41.3 (1.3)	41.1 (1.0)
11 years . . . . .	47.9 (1.3)	49.2 (1.3)	47.5 (1.3)	47.4 (1.2)	48.1 (1.4)
12 years . . . . .	52.0 (1.1)	52.9 (1.3)	52.3 (1.3)	55.8 (1.6)	53.0 (1.0)
13 years . . . . .	57.7 (1.4)	57.4 (1.0)	56.8 (1.4)	55.5 (1.5)	57.0 (1.7)
14 years . . . . .	59.9 (1.0)	58.8 (1.7)	61.6 (1.1)	59.6 (1.5)	62.2 (1.0)
15 years . . . . .	61.1 (1.7)	60.9 (0.8)	63.3 (1.3)	64.3 (2.5)	62.4 (1.5)
16 years . . . . .	63.0 (1.2)	61.5 (1.0)	62.4 (1.1)	65.0 (2.6)	65.7 (1.6)
17 years . . . . .	61.7 (1.2)	66.0 (1.7)	63.7 (1.6)	67.4 (1.9)	67.9 (1.6)
18 years . . . . .	65.2 (1.5)	67.6 (2.2)	65.4 (1.7)	67.2 (2.6)	68.8 (1.7)
19 years . . . . .	67.8 (1.2)	67.4 (1.8)	68.0 (2.0)	68.5 (2.2)	71.0 (2.0)

<sup>1</sup>Refers to age at the time of the examination.

NOTE: Pregnant females are excluded.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.

**Table 2. Mean weight in pounds among children and adolescents from birth to age 19 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup>	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
<b>Boys</b>					
	Mean (standard error)				
0–2 months . . . . .	12.2 (0.3)	11.5 (0.3)	11.5 (0.2)	11.8 (0.2)	11.4 (0.2)
3–5 months . . . . .	15.9 (0.2)	16.0 (0.2)	15.6 (0.2)	16.1 (0.3)	16.2 (0.2)
6–8 months . . . . .	19.1 (0.3)	18.6 (0.3)	19.2 (0.3)	18.7 (0.3)	19.5 (0.2)
9–11 months . . . . .	21.6 (0.2)	21.5 (0.3)	21.2 (0.3)	21.5 (0.4)	21.4 (0.3)
1 year . . . . .	24.8 (0.2)	25.5 (0.3)	25.0 (0.2)	25.2 (0.2)	25.3 (0.2)
2 years . . . . .	30.4 (0.2)	31.1 (0.3)	31.0 (0.3)	31.3 (0.3)	30.9 (0.4)
3 years . . . . .	35.0 (0.4)	34.8 (0.3)	35.8 (0.5)	35.3 (0.3)	36.5 (0.8)
4 years . . . . .	40.9 (0.5)	40.9 (0.7)	40.7 (0.5)	40.8 (0.4)	41.0 (0.5)
5 years . . . . .	47.0 (1.1)	48.7 (1.1)	46.7 (0.7)	46.6 (0.9)	46.6 (1.0)
6 years . . . . .	51.8 (0.9)	53.3 (0.7)	53.5 (1.0)	52.8 (0.8)	52.6 (0.9)
7 years . . . . .	60.1 (1.0)	58.7 (1.3)	58.9 (1.0)	61.9 (1.2)	61.0 (1.4)
8 years . . . . .	72.2 (2.1)	69.3 (2.0)	69.1 (1.6)	69.4 (1.3)	69.8 (1.4)
9 years . . . . .	79.4 (1.5)	76.3 (1.6)	80.7 (2.6)	74.4 (1.5)	78.1 (2.3)
10 years . . . . .	85.1 (1.8)	88.3 (1.9)	88.3 (2.1)	88.7 (2.8)	89.8 (2.1)
11 years . . . . .	96.4 (2.4)	103.2 (3.6)	102.8 (2.5)	107.0 (3.1)	102.6 (3.4)
12 years . . . . .	111.1 (2.8)	112.0 (2.7)	113.5 (2.8)	111.6 (3.2)	107.8 (3.2)
13 years . . . . .	118.8 (4.1)	127.4 (3.0)	130.5 (3.2)	133.9 (3.6)	133.2 (3.3)
14 years . . . . .	140.8 (3.6)	139.1 (3.8)	140.9 (4.2)	145.2 (4.0)	143.6 (3.9)
15 years . . . . .	150.7 (2.5)	154.9 (3.0)	154.5 (4.3)	157.3 (4.2)	160.2 (4.2)
16 years . . . . .	164.1 (3.0)	167.7 (3.3)	165.7 (3.4)	164.1 (2.7)	157.2 (3.4)
17 years . . . . .	166.6 (3.0)	165.4 (2.9)	170.7 (5.3)	165.5 (4.6)	170.0 (4.2)
18 years . . . . .	166.8 (2.5)	170.2 (3.7)	179.3 (4.4)	179.4 (7.1)	166.7 (4.3)
19 years . . . . .	172.4 (2.8)	176.8 (3.5)	175.3 (3.1)	174.0 (4.9)	176.2 (3.6)
<b>Girls</b>					
0–2 months . . . . .	11.2 (0.3)	10.9 (0.2)	11.0 (0.2)	10.6 (0.2)	11.0 (0.2)
3–5 months . . . . .	15.4 (0.2)	14.9 (0.2)	14.8 (0.1)	14.9 (0.3)	14.8 (0.3)
6–8 months . . . . .	17.9 (0.3)	17.9 (0.3)	17.9 (0.2)	17.7 (0.3)	17.7 (0.4)
9–11 months . . . . .	20.3 (0.3)	20.2 (0.3)	19.9 (0.3)	20.4 (0.4)	19.9 (0.2)
1 year . . . . .	23.9 (0.2)	24.1 (0.2)	24.1 (0.2)	24.6 (0.3)	24.1 (0.3)
2 years . . . . .	29.3 (0.3)	29.5 (0.3)	29.5 (0.3)	29.3 (0.3)	29.1 (0.2)
3 years . . . . .	33.5 (0.5)	34.8 (0.4)	34.5 (0.5)	34.5 (0.5)	34.0 (0.4)
4 years . . . . .	39.6 (0.7)	39.4 (0.5)	39.1 (0.5)	40.3 (0.6)	40.0 (0.6)
5 years . . . . .	45.4 (1.3)	45.3 (0.8)	46.6 (1.2)	45.0 (0.7)	46.2 (1.0)
6 years . . . . .	49.3 (1.1)	51.5 (1.1)	51.9 (1.0)	52.4 (1.0)	52.3 (1.0)
7 years . . . . .	57.0 (1.0)	60.2 (1.4)	59.1 (1.2)	58.7 (1.4)	60.2 (1.2)
8 years . . . . .	70.3 (2.6)	67.8 (2.0)	70.3 (2.2)	69.9 (1.4)	69.1 (2.0)
9 years . . . . .	78.1 (1.6)	81.0 (2.2)	78.2 (2.2)	82.7 (1.9)	76.9 (1.8)
10 years . . . . .	88.1 (2.3)	93.5 (2.4)	90.7 (1.6)	90.9 (2.8)	90.6 (2.3)
11 years . . . . .	105.7 (2.9)	108.4 (2.9)	104.8 (2.8)	104.5 (2.6)	106.1 (3.0)
12 years . . . . .	114.6 (2.3)	116.7 (2.9)	115.2 (2.8)	122.9 (3.6)	116.9 (2.3)
13 years . . . . .	127.3 (3.0)	126.4 (2.2)	125.3 (3.1)	122.4 (3.2)	125.8 (3.7)
14 years . . . . .	132.0 (2.2)	129.6 (3.8)	135.8 (2.5)	131.4 (3.4)	137.0 (2.2)
15 years . . . . .	134.7 (3.7)	134.2 (1.7)	139.6 (2.9)	141.7 (5.5)	137.5 (3.4)
16 years . . . . .	138.8 (2.6)	135.6 (2.1)	137.6 (2.4)	143.3 (5.7)	144.9 (3.6)
17 years . . . . .	136.1 (2.7)	145.6 (3.7)	140.4 (3.4)	148.5 (4.1)	149.7 (3.6)
18 years . . . . .	143.8 (3.3)	149.0 (4.7)	144.2 (3.7)	148.2 (5.7)	151.6 (3.7)
19 years . . . . .	149.5 (2.7)	148.6 (4.0)	150.0 (4.4)	150.9 (4.8)	156.5 (4.4)

<sup>1</sup>Refers to age at the time of the examination.

NOTE: Pregnant females are excluded.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.

**Table 3. Mean recumbent length in centimeters among children from birth to age 3 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup>	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
Boys			Mean (standard error)		
0–2 months . . . . .	58.1 (0.3)	56.9 (0.4)	56.8 (0.4)	57.5 (0.4)	56.4 (0.3)
3–5 months . . . . .	63.7 (0.3)	64.4 (0.4)	63.7 (0.3)	64.0 (0.3)	64.4 (0.3)
6–8 months . . . . .	69.1 (0.3)	69.2 (0.4)	69.0 (0.4)	68.9 (0.3)	69.5 (0.3)
9–11 months . . . . .	73.2 (0.3)	73.8 (0.3)	73.8 (0.3)	73.5 (0.3)	73.3 (0.3)
1 year . . . . .	81.1 (0.3)	82.3 (0.3)	81.1 (0.4)	81.6 (0.3)	81.3 (0.3)
2 years . . . . .	91.3 (0.4)	92.4 (0.3)	92.1 (0.4)	92.4 (0.4)	91.9 (0.3)
3 years . . . . .	99.4 (0.3)	99.4 (0.4)	99.9 (0.4)	100.0 (0.4)	100.4 (0.5)
Girls					
0–2 months . . . . .	56.3 (0.4)	56.5 (0.6)	56.0 (0.5)	55.7 (0.2)	55.9 (0.2)
3–5 months . . . . .	63.5 (0.2)	63.1 (0.4)	62.5 (0.3)	62.9 (0.4)	62.5 (0.4)
6–8 months . . . . .	67.5 (0.4)	67.8 (0.4)	67.5 (0.3)	67.3 (0.3)	67.6 (0.3)
9–11 months . . . . .	72.1 (0.4)	71.6 (0.3)	71.5 (0.3)	71.5 (0.2)	71.7 (0.3)
1 year . . . . .	80.2 (0.3)	80.5 (0.3)	80.1 (0.4)	80.8 (0.4)	80.6 (0.4)
2 years . . . . .	90.4 (0.3)	90.5 (0.4)	90.6 (0.4)	90.4 (0.3)	90.7 (0.3)
3 years . . . . .	98.2 (0.6)	99.5 (0.4)	99.9 (0.4)	99.2 (0.4)	99.0 (0.5)

<sup>1</sup>Refers to age at the time of the examination.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.

**Table 4. Mean recumbent length in inches among children from birth to age 3 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup>	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
Boys			Mean (standard error)		
0–2 months . . . . .	22.9 (0.1)	22.4 (0.2)	22.4 (0.1)	22.6 (0.2)	22.2 (0.1)
3–5 months . . . . .	25.1 (0.1)	25.3 (0.2)	25.1 (0.1)	25.2 (0.1)	25.3 (0.1)
6–8 months . . . . .	27.2 (0.1)	27.2 (0.1)	27.1 (0.2)	27.1 (0.1)	27.4 (0.1)
9–11 months . . . . .	28.8 (0.1)	29.0 (0.1)	29.0 (0.1)	28.9 (0.1)	28.9 (0.1)
1 year . . . . .	31.9 (0.1)	32.4 (0.1)	31.9 (0.1)	32.1 (0.1)	32.0 (0.1)
2 years . . . . .	36.0 (0.1)	36.4 (0.1)	36.2 (0.1)	36.4 (0.2)	36.2 (0.1)
3 years . . . . .	39.1 (0.1)	39.1 (0.2)	39.3 (0.1)	39.4 (0.1)	39.5 (0.2)
Girls					
0–2 months . . . . .	22.2 (0.2)	22.3 (0.2)	22.1 (0.2)	21.9 (0.1)	22.0 (0.1)
3–5 months . . . . .	25.0 (0.1)	24.8 (0.1)	24.6 (0.1)	24.7 (0.2)	24.6 (0.2)
6–8 months . . . . .	26.6 (0.1)	26.7 (0.1)	26.6 (0.1)	26.5 (0.1)	26.6 (0.1)
9–11 months . . . . .	28.4 (0.1)	28.2 (0.1)	28.1 (0.1)	28.2 (0.1)	28.2 (0.1)
1 year . . . . .	31.6 (0.1)	31.7 (0.1)	31.5 (0.1)	31.8 (0.2)	31.7 (0.2)
2 years . . . . .	35.6 (0.1)	35.6 (0.2)	35.7 (0.1)	35.6 (0.1)	35.7 (0.1)
3 years . . . . .	38.7 (0.2)	39.2 (0.1)	39.3 (0.2)	39.0 (0.1)	39.0 (0.2)

<sup>1</sup>Refers to age at the time of the examination.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.

**Table 5. Mean height in centimeters among children and adolescents aged 2–19 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup> (years)	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
Boys			Mean (standard error)		
2 .....	91.3 (0.3)	91.9 (0.2)	91.8 (0.4)	92.2 (0.5)	91.4 (0.3)
3 .....	98.6 (0.3)	98.5 (0.4)	98.9 (0.4)	99.0 (0.3)	99.1 (0.4)
4 .....	106.5 (0.4)	107.1 (0.4)	106.2 (0.4)	106.7 (0.4)	105.9 (0.4)
5 .....	113.0 (0.5)	114.4 (0.5)	113.7 (0.6)	113.8 (0.5)	112.8 (0.6)
6 .....	119.2 (0.5)	120.6 (0.5)	119.3 (0.4)	120.0 (0.5)	118.8 (0.5)
7 .....	126.3 (0.5)	124.7 (0.7)	125.4 (0.4)	126.4 (0.5)	126.1 (0.5)
8 .....	132.5 (0.7)	131.1 (0.7)	131.6 (0.7)	131.7 (0.6)	132.1 (0.6)
9 .....	138.1 (0.4)	136.8 (0.5)	137.9 (0.9)	136.5 (0.6)	135.9 (0.7)
10 .....	141.4 (0.6)	142.3 (0.8)	142.3 (0.6)	143.0 (0.7)	141.7 (0.6)
11 .....	148.7 (0.9)	150.0 (1.2)	149.9 (0.6)	150.3 (0.8)	149.3 (0.8)
12 .....	154.8 (0.7)	154.7 (0.5)	154.6 (0.6)	155.8 (0.8)	154.2 (0.9)
13 .....	160.1 (0.8)	161.9 (0.9)	163.7 (0.7)	163.4 (0.8)	162.5 (0.7)
14 .....	168.5 (0.9)	168.7 (0.7)	168.5 (0.9)	169.4 (0.8)	169.0 (0.8)
15 .....	173.8 (0.6)	173.6 (0.6)	173.8 (0.9)	173.4 (0.7)	172.3 (0.7)
16 .....	175.3 (0.6)	175.9 (0.7)	175.1 (0.5)	173.9 (0.6)	173.5 (0.6)
17 .....	175.3 (0.6)	176.6 (0.5)	175.9 (0.7)	174.9 (1.0)	175.2 (0.6)
18 .....	176.4 (0.7)	176.8 (0.5)	176.4 (0.5)	175.6 (0.8)	175.2 (0.7)
19 .....	176.7 (0.6)	176.7 (0.9)	177.8 (0.8)	176.3 (1.1)	175.0 (0.7)
Girls					
2 .....	90.1 (0.4)	90.2 (0.4)	90.4 (0.4)	90.0 (0.3)	89.8 (0.3)
3 .....	97.6 (0.5)	98.3 (0.3)	98.7 (0.4)	98.1 (0.3)	97.5 (0.4)
4 .....	105.9 (0.5)	105.2 (0.4)	105.0 (0.5)	105.8 (0.4)	105.0 (0.6)
5 .....	112.4 (0.7)	112.2 (0.5)	112.6 (0.5)	112.3 (0.5)	111.9 (0.7)
6 .....	117.1 (0.7)	119.0 (0.5)	119.2 (0.5)	118.7 (0.4)	118.8 (0.5)
7 .....	124.4 (0.5)	125.8 (0.8)	124.6 (0.5)	124.5 (0.5)	124.1 (0.5)
8 .....	130.9 (0.6)	131.3 (0.5)	131.3 (0.8)	131.7 (0.5)	129.8 (0.7)
9 .....	136.9 (0.7)	138.6 (0.7)	137.0 (0.5)	137.7 (0.6)	136.9 (0.7)
10 .....	143.3 (0.9)	144.2 (0.7)	144.5 (0.5)	144.3 (0.8)	143.0 (0.5)
11 .....	151.4 (0.7)	151.3 (0.7)	150.4 (0.5)	150.7 (0.6)	150.4 (0.8)
12 .....	156.0 (0.7)	156.7 (0.5)	156.1 (0.6)	156.2 (0.7)	154.8 (0.7)
13 .....	159.1 (0.6)	158.6 (0.6)	160.0 (0.5)	158.5 (0.6)	158.1 (0.7)
14 .....	161.8 (0.6)	160.5 (0.6)	161.6 (0.8)	160.3 (0.5)	161.8 (0.7)
15 .....	161.9 (0.6)	162.1 (0.6)	162.9 (0.8)	161.1 (0.8)	161.0 (0.8)
16 .....	161.9 (0.5)	162.9 (0.6)	162.2 (0.6)	162.3 (0.7)	161.9 (0.6)
17 .....	163.1 (0.6)	162.2 (0.4)	163.1 (0.6)	162.5 (0.5)	163.0 (0.8)
18 .....	163.1 (0.4)	163.0 (0.5)	163.1 (0.6)	161.7 (0.6)	162.0 (0.7)
19 .....	162.9 (0.6)	163.1 (0.6)	163.3 (0.7)	163.0 (0.4)	162.2 (0.8)

<sup>1</sup>Refers to age at the time of the examination.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.

**Table 6. Mean height in inches among children and adolescents aged 2–19 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup> (years)	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
Boys					
	Mean (standard error)				
2 .....	35.9 (0.1)	36.2 (0.1)	36.2 (0.2)	36.3 (0.2)	36.0 (0.1)
3 .....	38.8 (0.1)	38.8 (0.2)	38.9 (0.1)	39.0 (0.1)	39.0 (0.2)
4 .....	41.9 (0.2)	42.2 (0.2)	41.8 (0.2)	42.0 (0.1)	41.7 (0.2)
5 .....	44.5 (0.2)	45.0 (0.2)	44.8 (0.2)	44.8 (0.2)	44.4 (0.2)
6 .....	46.9 (0.2)	47.5 (0.2)	47.0 (0.2)	47.2 (0.2)	46.8 (0.2)
7 .....	49.7 (0.2)	49.1 (0.3)	49.4 (0.2)	49.8 (0.2)	49.7 (0.2)
8 .....	52.2 (0.3)	51.6 (0.3)	51.8 (0.3)	51.9 (0.2)	52.0 (0.2)
9 .....	54.4 (0.2)	53.9 (0.2)	54.3 (0.3)	53.7 (0.2)	53.5 (0.3)
10 .....	55.7 (0.2)	56.0 (0.3)	56.0 (0.3)	56.3 (0.3)	55.8 (0.2)
11 .....	58.5 (0.4)	59.1 (0.5)	59.0 (0.2)	59.2 (0.3)	58.8 (0.3)
12 .....	60.9 (0.3)	60.9 (0.2)	60.9 (0.2)	61.4 (0.3)	60.7 (0.3)
13 .....	63.1 (0.3)	63.7 (0.3)	64.5 (0.3)	64.3 (0.3)	64.0 (0.3)
14 .....	66.3 (0.4)	66.4 (0.3)	66.3 (0.4)	66.7 (0.3)	66.6 (0.3)
15 .....	68.4 (0.2)	68.3 (0.2)	68.4 (0.3)	68.3 (0.3)	67.8 (0.3)
16 .....	69.0 (0.2)	69.2 (0.3)	68.9 (0.2)	68.5 (0.2)	68.3 (0.3)
17 .....	69.0 (0.2)	69.5 (0.2)	69.3 (0.3)	68.9 (0.4)	69.0 (0.2)
18 .....	69.5 (0.3)	69.6 (0.2)	69.4 (0.2)	69.1 (0.3)	69.0 (0.3)
19 .....	69.6 (0.3)	69.6 (0.4)	70.0 (0.3)	69.4 (0.4)	68.9 (0.3)
Girls					
2 .....	35.5 (0.1)	35.5 (0.2)	35.6 (0.2)	35.4 (0.1)	35.3 (0.1)
3 .....	38.4 (0.2)	38.7 (0.1)	38.9 (0.2)	38.6 (0.1)	38.4 (0.2)
4 .....	41.7 (0.2)	41.4 (0.2)	41.4 (0.2)	41.7 (0.2)	41.3 (0.2)
5 .....	44.3 (0.3)	44.2 (0.2)	44.3 (0.2)	44.2 (0.2)	44.1 (0.3)
6 .....	46.1 (0.3)	46.9 (0.2)	46.9 (0.2)	46.7 (0.2)	46.8 (0.2)
7 .....	49.0 (0.2)	49.5 (0.3)	49.1 (0.2)	49.0 (0.2)	48.9 (0.2)
8 .....	51.5 (0.2)	51.7 (0.2)	51.7 (0.3)	51.8 (0.2)	51.1 (0.3)
9 .....	53.9 (0.3)	54.5 (0.3)	54.0 (0.2)	54.2 (0.2)	53.9 (0.3)
10 .....	56.4 (0.3)	56.8 (0.3)	56.9 (0.2)	56.8 (0.3)	56.3 (0.2)
11 .....	59.6 (0.3)	59.6 (0.3)	59.2 (0.2)	59.3 (0.2)	59.2 (0.3)
12 .....	61.4 (0.3)	61.7 (0.2)	61.5 (0.3)	61.5 (0.3)	60.9 (0.3)
13 .....	62.6 (0.3)	62.4 (0.2)	63.0 (0.2)	62.4 (0.2)	62.2 (0.3)
14 .....	63.7 (0.2)	63.2 (0.2)	63.6 (0.3)	63.1 (0.2)	63.7 (0.3)
15 .....	63.8 (0.3)	63.8 (0.2)	64.1 (0.3)	63.4 (0.3)	63.4 (0.3)
16 .....	63.7 (0.2)	64.1 (0.2)	63.8 (0.3)	63.9 (0.3)	63.7 (0.2)
17 .....	64.2 (0.2)	63.9 (0.2)	64.2 (0.2)	64.0 (0.2)	64.2 (0.3)
18 .....	64.2 (0.2)	64.2 (0.2)	64.2 (0.2)	63.6 (0.2)	63.8 (0.3)
19 .....	64.1 (0.3)	64.2 (0.2)	64.3 (0.3)	64.2 (0.2)	63.9 (0.3)

<sup>1</sup>Refers to age at the time of the examination.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.

**Table 7. Mean waist circumference in centimeters among children and adolescents aged 2–19 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup> (years)	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
<b>Boys</b>					
2 .....	48.1 (0.3)	48.7 (0.2)	48.5 (0.3)	48.7 (0.2)	48.8 (0.3)
3 .....	50.4 (0.3)	50.2 (0.3)	50.5 (0.4)	50.3 (0.2)	51.3 (0.8)
4 .....	52.5 (0.4)	52.3 (0.4)	52.7 (0.3)	52.9 (0.3)	53.2 (0.3)
5 .....	55.0 (0.6)	56.5 (0.7)	54.8 (0.4)	55.0 (0.5)	55.0 (0.6)
6 .....	56.0 (0.6)	57.0 (0.5)	57.4 (0.7)	57.0 (0.5)	57.3 (0.6)
7 .....	59.8 (0.7)	58.9 (0.8)	59.0 (0.6)	60.6 (0.7)	59.9 (0.9)
8 .....	64.4 (1.3)	63.2 (1.1)	62.7 (0.8)	62.8 (0.6)	63.1 (0.7)
9 .....	66.4 (1.0)	64.9 (0.9)	66.0 (1.1)	64.4 (0.8)	66.6 (1.2)
10 .....	67.7 (1.1)	69.1 (0.9)	69.2 (1.1)	69.1 (1.3)	70.4 (1.0)
11 .....	70.2 (1.2)	72.9 (1.6)	71.9 (1.0)	74.9 (1.4)	73.2 (1.7)
12 .....	74.3 (1.2)	75.3 (1.2)	74.6 (1.0)	73.9 (1.4)	72.9 (1.4)
13 .....	73.8 (1.6)	77.9 (1.1)	76.8 (1.3)	79.5 (1.6)	80.2 (1.4)
14 .....	79.3 (1.2)	78.3 (1.3)	78.8 (1.5)	79.8 (1.3)	80.3 (1.5)
15 .....	80.1 (1.0)	81.3 (0.9)	80.9 (1.4)	82.3 (1.5)	85.0 (1.7)
16 .....	83.4 (1.1)	85.5 (1.1)	83.9 (1.2)	84.8 (1.1)	81.7 (1.2)
17 .....	84.8 (1.0)	83.9 (0.9)	85.6 (1.8)	84.4 (1.7)	85.6 (1.5)
18 .....	84.6 (0.8)	86.3 (1.4)	88.1 (1.6)	87.9 (1.6)	84.9 (1.8)
19 .....	86.9 (1.2)	88.1 (1.3)	85.9 (1.2)	87.0 (1.9)	89.5 (1.4)
<b>Girls</b>					
2 .....	48.3 (0.5)	48.5 (0.3)	48.2 (0.4)	48.3 (0.3)	48.0 (0.3)
3 .....	50.1 (0.3)	50.5 (0.4)	50.2 (0.4)	51.1 (0.5)	50.3 (0.3)
4 .....	52.2 (0.5)	52.6 (0.3)	52.1 (0.3)	53.1 (0.5)	53.0 (0.5)
5 .....	54.9 (0.8)	54.9 (0.6)	55.6 (0.8)	54.7 (0.4)	55.9 (0.5)
6 .....	55.2 (0.7)	56.2 (0.5)	56.5 (0.6)	57.5 (0.7)	57.1 (0.7)
7 .....	58.1 (0.6)	60.0 (0.9)	59.4 (0.7)	59.1 (0.8)	60.6 (0.8)
8 .....	63.4 (1.3)	62.6 (1.2)	63.8 (1.1)	63.7 (0.8)	63.1 (1.0)
9 .....	65.7 (0.8)	67.5 (1.1)	66.6 (1.1)	68.0 (1.0)	65.0 (0.8)
10 .....	68.0 (0.9)	71.4 (1.0)	69.8 (1.0)	69.5 (1.3)	70.0 (1.2)
11 .....	72.7 (1.0)	75.1 (1.1)	73.2 (1.3)	73.5 (1.2)	73.2 (1.2)
12 .....	74.6 (1.1)	75.3 (1.1)	74.7 (1.2)	78.0 (1.6)	76.6 (1.0)
13 .....	78.8 (1.1)	78.4 (0.9)	77.6 (1.4)	77.1 (1.3)	78.5 (1.3)
14 .....	78.8 (1.0)	79.1 (1.5)	80.4 (0.9)	79.6 (1.3)	80.6 (0.9)
15 .....	78.8 (1.4)	80.4 (0.9)	81.7 (1.2)	82.2 (1.8)	80.4 (1.2)
16 .....	81.4 (1.2)	79.9 (1.0)	81.0 (1.0)	83.5 (2.3)	82.2 (1.2)
17 .....	79.3 (1.1)	83.4 (1.2)	82.2 (1.5)	85.0 (1.6)	84.2 (1.3)
18 .....	82.1 (1.1)	84.0 (1.5)	83.1 (1.4)	84.7 (2.2)	85.2 (1.8)
19 .....	84.6 (0.9)	85.8 (1.7)	85.4 (1.7)	86.7 (1.8)	88.0 (1.8)

<sup>1</sup>Refers to age at the time of the examination.

NOTE: Pregnant females are excluded.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.



**Table 8. Mean waist circumference in inches among children and adolescents aged 2–19 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup> (years)	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
<b>Boys</b>		<b>Mean (standard error)</b>			
2 .....	18.9 (0.1)	19.2 (0.1)	19.1 (0.1)	19.2 (0.1)	19.2 (0.1)
3 .....	19.8 (0.1)	19.8 (0.1)	19.9 (0.1)	19.8 (0.1)	20.2 (0.3)
4 .....	20.7 (0.2)	20.6 (0.2)	20.8 (0.1)	20.8 (0.1)	20.9 (0.1)
5 .....	21.6 (0.2)	22.2 (0.3)	21.6 (0.2)	21.7 (0.2)	21.7 (0.2)
6 .....	22.1 (0.2)	22.4 (0.2)	22.6 (0.3)	22.4 (0.2)	22.5 (0.3)
7 .....	23.5 (0.3)	23.2 (0.3)	23.2 (0.2)	23.9 (0.3)	23.6 (0.3)
8 .....	25.3 (0.5)	24.9 (0.4)	24.7 (0.3)	24.7 (0.2)	24.8 (0.3)
9 .....	26.1 (0.4)	25.5 (0.4)	26.0 (0.4)	25.3 (0.3)	26.2 (0.5)
10 .....	26.6 (0.4)	27.2 (0.4)	27.2 (0.4)	27.2 (0.5)	27.7 (0.4)
11 .....	27.7 (0.5)	28.7 (0.6)	28.3 (0.4)	29.5 (0.6)	28.8 (0.7)
12 .....	29.3 (0.5)	29.6 (0.5)	29.4 (0.4)	29.1 (0.5)	28.7 (0.5)
13 .....	29.0 (0.6)	30.7 (0.4)	30.2 (0.5)	31.3 (0.6)	31.6 (0.6)
14 .....	31.2 (0.5)	30.8 (0.5)	31.0 (0.6)	31.4 (0.5)	31.6 (0.6)
15 .....	31.5 (0.4)	32.0 (0.4)	31.8 (0.6)	32.4 (0.6)	33.5 (0.7)
16 .....	32.8 (0.4)	33.7 (0.4)	33.0 (0.5)	33.4 (0.4)	32.2 (0.5)
17 .....	33.4 (0.4)	33.0 (0.3)	33.7 (0.7)	33.2 (0.7)	33.7 (0.6)
18 .....	33.3 (0.3)	34.0 (0.6)	34.7 (0.6)	34.6 (0.6)	33.4 (0.7)
19 .....	34.2 (0.5)	34.7 (0.5)	33.8 (0.5)	34.2 (0.7)	35.2 (0.6)
<b>Girls</b>					
2 .....	19.0 (0.2)	19.1 (0.1)	19.0 (0.1)	19.0 (0.1)	18.9 (0.1)
3 .....	19.7 (0.1)	19.9 (0.1)	19.7 (0.1)	20.1 (0.2)	19.8 (0.1)
4 .....	20.6 (0.2)	20.7 (0.1)	20.5 (0.1)	20.9 (0.2)	20.9 (0.2)
5 .....	21.6 (0.3)	21.6 (0.3)	21.9 (0.3)	21.5 (0.2)	22.0 (0.2)
6 .....	21.7 (0.3)	22.1 (0.2)	22.2 (0.2)	22.6 (0.3)	22.5 (0.3)
7 .....	22.9 (0.2)	23.6 (0.3)	23.4 (0.3)	23.3 (0.3)	23.9 (0.3)
8 .....	25.0 (0.5)	24.6 (0.5)	25.1 (0.4)	25.1 (0.3)	24.8 (0.4)
9 .....	25.9 (0.3)	26.6 (0.4)	26.2 (0.4)	26.8 (0.4)	25.6 (0.3)
10 .....	26.8 (0.4)	28.1 (0.4)	27.5 (0.4)	27.4 (0.5)	27.6 (0.5)
11 .....	28.6 (0.4)	29.6 (0.4)	28.8 (0.5)	28.9 (0.5)	28.8 (0.5)
12 .....	29.4 (0.4)	29.6 (0.4)	29.4 (0.5)	30.7 (0.6)	30.2 (0.4)
13 .....	31.0 (0.4)	30.9 (0.3)	30.6 (0.6)	30.4 (0.5)	30.9 (0.5)
14 .....	31.0 (0.4)	31.1 (0.6)	31.6 (0.4)	31.3 (0.5)	31.7 (0.4)
15 .....	31.0 (0.5)	31.7 (0.4)	32.2 (0.5)	32.4 (0.7)	31.6 (0.5)
16 .....	32.1 (0.5)	31.5 (0.4)	31.9 (0.4)	32.9 (0.9)	32.4 (0.5)
17 .....	31.2 (0.4)	32.8 (0.5)	32.4 (0.6)	33.5 (0.6)	33.1 (0.5)
18 .....	32.3 (0.4)	33.1 (0.6)	32.7 (0.5)	33.3 (0.9)	33.6 (0.7)
19 .....	33.3 (0.3)	33.8 (0.7)	33.6 (0.7)	34.1 (0.7)	34.6 (0.7)

<sup>1</sup>Refers to age at the time of the examination.

NOTE: Pregnant females are excluded.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.

**Table 9. Mean body mass index among children and adolescents aged 2–19 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup> (years)	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
Boys					
2 .....	16.6 (0.1)	16.8 (0.1)	16.7 (0.1)	16.8 (0.1)	16.9 (0.2)
3 .....	16.2 (0.1)	16.3 (0.1)	16.5 (0.2)	16.3 (0.1)	16.8 (0.2)
4 .....	16.3 (0.2)	16.2 (0.1)	16.3 (0.1)	16.2 (0.1)	16.5 (0.1)
5 .....	16.5 (0.3)	16.8 (0.2)	16.3 (0.2)	16.3 (0.2)	16.5 (0.2)
6 .....	16.4 (0.2)	16.5 (0.2)	16.9 (0.3)	16.5 (0.2)	16.8 (0.2)
7 .....	17.0 (0.2)	16.9 (0.2)	16.9 (0.2)	17.4 (0.2)	17.3 (0.3)
8 .....	18.4 (0.4)	18.1 (0.4)	17.9 (0.3)	17.9 (0.2)	18.0 (0.3)
9 .....	18.7 (0.3)	18.4 (0.3)	18.9 (0.4)	18.0 (0.3)	18.9 (0.4)
10 .....	19.1 (0.3)	19.6 (0.3)	19.6 (0.3)	19.5 (0.5)	20.1 (0.4)
11 .....	19.6 (0.4)	20.5 (0.5)	20.5 (0.4)	21.2 (0.5)	20.7 (0.5)
12 .....	20.7 (0.4)	21.0 (0.4)	21.3 (0.4)	20.6 (0.4)	20.3 (0.5)
13 .....	20.7 (0.5)	21.8 (0.4)	21.9 (0.5)	22.6 (0.6)	22.7 (0.5)
14 .....	22.3 (0.4)	22.0 (0.5)	22.4 (0.6)	22.8 (0.5)	22.5 (0.5)
15 .....	22.5 (0.3)	23.2 (0.4)	23.1 (0.5)	23.6 (0.6)	24.4 (0.7)
16 .....	24.1 (0.4)	24.5 (0.4)	24.4 (0.5)	24.5 (0.4)	23.6 (0.4)
17 .....	24.5 (0.4)	24.0 (0.5)	24.9 (0.7)	24.5 (0.6)	25.1 (0.6)
18 .....	24.2 (0.3)	24.6 (0.5)	26.1 (0.6)	26.3 (0.9)	24.7 (0.7)
19 .....	24.9 (0.4)	25.6 (0.5)	25.2 (0.5)	25.4 (0.7)	26.1 (0.6)
Girls					
2 .....	16.4 (0.1)	16.6 (0.1)	16.5 (0.1)	16.6 (0.1)	16.4 (0.1)
3 .....	16.0 (0.1)	16.3 (0.2)	16.0 (0.2)	16.3 (0.2)	16.2 (0.1)
4 .....	15.9 (0.2)	16.1 (0.1)	16.0 (0.1)	16.2 (0.2)	16.4 (0.1)
5 .....	16.1 (0.3)	16.2 (0.2)	16.5 (0.3)	16.1 (0.2)	16.6 (0.2)
6 .....	16.2 (0.2)	16.4 (0.2)	16.5 (0.2)	16.7 (0.3)	16.7 (0.2)
7 .....	16.6 (0.2)	17.1 (0.3)	17.1 (0.3)	17.0 (0.3)	17.5 (0.3)
8 .....	18.3 (0.5)	17.7 (0.4)	18.3 (0.4)	18.1 (0.3)	18.4 (0.4)
9 .....	18.7 (0.3)	18.9 (0.4)	18.7 (0.4)	19.6 (0.3)	18.4 (0.3)
10 .....	19.3 (0.3)	20.2 (0.4)	19.5 (0.3)	19.5 (0.4)	19.8 (0.4)
11 .....	20.7 (0.4)	21.3 (0.5)	20.7 (0.5)	20.7 (0.5)	21.0 (0.5)
12 .....	21.2 (0.4)	21.4 (0.5)	21.3 (0.5)	22.6 (0.6)	22.0 (0.4)
13 .....	22.6 (0.4)	22.7 (0.3)	22.1 (0.5)	22.0 (0.6)	22.7 (0.5)
14 .....	22.9 (0.4)	22.8 (0.6)	23.5 (0.4)	23.2 (0.6)	23.7 (0.4)
15 .....	23.2 (0.5)	23.2 (0.3)	23.9 (0.4)	24.6 (0.9)	24.0 (0.6)
16 .....	24.0 (0.4)	23.2 (0.4)	23.7 (0.4)	24.6 (0.8)	25.0 (0.6)
17 .....	23.1 (0.4)	25.0 (0.6)	23.9 (0.6)	25.4 (0.7)	25.6 (0.6)
18 .....	24.4 (0.5)	25.4 (0.8)	24.6 (0.6)	25.7 (1.1)	26.1 (0.7)
19 .....	25.5 (0.4)	25.3 (0.6)	25.5 (0.7)	25.8 (0.8)	26.9 (0.8)

<sup>1</sup>Refers to age at the time of the examination.

NOTES: Pregnant females are excluded. Body mass index is calculated as weight (kilograms) / height (meters<sup>2</sup>).

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.

## Technical Notes: Tables

**Table I. Unweighted sample size for mean weight among children and adolescents from birth to age 19 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup>	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
Boys					
0–2 months . . . . .	82	101	82	75	72
3–5 months . . . . .	106	139	111	90	95
6–8 months . . . . .	113	130	103	103	81
9–11 months . . . . .	118	124	108	97	85
1 year . . . . .	288	360	318	240	268
2 years . . . . .	261	292	325	258	242
3 years . . . . .	215	210	203	234	184
4 years . . . . .	179	208	244	230	178
5 years . . . . .	147	202	205	195	181
6 years . . . . .	182	176	193	247	169
7 years . . . . .	184	181	216	231	193
8 years . . . . .	214	151	211	228	218
9 years . . . . .	174	176	191	218	195
10 years . . . . .	187	172	197	207	185
11 years . . . . .	182	158	211	186	173
12 years . . . . .	299	275	159	181	157
13 years . . . . .	298	284	146	175	163
14 years . . . . .	266	260	177	184	166
15 years . . . . .	282	270	160	156	165
16 years . . . . .	306	308	175	178	152
17 years . . . . .	313	279	188	147	156
18 years . . . . .	284	284	142	160	129
19 years . . . . .	270	271	179	144	132
Girls					
0–2 months . . . . .	84	81	82	72	71
3–5 months . . . . .	119	94	104	104	99
6–8 months . . . . .	100	122	103	91	82
9–11 months . . . . .	112	126	119	104	87
1 year . . . . .	228	328	297	224	230
2 years . . . . .	248	336	282	293	249
3 years . . . . .	178	191	191	201	155
4 years . . . . .	191	226	200	206	188
5 years . . . . .	187	199	177	179	190
6 years . . . . .	171	193	177	216	180
7 years . . . . .	196	157	207	211	190
8 years . . . . .	184	185	203	197	186
9 years . . . . .	183	185	205	206	216
10 years . . . . .	164	189	183	187	186
11 years . . . . .	194	175	219	230	205
12 years . . . . .	316	249	166	166	154
13 years . . . . .	321	292	140	160	138
14 years . . . . .	324	269	168	169	169
15 years . . . . .	266	248	137	150	129
16 years . . . . .	273	253	156	187	170
17 years . . . . .	256	252	143	139	146
18 years . . . . .	244	272	137	154	141
19 years . . . . .	226	239	118	152	114

<sup>1</sup>Refers to age at the time of the examination.

NOTE: Pregnant females are excluded.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.

**Table II. Unweighted sample size for mean recumbent length among children from birth to age 3 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup>	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
Boys					
0–2 months . . . . .	91	100	82	75	72
3–5 months . . . . .	117	139	110	90	95
6–8 months . . . . .	129	130	103	103	81
9–11 months . . . . .	134	123	108	96	85
1 year . . . . .	322	353	316	239	265
2 years . . . . .	263	268	313	238	232
3 years . . . . .	213	198	197	219	171
Girls					
0–2 months . . . . .	92	80	81	71	71
3–5 months . . . . .	129	94	104	104	99
6–8 months . . . . .	109	121	103	91	82
9–11 months . . . . .	129	125	119	104	87
1 year . . . . .	259	324	296	221	229
2 years . . . . .	249	313	261	276	232
3 years . . . . .	169	183	183	192	145

<sup>1</sup>Refers to age at the time of the examination.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.

**Table III. Unweighted sample size for mean height among children and adolescents aged 2–19 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup> (years)	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
Boys					
2 .....	253	258	285	220	208
3 .....	221	209	202	225	181
4 .....	183	206	244	229	178
5 .....	156	202	205	195	180
6 .....	188	176	193	246	168
7 .....	186	181	215	231	193
8 .....	217	152	210	227	217
9 .....	177	176	190	218	195
10 .....	188	171	197	207	185
11 .....	187	158	211	186	172
12 .....	301	275	159	181	157
13 .....	298	284	146	175	163
14 .....	267	260	177	184	166
15 .....	286	270	160	156	165
16 .....	310	308	175	178	152
17 .....	317	278	188	147	156
18 .....	289	285	142	160	129
19 .....	275	271	179	144	132
Girls					
2 .....	233	286	257	264	214
3 .....	187	187	189	199	154
4 .....	195	225	200	206	189
5 .....	191	199	177	178	190
6 .....	172	193	177	216	180
7 .....	200	157	207	211	190
8 .....	184	185	203	197	186
9 .....	189	185	205	206	215
10 .....	164	189	183	187	186
11 .....	194	174	219	230	205
12 .....	318	249	166	166	154
13 .....	325	292	140	160	138
14 .....	326	270	168	169	169
15 .....	274	254	137	150	129
16 .....	285	261	156	187	170
17 .....	285	275	143	140	146
18 .....	275	304	137	154	141
19 .....	262	267	118	152	114

<sup>1</sup>Refers to age at the time of the examination.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.

**Table IV. Unweighted sample size for mean waist circumference among children and adolescents aged 2–19 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup> (years)	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
Boys					
2 .....	214	231	270	200	182
3 .....	204	199	182	203	156
4 .....	172	199	231	217	159
5 .....	145	198	194	182	168
6 .....	183	174	188	239	159
7 .....	183	177	208	226	185
8 .....	214	146	205	219	212
9 .....	175	173	183	213	184
10 .....	185	171	194	199	181
11 .....	182	153	205	182	165
12 .....	299	272	156	172	152
13 .....	294	282	141	169	158
14 .....	266	257	173	176	160
15 .....	280	266	157	152	163
16 .....	307	303	170	174	149
17 .....	314	272	184	143	153
18 .....	285	278	137	156	127
19 .....	271	262	176	142	130
Girls					
2 .....	205	270	235	241	188
3 .....	164	177	179	182	131
4 .....	185	223	191	194	170
5 .....	181	194	168	170	175
6 .....	167	188	173	210	171
7 .....	192	154	202	204	188
8 .....	181	180	199	190	179
9 .....	183	183	198	198	205
10 .....	164	183	174	182	180
11 .....	192	172	212	223	199
12 .....	311	242	162	163	145
13 .....	320	289	130	155	135
14 .....	322	265	164	163	162
15 .....	265	237	134	146	125
16 .....	273	248	152	180	165
17 .....	253	244	141	133	142
18 .....	245	268	131	153	134
19 .....	223	230	115	145	108

<sup>1</sup>Refers to age at the time of the examination.

NOTE: Pregnant females are excluded.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.

**Table V. Unweighted sample size for mean body mass index among children and adolescents aged 2–19 years, by survey years, sex, and age: United States, 1999–2018**

Sex and age <sup>1</sup> (years)	Survey years				
	1999–2002	2003–2006	2007–2010	2011–2014	2015–2018
Boys					
2 .....	224	258	285	220	207
3 .....	208	209	202	223	181
4 .....	178	206	244	229	178
5 .....	147	202	205	195	180
6 .....	182	176	193	246	168
7 .....	184	181	215	231	193
8 .....	214	151	210	227	217
9 .....	174	176	190	218	195
10 .....	187	171	197	207	185
11 .....	182	158	211	186	172
12 .....	299	275	159	181	157
13 .....	298	284	146	175	163
14 .....	266	260	177	184	166
15 .....	282	270	160	156	165
16 .....	306	308	175	178	152
17 .....	313	278	188	147	156
18 .....	284	284	142	160	129
19 .....	269	271	179	144	132
Girls					
2 .....	214	286	254	264	214
3 .....	173	187	189	199	153
4 .....	190	224	200	206	188
5 .....	187	199	177	178	190
6 .....	170	193	177	216	180
7 .....	196	157	207	211	190
8 .....	184	185	203	197	186
9 .....	183	185	205	206	215
10 .....	163	189	183	187	186
11 .....	194	174	219	230	205
12 .....	315	249	166	166	154
13 .....	321	292	140	160	138
14 .....	324	269	168	169	169
15 .....	266	247	137	150	129
16 .....	273	253	156	187	170
17 .....	255	252	143	139	146
18 .....	244	271	137	154	141
19 .....	226	238	118	152	114

<sup>1</sup>Refers to age at the time of the examination.

NOTES: Body mass index is calculated as weight (kilograms) / height (meters<sup>2</sup>). Pregnant females are excluded.

SOURCE: National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2018.

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