

# Vital and Health Statistics



## Anthropometric Reference Data for Children and Adults: United States, 2015–2018

Analytical and Epidemiological Studies



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Centers for Disease Control and Prevention  
National Center for Health Statistics

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Analytical and Epidemiological Studies

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Centers for Disease Control and Prevention  
National Center for Health Statistics

Hyattsville, Maryland  
January 2021

## **National Center for Health Statistics**

Brian C. Moyer, *Ph.D., Director*

Amy M. Branum, *Ph.D., Acting Associate Director for Science*

## **Division of Health and Nutrition Examination Surveys**

Ryne Paulose-Ram, *M.A., Ph.D., Acting Director*

Lara J. Akinbami, *M.D., Acting Associate Director for Science*

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# Anthropometric Reference Data for Children and Adults: United States, 2015–2018

by Cheryl D. Fryar, M.S.P.H., Margaret D. Carroll, M.S.P.H., Qiuping Gu, M.D., Joseph Afful, M.S., and Cynthia L. Ogden, Ph.D.

## Abstract

### Objective

This report presents anthropometric reference data for the U.S. population in 2015–2018.

### Methods

Body measurements were obtained from 18,061 participants in the 2015–2018 National Health and Nutrition Examination Survey (NHANES). Measurements included weight, height, recumbent length, circumferences, and limb lengths.

### Results

Weighted population means, standard errors of the means, and selected percentiles of body measurement values are reported. Body measurement results are

shown by sex and age, as well as race and Hispanic origin among adults.

### Conclusions

These latest NHANES data show the distribution of weight, height, BMI, circumferences, and lengths, in the U.S. population.

**Keywords:** anthropometry • body measures • nutrition surveys • National Health and Nutrition Examination Survey

## Introduction

Based on nationally representative anthropometric data, the National Center for Health Statistics (NCHS) has published reference tables on the distribution of various body measurements for the U.S. population (1–5). National Health and Nutrition Examination Survey (NHANES) data are the primary source of body measurement information for the U.S. population. These measurements reflect the mean weight, height, length, and various circumferences of U.S. children and adults. Anthropometry is a measure of nutritional or general health status, dietary adequacy, and growth. This report presents anthropometric reference data from the years 2015–2018 for U.S. children and adults.

## Methods

NHANES is conducted by NCHS and data are collected in household interviews and health examinations in mobile examination centers (MEC). The MECs are staffed by full-time personnel, including health technicians who perform body measurements on survey participants following a standard protocol.

Surveys were conducted on a periodic basis from 1960 to 1994. NHANES became a continuous survey in 1999. Public-use data files are released in 2-year cycles. A combined 4-year data set based on 2015–2016 and 2017–2018 data was used for this report to improve the stability and reliability of the statistical estimates (6–9). The overall examination response rate was 58.7% during 2015–2016 and 48.8% during 2017–2018.

## Sample Description

NHANES is a complex, multistage probability sample of the civilian noninstitutionalized U.S. population. The NHANES 2015–2018 sample included participants of all ages. Those aged 80 and over, Hispanic persons, black persons, Asian persons and those with low income were oversampled to improve the precision of the statistical estimates for these groups (9). The analytic sample for this report was based on the 2015–2018 examined sample of 18,061 persons. Pregnant females aged 20–44 were excluded from the tabulations of weight, body mass index (BMI), and circumference measurements. Pregnant females under age 20 are excluded from the tabulations of all body measurements.

The age and race and Hispanic-origin categories presented for adults were based on the survey sample domains (8). Age in adults was categorized into three groups: 20–39, 40–59, and 60 and over. For participants who were under age 20, results were reported by single year of age, except for results for infants under 1 year, which were reported by month of age. Race and Hispanic origin was reported for five groups: non-Hispanic white, non-Hispanic black, non-Hispanic Asian, all Hispanic, and Mexican-American persons.

## Body Measures

The NHANES Anthropometry Procedures Manual describes the protocol, equipment, quality control, and measurement procedures in detail (10). All NHANES participants were eligible for the anthropometry examination component. Specific measurements were conducted depending on the age of the participants.

Weight was measured on all participants to the nearest 0.1 kilogram using a digital floor scale. Head circumference was measured on infants from birth to 6 months of age to the nearest 0.1 centimeter using a plastic head circumference measurement tape. Recumbent length was measured from birth through 47 months of age to the nearest 0.1 centimeter using a digital infantometer.

Upper arm length and arm circumference was measured on participants starting at 2 months of age. Upper arm length was measured with a tape measure from the posterior border of the acromion process to the tip of the olecranon process; during the measurement, the upper arm length midpoint was marked. The mid-upper arm circumference was measured with a tape measure at the marked point.

Standing height or stature and waist circumference were measured to the nearest 0.1 centimeters on participants starting at age 2 years. Standing height was measured with a wall-mounted stadiometer. Waist circumference was measured with a tape measure at the uppermost lateral border of the hip crest (ilium).

In addition to the measurements above, upper leg length measurements were taken on participants aged 8 and over. Upper leg measurements were taken on seated participants; the distance from the inguinal crease to the distal end of the femur was measured.

Weight, recumbent length, and standing height values were recorded automatically. The other body measurement data were recorded using computer-assisted data entry. All results were based on a single body measurement examination.

One index is reported, body mass index BMI, which was calculated as weight in kilograms, divided by height in meters squared ( $\text{kg}/\text{m}^2$ ).

## Statistical Analysis

Unweighted sample sizes and weighted means, standard errors, and select percentiles were estimated. Data were weighted using examination sample weights to produce national estimates. The NHANES examination sample weights incorporate the differential probabilities of selection and include adjustments for oversampling of selected populations, noncoverage, and nonresponse. Standard errors were estimated using SUDAAN by Taylor series linearization because of the complex sample design (11).

The reliability of the estimates produced for this report was evaluated. Estimates of means and percentiles based on less than 8 degrees of freedom or with a relative standard error (RSE) greater than 30% were considered statistically unreliable. Although NCHS now uses new criteria for presentation of proportions (12), similar criteria for means and percentiles have not been established. In [Tables 1–29](#), estimates based on less than 8 degrees of freedom are identified with an asterisk (\*). No estimates in this report had RSEs greater than 30%. Estimates with standard errors that could not be calculated using SUDAAN because of small cell sizes were omitted from the tables and are identified with a dagger (†).

## Results

A list of detailed tables based on the various body measurements and BMI is found in the [Table](#) on the following page. [Tables 1–29](#) contain the sample size, mean, standard error, and select percentiles for the different measures. Results are reported by sex and age group, and the results for adults aged 20 and over are also presented by race and Hispanic origin. For example, during 2015–2018, the average man weighed around 200 pounds ([Table 6](#)) and was 5 feet and 9 inches ([Table 12](#)), while, the average woman weighed about 171 pounds ([Table 4](#)) and was 5 feet and 3.5 inches ([Table 10](#)). Results from previous surveys for most measurements have been reported for the National Health Examination Survey and NHANES conducted from 1960–2014 (1–5,13–23). A historical summary of published body measurement reference data is available in the [Appendix](#) of this report.

**Table. Detailed tables with body measurements or indices from the National Health and Nutrition Examination Survey, 2015–2018**

Table number	Measurement or index (unit of measurement)	Age group and sex
1	Weight (kilograms)	Birth–19 years
2	Weight (pounds)	Birth–19 years
3	Weight (kilograms)	Adult females 20 and older
4	Weight (pounds)	Adult females 20 and older
5	Weight (kilograms)	Adult males 20 and older
6	Weight (pounds)	Adult males 20 and older
7	Standing height (centimeters)	Persons 2–19 years
8	Standing height (inches)	Persons 2–19 years
9	Standing height (centimeters)	Adult females 20 and older
10	Standing height (inches)	Adult females 20 and older
11	Standing height (centimeters)	Adult males 20 and older
12	Standing height (inches)	Adult males 20 and older
13	Body mass index	Persons 2–19 years
14	Body mass index	Adult females 20 and older
15	Body mass index	Adult males 20 and older
16	Head circumference (centimeters)	Birth through 6 months
17	Recumbent length (centimeters)	Birth through 47 months
18	Waist circumference (centimeters)	Persons 2–19 years
19	Waist circumference (centimeters)	Adult females 20 and older
20	Waist circumference (centimeters)	Adult males 20 and older
21	Mid-upper arm circumference (centimeters)	Persons 2 months–19 years
22	Mid-upper arm circumference (centimeters)	Adult females 20 and older
23	Mid-upper arm circumference (centimeters)	Adult males 20 and older
24	Upper arm length (centimeters)	Persons 2 months–19 years
25	Upper arm length (centimeters)	Adult females 20 and older
26	Upper arm length (centimeters)	Adult males 20 and older
27	Upper leg length (centimeters)	Persons 8–19 years
28	Upper leg length (centimeters)	Adult females 20 and older
29	Upper leg length (centimeters)	Adult males 20 and older

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

## Discussion

This report provides the most recent anthropometric reference data for U.S. children and adults. Previous publications (23,24) have investigated trends over time, including one that showed that between 1999 and 2016, mean weight, waist circumference, and BMI in adults increased, while mean height did not change in many demographic subgroups (23). NHANES anthropometry data have been used in making decisions regarding health policy and programs (25–28), as well as regulatory decisions. For example, the increasing mid-upper arm circumferences found in children and adults have been used to formulate guidelines for health practitioners regarding the selection of blood pressure cuff sizes for blood pressure measurement (26,27). The Federal Aviation Administration used NHANES body measurement data in the determination of average passenger weights in its Advisory Circular on Aircraft Weight and Balance Control (29). Similarly, the U.S. Coast Guard looked at NHANES body weight data when considering passenger weight and vessel stability requirements (30). NHANES will continue to provide national reference values for weight, height, waist circumference, and other anthropometric measures of U.S. children, adolescents, and adults.

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**Table 1. Weight in kilograms for children and adolescents from birth through age 19 years and number of examined persons, mean, standard error of the mean, and selected percentiles, by sex and age: United States, 2015–2018**

Sex and age <sup>1</sup>	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
<b>Male</b>				<b>Kilograms</b>								
Birth–2 months	72	5.2	0.10	3.8	4.0	4.1	4.5	5.0	5.7	6.0	6.2	6.8
3–5 months	95	7.4	0.11	5.9	6.0	6.4	6.6	7.2	8.0	8.2	8.5	9.2
6–8 months	81	8.8	0.11	7.0	7.6	7.7	8.2	8.8	9.5	9.8	9.9	10.1
9–11 months	85	9.7	0.13	†	8.2	8.3	8.8	9.4	10.4	10.8	†	11.6
1 year	268	11.5	0.11	8.8	9.4	9.8	10.3	11.5	12.3	12.8	13.4	14.3
2 years	242	14.0	0.16	11.1	11.7	12.0	12.7	13.7	15.2	15.9	16.7	17.6
3 years	184	16.6	0.35	13.4	13.7	14.2	14.6	15.5	17.5	18.9	19.8	23.2
4 years	178	18.6	0.22	14.4	15.5	15.9	16.8	17.8	20.3	21.7	22.3	23.7
5 years	181	21.1	0.45	15.6	16.6	17.2	18.2	20.5	22.9	24.5	26.4	28.3
6 years	169	23.9	0.40	17.9	18.8	19.7	20.2	22.5	25.4	27.7	30.4	34.1
7 years	193	27.7	0.65	20.2	20.9	21.1	22.8	26.2	30.7	35.1	36.2	39.1
8 years	218	31.6	0.63	22.2	23.5	24.3	25.8	29.5	35.6	39.5	43.3	48.2
9 years	195	35.4	1.05	23.6	25.6	26.9	28.3	31.8	38.9	46.1	49.6	57.1
10 years	185	40.8	0.96	27.2	28.7	30.5	32.6	38.7	44.2	50.0	56.0	63.4
11 years	173	46.5	1.56	28.5	30.8	33.5	35.7	44.6	55.1	60.3	64.2	69.2
12 years	157	48.9	1.43	30.4	33.2	35.4	38.4	46.4	55.7	63.7	67.9	74.2
13 years	163	60.4	1.51	38.0	41.2	44.5	46.6	55.4	70.1	80.6	87.3	96.2
14 years	166	65.1	1.76	42.5	43.4	46.4	51.2	59.9	77.5	86.4	91.1	99.8
15 years	165	72.7	1.93	47.2	49.8	53.1	57.0	66.1	84.1	93.2	104.7	114.5
16 years	152	71.3	1.53	50.9	53.6	56.0	59.4	66.8	77.3	87.3	90.2	102.0
17 years	156	77.1	1.89	49.8	52.3	57.2	60.4	72.1	88.9	96.4	103.7	124.6
18 years	129	75.6	1.97	55.3	58.2	59.5	64.0	71.0	81.4	90.1	101.4	120.5
19 years	132	79.9	1.63	54.7	59.9	62.9	67.0	77.7	88.5	95.2	104.2	112.2
<b>Female</b>												
Birth–2 months	71	5.0	0.11	3.8	4.0	4.2	4.4	4.9	5.4	5.7	5.9	6.1
3–5 months	99	6.7	0.12	5.1	5.3	5.5	5.8	6.7	7.5	7.9	8.0	8.3
6–8 months	82	8.0	0.17	6.5	6.7	7.1	7.3	7.9	8.5	9.0	9.4	10.3
9–11 months	87	9.0	0.11	7.4	7.8	7.9	8.3	8.9	9.7	10.1	10.4	†
1 year	230	11.0	0.13	8.7	9.1	9.4	9.8	10.8	11.7	12.5	13.0	13.6
2 years	249	13.2	0.11	10.5	11.0	11.4	11.9	13.0	14.4	14.7	15.1	15.7
3 years	155	15.4	0.20	†	13.0	13.2	14.2	14.9	16.8	17.6	18.2	19.3
4 years	188	18.1	0.28	14.0	14.9	15.5	16.0	17.7	19.7	20.9	21.2	22.7
5 years	190	21.0	0.45	15.1	16.2	16.9	17.8	19.7	24.2	25.5	26.4	28.5
6 years	180	23.7	0.43	16.9	18.3	19.0	20.2	22.4	25.1	28.5	30.4	34.8
7 years	190	27.3	0.54	19.7	20.2	20.6	22.0	25.7	29.8	33.6	36.8	41.7
8 years	186	31.3	0.89	21.4	22.1	23.8	24.8	28.3	36.3	40.4	42.9	47.6
9 years	216	34.9	0.81	23.6	25.6	27.3	29.0	33.4	37.3	43.0	46.4	52.5
10 years	186	41.1	1.03	24.9	27.1	28.1	31.6	39.5	49.0	53.3	55.7	58.6
11 years	205	48.1	1.36	29.7	31.8	35.8	37.2	43.6	56.6	62.5	66.6	72.4
12 years	154	53.0	1.04	32.6	35.8	38.5	42.4	52.1	61.1	67.3	70.6	76.0
13 years	138	57.0	1.69	36.7	39.9	43.2	46.9	52.2	65.5	71.1	78.2	88.3
14 years	169	62.2	0.99	45.1	46.3	47.3	50.8	59.5	68.8	76.9	80.9	84.5
15 years	129	62.4	1.52	44.2	45.9	49.8	51.2	58.1	68.5	78.4	85.4	95.7
16 years	170	65.7	1.62	47.7	49.6	51.2	53.7	61.8	71.7	82.5	85.2	97.7
17 years	146	67.9	1.62	46.0	49.7	51.6	55.7	65.1	75.8	86.1	90.1	95.4
18 years	141	68.8	1.68	44.9	47.8	49.6	55.3	62.7	79.2	89.3	96.2	111.1
19 years	114	71.0	1.98	47.9	50.3	51.8	55.2	65.7	83.1	89.5	95.7	110.0

† Estimate not shown because the standard error could not be computed due to small sample size.

<sup>1</sup>Age at time of examination.

NOTE: Estimates are weighted.

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

**Table 2. Weight in pounds for children and adolescents from birth through age 19 years and number of examined persons, mean, standard error of the mean, and selected percentiles, by sex and age: United States, 2015–2018**

Sex and age <sup>1</sup>	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
				Pounds								
Male												
Birth–2 months	72	11.4	0.22	8.5	8.9	9.1	10.0	10.9	12.5	13.3	13.8	15.0
3–5 months	95	16.2	0.25	13.0	13.3	14.1	14.6	15.8	17.6	18.2	18.8	20.2
6–8 months	81	19.5	0.24	15.3	16.7	17.0	18.1	19.5	20.9	21.6	21.9	22.2
9–11 months	85	21.4	0.30	†	18.0	18.4	19.5	20.8	22.9	23.7	24.2	†
1 year	268	25.3	0.24	19.3	20.6	21.6	22.7	25.3	27.2	28.2	29.4	31.6
2 years	242	30.9	0.35	24.5	25.8	26.5	28.0	30.1	33.5	35.1	36.7	38.8
3 years	184	36.5	0.78	29.5	30.2	31.4	32.1	34.3	38.5	41.7	43.7	51.2
4 years	178	41.0	0.48	31.8	34.2	35.2	36.9	39.2	44.7	47.9	49.1	52.3
5 years	181	46.6	0.98	34.4	36.6	37.9	40.2	45.1	50.4	54.1	58.1	62.4
6 years	169	52.6	0.89	39.6	41.4	43.4	44.5	49.6	56.0	61.0	67.1	75.2
7 years	193	61.0	1.43	44.5	46.0	46.6	50.3	57.7	67.8	77.4	79.8	86.1
8 years	218	69.8	1.38	49.0	51.7	53.5	56.9	65.1	78.6	87.1	95.4	106.3
9 years	195	78.1	2.31	52.0	56.4	59.2	62.4	70.2	85.9	101.7	109.3	126.0
10 years	185	89.8	2.13	60.0	63.3	67.3	71.8	85.4	97.4	110.1	123.6	139.8
11 years	173	102.6	3.45	62.8	67.9	73.8	78.6	98.4	121.4	132.9	141.6	152.7
12 years	157	107.8	3.16	67.1	73.3	78.1	84.7	102.4	122.7	140.4	149.7	163.6
13 years	163	133.2	3.33	83.8	90.8	98.2	102.8	122.0	154.5	177.6	192.5	212.1
14 years	166	143.6	3.88	93.7	95.6	102.2	112.9	132.0	170.8	190.5	200.9	220.0
15 years	165	160.2	4.25	104.1	109.8	117.0	125.7	145.7	185.4	205.5	230.8	252.5
16 years	152	157.2	3.37	112.3	118.2	123.5	130.9	147.2	170.4	192.5	198.8	224.9
17 years	156	170.0	4.16	109.9	115.2	126.0	133.2	158.9	195.9	212.5	228.6	274.6
18 years	129	166.7	4.34	121.8	128.4	131.1	141.1	156.6	179.4	198.6	223.6	265.6
19 years	132	176.2	3.59	120.5	132.1	138.7	147.6	171.2	195.1	210.0	229.7	247.3
Female												
Birth–2 months	71	11.0	0.25	8.4	8.8	9.2	9.7	10.9	11.8	12.6	13.1	13.4
3–5 months	99	14.8	0.26	11.3	11.8	12.1	12.8	14.8	16.6	17.5	17.7	18.2
6–8 months	82	17.7	0.36	14.4	14.7	15.6	16.0	17.4	18.7	19.9	20.8	22.7
9–11 months	87	19.9	0.24	16.3	17.2	17.4	18.2	19.6	21.4	22.2	22.9	†
1 year	230	24.1	0.28	19.2	20.2	20.7	21.6	23.8	25.8	27.5	28.6	30.1
2 years	249	29.1	0.24	23.1	24.3	25.0	26.3	28.7	31.7	32.4	33.3	34.7
3 years	155	34.0	0.45	†	28.6	29.2	31.2	32.8	37.1	38.8	40.2	42.5
4 years	188	40.0	0.63	30.9	32.8	34.2	35.4	39.0	43.4	46.1	46.7	50.1
5 years	190	46.2	0.98	33.4	35.8	37.3	39.3	43.3	53.3	56.3	58.2	62.7
6 years	180	52.3	0.96	37.2	40.4	41.9	44.6	49.3	55.2	62.8	67.0	76.7
7 years	190	60.2	1.19	43.5	44.4	45.5	48.6	56.6	65.7	74.2	81.1	92.0
8 years	186	69.1	1.97	47.2	48.7	52.4	54.6	62.3	80.0	89.1	94.5	105.0
9 years	216	76.9	1.78	52.1	56.4	60.3	63.8	73.5	82.3	94.8	102.3	115.7
10 years	186	90.6	2.26	54.9	59.7	61.9	69.8	87.0	108.1	117.5	122.9	129.2
11 years	205	106.1	3.00	65.5	70.2	78.8	82.1	96.2	124.7	137.9	146.8	159.6
12 years	154	116.9	2.30	71.8	78.8	84.9	93.6	114.8	134.8	148.3	155.7	167.5
13 years	138	125.8	3.72	81.0	88.1	95.1	103.4	115.1	144.3	156.7	172.4	194.7
14 years	169	137.0	2.19	99.5	102.2	104.3	112.1	131.3	151.6	169.6	178.4	186.4
15 years	129	137.5	3.36	97.4	101.2	109.8	112.9	128.1	151.0	172.8	188.4	211.0
16 years	170	144.9	3.57	105.2	109.3	113.0	118.3	136.2	158.0	181.8	187.9	215.4
17 years	146	149.7	3.57	101.5	109.6	113.8	122.8	143.6	167.1	189.9	198.7	210.2
18 years	141	151.6	3.70	98.9	105.4	109.3	121.9	138.2	174.5	196.8	212.2	244.9
19 years	114	156.5	4.37	105.6	110.8	114.2	121.7	144.9	183.2	197.3	210.9	242.4

† Estimate not shown because the standard error could not be computed due to small sample size.

<sup>1</sup>Age at time of examination.

NOTE: Estimates are weighted.

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

**Table 3. Weight in kilograms for adult females aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Kilograms												
20 and over	5,386	77.5	0.63	49.8	53.9	57.5	62.2	73.1	88.6	98.2	105.3	119.6
20–29	827	74.9	1.13	48.5	51.4	53.8	58.4	69.5	86.4	98.4	107.0	118.4
30–39	872	79.3	0.99	50.3	53.8	57.6	63.5	73.3	91.5	101.7	110.8	127.6
40–49	900	80.8	1.42	53.3	57.0	59.9	64.6	75.2	92.1	103.3	113.2	123.8
50–59	915	78.7	1.01	49.2	55.2	58.9	63.7	74.6	90.1	97.8	104.8	121.1
60–69	981	78.2	1.22	50.8	56.5	59.3	64.3	75.1	89.3	98.1	103.7	112.7
70–79	532	74.7	0.95	50.7	54.3	57.4	62.8	73.2	83.9	89.3	95.1	107.3
80 and over	359	67.9	1.01	46.4	50.0	53.2	57.3	66.3	76.3	82.3	86.3	96.8
Non-Hispanic white												
20 and over	1,747	77.5	0.82	50.2	54.6	58.3	62.7	73.2	88.3	97.8	104.9	119.2
20–39	517	77.1	1.30	49.8	53.0	55.7	60.3	71.4	88.4	100.9	108.0	121.7
40–59	506	79.9	1.28	50.7	57.6	60.1	65.7	75.0	91.4	99.5	106.6	121.1
60 and over	724	75.6	0.97	50.2	54.6	58.5	62.4	73.0	85.3	94.0	100.1	110.9
Non-Hispanic black												
20 and over	1,226	85.5	0.78	53.6	58.5	61.6	68.3	81.6	97.7	110.2	118.9	131.8
20–39	382	83.4	1.45	50.8	54.8	58.5	64.8	79.5	96.2	110.6	116.0	130.2
40–59	439	90.4	1.09	57.5	60.8	64.2	71.5	87.8	103.9	118.9	126.1	135.4
60 and over	405	81.3	1.05	54.4	60.4	63.1	68.6	77.2	90.3	99.6	106.2	118.0
Non-Hispanic Asian												
20 and over	711	61.2	0.44	45.8	47.7	49.1	52.2	58.8	68.5	74.6	79.2	84.5
20–39	244	61.8	0.69	44.8	47.9	49.3	52.2	59.5	70.6	75.3	80.6	83.6
40–59	276	61.6	1.10	46.8	48.0	50.5	53.4	58.9	68.0	73.1	78.8	84.9
60 and over	191	59.8	0.67	44.4	46.1	48.1	50.8	57.8	66.1	70.2	76.3	85.1
Hispanic <sup>2</sup>												
20 and over	1,497	76.2	0.59	50.2	54.9	58.1	62.8	72.2	85.8	95.6	101.7	114.1
20–39	472	76.7	0.90	48.3	53.7	55.9	60.9	71.0	87.3	99.2	106.0	122.3
40–59	530	76.8	0.89	52.9	57.2	59.7	64.4	73.3	86.6	94.8	100.1	109.4
60 and over	495	73.9	0.66	51.6	56.4	59.2	62.8	71.7	82.8	89.0	93.9	106.3
Mexican American												
20 and over	845	78.0	0.96	51.1	55.9	59.6	64.0	73.5	88.1	98.3	104.2	120.6
20–39	281	78.4	1.50	47.1	53.8	56.6	62.9	73.4	89.1	100.5	106.8	131.1
40–59	309	78.4	1.27	55.3	58.5	61.9	65.7	74.0	88.1	96.6	102.0	112.9
60 and over	255	75.9	0.67	53.1	56.4	60.7	63.7	72.7	85.2	92.7	99.5	109.8

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTES: Data exclude pregnant females. Estimates are weighted.

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

**Table 4. Weight in pounds for adult females aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Pounds												
20 and over	5,386	170.8	1.40	109.7	118.9	126.9	137.1	161.2	195.3	216.4	232.1	263.8
20–29	827	165.0	2.49	107.0	113.3	118.6	128.7	153.2	190.5	216.8	236.0	261.0
30–39	872	174.9	2.19	110.8	118.6	127.0	139.9	161.5	201.6	224.3	244.2	281.3
40–49	900	178.1	3.14	117.5	125.7	132.0	142.4	165.7	203.0	227.8	249.5	273.0
50–59	915	173.5	2.23	108.4	121.6	129.8	140.5	164.4	198.7	215.7	231.0	267.1
60–69	981	172.4	2.68	112.1	124.5	130.8	141.7	165.5	196.9	216.3	228.5	248.5
70–79	532	164.6	2.10	111.7	119.8	126.5	138.4	161.4	184.9	196.9	209.6	236.5
80 and over	359	149.7	2.22	102.3	110.2	117.3	126.3	146.2	168.2	181.4	190.2	213.5
Non-Hispanic white												
20 and over	1,747	170.9	1.81	110.6	120.3	128.6	138.3	161.3	194.7	215.6	231.2	262.8
20–39	517	170.0	2.86	109.8	116.8	122.7	133.0	157.5	194.9	222.5	238.1	268.2
40–59	506	176.1	2.83	111.9	127.1	132.5	144.9	165.3	201.6	219.3	235.1	267.0
60 and over	724	166.6	2.14	110.6	120.3	129.0	137.5	161.0	188.1	207.2	220.6	244.6
Non-Hispanic black												
20 and over	1,226	188.5	1.73	118.2	128.9	135.9	150.6	180.0	215.3	242.9	262.0	290.6
20–39	382	183.9	3.20	111.9	120.8	128.9	142.8	175.4	212.1	243.8	255.8	287.0
40–59	439	199.4	2.40	126.8	134.1	141.5	157.7	193.5	229.1	262.1	278.1	298.4
60 and over	405	179.2	2.32	119.8	133.1	139.1	151.2	170.1	199.0	219.5	234.2	260.0
Non-Hispanic Asian												
20 and over	711	135.0	0.97	100.9	105.2	108.3	115.2	129.6	151.0	164.5	174.7	186.4
20–39	244	136.3	1.52	98.7	105.7	108.7	115.2	131.1	155.6	166.1	177.7	184.3
40–59	276	135.7	2.42	103.2	105.9	111.4	117.8	129.9	149.9	161.1	173.6	187.2
60 and over	191	131.8	1.48	98.0	101.7	106.1	111.9	127.5	145.8	154.8	168.1	187.6
Hispanic <sup>2</sup>												
20 and over	1,497	168.0	1.30	110.6	121.1	128.1	138.4	159.1	189.1	210.7	224.3	251.6
20–39	472	169.0	1.99	106.4	118.4	123.3	134.2	156.4	192.4	218.6	233.7	269.7
40–59	530	169.3	1.95	116.5	126.0	131.5	141.9	161.6	191.0	208.9	220.7	241.1
60 and over	495	162.9	1.45	113.7	124.3	130.6	138.4	158.0	182.4	196.1	207.1	234.4
Mexican American												
20 and over	845	172.0	2.11	112.7	123.3	131.4	141.0	162.1	194.2	216.8	229.6	265.9
20–39	281	172.9	3.30	103.9	118.6	124.8	138.7	161.9	196.5	221.7	235.5	288.9
40–59	309	172.8	2.80	121.9	129.0	136.5	144.9	163.1	194.3	213.0	224.8	248.8
60 and over	255	167.4	1.48	117.1	124.3	133.7	140.4	160.4	187.9	204.3	219.4	242.1

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTES: Data exclude pregnant females. Estimates are weighted.

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

**Table 5. Weight in kilograms for adult males aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Kilograms												
20 and over	5,085	90.6	0.63	61.7	66.6	69.9	75.3	87.4	101.9	110.6	119.4	130.3
20–29	802	85.5	1.44	58.3	61.5	64.0	69.3	81.3	98.2	109.8	116.0	128.1
30–39	804	94.4	1.21	65.0	70.2	73.6	77.6	89.7	104.6	116.2	123.8	139.9
40–49	766	93.9	1.04	66.3	70.1	74.5	79.9	90.5	104.0	113.7	119.6	133.3
50–59	842	91.9	1.12	63.2	68.5	71.0	76.7	89.6	102.0	110.4	123.9	130.6
60–69	965	91.2	0.81	62.3	67.6	70.8	76.5	89.5	102.9	109.7	116.7	128.1
70–79	571	87.7	1.09	60.5	67.0	69.6	75.7	85.3	98.0	105.8	108.7	119.0
80 and over	335	80.5	0.90	56.2	62.0	64.6	69.2	79.6	90.0	97.2	99.2	107.9
Non-Hispanic white												
20 and over	1,774	92.2	0.74	62.7	68.2	71.3	77.1	89.6	103.2	112.0	120.1	132.3
20–39	489	91.6	1.52	60.4	64.8	68.4	74.0	86.7	104.4	115.7	122.7	137.3
40–59	502	94.1	1.16	66.9	70.4	73.9	79.7	91.1	104.7	111.4	122.3	132.1
60 and over	783	90.9	0.70	63.2	69.0	71.5	77.5	88.7	102.6	108.4	114.8	125.1
Non-Hispanic black												
20 and over	1,109	90.8	0.83	59.6	63.8	67.1	73.8	86.5	103.9	116.4	123.7	133.4
20–39	331	88.6	1.46	58.6	62.8	65.1	69.9	82.9	98.0	116.4	124.4	134.0
40–59	358	96.1	1.03	62.5	70.5	74.4	79.9	92.6	109.4	120.7	126.1	136.2
60 and over	420	86.0	1.15	57.6	62.5	65.3	71.5	83.7	97.3	105.0	111.7	121.8
Non-Hispanic Asian												
20 and over	667	76.2	0.71	55.5	59.6	62.0	66.4	74.3	83.3	88.8	93.1	101.2
20–39	242	80.0	1.03	57.1	61.9	64.5	69.6	77.8	86.7	92.9	97.2	109.5
40–59	265	76.0	0.74	54.6	59.9	62.5	68.1	74.9	83.2	88.0	91.7	98.5
60 and over	160	68.9	0.99	48.4	56.1	58.9	61.6	67.8	75.8	79.7	82.0	88.5
Hispanic <sup>2</sup>												
20 and over	1,289	87.9	0.65	62.0	66.7	69.8	74.9	85.1	98.1	105.5	111.3	122.9
20–39	458	87.9	1.17	61.3	65.0	69.1	74.5	85.3	99.2	105.1	110.9	121.3
40–59	388	89.3	0.88	63.5	68.6	71.1	76.7	86.0	99.0	108.3	114.1	126.9
60 and over	443	84.0	0.75	61.2	65.8	68.3	72.2	81.9	93.7	99.6	106.0	114.8
Mexican American												
20 and over	754	88.9	0.90	62.1	66.5	69.7	75.2	86.2	99.1	106.7	112.0	126.7
20–39	283	89.8	1.45	62.3	65.3	69.5	75.0	86.9	101.6	105.7	114.6	125.8
40–59	224	89.8	1.66	62.0	67.4	71.1	77.1	86.7	99.1	108.2	112.2	127.8
60 and over	247	83.1	1.15	59.5	64.5	67.8	71.8	82.4	93.0	97.9	101.2	109.7

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTE: Estimates are weighted.

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

**Table 6. Weight in pounds for adult males aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Pounds												
20 and over	5,085	199.8	1.39	136.0	146.9	154.2	166.1	192.6	224.6	243.8	263.2	287.2
20–29	802	188.6	3.17	128.5	135.6	141.2	152.8	179.1	216.5	242.1	255.7	282.3
30–39	804	208.1	2.68	143.4	154.9	162.4	171.1	197.7	230.6	256.2	273.0	308.5
40–49	766	206.9	2.29	146.3	154.5	164.2	176.2	199.5	229.2	250.6	263.6	293.9
50–59	842	202.5	2.48	139.3	151.1	156.6	169.1	197.5	224.8	243.4	273.2	288.0
60–69	965	201.2	1.80	137.3	149.1	156.2	168.7	197.2	226.8	241.7	257.3	282.5
70–79	571	193.4	2.39	133.4	147.8	153.4	167.0	188.0	216.1	233.2	239.7	262.5
80 and over	335	177.5	1.98	123.9	136.7	142.4	152.6	175.6	198.4	214.3	218.6	238.0
Non-Hispanic white												
20 and over	1,774	203.4	1.64	138.3	150.3	157.1	169.9	197.6	227.6	246.8	264.7	291.6
20–39	489	201.9	3.34	133.1	142.8	150.9	163.2	191.2	230.2	255.1	270.4	302.7
40–59	502	207.5	2.55	147.6	155.3	162.9	175.7	200.7	230.9	245.7	269.6	291.3
60 and over	783	200.3	1.54	139.3	152.1	157.7	170.9	195.6	226.2	238.9	253.1	275.9
Non-Hispanic black												
20 and over	1,109	200.1	1.83	131.3	140.7	147.9	162.7	190.6	229.0	256.7	272.7	294.1
20–39	331	195.3	3.22	129.3	138.5	143.4	154.2	182.8	216.0	256.5	274.3	295.5
40–59	358	211.8	2.27	137.8	155.4	164.0	176.2	204.1	241.1	266.0	277.9	300.4
60 and over	420	189.6	2.53	127.1	137.7	143.9	157.7	184.6	214.4	231.6	246.3	268.4
Non-Hispanic Asian												
20 and over	667	168.1	1.58	122.4	131.3	136.7	146.5	163.9	183.6	195.7	205.4	223.2
20–39	242	176.3	2.26	125.9	136.6	142.1	153.5	171.4	191.1	204.7	214.3	241.3
40–59	265	167.5	1.64	120.3	132.2	137.8	150.2	165.2	183.5	194.0	202.1	217.1
60 and over	160	151.8	2.18	106.6	123.7	129.8	135.8	149.5	167.1	175.8	180.7	195.0
Hispanic <sup>2</sup>												
20 and over	1,289	193.7	1.43	136.7	147.0	153.9	165.0	187.6	216.2	232.5	245.4	271.0
20–39	458	193.9	2.57	135.3	143.4	152.2	164.1	188.1	218.7	231.7	244.4	267.5
40–59	388	196.9	1.95	140.0	151.2	156.7	169.0	189.7	218.3	238.7	251.6	279.8
60 and over	443	185.3	1.65	134.9	145.0	150.7	159.1	180.5	206.7	219.5	233.6	253.2
Mexican American												
20 and over	754	196.0	1.99	136.8	146.6	153.6	165.7	190.1	218.4	235.2	246.9	279.3
20–39	283	197.9	3.20	137.3	143.9	153.2	165.3	191.6	224.0	233.1	252.6	277.3
40–59	224	198.0	3.66	136.7	148.5	156.7	170.0	191.2	218.4	238.6	247.3	281.8
60 and over	247	183.2	2.54	131.2	142.3	149.5	158.3	181.6	205.1	215.8	223.1	241.9

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTE: Estimates are weighted.

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

**Table 7. Height in centimeters for children and adolescents aged 2–19 years and number of examined persons, mean, standard error of the mean, and selected percentiles, by sex and age: United States, 2015–2018**

Sex and age <sup>1</sup>	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
<b>Male</b>				<b>Centimeters</b>								
2 years	208	91.4	0.25	84.4	85.7	86.9	88.5	91.1	94.3	95.9	96.9	98.6
3 years	181	99.1	0.44	91.2	93.2	94.3	96.0	99.2	102.1	103.7	104.9	†
4 years	178	105.9	0.40	97.2	100.2	101.1	102.5	105.4	108.9	111.2	112.1	114.5
5 years	180	112.8	0.61	102.7	105.4	106.5	108.8	112.4	116.3	118.6	120.2	122.6
6 years	168	118.8	0.48	109.6	111.5	112.7	114.7	118.0	121.8	125.8	126.9	128.4
7 years	193	126.1	0.54	116.5	118.2	120.2	122.3	126.1	129.8	132.3	134.3	136.4
8 years	217	132.1	0.59	121.2	124.2	125.9	127.8	131.8	136.4	139.0	141.5	143.5
9 years	195	135.9	0.69	122.6	125.7	128.3	131.0	136.4	140.3	142.1	144.4	†
10 years	185	141.7	0.57	130.7	132.2	134.7	137.4	141.1	146.3	148.4	149.7	151.7
11 years	172	149.3	0.85	136.3	139.7	141.1	143.3	148.3	153.7	157.5	159.6	162.9
12 years	157	154.2	0.87	140.3	141.4	145.3	148.1	153.9	159.0	163.8	166.7	169.4
13 years	163	162.5	0.67	149.4	151.7	153.2	157.0	163.6	167.6	170.2	171.6	172.8
14 years	166	169.0	0.75	154.8	156.5	158.3	163.0	170.0	175.3	178.5	179.5	†
15 years	165	172.3	0.67	160.1	161.8	163.6	167.3	172.7	176.4	180.0	181.6	†
16 years	152	173.5	0.65	160.1	163.2	164.2	167.4	172.6	179.5	182.4	184.9	185.8
17 years	156	175.2	0.58	163.7	167.4	168.6	170.2	174.9	179.8	181.5	184.9	187.2
18 years	129	175.2	0.73	163.9	166.7	168.3	170.9	175.5	179.8	180.9	182.1	†
19 years	132	175.0	0.72	162.7	165.0	168.3	170.8	176.1	179.4	181.9	183.9	†
<b>Female</b>												
2 years	214	89.8	0.33	83.5	84.8	85.6	86.8	89.7	92.6	93.9	94.7	95.8
3 years	154	97.5	0.44	†	91.9	93.0	94.9	96.9	100.0	102.4	103.9	105.9
4 years	189	105.0	0.59	97.0	98.4	99.3	102.1	104.6	108.6	110.7	111.8	113.2
5 years	190	111.9	0.74	101.9	103.3	106.5	107.9	112.1	115.6	117.2	118.3	122.6
6 years	180	118.8	0.49	109.1	111.3	112.5	114.3	119.3	122.7	123.6	125.0	127.1
7 years	190	124.1	0.55	114.9	116.7	117.9	119.8	123.7	127.9	129.9	131.6	133.7
8 years	186	129.8	0.69	120.2	120.9	122.4	126.0	129.8	133.9	137.4	138.4	141.8
9 years	215	136.9	0.65	126.1	128.2	129.6	131.8	136.5	142.5	145.3	145.9	147.4
10 years	186	143.0	0.55	130.2	133.2	135.4	138.9	142.3	148.2	150.2	152.5	154.7
11 years	205	150.4	0.78	136.6	140.2	142.0	145.1	150.8	156.1	158.8	160.1	162.8
12 years	154	154.8	0.69	142.0	145.3	147.6	151.9	154.3	158.8	161.3	164.5	†
13 years	138	158.1	0.69	145.0	150.3	151.4	154.2	157.7	162.8	164.2	164.8	166.3
14 years	169	161.8	0.75	150.5	152.0	154.1	156.9	161.2	166.6	169.6	170.6	†
15 years	129	161.0	0.76	151.3	153.1	154.7	156.1	160.0	165.4	168.7	171.3	†
16 years	170	161.9	0.63	151.9	154.2	156.2	157.5	161.7	165.7	168.4	169.4	172.7
17 years	146	163.0	0.77	152.8	155.2	156.1	157.7	162.4	167.1	170.4	171.9	†
18 years	141	162.0	0.65	149.9	152.2	154.7	159.2	162.3	166.4	167.7	168.6	170.9
19 years	114	162.2	0.80	153.1	154.4	155.5	158.1	161.2	165.2	167.8	170.5	†

† Estimate not shown because the standard error could not be computed due to small sample size.

<sup>1</sup>Age at time of examination.

NOTE: Estimates are weighted.

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

**Table 8. Height in inches for children and adolescents aged 2–19 years and number of examined persons, mean, standard error of the mean, and selected percentiles, by sex and age: United States, 2015–2018**

Sex and age <sup>1</sup>	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
<b>Male</b>				<b>Inches</b>								
2 years	208	36.0	0.10	33.2	33.7	34.2	34.8	35.8	37.1	37.8	38.2	38.8
3 years	181	39.0	0.17	35.9	36.7	37.1	37.8	39.1	40.2	40.8	41.3	†
4 years	178	41.7	0.16	38.3	39.5	39.8	40.4	41.5	42.9	43.8	44.1	45.1
5 years	180	44.4	0.24	40.4	41.5	41.9	42.8	44.3	45.8	46.7	47.3	48.3
6 years	168	46.8	0.19	43.1	43.9	44.4	45.2	46.5	48.0	49.5	50.0	50.6
7 years	193	49.7	0.21	45.9	46.5	47.3	48.2	49.6	51.1	52.1	52.9	53.7
8 years	217	52.0	0.23	47.7	48.9	49.6	50.3	51.9	53.7	54.7	55.7	56.5
9 years	195	53.5	0.27	48.3	49.5	50.5	51.6	53.7	55.2	55.9	56.9	†
10 years	185	55.8	0.23	51.5	52.0	53.0	54.1	55.5	57.6	58.4	59.0	59.7
11 years	172	58.8	0.33	53.7	55.0	55.6	56.4	58.4	60.5	62.0	62.9	64.1
12 years	157	60.7	0.34	55.2	55.7	57.2	58.3	60.6	62.6	64.5	65.6	66.7
13 years	163	64.0	0.26	58.8	59.7	60.3	61.8	64.4	66.0	67.0	67.6	68.0
14 years	166	66.6	0.30	60.9	61.6	62.3	64.2	66.9	69.0	70.3	70.7	†
15 years	165	67.8	0.26	63.0	63.7	64.4	65.9	68.0	69.4	70.9	71.5	†
16 years	152	68.3	0.26	63.0	64.3	64.7	65.9	67.9	70.7	71.8	72.8	73.2
17 years	156	69.0	0.23	64.4	65.9	66.4	67.0	68.9	70.8	71.5	72.8	73.7
18 years	129	69.0	0.29	64.5	65.6	66.3	67.3	69.1	70.8	71.2	71.7	†
19 years	132	68.9	0.28	64.0	65.0	66.3	67.2	69.3	70.6	71.6	72.4	†
<b>Female</b>												
2 years	214	35.3	0.13	32.9	33.4	33.7	34.2	35.3	36.5	37.0	37.3	37.7
3 years	154	38.4	0.17	†	36.2	36.6	37.3	38.2	39.4	40.3	40.9	41.7
4 years	189	41.3	0.23	38.2	38.7	39.1	40.2	41.2	42.7	43.6	44.0	44.6
5 years	190	44.1	0.29	40.1	40.7	41.9	42.5	44.1	45.5	46.1	46.6	48.2
6 years	180	46.8	0.19	43.0	43.8	44.3	45.0	47.0	48.3	48.7	49.2	50.0
7 years	190	48.9	0.22	45.2	45.9	46.4	47.2	48.7	50.3	51.2	51.8	52.6
8 years	186	51.1	0.27	47.3	47.6	48.2	49.6	51.1	52.7	54.1	54.5	55.8
9 years	215	53.9	0.26	49.7	50.5	51.0	51.9	53.8	56.1	57.2	57.5	58.0
10 years	186	56.3	0.21	51.2	52.5	53.3	54.7	56.0	58.4	59.1	60.0	60.9
11 years	205	59.2	0.31	53.8	55.2	55.9	57.1	59.4	61.5	62.5	63.0	64.1
12 years	154	60.9	0.27	55.9	57.2	58.1	59.8	60.8	62.5	63.5	64.8	†
13 years	138	62.2	0.27	57.1	59.2	59.6	60.7	62.1	64.1	64.7	64.9	65.5
14 years	169	63.7	0.29	59.2	59.8	60.7	61.8	63.5	65.6	66.8	67.2	†
15 years	129	63.4	0.30	59.6	60.3	60.9	61.4	63.0	65.1	66.4	67.4	†
16 years	170	63.7	0.25	59.8	60.7	61.5	62.0	63.7	65.3	66.3	66.7	68.0
17 years	146	64.2	0.30	60.1	61.1	61.5	62.1	64.0	65.8	67.1	67.7	†
18 years	141	63.8	0.26	59.0	59.9	60.9	62.7	63.9	65.5	66.0	66.4	67.3
19 years	114	63.9	0.31	60.3	60.8	61.2	62.3	63.4	65.1	66.0	67.1	†

† Estimate not shown because the standard error could not be computed due to small sample size.

<sup>1</sup>Age at time of examination.

NOTE: Estimates are weighted.

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

**Table 9. Height in centimeters for adult females aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Centimeters												
20 and over	5,510	161.3	0.19	149.8	152.5	153.9	156.4	161.3	166.0	168.4	170.2	172.5
20–29	892	162.6	0.32	151.0	153.8	155.3	158.1	162.8	167.0	169.5	170.8	172.8
30–39	922	162.7	0.37	151.2	154.1	155.5	157.9	162.6	167.7	170.1	171.3	173.4
40–49	909	162.3	0.36	150.7	152.9	154.6	157.7	162.6	166.6	169.4	171.4	174.2
50–59	915	161.3	0.36	150.7	152.9	154.2	156.5	160.9	165.9	168.8	170.1	171.4
60–69	980	160.7	0.38	149.3	152.7	153.8	155.9	160.8	165.3	167.6	168.9	171.7
70–79	532	158.2	0.36	147.5	150.6	152.3	153.9	157.9	162.6	164.8	165.9	168.1
80 and over	360	155.6	0.44	145.3	147.1	149.3	151.5	155.8	159.7	161.8	163.5	166.7
Non-Hispanic white												
20 and over	1,779	162.4	0.21	151.8	153.7	154.9	157.8	162.2	166.9	169.4	170.9	173.3
20–39	545	164.5	0.31	154.4	156.6	158.0	160.7	164.4	168.6	170.9	171.6	173.7
40–59	509	163.2	0.36	152.9	154.4	156.0	159.0	163.1	167.3	169.8	171.3	174.2
60 and over	725	159.7	0.33	148.9	151.8	153.2	154.9	159.8	164.4	166.8	168.3	170.5
Non-Hispanic black												
20 and over	1,255	162.5	0.20	151.5	154.0	155.7	158.2	162.7	166.7	168.9	170.5	173.0
20–39	409	163.4	0.38	151.7	154.6	156.7	159.1	163.5	167.9	170.0	171.5	173.8
40–59	441	162.8	0.42	151.7	154.1	156.3	158.9	162.8	166.7	168.7	170.7	173.0
60 and over	405	160.4	0.27	149.2	152.9	154.5	156.5	160.1	164.4	166.6	167.9	170.9
Non-Hispanic Asian												
20 and over	731	156.3	0.37	146.4	148.6	149.8	152.2	156.3	160.2	162.4	164.1	166.3
20–39	262	158.1	0.45	148.9	151.0	152.7	154.5	158.2	161.2	163.5	165.1	166.8
40–59	278	156.6	0.52	146.0	148.4	150.0	152.4	156.4	160.8	163.0	165.0	166.6
60 and over	191	152.7	0.68	143.2	146.2	147.2	149.2	152.9	156.6	158.5	159.5	160.5
Hispanic <sup>2</sup>												
20 and over	1,536	157.5	0.23	146.5	149.2	150.7	152.9	157.0	161.7	164.0	166.1	168.9
20–39	509	158.7	0.36	147.6	150.6	151.9	154.2	158.2	163.3	166.0	167.5	170.3
40–59	532	157.3	0.35	146.4	148.9	150.4	152.7	157.0	161.3	163.7	165.5	168.4
60 and over	495	154.6	0.26	145.3	147.6	148.8	151.0	154.5	158.2	160.1	161.2	163.9
Mexican American												
20 and over	868	156.8	0.30	146.7	149.1	150.4	152.4	156.3	160.9	163.4	165.5	167.8
20–39	303	157.5	0.43	147.4	150.3	151.1	153.0	156.9	161.5	164.0	166.3	167.7
40–59	310	156.9	0.47	145.9	148.7	149.7	152.4	156.6	161.3	163.6	165.9	168.7
60 and over	255	154.7	0.34	146.6	148.2	149.5	151.2	154.2	158.1	160.2	161.1	163.3

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTE: Estimates are weighted.

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

**Table 10. Height in inches for adult females aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Inches												
20 and over	5,510	63.5	0.07	59.0	60.0	60.6	61.6	63.5	65.3	66.3	67.0	67.9
20–29	892	64.0	0.13	59.4	60.5	61.1	62.2	64.1	65.8	66.7	67.2	68.0
30–39	922	64.1	0.14	59.5	60.7	61.2	62.2	64.0	66.0	67.0	67.5	68.3
40–49	909	63.9	0.14	59.3	60.2	60.9	62.1	64.0	65.6	66.7	67.5	68.6
50–59	915	63.5	0.14	59.3	60.2	60.7	61.6	63.4	65.3	66.4	67.0	67.5
60–69	980	63.3	0.15	58.8	60.1	60.6	61.4	63.3	65.1	66.0	66.5	67.6
70–79	532	62.3	0.14	58.1	59.3	60.0	60.6	62.2	64.0	64.9	65.3	66.2
80 and over	360	61.3	0.17	57.2	57.9	58.8	59.6	61.3	62.9	63.7	64.4	65.6
Non-Hispanic white												
20 and over	1,779	63.9	0.08	59.7	60.5	61.0	62.1	63.9	65.7	66.7	67.3	68.2
20–39	545	64.7	0.12	60.8	61.6	62.2	63.3	64.7	66.4	67.3	67.6	68.4
40–59	509	64.3	0.14	60.2	60.8	61.4	62.6	64.2	65.9	66.9	67.4	68.6
60 and over	725	62.9	0.13	58.6	59.8	60.3	61.0	62.9	64.7	65.7	66.2	67.1
Non-Hispanic black												
20 and over	1,255	64.0	0.08	59.6	60.6	61.3	62.3	64.0	65.6	66.5	67.1	68.1
20–39	409	64.3	0.15	59.7	60.9	61.7	62.6	64.4	66.1	66.9	67.5	68.4
40–59	441	64.1	0.17	59.7	60.7	61.5	62.6	64.1	65.6	66.4	67.2	68.1
60 and over	405	63.2	0.11	58.7	60.2	60.8	61.6	63.0	64.7	65.6	66.1	67.3
Non-Hispanic Asian												
20 and over	731	61.5	0.14	57.6	58.5	59.0	59.9	61.5	63.1	63.9	64.6	65.5
20–39	262	62.2	0.18	58.6	59.4	60.1	60.8	62.3	63.5	64.4	65.0	65.7
40–59	278	61.6	0.21	57.5	58.4	59.1	60.0	61.6	63.3	64.2	65.0	65.6
60 and over	191	60.1	0.27	56.4	57.6	57.9	58.7	60.2	61.6	62.4	62.8	63.2
Hispanic <sup>2</sup>												
20 and over	1,536	62.0	0.09	57.7	58.8	59.3	60.2	61.8	63.7	64.6	65.4	66.5
20–39	509	62.5	0.14	58.1	59.3	59.8	60.7	62.3	64.3	65.4	66.0	67.0
40–59	532	61.9	0.14	57.6	58.6	59.2	60.1	61.8	63.5	64.4	65.2	66.3
60 and over	495	60.9	0.10	57.2	58.1	58.6	59.4	60.8	62.3	63.0	63.5	64.5
Mexican American												
20 and over	868	61.7	0.12	57.8	58.7	59.2	60.0	61.5	63.3	64.3	65.1	66.1
20–39	303	62.0	0.17	58.0	59.2	59.5	60.3	61.8	63.6	64.6	65.5	66.0
40–59	310	61.8	0.18	57.4	58.5	58.9	60.0	61.6	63.5	64.4	65.3	66.4
60 and over	255	60.9	0.14	57.7	58.4	58.9	59.5	60.7	62.3	63.1	63.4	64.3

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTE: Estimates are weighted.

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

**Table 11. Height in centimeters for adult males aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Centimeters												
20 and over	5,092	175.3	0.19	162.8	165.8	167.6	170.1	175.4	180.2	182.9	184.7	187.4
20–29	802	175.8	0.30	164.5	167.1	168.3	171.0	176.0	180.2	183.1	184.9	187.1
30–39	805	176.3	0.40	163.5	166.6	168.7	171.2	176.7	181.4	184.5	186.3	188.7
40–49	767	176.3	0.41	163.6	166.2	168.3	171.5	176.5	181.4	183.0	184.9	188.4
50–59	840	175.4	0.37	162.8	165.2	167.6	170.1	175.3	180.6	183.1	184.9	187.7
60–69	967	174.4	0.45	162.5	165.0	166.9	169.4	174.3	178.8	182.1	183.7	185.0
70–79	573	173.0	0.37	161.5	164.6	166.2	168.6	173.1	177.5	179.3	182.5	184.7
80 and over	338	170.4	0.45	157.4	161.0	163.0	166.0	170.3	175.3	178.2	179.6	182.3
Non-Hispanic white												
20 and over	1,782	176.7	0.21	165.6	167.8	169.3	171.7	176.7	181.4	183.6	185.4	187.8
20–39	490	178.0	0.39	167.7	169.4	171.0	173.1	178.0	182.2	185.3	186.7	189.1
40–59	504	177.3	0.41	166.0	168.6	169.9	172.5	177.5	181.7	183.8	185.5	188.2
60 and over	788	174.5	0.39	164.1	166.1	167.4	169.7	174.3	178.5	181.9	183.5	184.9
Non-Hispanic black												
20 and over	1,107	176.0	0.26	164.7	167.3	169.0	171.3	175.9	180.5	183.2	184.8	188.1
20–39	331	176.4	0.34	165.0	167.6	169.5	171.7	175.9	181.0	183.6	185.2	188.0
40–59	357	176.9	0.44	165.9	168.0	169.4	171.9	177.1	181.0	183.5	185.1	188.3
60 and over	419	173.8	0.37	162.0	164.9	166.5	169.1	174.1	178.1	181.1	182.4	185.3
Non-Hispanic Asian												
20 and over	665	170.5	0.32	158.4	161.2	162.6	165.6	170.4	175.8	178.1	179.7	182.1
20–39	242	172.9	0.37	160.9	164.0	165.8	168.3	173.2	177.9	179.8	181.8	184.8
40–59	263	169.9	0.46	157.0	161.1	162.7	165.5	170.2	174.6	177.3	178.9	180.9
60 and over	160	166.3	0.69	155.1	158.8	159.9	162.2	166.2	170.3	173.2	174.4	176.9
Hispanic <sup>2</sup>												
20 and over	1,292	170.4	0.33	158.1	160.7	162.7	165.4	170.3	175.4	178.2	179.7	182.8
20–39	458	171.2	0.53	159.0	161.9	163.7	166.7	171.2	175.9	178.7	180.1	183.8
40–59	388	170.2	0.48	157.4	159.9	161.7	164.9	170.0	175.5	178.2	179.6	182.6
60 and over	446	168.1	0.37	157.2	159.5	161.2	163.8	168.0	172.2	174.9	176.8	179.3
Mexican American												
20 and over	757	170.4	0.45	158.4	160.9	162.7	165.2	170.0	175.2	178.1	180.0	183.6
20–39	283	171.7	0.64	160.5	162.7	164.4	167.1	170.9	176.3	179.5	180.9	184.7
40–59	224	169.6	0.75	157.2	159.2	161.0	163.7	169.7	175.0	177.1	179.7	182.9
60 and over	250	167.4	0.62	156.3	158.7	160.0	163.1	167.5	171.3	173.6	175.4	178.7

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTE: Estimates are weighted.

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

**Table 12. Height in inches for adult males aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>				Inches								
20 and over	5,092	69.0	0.07	64.1	65.3	66.0	67.0	69.1	71.0	72.0	72.7	73.8
20–29	802	69.2	0.12	64.8	65.8	66.3	67.3	69.3	71.0	72.1	72.8	73.6
30–39	805	69.4	0.16	64.4	65.6	66.4	67.4	69.6	71.4	72.6	73.3	74.3
40–49	767	69.4	0.16	64.4	65.4	66.3	67.5	69.5	71.4	72.0	72.8	74.2
50–59	840	69.0	0.14	64.1	65.0	66.0	67.0	69.0	71.1	72.1	72.8	73.9
60–69	967	68.7	0.18	64.0	64.9	65.7	66.7	68.6	70.4	71.7	72.3	72.8
70–79	573	68.1	0.15	63.6	64.8	65.4	66.4	68.1	69.9	70.6	71.8	72.7
80 and over	338	67.1	0.18	62.0	63.4	64.2	65.3	67.1	69.0	70.2	70.7	71.8
Non-Hispanic white												
20 and over	1,782	69.5	0.08	65.2	66.0	66.7	67.6	69.6	71.4	72.3	73.0	73.9
20–39	490	70.1	0.16	66.0	66.7	67.3	68.2	70.1	71.7	73.0	73.5	74.4
40–59	504	69.8	0.16	65.3	66.4	66.9	67.9	69.9	71.5	72.4	73.0	74.1
60 and over	788	68.7	0.15	64.6	65.4	65.9	66.8	68.6	70.3	71.6	72.2	72.8
Non-Hispanic black												
20 and over	1,107	69.3	0.10	64.8	65.8	66.5	67.4	69.3	71.1	72.1	72.8	74.1
20–39	331	69.4	0.13	65.0	66.0	66.7	67.6	69.2	71.3	72.3	72.9	74.0
40–59	357	69.6	0.17	65.3	66.2	66.7	67.7	69.7	71.2	72.3	72.9	74.2
60 and over	419	68.4	0.15	63.8	64.9	65.6	66.6	68.5	70.1	71.3	71.8	73.0
Non-Hispanic Asian												
20 and over	665	67.1	0.12	62.4	63.5	64.0	65.2	67.1	69.2	70.1	70.7	71.7
20–39	242	68.1	0.14	63.4	64.6	65.3	66.3	68.2	70.1	70.8	71.6	72.8
40–59	263	66.9	0.18	61.8	63.4	64.1	65.2	67.0	68.7	69.8	70.4	71.2
60 and over	160	65.5	0.27	61.1	62.5	63.0	63.9	65.4	67.0	68.2	68.7	69.6
Hispanic <sup>2</sup>												
20 and over	1,292	67.1	0.13	62.2	63.3	64.0	65.1	67.0	69.1	70.2	70.8	72.0
20–39	458	67.4	0.21	62.6	63.7	64.5	65.6	67.4	69.3	70.4	70.9	72.4
40–59	388	67.0	0.19	62.0	63.0	63.7	64.9	66.9	69.1	70.2	70.7	71.9
60 and over	446	66.2	0.15	61.9	62.8	63.4	64.5	66.2	67.8	68.9	69.6	70.6
Mexican American												
20 and over	757	67.1	0.18	62.4	63.4	64.1	65.1	66.9	69.0	70.1	70.9	72.3
20–39	283	67.6	0.25	63.2	64.1	64.7	65.8	67.3	69.4	70.7	71.2	72.7
40–59	224	66.8	0.30	61.9	62.7	63.4	64.5	66.8	68.9	69.7	70.8	72.0
60 and over	250	65.9	0.24	61.5	62.5	63.0	64.2	66.0	67.4	68.3	69.1	70.4

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTE: Estimates are weighted.

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

**Table 13. Body mass index values for children and adolescents aged 2–19 years and number of examined persons, mean, standard error of the mean, and selected percentiles, by sex and age: United States, 2015–2018**

Sex and age <sup>1</sup>	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male				Body mass index								
2 years	207	16.9	0.16	14.9	15.3	15.6	15.8	16.6	17.6	18.4	19.2	19.6
3 years	181	16.8	0.24	14.3	14.6	14.8	15.5	16.2	17.2	17.9	18.3	21.6
4 years	178	16.5	0.12	14.4	15.0	15.1	15.4	16.1	17.1	17.9	18.4	19.8
5 years	180	16.5	0.21	13.7	14.1	14.5	15.2	16.0	17.3	18.1	19.2	21.8
6 years	168	16.8	0.21	14.4	14.6	14.8	15.1	15.9	17.6	18.3	20.2	21.5
7 years	193	17.3	0.30	13.6	14.1	14.5	15.1	16.5	18.7	20.3	21.3	23.2
8 years	217	18.0	0.28	13.9	14.5	14.8	15.3	16.9	19.6	21.7	23.2	25.3
9 years	195	18.9	0.40	14.3	14.7	15.2	15.9	17.4	20.6	23.3	25.4	26.7
10 years	185	20.1	0.39	14.8	15.5	15.9	16.5	19.3	22.0	24.3	26.0	28.5
11 years	172	20.7	0.54	14.9	15.3	15.7	16.6	19.3	24.4	26.0	26.7	29.1
12 years	157	20.3	0.50	15.1	15.6	16.1	16.9	19.1	22.8	24.7	26.7	30.1
13 years	163	22.7	0.48	15.8	16.5	17.2	18.2	20.7	27.3	29.7	31.8	33.3
14 years	166	22.5	0.47	16.5	17.5	17.7	18.4	21.4	25.2	28.2	29.2	33.7
15 years	165	24.4	0.67	15.5	17.4	18.1	19.1	22.6	28.5	31.9	33.0	35.5
16 years	152	23.6	0.44	17.5	18.5	19.6	20.3	22.3	25.9	26.9	28.4	34.1
17 years	156	25.1	0.63	17.4	18.0	18.8	20.6	22.9	28.3	31.3	33.6	39.8
18 years	129	24.7	0.68	17.6	19.0	19.6	20.0	23.3	26.6	30.1	32.5	39.5
19 years	132	26.1	0.63	18.7	20.1	20.8	21.4	24.5	28.7	32.8	35.1	36.3
Female												
2 years	214	16.4	0.09	14.3	14.6	15.0	15.4	16.3	17.1	17.7	18.0	18.6
3 years	153	16.2	0.10	14.0	14.6	15.0	15.3	16.0	16.8	17.4	17.8	18.4
4 years	188	16.4	0.13	14.2	14.5	14.9	15.2	16.1	17.1	17.8	18.5	19.4
5 years	190	16.6	0.18	13.9	14.2	14.4	14.9	15.9	17.8	18.8	19.7	21.0
6 years	180	16.7	0.24	13.5	13.9	14.3	14.6	15.7	17.5	18.8	20.2	22.8
7 years	190	17.5	0.25	†	14.3	14.5	15.1	16.6	19.2	21.0	21.9	24.5
8 years	186	18.4	0.39	13.6	14.3	14.9	15.7	17.2	20.2	22.5	23.9	25.8
9 years	215	18.4	0.32	14.7	15.2	15.6	16.0	17.2	20.0	21.5	22.9	25.2
10 years	186	19.8	0.43	14.2	14.9	15.6	16.5	19.0	22.0	24.2	25.6	28.4
11 years	205	21.0	0.47	15.3	16.0	16.6	17.2	19.8	23.7	26.4	28.2	30.7
12 years	154	22.0	0.44	15.4	16.1	16.8	18.0	21.5	25.0	27.3	28.8	30.3
13 years	138	22.7	0.54	16.6	17.2	17.5	18.3	20.8	25.9	28.1	29.2	32.7
14 years	169	23.7	0.39	17.9	18.4	19.3	20.1	22.6	25.4	28.1	29.9	31.4
15 years	129	24.0	0.55	18.0	18.7	19.1	19.7	21.8	25.9	30.5	33.4	35.1
16 years	170	25.0	0.56	18.1	19.0	19.5	21.2	23.7	26.8	30.5	32.6	38.2
17 years	146	25.6	0.65	†	19.2	19.6	21.1	24.1	29.0	31.2	32.6	36.8
18 years	141	26.1	0.66	17.6	19.3	19.9	20.8	23.6	28.8	33.4	37.7	39.7
19 years	114	26.9	0.82	18.9	20.0	20.2	21.6	25.1	31.5	35.3	36.6	39.5

† Estimate not shown because the standard error could not be computed due to small sample size.

<sup>1</sup>Age at time of examination.

NOTES: Body mass index (BMI) is calculated as: BMI = weight (kilograms) / height (meters<sup>2</sup>). Estimates are weighted.

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

**Table 14. Body mass index values for adult females aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Body mass index												
20 and over	5,381	29.8	0.24	19.7	21.2	22.1	23.9	28.4	33.9	37.5	40.3	44.6
20–29	827	28.3	0.45	18.6	19.6	20.4	21.9	26.2	32.9	37.4	39.6	43.3
30–39	871	29.9	0.32	19.8	21.2	22.0	23.6	28.3	34.2	38.2	41.1	46.1
40–49	899	30.7	0.51	20.6	22.0	22.8	24.4	28.6	34.8	39.3	43.1	46.6
50–59	915	30.3	0.41	19.6	21.5	22.5	24.3	29.1	34.2	37.7	41.5	45.7
60–69	979	30.3	0.47	20.4	22.2	23.2	24.9	29.2	34.7	37.2	39.5	42.9
70–79	531	29.8	0.37	20.8	22.0	23.3	25.3	28.8	33.3	35.7	37.9	42.1
80 and over	359	28.0	0.37	19.9	20.8	22.2	23.8	27.5	30.8	33.5	35.5	39.3
Non-Hispanic white												
20 and over	1,745	29.4	0.30	19.6	21.2	22.0	23.6	27.9	33.5	37.1	39.7	44.2
20–39	517	28.5	0.47	19.0	19.9	21.0	22.2	26.2	33.0	37.3	39.8	44.1
40–59	506	30.0	0.48	19.7	21.8	22.4	24.0	28.4	33.9	38.1	42.2	45.1
60 and over	722	29.6	0.36	20.5	21.8	22.9	24.6	28.4	33.5	36.1	38.4	42.6
Non-Hispanic black												
20 and over	1,224	32.3	0.30	20.2	22.2	23.5	26.1	31.1	37.1	40.7	43.6	49.0
20–39	381	31.1	0.56	19.6	20.8	21.9	24.0	30.1	36.5	40.0	42.6	47.7
40–59	438	34.1	0.43	21.9	23.8	25.1	27.2	32.9	38.8	43.5	46.8	51.2
60 and over	405	31.6	0.40	21.3	23.2	24.6	26.5	30.2	35.4	38.5	40.4	44.9
Non-Hispanic Asian												
20 and over	711	25.1	0.19	19.0	19.8	20.4	21.3	24.2	27.9	30.1	31.8	34.2
20–39	244	24.8	0.32	18.5	19.4	20.0	20.8	23.9	27.7	30.1	31.9	34.1
40–59	276	25.1	0.37	19.4	20.1	20.7	21.8	24.2	28.1	29.7	31.3	33.6
60 and over	191	25.6	0.31	19.3	20.0	20.8	22.0	24.9	27.9	30.2	31.9	35.6
Hispanic <sup>2</sup>												
20 and over	1,497	30.7	0.26	20.6	22.1	23.4	25.4	29.4	34.5	38.0	40.6	44.8
20–39	472	30.4	0.39	19.7	21.1	22.0	24.4	28.5	34.1	38.9	41.4	46.5
40–59	530	31.0	0.32	21.4	23.1	24.0	26.2	29.9	34.7	37.4	40.3	42.9
60 and over	495	30.9	0.29	22.1	23.8	25.0	26.6	29.8	34.7	37.4	39.4	43.3
Mexican American												
20 and over	845	31.6	0.40	21.1	23.0	24.2	26.4	30.1	35.9	39.1	41.6	46.5
20–39	281	31.5	0.62	20.0	21.6	23.2	25.6	29.7	36.0	39.8	42.7	48.8
40–59	309	31.8	0.45	22.7	23.6	24.8	26.8	30.4	36.0	38.9	41.2	43.4
60 and over	255	31.7	0.28	23.3	24.5	25.3	27.0	30.0	35.2	38.4	40.5	46.2

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTES: Data exclude pregnant females. Body mass index (BMI) is calculated as: BMI = weight (kilograms) / height (meters<sup>2</sup>). Estimates are weighted.

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

**Table 15. Body mass index values for adult males aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Body mass index												
20 and over	5,076	29.4	0.19	20.8	22.4	23.3	25.0	28.5	32.8	35.3	37.1	41.0
20–29	801	27.6	0.43	18.7	20.0	21.0	22.6	26.5	31.6	34.4	36.8	39.5
30–39	804	30.3	0.39	21.6	23.0	23.8	25.4	28.9	33.7	36.4	38.3	43.4
40–49	765	30.1	0.32	22.1	23.5	24.7	26.2	29.1	32.8	35.5	38.1	41.8
50–59	840	29.8	0.34	21.8	22.6	24.0	25.2	29.1	32.8	35.5	37.4	41.7
60–69	964	29.9	0.23	22.2	23.2	23.9	25.8	28.9	33.3	35.3	37.1	40.3
70–79	571	29.2	0.31	20.9	22.9	24.1	25.9	28.2	32.8	34.5	35.6	37.2
80 and over	331	27.6	0.23	21.1	22.3	22.9	24.3	27.2	30.2	32.3	34.0	35.5
Non-Hispanic white												
20 and over	1,770	29.5	0.22	21.0	22.4	23.3	25.1	28.6	32.9	35.3	37.1	41.2
20–39	489	28.8	0.42	19.4	21.2	22.4	23.7	27.3	32.7	36.0	37.9	42.2
40–59	502	29.9	0.35	22.0	22.8	24.0	25.6	29.2	32.7	35.3	37.1	41.8
60 and over	779	29.8	0.19	22.1	23.2	24.1	26.0	28.7	33.3	35.1	36.4	39.3
Non-Hispanic black												
20 and over	1106	29.2	0.24	19.8	21.2	22.2	24.2	27.9	33.1	36.2	38.4	41.6
20–39	330	28.4	0.47	19.5	20.4	21.2	22.4	26.6	31.9	36.4	38.5	42.8
40–59	357	30.6	0.33	21.6	22.8	24.1	26.0	30.0	34.6	36.8	39.1	41.2
60 and over	419	28.4	0.30	19.8	21.3	22.4	24.2	27.7	31.6	33.8	36.0	39.5
Non-Hispanic Asian												
20 and over	665	26.1	0.18	20.3	21.5	22.2	23.3	25.5	28.4	29.7	31.2	33.1
20–39	242	26.7	0.29	19.5	21.4	22.4	23.3	25.8	28.9	31.0	32.1	34.4
40–59	263	26.2	0.21	21.0	21.9	22.5	23.7	25.8	28.5	29.4	30.9	32.3
60 and over	160	24.8	0.25	19.7	21.0	21.8	22.7	24.2	26.9	28.3	29.1	30.8
Hispanic <sup>2</sup>												
20 and over	1289	30.2	0.24	21.7	23.8	25.0	26.5	29.2	33.0	35.7	37.1	41.0
20–39	458	30.0	0.40	20.5	22.4	24.0	26.1	29.1	33.3	35.5	37.0	40.9
40–59	388	30.7	0.28	23.7	25.1	25.9	27.1	29.5	33.0	36.2	37.9	41.6
60 and over	443	29.6	0.24	23.1	23.9	24.7	26.1	29.0	32.1	34.3	35.8	38.0
Mexican American												
20 and over	754	30.5	0.28	21.6	23.7	25.0	26.6	29.9	33.4	35.9	37.2	41.4
20–39	283	30.4	0.47	20.6	22.3	24.3	26.4	29.9	33.7	35.9	37.2	42.5
40–59	224	31.0	0.41	23.4	25.1	25.9	27.2	30.1	33.2	36.2	38.6	42.0
60 and over	247	29.6	0.35	23.1	23.9	24.8	26.3	29.2	31.9	34.3	35.7	37.0

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTES: Body mass index (BMI) is calculated as: BMI = weight (kilograms) / height (meters<sup>2</sup>). Estimates are weighted.

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

**Table 16. Head circumference in centimeters for infants from birth through age 6 months and number of examined persons, mean, standard error of the mean, and selected percentiles, by sex and age: United States, 2015–2018**

Sex and age <sup>1</sup>	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male				Centimeters								
Birth–2 months	72	39.3	0.26	36.9	37.3	37.4	37.7	39.1	40.6	40.9	†	†
3–5 months	94	42.9	0.15	40.2	40.7	41.2	41.6	42.8	44.1	44.5	45.3	45.6
6 months	18	*	*	*	*	*	*	*	*	*	*	*
Female												
Birth–2 months	71	38.6	0.19	35.6	36.5	37.0	37.4	38.7	39.6	39.9	40.2	40.5
3–5 months	98	41.5	0.15	38.9	39.5	39.7	40.3	41.5	42.6	42.8	43.3	†
6 months	21	*	*	*	*	*	*	*	*	*	*	*

† Estimate not shown because the standard error could not be computed due to small sample size.

\*Estimate does not meet standards of reliability or precision based on less than 8 degrees of freedom.

<sup>1</sup>Age at time of examination.

NOTE: Estimates are weighted.

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

**Table 17. Recumbent length in centimeters for children from birth through age 47 months and number of examined persons, mean, standard error of the mean, and selected percentiles, by sex and age: United States, 2015–2018**

Sex and age <sup>1</sup>	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
<b>Male</b>				<b>Centimeters</b>								
Birth–2 months	72	56.4	0.33	52.1	52.5	52.9	53.9	56.5	58.7	59.8	60.5	†
3–5 months	95	64.4	0.29	58.9	60.3	61.5	62.5	64.4	66.3	67.1	67.8	69.3
6–8 months	81	69.5	0.29	†	66.0	66.7	67.9	69.5	70.9	72.3	72.9	73.2
9–11 months	85	73.3	0.31	†	69.9	70.4	71.1	73.0	75.3	75.7	76.2	77.0
1 year	265	81.3	0.34	73.7	75.3	76.1	78.0	81.1	84.4	86.1	88.0	89.3
2 years	232	91.9	0.28	84.5	85.9	87.5	88.9	91.8	94.8	96.6	97.6	99.9
3 years	171	100.4	0.49	92.8	94.9	95.7	97.2	100.7	103.3	104.7	106.3	107.3
<b>Female</b>												
Birth–2 months	71	55.9	0.24	50.9	52.5	53.2	54.3	55.9	57.4	58.8	59.2	59.3
3–5 months	99	62.5	0.38	56.8	58.4	59.0	60.1	62.6	65.2	66.4	66.9	†
6–8 months	82	67.6	0.30	64.0	64.8	65.2	65.9	67.5	69.0	70.1	70.9	71.6
9–11 months	87	71.7	0.30	†	68.3	68.6	69.4	71.5	73.4	74.4	75.5	†
1 year	229	80.6	0.40	73.5	75.1	75.7	77.4	80.2	83.4	85.5	86.7	88.2
2 years	232	90.7	0.35	83.5	85.1	86.3	87.8	90.9	93.5	95.0	95.6	97.0
3 years	145	99.0	0.50	†	93.6	94.3	96.0	98.4	101.7	104.0	105.3	106.8

† Estimate not shown because the standard error could not be computed due to small sample size.

<sup>1</sup>Age at time of examination.

NOTE: Estimates are weighted.

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

**Table 18. Waist circumference in centimeters for children and adolescents aged 2–19 years and number of examined persons, mean, standard error of the mean, and selected percentiles, by sex and age: United States, 2015–2018**

Sex and age <sup>1</sup>	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
<b>Male</b>				<b>Centimeters</b>								
2 years	182	48.8	0.35	42.4	44.3	45.0	46.2	48.7	50.9	52.5	53.4	54.6
3 years	156	51.3	0.75	45.3	46.1	46.4	48.0	50.0	52.5	54.2	55.3	60.7
4 years	159	53.2	0.34	47.1	48.2	49.2	49.9	52.3	54.8	57.4	59.7	62.2
5 years	168	55.0	0.61	48.3	49.1	49.9	51.5	53.9	56.6	58.2	61.6	68.3
6 years	159	57.3	0.64	49.0	50.2	51.0	52.1	55.6	58.9	62.2	68.0	71.5
7 years	185	59.9	0.85	50.9	51.7	53.0	54.0	58.0	63.3	68.6	72.5	75.2
8 years	212	63.1	0.72	52.2	53.5	54.6	56.3	59.9	67.6	73.2	77.4	82.5
9 years	184	66.6	1.24	54.7	55.4	56.5	58.6	62.5	72.5	80.5	85.3	89.0
10 years	181	70.4	1.00	55.8	57.1	57.5	60.7	67.7	77.1	82.9	88.8	92.2
11 years	165	73.2	1.66	55.3	58.1	59.2	61.0	69.1	84.8	90.6	94.2	97.7
12 years	152	72.9	1.35	59.1	59.4	61.1	63.2	69.1	79.3	90.4	93.6	95.9
13 years	158	80.2	1.43	61.5	63.2	64.3	66.9	73.4	93.5	100.0	105.6	†
14 years	160	80.3	1.52	64.3	65.3	66.4	69.1	74.2	88.7	101.2	104.5	107.5
15 years	163	85.0	1.70	64.1	65.9	68.3	70.6	79.0	95.0	106.5	110.1	121.9
16 years	149	81.7	1.23	66.7	69.2	70.6	73.4	78.4	85.7	92.3	98.6	107.9
17 years	153	85.6	1.55	66.4	67.7	70.1	73.4	79.8	94.2	104.8	109.7	122.5
18 years	127	84.9	1.76	67.2	69.5	71.1	72.8	79.6	92.1	101.8	109.5	121.8
19 years	130	89.5	1.43	69.7	72.2	75.4	78.7	85.5	99.5	103.9	108.7	120.0
<b>Female</b>												
2 years	188	48.0	0.29	42.8	44.0	44.5	45.6	47.8	49.9	51.1	51.8	52.9
3 years	131	50.3	0.27	†	45.8	46.6	47.8	50.6	52.0	53.6	54.2	55.8
4 years	170	53.0	0.48	47.1	48.1	48.8	49.6	52.0	55.1	57.2	58.1	62.5
5 years	175	55.9	0.48	48.1	49.5	49.9	51.0	54.6	58.6	61.5	64.2	69.0
6 years	171	57.1	0.66	48.6	49.6	50.3	52.4	54.5	60.1	63.1	68.0	76.4
7 years	188	60.6	0.75	49.9	51.0	52.4	53.9	58.7	64.3	68.5	73.5	79.9
8 years	179	63.1	1.02	51.2	53.1	54.0	55.2	59.6	69.1	75.7	78.0	83.1
9 years	205	65.0	0.79	53.9	55.4	55.9	58.6	62.3	70.0	74.4	77.3	85.2
10 years	180	70.0	1.19	53.6	56.6	58.1	60.7	68.8	78.3	82.0	85.3	91.4
11 years	199	73.2	1.24	59.1	61.1	61.5	63.8	69.7	79.7	84.6	90.9	98.5
12 years	145	76.6	0.97	58.5	61.3	63.7	66.6	74.7	85.0	90.4	93.7	97.2
13 years	135	78.5	1.26	63.3	65.3	66.5	68.6	77.0	85.3	91.8	96.4	100.9
14 years	162	80.6	0.93	66.5	68.8	70.1	71.6	77.8	86.0	92.3	94.9	98.7
15 years	125	80.4	1.19	65.6	68.1	69.0	71.9	76.3	86.4	95.9	99.7	104.1
16 years	165	82.2	1.17	67.3	70.1	71.7	73.8	78.5	86.8	93.7	97.2	109.5
17 years	142	84.2	1.28	67.2	70.2	72.5	75.0	82.3	91.4	96.7	98.5	107.6
18 years	134	85.2	1.80	66.5	67.2	68.5	71.6	81.9	94.7	102.3	107.4	115.3
19 years	108	88.0	1.80	66.3	70.1	72.4	74.2	83.9	98.0	102.5	109.1	124.0

† Estimate not shown because the standard error could not be computed due to small sample size.

<sup>1</sup> Age at time of examination.

NOTE: Estimates are weighted.

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

**Table 19. Waist circumference in centimeters for adult females aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Centimeters												
20 and over	5,065	98.4	0.59	73.3	77.1	80.4	85.3	96.4	109.2	116.7	121.6	129.7
20–29	791	92.1	1.01	69.6	71.7	73.6	77.5	88.9	103.8	113.1	118.8	125.5
30–39	822	97.2	0.88	72.7	75.5	78.5	83.3	94.2	107.1	117.1	121.2	133.6
40–49	852	99.5	1.11	77.2	79.9	82.2	85.9	96.1	109.1	119.7	124.0	133.1
50–59	884	99.8	0.86	74.2	78.6	82.4	87.1	97.9	110.5	117.1	122.5	128.6
60–69	929	101.7	1.24	77.9	81.5	85.2	89.9	100.2	113.1	119.4	122.8	130.8
70–79	488	101.5	0.81	79.2	83.0	86.5	91.8	100.7	110.2	115.7	118.7	124.5
80 and over	299	98.3	0.82	76.4	79.5	83.1	89.0	98.4	107.2	111.6	115.8	118.8
Non-Hispanic white												
20 and over	1,658	98.5	0.75	73.3	77.3	80.5	85.3	96.4	109.4	117.1	121.7	129.5
20–39	502	94.1	1.18	70.9	72.9	75.4	79.7	90.2	104.9	116.7	119.8	127.9
40–59	492	99.4	1.02	74.1	79.3	82.0	86.4	97.3	109.8	117.7	123.6	130.4
60 and over	664	101.3	0.95	77.8	82.2	85.5	90.2	100.5	111.0	117.2	120.7	129.5
Non-Hispanic black												
20 and over	1,139	102.4	0.68	73.8	78.2	81.5	88.8	101.5	114.4	121.2	127.1	136.4
20–39	360	97.9	1.21	70.1	73.5	76.1	81.2	95.6	111.1	118.8	122.8	132.1
40–59	418	106.3	1.05	78.2	82.4	85.8	91.6	105.8	118.6	125.4	131.3	143.0
60 and over	361	103.5	0.92	77.4	83.5	88.8	94.2	102.2	112.9	119.3	122.0	129.3
Non-Hispanic Asian												
20 and over	654	86.2	0.44	70.6	73.0	74.3	78.0	84.8	93.5	97.6	100.7	105.7
20–39	220	83.3	0.74	68.9	70.6	72.4	73.9	81.5	90.4	96.4	98.0	103.3
40–59	253	86.9	0.89	72.7	74.5	76.6	79.9	85.3	93.3	97.8	100.8	103.3
60 and over	181	89.8	0.73	74.5	77.4	79.0	81.8	88.4	96.3	100.0	104.9	110.5
Hispanic <sup>2</sup>												
20 and over	1,426	98.8	0.54	74.7	79.4	82.5	87.0	97.6	108.1	115.2	119.7	127.5
20–39	449	96.6	0.89	71.4	75.8	78.9	84.2	93.6	106.4	115.1	119.6	132.5
40–59	513	99.9	0.72	77.2	81.9	84.7	88.2	99.1	108.2	115.6	120.0	126.2
60 and over	464	102.2	0.56	81.0	86.4	88.8	93.1	100.9	109.8	115.0	119.0	124.7
Mexican American												
20 and over	804	100.8	0.87	76.8	82.0	85.2	89.8	99.2	109.3	118.4	122.7	132.4
20–39	266	99.0	1.48	71.6	77.4	81.9	86.4	96.7	108.0	117.9	122.4	135.7
40–59	300	101.6	0.89	80.9	83.9	86.7	90.4	99.8	109.6	118.6	122.8	127.9
60 and over	238	104	0.58	84.3	87.8	91.5	95.2	102.4	111.7	118.8	122.0	128.6

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTES: Data exclude pregnant females. Estimates are weighted.

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

**Table 20. Waist circumference in centimeters for adult males aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Centimeters												
20 and over	4,881	102.9	0.53	77.6	82.7	86.2	91.7	101.8	112.1	118.5	124.0	132.6
20–29	781	94.2	1.11	72.4	75.6	77.0	81.0	90.7	105.3	111.2	117.4	127.3
30–39	777	102.6	0.93	80.5	84.3	86.6	90.7	99.9	111.2	120.5	125.2	132.7
40–49	741	104.1	0.81	81.3	86.2	89.8	94.4	102.8	111.9	118.0	123.5	134.1
50–59	810	105.1	0.89	83.8	87.9	90.6	94.7	103.3	113.0	119.4	126.5	135.1
60–69	936	107.3	0.71	82.8	89.4	92.1	96.4	106.2	115.9	121.9	127.7	136.3
70–79	540	107.4	0.83	85.7	89.9	92.6	98.9	106.6	115.8	120.5	124.6	131.1
80 and over	296	104.3	0.60	83.7	89.2	92.2	95.7	104.1	112.3	116.6	119.9	126.7
Non-Hispanic white												
20 and over	1,713	104.2	0.63	79.6	83.9	87.1	92.9	103.2	113.6	120.4	125.8	133.6
20–39	484	99.2	1.14	75.2	77.7	81.2	85.5	95.2	110.0	119.0	124.2	132.5
40–59	491	105.2	0.89	82.9	86.8	91.0	95.1	103.7	112.5	118.4	125.1	135.0
60 and over	738	108.5	0.62	86.3	91.3	93.5	98.6	107.6	116.4	122.4	128.4	135.9
Non-Hispanic black												
20 and over	1,062	99.2	0.77	72.5	75.9	78.7	84.8	98.0	110.4	118.3	123.4	132.1
20–39	319	93.4	1.35	70.4	73.0	75.1	78.0	87.7	105.5	114.2	121.9	129.9
40–59	343	104.7	0.85	76.0	83.7	88.5	94.0	103.6	115.9	120.9	125.6	134.9
60 and over	400	101.9	0.82	79.3	82.4	85.4	91.4	101.3	110.4	115.5	121.4	130.4
Non-Hispanic Asian												
20 and over	637	93.2	0.41	75.3	80.5	82.8	85.8	92.6	99.0	103.0	106.6	111.6
20–39	232	92.3	0.65	72.6	76.8	81.1	84.0	91.1	98.2	102.5	106.5	112.0
40–59	253	94.3	0.53	78.9	82.0	83.9	87.6	93.8	99.8	103.6	106.6	111.8
60 and over	152	93.4	0.79	76.7	82.6	84.4	87.0	93.1	98.9	102.6	107.3	109.0
Hispanic <sup>2</sup>												
20 and over	1,235	102.5	0.53	80.5	85.3	88.8	93.2	101.1	110.5	115.8	120.5	129.9
20–39	439	99.7	0.78	77.3	81.5	84.5	89.6	99.0	108.7	112.8	117.5	126.9
40–59	373	105.1	0.71	86.5	90.2	92.4	95.4	103.1	112.7	118.7	124.2	132.2
60 and over	423	105.5	0.54	86.5	90.2	93.2	97.3	104.2	113.2	117.8	121.9	128.7
Mexican American												
20 and over	725	103.4	0.57	80.7	85.7	89.0	94.0	102.6	111.3	116.4	121.6	130.9
20–39	275	101.4	0.90	77.2	81.8	85.4	91.2	100.9	110.4	114.6	119.4	130.0
40–59	216	105.7	1.04	85.5	90.2	92.6	96.2	104.3	112.9	117.6	124.5	131.8
60 and over	234	105.1	0.67	87.0	89.8	93.0	97.9	104.3	111.6	117.1	119.9	126.3

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTE: Estimates are weighted.

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

**Table 21. Mid-upper arm circumference in centimeters for children and adolescents aged 2 months to 19 years and number of examined persons, mean, standard error of the mean, and selected percentiles, by sex and age: United States, 2015–2018**

Sex and age <sup>1</sup>	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male				Centimeters								
2–5 months	102	14.0	0.15	†	12.4	12.8	13.2	13.8	14.6	15.3	15.5	15.9
6–8 months	81	15.1	0.14	†	13.7	14.0	14.2	15.1	15.7	16.0	16.4	16.9
9–11 months	82	15.2	0.13	†	13.7	13.9	14.3	15.1	15.9	16.2	16.4	16.9
1 year	253	15.7	0.10	13.6	14.0	14.4	14.8	15.7	16.5	17.0	17.2	17.6
2 years	205	16.2	0.12	14.2	14.8	14.9	15.3	16.0	16.9	17.4	17.8	18.4
3 years	166	16.9	0.22	14.6	15.0	15.3	15.6	16.3	17.4	18.0	19.3	20.8
4 years	162	17.5	0.12	15.3	15.7	15.9	16.2	17.1	18.3	19.0	19.8	20.6
5 years	170	18.0	0.24	15.1	15.6	16.1	16.6	17.7	18.6	20.0	20.7	22.5
6 years	159	18.8	0.21	15.9	16.3	16.6	17.1	18.2	19.7	20.7	22.2	23.5
7 years	186	19.8	0.27	16.3	16.7	17.0	17.7	19.1	21.2	22.6	24.1	25.1
8 years	212	20.9	0.28	16.7	17.1	17.5	18.2	20.0	22.9	25.4	26.1	27.9
9 years	184	21.9	0.39	17.6	18.3	18.5	19.0	20.9	23.6	25.7	27.1	29.7
10 years	181	23.6	0.37	18.1	19.4	19.5	20.2	22.9	25.5	27.7	29.8	31.1
11 years	165	24.6	0.53	18.5	19.2	19.7	20.6	24.0	27.6	29.2	30.6	32.6
12 years	153	24.6	0.47	19.1	19.5	20.1	21.5	23.7	27.0	28.6	30.4	32.9
13 years	159	27.5	0.44	20.5	21.4	21.9	23.9	25.8	31.2	33.8	35.7	37.4
14 years	159	28.0	0.47	21.3	22.2	23.1	24.3	27.1	30.7	33.1	35.8	38.0
15 years	163	30.0	0.56	22.2	23.0	24.2	25.7	29.5	33.6	35.4	36.7	42.0
16 years	151	29.8	0.37	23.9	24.7	25.9	27.0	28.8	32.3	34.3	35.6	36.8
17 years	153	31.1	0.54	23.8	24.4	25.1	26.7	30.4	34.3	36.3	37.6	42.0
18 years	127	30.9	0.55	24.4	25.9	26.4	27.6	29.7	33.3	35.1	37.5	39.5
19 years	130	32.5	0.54	26.2	27.0	27.6	28.7	31.9	36.1	36.9	38.4	39.7
Female												
2–5 months	105	13.6	0.12	11.6	12.0	12.2	12.7	13.5	14.2	14.6	15.4	15.9
6–8 months	81	14.5	0.19	12.7	12.9	13.1	13.5	14.4	15.4	15.8	16.1	16.9
9–11 months	86	14.9	0.13	13.3	13.5	13.7	14.0	14.8	15.6	16.2	16.4	16.6
1 year	214	15.4	0.12	13.7	13.9	14.1	14.5	15.4	16.2	16.5	16.8	17.5
2 years	225	16.0	0.08	14.1	14.4	14.5	15.0	15.9	16.7	17.2	17.7	18.2
3 years	143	16.7	0.11	14.5	15.2	15.5	15.9	16.4	17.3	18.1	18.4	19.1
4 years	171	17.5	0.15	15.2	15.7	15.9	16.4	17.2	18.3	18.8	19.5	20.4
5 years	177	18.5	0.19	15.8	16.0	16.2	16.6	17.9	19.8	20.8	21.5	22.7
6 years	173	19.0	0.22	16.0	16.5	16.6	17.1	18.4	20.0	21.5	22.4	24.6
7 years	188	20.2	0.22	16.3	16.9	17.4	18.1	19.4	21.7	23.2	24.6	25.7
8 years	183	21.3	0.34	16.8	17.3	17.7	18.7	20.6	23.5	25.0	25.7	27.9
9 years	207	21.7	0.22	18.0	18.5	19.0	19.7	21.2	23.1	25.0	25.9	27.2
10 years	181	23.6	0.37	17.9	18.9	19.5	20.6	23.0	25.9	27.3	29.0	30.5
11 years	200	24.9	0.42	19.7	20.6	20.9	21.6	24.0	26.8	30.0	31.5	33.0
12 years	147	25.9	0.34	19.1	20.7	21.6	22.4	25.5	28.6	30.4	31.0	32.3
13 years	136	26.7	0.47	20.5	21.5	22.3	23.4	25.5	29.3	31.7	32.7	34.5
14 years	161	28.1	0.37	22.1	22.7	23.7	25.0	27.1	30.2	32.3	33.7	36.2
15 years	126	27.8	0.47	22.3	23.1	23.7	24.4	26.3	29.7	33.0	35.4	37.0
16 years	165	28.7	0.45	22.4	23.4	24.2	25.6	27.7	31.0	33.9	35.2	36.9
17 years	142	29.5	0.54	†	23.8	25.0	26.1	28.6	32.4	35.0	35.8	37.3
18 years	135	29.7	0.61	22.6	23.4	24.5	26.0	28.3	32.8	35.7	37.4	39.3
19 years	111	30.6	0.60	22.9	23.8	24.7	26.9	29.7	34.9	36.4	37.1	39.5

† Estimate not shown because the standard error could not be computed due to small sample size.

<sup>1</sup>Age at time of examination.

NOTE: Estimates are weighted.

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

**Table 22. Mid-upper arm circumference in centimeters for adult females aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Centimeters												
20 and over	5,140	32.3	0.17	24.7	25.9	26.8	28.3	31.6	35.5	37.9	39.9	42.6
20–29	799	31.5	0.33	23.7	24.9	25.5	26.8	30.6	35.2	38.3	40.2	42.0
30–39	829	32.8	0.23	25.1	26.4	27.0	28.5	32.0	36.0	38.2	40.8	43.1
40–49	862	33.3	0.33	25.7	26.8	27.8	29.1	32.3	36.5	39.3	41.6	43.5
50–59	895	32.8	0.27	25.1	26.1	27.5	28.9	32.1	35.7	38.1	39.7	43.3
60–69	943	32.4	0.33	25.0	26.5	27.3	28.9	31.7	35.4	37.4	39.2	41.0
70–79	502	32.0	0.29	24.9	26.2	27.0	28.4	31.2	34.6	36.7	38.0	41.3
80 and over	310	29.6	0.36	23.0	23.6	24.8	26.5	29.1	32.5	33.7	34.7	37.4
Non-Hispanic white												
20 and over	1,678	32.1	0.21	24.8	25.9	26.7	28.2	31.4	34.9	37.6	39.6	42.3
20–39	504	31.9	0.32	24.1	25.5	26.3	27.4	30.9	35.3	37.7	40.1	42.5
40–59	496	32.7	0.31	25.2	26.4	27.6	28.9	32.0	35.5	38.2	40.1	42.8
60 and over	678	31.7	0.30	24.4	25.6	26.7	28.3	31.2	34.6	36.4	38.1	41.0
Non-Hispanic black												
20 and over	1,159	34.3	0.20	24.9	26.9	28.1	30.0	33.9	38.0	40.7	42.4	45.2
20–39	362	33.7	0.41	24.1	25.8	26.9	28.6	33.3	37.5	40.6	42.1	44.3
40–59	428	35.5	0.20	26.2	28.4	29.4	31.2	34.9	39.2	42.3	44.4	46.0
60 and over	369	33.3	0.27	25.3	26.9	28.3	29.9	32.7	36.4	38.3	39.7	42.4
Non-Hispanic Asian												
20 and over	662	28.9	0.16	23.7	24.6	25.2	26.2	28.4	31.0	32.9	34.1	35.6
20–39	223	28.6	0.23	23.2	24.3	24.9	25.8	27.9	30.9	32.8	34.0	35.4
40–59	255	29.2	0.31	24.1	25.1	25.8	26.5	28.6	31.2	33.1	34.2	35.3
60 and over	184	29.0	0.22	23.7	24.7	25.4	26.2	28.4	30.7	32.8	34.4	36.2
Hispanic <sup>2</sup>												
20 and over	1,448	32.9	0.18	25.0	26.6	27.7	29.3	32.3	35.9	38.3	39.9	42.6
20–39	457	32.7	0.26	24.3	25.8	26.9	28.9	32.0	36.0	38.5	40.7	43.1
40–59	516	33.3	0.29	26.3	27.4	28.2	29.5	32.8	36.1	38.6	39.7	42.1
60 and over	475	32.5	0.25	25.1	27.0	28.0	29.4	31.7	35.6	37.0	38.4	40.7
Mexican American												
20 and over	816	33.4	0.28	25.7	27.3	28.2	29.5	32.7	36.5	39.0	40.8	43.2
20–39	272	33.2	0.43	24.3	26.7	27.7	29.3	32.4	36.4	39.3	41.3	43.6
40–59	300	33.9	0.41	26.7	27.8	28.6	29.9	33.2	37.0	39.1	40.6	43.2
60 and over	244	33.0	0.31	25.6	27.5	28.6	29.7	32.2	36.0	37.9	39.4	42.2

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTES: Data exclude pregnant females. Estimates are weighted.

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

**Table 23. Mid-upper arm circumference in centimeters for adult males aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Centimeters												
20 and over	4,919	34.7	0.14	27.5	29.1	29.9	31.3	34.4	37.4	39.3	40.6	42.8
20–29	781	34.1	0.33	26.2	28.0	28.9	30.1	34.0	37.0	39.5	41.1	43.0
30–39	780	35.9	0.25	29.2	30.3	31.0	32.5	35.2	38.4	40.1	42.0	45.2
40–49	743	35.6	0.24	29.2	30.7	31.5	32.9	35.0	38.1	40.0	41.4	43.2
50–59	816	34.8	0.23	28.0	29.4	30.2	31.5	34.4	37.5	39.6	40.0	42.6
60–69	948	34.4	0.18	27.6	29.3	29.9	31.2	34.0	37.0	38.7	39.7	42.0
70–79	549	33.2	0.23	26.7	27.9	28.9	30.3	33.0	36.2	37.6	38.7	39.6
80 and over	302	30.8	0.19	25.4	26.2	27.2	28.3	30.5	33.3	34.7	35.4	36.9
Non-Hispanic white												
20 and over	1,730	34.7	0.17	27.6	29.2	29.9	31.3	34.4	37.4	39.3	40.5	42.6
20–39	485	35.0	0.35	27.2	29.0	29.8	31.0	34.6	37.6	40.2	42.1	44.9
40–59	491	35.2	0.26	29.0	29.8	30.8	32.0	34.9	37.6	39.7	40.2	42.6
60 and over	754	33.9	0.17	27.2	28.6	29.4	30.6	33.5	36.5	38.5	39.3	41.1
Non-Hispanic black												
20 and over	1,071	35.3	0.19	27.3	28.9	29.8	31.5	34.8	38.7	40.9	42.5	44.5
20–39	319	35.1	0.39	27.2	28.6	29.5	30.9	34.4	38.7	40.9	42.8	44.9
40–59	347	36.6	0.27	28.5	30.8	31.5	33.0	36.4	39.7	41.7	43.1	44.8
60 and over	405	33.6	0.25	25.9	27.5	28.4	30.0	33.3	36.6	38.2	39.6	42.0
Non-Hispanic Asian												
20 and over	638	32.1	0.19	26.3	27.5	28.2	29.3	31.8	34.4	35.8	36.8	38.5
20–39	232	33.3	0.31	26.6	28.3	28.9	30.7	33.0	35.7	37.0	38.2	41.2
40–59	253	31.9	0.20	26.7	27.7	28.5	29.6	31.9	34.0	35.1	35.7	37.3
60 and over	153	30.0	0.28	25.1	26.2	26.7	27.9	29.8	32.0	33.1	34.3	35.7
Hispanic <sup>2</sup>												
20 and over	1,241	34.8	0.15	28.1	29.5	30.7	32.0	34.6	37.4	38.9	40.0	41.4
20–39	440	35.1	0.24	27.7	29.2	30.6	32.4	35.2	37.9	39.2	40.2	42.0
40–59	375	34.9	0.21	29.2	30.7	31.3	32.3	34.3	37.4	39.1	40.2	41.5
60 and over	426	33.2	0.22	27.3	28.6	29.5	30.3	32.8	35.8	37.1	38.1	39.4
Mexican American												
20 and over	728	34.9	0.20	28.0	29.5	30.6	32.3	34.7	37.5	38.8	40.1	41.4
20–39	276	35.3	0.30	27.8	29.3	30.8	32.8	35.4	37.9	39.0	40.3	42.1
40–59	217	35.0	0.37	28.9	30.2	31.1	32.3	34.5	37.5	38.9	40.3	41.1
60 and over	235	32.9	0.32	27.4	28.6	29.5	30.3	32.7	35.4	36.7	37.2	38.5

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTE: Estimates are weighted.

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

**Table 24. Upper arm length in centimeters for children and adolescents aged 2 months to 19 years and number of examined persons, mean, standard error of the mean, and selected percentiles, by sex and age: United States, 2015–2018**

Sex and age <sup>1</sup>	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
<b>Male</b>				<b>Centimeters</b>								
2–5 months	102	12.7	0.11	10.9	11.0	11.5	11.8	12.6	13.3	13.9	14.1	14.4
6–8 months	81	14.2	0.14	†	12.7	13.0	13.5	14.2	14.8	15.0	15.4	15.8
9–11 months	82	15.1	0.13	13.5	13.6	13.9	14.4	15.0	15.7	16.1	16.5	16.9
1 year	253	16.6	0.12	14.1	14.8	15.0	15.7	16.6	17.6	18.0	18.2	18.8
2 years	206	18.8	0.11	16.3	16.9	17.1	17.9	18.7	19.9	20.0	20.4	20.8
3 years	166	20.4	0.16	18.1	18.5	18.8	19.2	20.1	21.1	21.9	22.1	22.8
4 years	162	22.0	0.13	19.5	20.0	20.3	21.0	21.9	23.0	23.5	23.8	24.0
5 years	170	23.4	0.16	21.1	21.5	21.9	22.1	23.1	24.0	24.7	25.4	26.2
6 years	159	24.8	0.14	†	22.7	23.0	23.4	24.5	26.0	26.8	27.1	27.9
7 years	186	26.4	0.15	23.7	24.4	24.8	25.1	26.1	27.4	28.2	28.9	29.3
8 years	212	28.1	0.16	25.1	25.5	26.0	26.9	27.8	29.5	30.1	30.4	31.2
9 years	184	29.1	0.25	25.5	26.1	26.8	27.5	29.0	30.4	31.4	32.2	32.9
10 years	181	30.5	0.19	26.7	27.4	28.1	29.1	30.3	31.9	32.6	33.2	34.0
11 years	165	32.1	0.22	28.7	29.3	29.7	30.7	32.0	33.2	33.9	34.5	35.6
12 years	153	33.3	0.22	29.3	30.1	30.6	31.5	33.0	35.0	36.0	36.5	37.2
13 years	159	35.5	0.24	31.6	32.3	33.0	34.0	35.3	36.9	37.9	38.3	38.5
14 years	159	37.0	0.24	33.2	33.9	34.5	35.0	36.9	38.9	39.8	40.2	41.0
15 years	163	37.9	0.18	33.9	34.6	35.0	35.8	37.8	39.6	41.0	41.5	41.9
16 years	151	38.1	0.23	34.5	34.9	35.5	36.7	38.1	39.7	40.3	40.7	42.0
17 years	153	38.6	0.23	35.4	35.6	36.0	36.9	38.3	39.8	41.0	41.7	42.9
18 years	127	38.4	0.21	34.8	35.5	36.4	37.0	38.4	39.9	40.4	40.6	41.2
19 years	130	38.9	0.16	35.4	35.9	36.3	37.3	39.0	40.3	40.9	41.0	41.9
<b>Female</b>												
2–5 months	105	12.3	0.12	9.9	10.6	10.9	11.4	12.1	13.0	13.3	13.8	13.9
6–8 months	81	13.5	0.12	†	12.4	12.5	12.8	13.5	14.0	14.3	14.4	†
9–11 months	86	14.5	0.10	12.9	13.1	13.4	13.7	14.3	15.0	15.6	15.8	15.9
1 year	216	16.4	0.10	14.5	14.9	15.0	15.5	16.3	17.1	17.8	17.9	18.4
2 years	225	18.3	0.09	16.4	16.8	17.0	17.5	18.0	19.0	19.5	19.9	20.0
3 years	143	20.0	0.14	†	18.4	18.7	18.9	19.9	20.5	21.3	21.9	22.0
4 years	170	21.6	0.15	19.4	19.7	19.9	20.5	21.4	22.5	23.0	23.4	23.9
5 years	177	23.3	0.20	20.6	21.0	21.2	22.0	23.2	24.1	25.0	25.5	26.0
6 years	173	24.7	0.13	21.7	22.5	23.0	23.6	24.7	25.5	26.2	26.9	27.0
7 years	188	26.1	0.15	23.6	24.0	24.4	24.9	25.9	27.0	27.8	28.3	28.9
8 years	183	27.7	0.17	24.7	25.3	25.9	26.5	27.5	28.9	29.6	30.0	31.0
9 years	207	29.0	0.16	26.0	26.5	27.0	27.5	29.1	30.1	30.7	31.3	32.2
10 years	181	30.7	0.18	27.6	28.4	28.5	29.3	30.5	32.0	32.7	33.1	33.9
11 years	200	32.6	0.26	28.9	29.7	30.2	30.6	32.6	34.5	35.2	35.7	36.0
12 years	147	33.9	0.21	30.4	30.9	31.4	32.0	33.9	35.3	36.4	37.0	37.9
13 years	136	34.7	0.24	30.8	32.1	32.4	33.3	34.5	36.1	36.8	37.2	38.2
14 years	161	35.9	0.23	32.3	33.0	33.4	34.0	35.5	37.3	38.2	38.9	40.0
15 years	126	35.3	0.20	32.1	32.3	33.1	34.1	35.2	36.3	37.5	37.8	38.1
16 years	165	35.5	0.18	32.6	32.9	33.4	33.9	35.2	36.8	37.9	38.1	38.9
17 years	142	35.7	0.20	31.6	32.9	33.4	34.2	35.9	36.9	37.7	38.1	39.0
18 years	135	35.6	0.20	32.2	33.1	33.7	34.3	35.4	36.9	37.4	38.0	39.0
19 years	111	35.9	0.19	32.5	33.4	33.6	34.4	36.0	37.0	37.6	37.9	39.4

† Estimate not shown because the standard error could not be computed due to small sample size.

<sup>1</sup>Age at time of examination.

NOTE: Estimates are weighted.

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

**Table 25. Upper arm length in centimeters for adult females aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Centimeters												
20 and over	5,255	36.0	0.07	32.4	33.2	33.7	34.4	35.9	37.4	38.0	38.7	39.5
20–29	860	35.9	0.09	32.4	33.2	33.7	34.4	35.9	37.2	37.9	38.4	39.4
30–39	875	35.9	0.11	32.2	33.0	33.5	34.3	36.0	37.5	38.0	38.6	39.4
40–49	868	36.0	0.12	32.4	33.2	33.7	34.4	35.9	37.4	38.2	38.7	39.8
50–59	895	36.0	0.11	32.6	33.4	33.9	34.5	35.9	37.3	38.1	38.9	39.6
60–69	944	36.0	0.13	32.2	33.0	33.6	34.6	36.0	37.4	38.3	38.9	39.5
70–79	503	35.9	0.16	32.2	33.1	33.6	34.3	35.9	37.3	38.0	38.9	40.1
80 and over	310	35.6	0.16	32.0	33.0	33.5	34.0	35.6	36.9	37.7	38.2	39.1
Non-Hispanic white												
20 and over	1,708	36.2	0.10	32.9	33.5	34.0	34.7	36.1	37.4	38.1	38.9	39.5
20–39	531	36.2	0.12	32.9	33.5	34.0	34.9	36.3	37.5	38.0	38.5	39.5
40–59	497	36.2	0.14	33.2	33.6	34.1	34.7	36.0	37.4	38.2	38.9	39.7
60 and over	680	36.1	0.12	32.5	33.4	33.9	34.6	36.0	37.4	38.2	38.9	39.5
Non-Hispanic black												
20 and over	1,188	36.9	0.08	33.3	34.0	34.5	35.3	36.9	38.2	39.0	39.6	40.6
20–39	389	36.7	0.11	33.1	33.9	34.4	35.2	36.7	38.0	38.7	39.1	40.0
40–59	430	37.0	0.12	33.6	34.3	34.8	35.4	37.0	38.5	39.4	40.0	40.8
60 and over	369	36.9	0.13	33.3	34.0	34.5	35.2	36.9	38.4	39.2	39.8	40.8
Non-Hispanic Asian												
20 and over	679	33.9	0.11	30.9	31.4	32.0	32.5	33.8	35.1	35.9	36.5	37.3
20–39	238	34.2	0.14	31.0	31.9	32.3	32.8	34.0	35.4	36.0	36.4	37.1
40–59	257	34.1	0.18	31.0	31.9	32.1	32.6	33.9	35.3	36.2	36.9	37.5
60 and over	184	33.3	0.18	30.1	30.9	31.2	31.9	33.3	34.4	35.0	35.4	36.0
Hispanic <sup>2</sup>												
20 and over	1,482	35.2	0.09	31.7	32.5	33.0	33.7	35.0	36.4	37.4	38.0	38.7
20–39	490	35.2	0.13	31.7	32.5	33.0	33.7	35.0	36.5	37.6	38.0	38.8
40–59	517	35.2	0.12	31.7	32.4	32.8	33.7	35.0	36.3	37.3	38.0	39.0
60 and over	475	35.0	0.09	31.8	32.6	33.0	33.6	35.0	36.2	36.9	37.4	38.1
Mexican American												
20 and over	836	35.1	0.10	31.9	32.5	33.0	33.8	35.0	36.3	37.2	37.9	38.5
20–39	292	35.0	0.11	31.8	32.5	32.9	33.6	34.8	36.3	37.2	37.9	38.5
40–59	300	35.2	0.19	31.7	32.5	32.9	33.9	35.1	36.2	37.1	37.9	38.7
60 and over	244	35.3	0.13	32.3	32.9	33.2	33.9	35.3	36.5	37.1	37.9	38.3

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTE: Estimates are weighted.

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

**Table 26. Upper arm length in centimeters for adult males aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Centimeters												
20 and over	4,920	39.3	0.07	35.4	36.2	36.8	37.7	39.2	40.8	41.5	42.0	42.9
20–29	781	39.0	0.13	35.2	35.9	36.5	37.4	38.9	40.4	41.2	41.9	42.5
30–39	779	39.3	0.12	35.5	36.4	36.7	37.5	39.3	40.7	41.5	42.0	42.9
40–49	744	39.3	0.12	35.0	36.4	36.9	37.8	39.4	40.9	41.6	42.0	42.8
50–59	816	39.3	0.09	35.7	36.4	36.9	37.9	39.2	40.9	41.5	42.1	42.9
60–69	948	39.4	0.14	35.5	36.3	37.0	37.8	39.4	41.0	41.7	42.4	43.3
70–79	549	39.4	0.12	35.8	36.5	37.0	37.7	39.3	40.9	41.7	42.3	43.1
80 and over	303	39.0	0.14	35.5	36.0	36.4	37.3	39.0	40.6	41.3	41.9	42.6
Non-Hispanic white												
20 and over	1,732	39.6	0.10	36.0	36.8	37.3	38.0	39.5	41.0	41.7	42.2	43.0
20–39	485	39.5	0.17	35.9	36.6	37.1	38.0	39.4	40.9	41.7	42.0	42.9
40–59	492	39.6	0.11	36.0	36.9	37.4	38.0	39.5	41.0	41.7	42.1	42.9
60 and over	755	39.7	0.12	36.0	36.8	37.3	38.9	39.5	41.1	41.9	42.5	43.3
Non-Hispanic black												
20 and over	1,070	39.6	0.09	35.9	36.9	37.3	38.1	39.5	41.1	42.0	42.5	43.3
20–39	318	39.4	0.11	35.8	36.5	37.0	37.8	39.0	40.9	41.7	42.5	43.6
40–59	347	40.0	0.16	36.6	37.3	37.9	38.4	39.7	41.5	42.2	42.7	43.2
60 and over	405	39.6	0.10	35.7	36.7	37.1	38.1	39.7	41.1	41.9	42.4	43.2
Non-Hispanic Asian												
20 and over	638	37.5	0.11	33.9	34.5	34.9	35.7	37.4	39.0	40.0	40.5	41.5
20–39	232	38.0	0.18	34.0	34.7	35.1	36.3	38.0	39.5	40.6	41.4	42.2
40–59	253	37.3	0.20	33.4	34.4	34.9	35.6	37.1	38.9	39.9	40.0	40.8
60 and over	153	36.6	0.16	33.2	34.1	34.4	35.3	36.6	37.9	38.6	38.9	39.4
Hispanic <sup>2</sup>												
20 and over	1,241	38.1	0.09	34.3	35.1	35.9	36.5	38.0	39.6	40.4	41.0	41.6
20–39	440	38.0	0.12	34.3	35.0	35.7	36.4	38.0	39.6	40.3	40.8	41.5
40–59	375	38.1	0.14	34.0	35.1	35.8	36.6	38.0	39.8	40.5	41.2	41.9
60 and over	426	38.1	0.10	34.8	35.6	36.0	36.8	38.0	39.2	40.0	40.8	41.6
Mexican American												
20 and over	728	38.0	0.11	34.3	35.1	35.8	36.4	38.0	39.5	40.3	40.9	41.6
20–39	276	38.0	0.15	34.5	35.2	35.9	36.4	38.0	39.5	40.2	40.8	41.5
40–59	217	38.0	0.23	33.2	34.8	35.5	36.3	37.9	39.8	40.5	41.1	41.9
60 and over	235	38.0	0.15	34.4	35.4	36.0	36.8	38.0	39.1	39.9	40.5	41.5

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTE: Estimates are weighted.

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

**Table 27. Upper leg length in centimeters for children and adolescents aged 8–19 years and number of examined persons, mean, standard error of the mean, and selected percentiles, by sex and age: United States, 2015–2018**

Sex and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
<b>Male</b>				<b>Centimeters</b>								
8 years	202	30.9	0.21	27.3	28.0	28.5	29.2	30.7	32.5	33.1	34.0	34.5
9 years	183	32.1	0.23	27.6	28.8	29.4	30.3	32.2	33.9	34.3	34.9	35.8
10 years	177	34.0	0.21	30.1	30.8	31.2	32.2	33.9	35.2	36.1	37.5	39.1
11 years	164	35.9	0.32	30.9	31.9	32.9	33.8	35.8	37.5	38.8	39.4	40.3
12 years	152	37.4	0.27	32.6	33.0	34.3	35.4	37.4	39.0	40.5	41.3	42.1
13 years	158	39.7	0.29	35.1	35.8	36.8	37.8	39.4	41.6	42.7	43.0	44.2
14 years	159	41.0	0.23	36.8	36.9	37.3	39.0	41.0	43.0	44.1	44.5	45.0
15 years	160	42.4	0.23	38.5	39.0	39.9	40.6	42.3	44.0	44.9	45.4	46.8
16 years	149	42.4	0.27	37.4	38.9	39.4	40.4	42.0	43.9	45.5	46.3	47.8
17 years	151	42.8	0.23	39.0	39.6	40.0	40.5	42.7	44.6	45.6	46.8	47.8
18 years	126	42.8	0.26	39.1	39.5	40.0	40.9	42.3	45.0	45.4	46.1	47.3
19 years	129	42.1	0.26	38.0	38.9	39.0	40.0	42.1	44.0	44.5	45.3	46.3
<b>Female</b>												
8 years	170	30.0	0.29	25.8	26.9	27.5	28.3	29.8	31.6	32.6	33.3	34.8
9 years	206	32.2	0.20	27.8	28.9	29.3	30.6	32.1	33.9	35.0	35.2	35.8
10 years	181	33.9	0.22	29.6	30.7	31.5	32.1	34.0	35.5	36.2	36.9	37.7
11 years	199	35.8	0.29	31.2	32.1	32.5	33.6	35.5	37.7	38.5	39.9	41.3
12 years	146	37.4	0.25	32.7	33.6	34.5	35.8	37.4	38.8	40.1	40.6	41.4
13 years	136	38.3	0.34	33.7	34.9	35.3	36.6	38.1	40.4	40.9	41.0	41.9
14 years	161	39.1	0.20	34.8	35.7	36.4	37.1	39.3	40.7	41.9	42.1	42.5
15 years	125	38.7	0.24	34.6	35.5	36.2	37.0	38.5	40.5	41.3	42.4	42.8
16 years	165	38.7	0.22	35.1	36.1	36.8	37.3	38.6	39.7	40.6	41.2	42.3
17 years	142	39.0	0.24	34.9	35.6	36.4	37.1	38.8	40.4	41.4	42.0	43.7
18 years	136	39.0	0.23	34.7	36.1	36.9	37.7	38.9	40.2	41.3	42.0	42.5
19 years	110	39.0	0.23	35.0	35.5	36.3	37.4	39.0	40.6	41.7	42.1	42.6

<sup>1</sup>Age at time of examination.

NOTE: Estimates are weighted.

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

**Table 28. Upper leg length in centimeters for adult females aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Centimeters												
20 and over	5,159	37.1	0.10	32.0	33.3	34.0	35.1	37.0	39.1	40.1	40.9	42.0
20–29	855	38.6	0.14	34.2	35.4	36.0	36.7	38.6	40.4	41.2	41.9	42.9
30–39	868	38.2	0.11	33.7	34.7	35.3	36.4	38.1	40.0	41.1	41.8	42.9
40–49	855	37.3	0.19	32.4	33.5	34.0	35.2	37.2	39.3	40.3	40.9	42.1
50–59	878	36.6	0.16	31.8	32.9	33.7	34.9	36.7	38.4	39.5	40.1	41.4
60–69	919	36.1	0.18	30.9	32.4	33.5	34.4	36.1	37.8	38.7	39.4	40.3
70–79	491	35.3	0.15	30.6	31.5	32.2	33.2	35.3	37.3	38.4	39.0	39.9
80 and over	293	35.2	0.18	30.7	31.8	32.5	33.5	35.1	36.5	38.0	38.4	39.3
Non-Hispanic white												
20 and over	1,672	37.1	0.09	32.3	33.5	34.1	35.3	37.0	39.0	40.0	40.5	41.6
20–39	527	38.6	0.13	34.7	35.7	36.1	36.9	38.6	40.2	41.0	41.5	42.3
40–59	489	37.1	0.17	32.4	33.6	34.1	35.2	37.1	39.0	39.9	40.4	41.5
60 and over	656	35.8	0.15	31.0	32.3	33.1	34.1	35.9	37.6	38.6	39.1	40.0
Non-Hispanic black												
20 and over	1,165	39.0	0.18	33.6	34.9	35.7	36.7	39.0	41.0	42.2	42.9	44.1
20–39	387	40.2	0.19	35.6	36.6	37.4	38.2	40.0	42.0	43.1	44.0	45.0
40–59	422	38.5	0.25	33.1	34.5	35.3	36.4	38.4	40.5	41.9	42.6	43.7
60 and over	356	37.5	0.21	32.6	34.0	34.6	35.4	37.6	39.4	40.3	41.0	42.0
Non-Hispanic Asian												
20 and over	677	35.5	0.16	31.0	31.9	32.6	33.9	35.6	37.3	38.1	38.8	39.5
20–39	238	36.9	0.15	33.6	34.2	34.5	35.4	36.7	38.2	39.0	39.4	40.4
40–59	255	35.4	0.17	31.5	32.0	32.8	33.8	35.3	37.1	37.7	38.4	39.2
60 and over	184	33.5	0.28	29.7	30.1	30.9	31.5	33.6	35.2	35.8	36.8	37.6
Hispanic <sup>2</sup>												
20 and over	1,448	36.1	0.17	30.7	31.8	32.9	34.0	36.0	38.1	39.2	40.2	41.2
20–39	485	37.3	0.22	32.5	33.8	34.3	35.2	37.2	39.0	40.5	41.0	42.4
40–59	505	35.5	0.16	30.1	31.4	32.4	33.5	35.5	37.5	38.4	39.0	40.0
60 and over	458	33.9	0.21	29.7	30.3	30.9	31.9	34.0	35.8	36.6	37.3	38.3
Mexican American												
20 and over	817	35.5	0.22	30.1	31.3	32.2	33.4	35.4	37.5	38.5	39.1	40.5
20–39	287	36.5	0.29	32.0	33.1	33.8	34.6	36.3	38.2	39.0	40.0	41.1
40–59	294	35.0	0.20	29.9	30.8	31.5	32.9	35.0	37.1	38.1	38.8	39.8
60 and over	236	33.5	0.29	29.1	30.0	30.5	31.5	33.6	35.4	36.1	37.1	37.9

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTE: Estimates are weighted.

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

**Table 29. Upper leg length in centimeters for adult males aged 20 and over and number of examined persons, mean, standard error of the mean, and selected percentiles, by race and Hispanic origin and age: United States, 2015–2018**

Race and Hispanic origin and age	Number of examined persons	Mean	Standard error of the mean	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and Hispanic-origin groups <sup>1</sup>												
Centimeters												
20 and over	4,851	41.4	0.09	36.5	37.5	38.3	39.4	41.3	43.4	44.6	45.2	46.5
20–29	772	42.6	0.12	38.3	39.2	39.9	40.7	42.4	44.3	45.0	45.8	46.8
30–39	773	42.2	0.15	37.4	38.6	39.4	40.3	42.0	44.1	45.5	46.0	46.9
40–49	740	41.7	0.18	37.0	37.9	38.5	39.7	41.7	43.6	44.6	45.5	47.0
50–59	805	41.1	0.18	36.2	37.3	37.9	39.0	41.0	42.9	44.7	45.2	45.8
60–69	933	40.6	0.18	35.9	37.0	37.9	38.8	40.2	42.3	43.7	44.7	45.1
70–79	537	39.8	0.17	35.2	36.4	37.1	38.1	40.0	41.6	42.4	43.0	44.3
80 and over	291	39.1	0.20	33.3	34.7	35.9	37.0	39.3	41.0	42.4	43.0	44.2
Non-Hispanic white												
20 and over	1,707	41.6	0.09	37.0	38.0	38.7	39.7	41.5	43.4	44.7	45.2	46.2
20–39	482	42.7	0.15	38.6	39.8	40.4	40.9	42.4	44.4	45.2	45.9	46.8
40–59	487	41.7	0.17	37.3	38.0	38.6	39.8	41.6	43.4	44.7	45.2	46.2
60 and over	738	40.3	0.14	35.9	37.0	37.6	38.8	40.1	42.0	43.2	44.1	45.0
Non-Hispanic black												
20 and over	1,053	43.1	0.21	38.0	39.2	40.0	41.0	43.0	45.0	46.2	46.9	48.4
20–39	315	43.9	0.20	39.2	40.4	41.0	41.8	43.8	45.8	46.8	48.0	49.0
40–59	342	43.0	0.29	38.5	39.5	40.0	41.0	43.0	44.8	45.8	46.6	47.6
60 and over	396	41.6	0.21	36.5	37.7	38.4	39.5	41.7	43.4	44.6	45.5	46.7
Non-Hispanic Asian												
20 and over	635	39.9	0.21	34.4	36.0	36.9	37.9	39.8	41.9	43.0	43.9	45.0
20–39	232	41.2	0.19	36.7	37.6	38.3	39.4	41.0	43.0	44.2	44.9	46.0
40–59	252	39.5	0.22	35.1	36.1	36.8	37.5	39.4	41.3	42.3	42.8	43.8
60 and over	151	37.8	0.28	33.4	33.8	34.3	35.7	38.0	39.5	40.2	40.8	42.1
Hispanic <sup>2</sup>												
20 and over	1,226	40.1	0.14	35.2	36.3	37.0	38.1	39.9	41.9	43.0	43.9	44.8
20–39	434	40.9	0.17	36.3	37.5	38.3	39.2	40.7	42.6	43.9	44.5	45.6
40–59	373	39.5	0.23	34.9	35.9	36.6	37.7	39.3	41.3	42.6	43.4	44.2
60 and over	419	38.4	0.21	33.6	34.9	35.5	36.5	38.4	40.3	41.1	41.7	42.6
Mexican American												
20 and over	719	39.9	0.19	35.1	36.3	37.0	38.1	39.8	41.6	42.7	43.7	44.5
20–39	272	40.8	0.21	36.8	37.6	38.4	39.2	40.7	42.4	43.5	44.2	44.9
40–59	216	39.2	0.32	34.4	35.3	36.3	37.4	39.0	41.0	41.9	42.9	44.0
60 and over	231	38.2	0.29	33.5	34.9	35.5	36.3	38.3	40.0	40.9	41.3	42.1

<sup>1</sup>Includes persons of other races.

<sup>2</sup>Includes Mexican-American persons.

NOTE: Estimates are weighted.

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

**Appendix. Historical summary of published anthropometric reference data**

Measurement	Survey years											
	1960–1962 <sup>1–3</sup>	1963–1965 <sup>4</sup>	1966–1970 <sup>5</sup>	1971–1974 <sup>6,7</sup>	1976–1980 <sup>8</sup>	1988–1994 <sup>9</sup>	1999–2002 <sup>10</sup>	2003–2006 <sup>11</sup>	2007–2010 <sup>12</sup>	2011–2014 <sup>13</sup>	2015–2018	
Weight, height, and length												
Weight	X	X	X	X	X	X	X	X	X	X	X	X
Standing height	X	X	X	X	X	X	X	X	X	X	X	X
Recumbent length	...	...	...	...	X	X	X	X	X	X	X	X
Sitting height	X	X	...	X	X	X	...	...	...	...	...	...
Knee height	X	X	...	...	...	X	...	...	...	...	...	...
Elbow rest height	X	...	...	...	...	...	...	...	...	...	...	...
Popliteal height	X	X	...	...	...	...	...	...	...	...	...	...
Thigh clearance height	X	X	...	...	...	...	...	...	...	...	...	...
Buttock-knee length	X	X	...	...	...	...	...	...	...	...	...	...
Buttock-popliteal length	X	X	...	...	...	...	...	...	...	...	...	...
Elbow-wrist length	...	X	...	...	...	...	...	...	...	...	...	...
Hand length	...	X	...	...	...	...	...	...	...	...	...	...
Upper arm length	...	X	...	...	...	X	X	X	X	X	X	X
Upper leg length	...	...	...	...	...	X	X	X	X	X	X	X
Foot length	...	X	...	...	...	...	...	...	...	...	...	...
Crown-rump length	...	...	...	...	X	...	...	...	...	...	...	...
Indices												
Body mass index <sup>14</sup>	...	...	...	...	X	X	X	X	X	X	X	X
Skinfolds												
Subscapular skinfold	X	X	X	X	X	X	X	X	X	...	...	...
Triceps skinfold	X	X	X	X	X	X	X	X	X	...	...	...
Thigh skinfold	...	...	...	...	...	X	...	...	...	...	...	...
Suprailiac skinfold	...	...	...	...	...	X	...	...	...	...	...	...
Circumferences and breadths												
Head circumference	...	...	...	...	X	X	X	X	X	X	X	X
Chest circumference	X	X	...	X	X	...	...	...	...	...	...	...
Waist circumference	X	X	...	...	...	X	X	X	X	X	X	X
Sagittal abdominal diameter	...	...	...	...	...	...	...	...	...	X	...	...
Mid-upper arm circumference	X	X	X	X	X	X	X	X	X	X	X	X
Mid-thigh circumference	...	...	...	...	...	X	X	X	...	...	...	...
Buttocks circumference	...	X	...	...	...	X	...	...	...	...	...	...

See footnotes at end of table

## Appendix. Historical summary of published anthropometric reference data—Con.

Measurement	Survey years										
	1960–1962 <sup>1-3</sup>	1963–1965 <sup>4</sup>	1966–1970 <sup>5</sup>	1971–1974 <sup>6,7</sup>	1976–1980 <sup>8</sup>	1988–1994 <sup>9</sup>	1999–2002 <sup>10</sup>	2003–2006 <sup>11</sup>	2007–2010 <sup>12</sup>	2011–2014 <sup>13</sup>	2015–2018
Circumferences and breadths—Con.											
Maximal calf circumference	...	...	...	...	...	...	X	X	...	...	...
Chest breadth	...	X	...	...	...	...	...	...	...	...	...
Hand breadth	...	X	...	...	...	...	...	...	...	...	...
Wrist breadth	...	...	...	...	...	X	...	...	...	...	...
Biacromial breadth	X	...	...	...	...	X	...	...	...	...	...
Biiliac breadth	...	...	...	...	...	X	...	...	...	...	...
Bitrochanteric breadth	...	...	...	X	X	...	...	...	...	...	...
Elbow breadth	...	...	...	X	X	X	...	...	...	...	...
Elbow-elbow breadth	X	X	...	...	...	...	...	...	...	...	...
Seat breadth	X	X	...	...	...	...	...	...	...	...	...
Foot breadth	...	X	...	...	...	...	...	...	...	...	...

... Category not applicable.

<sup>1</sup>Stoudt HW, Damon A, McFarland R, Roberts J. Weight, height, and selected body dimensions of adults. National Center for Health Statistics. Vital Health Stat 11(8). 1965. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_008.pdf](http://www.cdc.gov/nchs/data/series/sr_11/sr11_008.pdf).

<sup>2</sup>Stoudt HW, Damon A, McFarland RA, Roberts J. Skinfolts, body girths, biacromial diameter, and selected anthropometric indices of adults: United States, 1960–1962. National Center for Health Statistics. Vital Health Stat 11(35). 1970. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_035acc.pdf](http://www.cdc.gov/nchs/data/series/sr_11/sr11_035acc.pdf).

<sup>3</sup>Roberts J. Weight by height and age of adults: United States, 1960–1962. National Center for Health Statistics. Vital Health Stat 11(14). 1966. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_014acc.pdf](http://www.cdc.gov/nchs/data/series/sr_11/sr11_014acc.pdf).

<sup>4</sup>Malina RM, Hamill PVV, Lemeshow S. Selected body measurements of children 6–11 years: United States. National Center for Health Statistics. Vital Health Stat 11(123). 1973. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_123acc.pdf](http://www.cdc.gov/nchs/data/series/sr_11/sr11_123acc.pdf).

<sup>5</sup>Hamill PVV, Johnston FE, Lemeshow S. Height and weight of youths 12–17 years: United States. National Center for Health Statistics. Vital Health Stat 11(124). 1973. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_124.pdf](http://www.cdc.gov/nchs/data/series/sr_11/sr11_124.pdf).

<sup>6</sup>Abraham S, Johnson CL, Najjar MF. Weight and height of adults 18–74 years of age: United States, 1971–74. National Center for Health Statistics. Vital Health Stat 11(211). 1979. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_211.pdf](http://www.cdc.gov/nchs/data/series/sr_11/sr11_211.pdf).

<sup>7</sup>Johnson CL, Fulwood R, Abraham S, Bryner JD. Basic data on anthropometric measurements and angular measurements of the hip and knee joints for selected age groups 1–74 years of age: United States, 1971–1975. National Center for Health Statistics. Vital Health Stat 11(219). 1981. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_219.pdf](http://www.cdc.gov/nchs/data/series/sr_11/sr11_219.pdf).

<sup>8</sup>Najjar MF, Rowland M. Anthropometric reference data and prevalence of overweight: United States, 1976–80. National Center for Health Statistics. Vital Health Stat 11(238). 1987. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_238.pdf](http://www.cdc.gov/nchs/data/series/sr_11/sr11_238.pdf).

<sup>9</sup>McDowell MA, Fryar CD, Ogden CL. Anthropometric reference data for children and adults: United States, 1988–1994. National Center for Health Statistics. Vital Health Stat 11(249). 2009. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_249.pdf](http://www.cdc.gov/nchs/data/series/sr_11/sr11_249.pdf).

<sup>10</sup>McDowell MA, Fryar CD, Hirsch R, Ogden CL. Anthropometric reference data for children and adults: U.S. population, 1999–2002. Advance data from vital and health statistics; no 361. Hyattsville, MD: National Center for Health Statistics. 2005. Available from: <http://www.cdc.gov/nchs/data/ad/ad361.pdf>.

<sup>11</sup>McDowell MA, Fryar CD, Ogden CL, Flegal KM. Anthropometric reference data for children and adults: United States, 2003–2006. National health statistics reports; no 10. Hyattsville, MD: National Center for Health Statistics. 2008. Available from: <http://www.cdc.gov/nchs/data/nhsr/nhsr010.pdf>.

<sup>12</sup>Fryar CD, Gu Q, Ogden CL. Anthropometric reference data for children and adults: United States, 2007–2010. National Center for Health Statistics. Vital Health Stat 11(252). 2012. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_252.pdf](http://www.cdc.gov/nchs/data/series/sr_11/sr11_252.pdf).

<sup>13</sup>Fryar CD, Gu Q, Ogden CL, Flegal KM. Anthropometric reference data for children and adults: United States, 2011–2014. National Center for Health Statistics. Vital Health Stat 3(39). 2016. Available from: [https://www.cdc.gov/nchs/data/series/sr\\_03/sr03\\_039.pdf](https://www.cdc.gov/nchs/data/series/sr_03/sr03_039.pdf).

<sup>14</sup>Body mass index (BMI) is calculated as: BMI = weight (kilograms) / height (meters<sup>2</sup>).

NOTE: Terminology for a particular measure may have changed across survey years.

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

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