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Mean Body Weight, Height, Waist Circumference, and Body Mass Index Among Adults: United States, 1999–2000 Through 2015–2016

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Abstract

Objectives—This report presents trends in mean weight, height, waist circumference, and body mass index (BMI) among adults in the United States from 1999–2000 through 2015–2016.

Methods—Data were obtained from physical examinations of a nationally representative sample of adults aged 20 and over in the National Health and Nutrition Examination Surveys during 1999–2016. The tables present means and standard errors of the mean for weight (n = 45,047), height (n = 46,481), waist circumference (n = 43,169), and BMI (n = 44,859) separately for men and women overall, by age group, and by race and Hispanic origin for each 2-year survey period. Changes in these body measures over time were evaluated using linear regression.

Results—Since 1999, mean weight, waist circumference, and BMI increased for all age groups, for non-Hispanic white and Mexican-American men and women, and for non-Hispanic black women. Among non-Hispanic black men, weight, waist circumference, and BMI increased until 2005–2006 and then remained level. No change in height was seen over time except for a decrease in crude estimates among all women, a decrease among men and women aged 40–59, and an increase in both crude and age-adjusted estimates of mean height for men followed by a decrease after 2003–2004. No significant trends were seen in any of the four body measures for non-Hispanic Asian men and women (data available only for 2011–2016).

Conclusions—Mean weight, waist circumference, and BMI in adults have increased over the past 18 years. Conversely, mean height did not change in many demographic subgroups and, in some groups, was lower in 2015–2016 than in 1999–2000.

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

Introduction

Since 1980, the prevalence of obesity among adults based on body mass index (BMI) has increased in the United States (1–4). This is in part due to a shift in the distribution of BMI in the entire population (5,6). This report presents updated trends (6) in mean body weight, height, waist circumference, and BMI for the U.S. adult population from 1999–2000 through 2015–2016 by sex, age, and race and Hispanic origin.

Methods

The National Health and Nutrition Examination Survey (NHANES) is conducted by the National Center for Health Statistics. Household interviews followed by health examinations, conducted in mobile examination centers (MECs), are used to collect NHANES data. The MECs are staffed by full-time personnel, including health technicians who conduct body measurements using standardized examination procedures.

Surveys were conducted on a periodic basis from 1960 through 1994. Beginning in 1999, NHANES became a continuous survey. The procedures followed to select the sample and conduct the interview and examination were similar to those for

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previous surveys (7). Public-use data from the continuous NHANES are released in 2-year cycles (8).

Sample description

NHANES is a complex, multistage probability sample of the civilian noninstitutionalized U.S. population. Non-Hispanic black and Mexican-American persons, among other groups, have been oversampled to obtain reliable estimates for these population subgroups. Beginning in 2007, all Hispanic persons were oversampled, and beginning in 2011, non-Hispanic Asian persons were included in the oversample.

Data were available for 47,233 examined sample persons aged 20 and over from nine NHANES 2-year cycles from 1999–2016. The overall examination response rates for adults aged 20 and over during 1999–2016 ranged from 73.0% to 54.8%. Age and race and Hispanic-origin categories used for this report were based on the survey sample domains that were recommended in the NHANES Analytic Guidelines (9). Adult's age was based on age at household screener. Participants with age at screener equal to 19 years but whose age at the MEC exam was 240 months or more (n = 100) were classified as adults aged 20 and over and included in the 47,233 examined sample persons in this report. Pregnant women (n = 1,428) were excluded from all analyses, except for height. Additionally, body measurement data were missing for weight (n = 758), height (n = 752), weight or height for BMI (n = 946), and waist circumference (n = 2,636). Missing data for each outcome was set to missing for a final sample size of 45,047 for body weight; 46,481 for height; 43,169 for waist circumference; and 44,859 for BMI. Technical Notes Tables I–IV show the unweighted sample size for each body measure by survey years, age group, and race and Hispanic origin separately for men and women aged 20 and over. Age was categorized into three groups: 20–39, 40–59, and 60 and over. Race and Hispanic-origin groups included those reporting as non-Hispanic white, non-Hispanic black, non-Hispanic Asian, all Hispanic, and Mexican American. Adults who reported another race (including multiple races) were included in total estimates but were not reported separately.

Body measurements

The anthropometry component methodology has remained consistent over time. Weight has been measured to the nearest 0.1 kilogram using a digital weight scale. Waist circumference measurements have been made to the nearest 0.1 centimeter using a tape measure at the uppermost lateral border of the hip crest (ilium) (10). Standing height has been measured with a wall-mounted digital stadiometer. Weight and standing height values were recorded automatically. Waist circumference measurement data were recorded using computer-assisted data entry, and all results were based on a single body measurement at examination. The NHANES Anthropometry Procedures Manual describes the protocol, equipment, quality control, and measurement procedures in detail (11). BMI was calculated as weight in kilograms divided by height in meters squared (kg/m^2).

Statistical analysis

NHANES examination sample weights were applied to adjust for oversampling of certain populations, noncoverage, and nonresponse (from screener to interview and from interview to examination) in order to calculate national estimates of the mean. Standard errors of the mean were estimated using sample weights and the Taylor Series Linearization method (12) in SUDAAN to incorporate the complex sample design. A relative standard error (RSE) greater than 30% is used to define estimates that are considered not statistically reliable. All of the RSEs for estimates in this report met the reliability criterion. All results are presented stratified by sex. Stratified estimates for men and women are presented overall and by age group, and age adjusted overall and by race and Hispanic origin subgroup to the 2000 projected U.S. Census population using the direct method and age groups 20–39, 40–59, and 60 and over. Estimates were not available until 2007–2008 for total Hispanic persons and 2011–2012 for non-Hispanic Asian persons. Therefore, tables show results from 2007–2008 through 2015–2016 for total Hispanic persons and from 2011–2012 through 2015–2016 for non-Hispanic Asian persons. Results were calculated for measurements in both English (inches [in] and pounds [lb]) and metric (centimeters [cm] and kilograms [kg]) units.

Statistical tests on both linear-only and linear-plus quadratic trends were modeled using SUDAAN PROC REGRESS. Overall trend tests were conducted on both crude and age-adjusted population totals. Significance was determined using the Satterthwaite adjusted F test (13) at the 0.05 level. Joinpoint software (using the modified Bayesian information criterion test and specifying a minimum of three data points per segment) was used to determine the change point in the trend line for those outcomes where the quadratic term was significant. Piecewise linear regression using SUDAAN PROC REGRESS was used to test the significance of the slope for each line segment and the significance of the difference between slopes for the two line segments.

Results

Weight

Estimates of mean body weight for adult men and women aged 20 and over from 1999–2000 through 2015–2016 are presented in Tables 1 and 2. A significant linear increase in body weight was seen over time for both men and women and for each race and Hispanic-origin and age subgroup, except for non-Hispanic black men, non-Hispanic Asian men and women (measured using data from 2011–2012 through 2015–2016 only), and Mexican-American women.

Among all men, mean age-adjusted body weight was 89.8 kg (197.9 lb) in 2015–2016, up from 85.9 kg (189.4 lb) in 1999–2000. Among all women, mean age-adjusted body weight was 77.4 kg (170.6 lb) in 2015–2016, up from 74.3 kg (163.8 lb) in 1999–2000. No

significant trend was seen in body weight for non-Hispanic Asian men or women. However, among non-Hispanic black men, mean age-adjusted body weight increased linearly from 1999–2000 (85.6 kg) until 2005–2006 (91.2 kg), but after 2005–2006 mean body weight did not change significantly. Among Mexican-American women, mean age-adjusted body weight did not change significantly from 1999–2000 (71.4 kg) through 2009–2010 (73.3 kg); however, after 2009–2010, mean body weight increased significantly over time to 78.0 kg in 2015–2016.

Height

Tables 3 and 4 show mean height for adult men and women aged 20 and over from 1999–2000 through 2015–2016. Among all men, age-adjusted estimates of mean height increased from 1999–2000 (175.6 cm [69.2 in]) until 2003–2004 (176.4 cm [69.4 in]) and then decreased until 2015–2016 (175.4 cm [69.1 in]). Both the increasing and decreasing trends were statistically significant. Changes in crude estimates followed the same trend. Among men, no significant trends were seen in height over time among those aged 20–39 and 60 and over, or in age-adjusted means among non-Hispanic white, non-Hispanic Asian, all Hispanic, and Mexican-American men. Mean height decreased significantly over time for men aged 40–59, from 176.3 cm in 1999–2000 to 175.8 cm in 2015–2016. Mean height also decreased significantly among non-Hispanic black men (176.0 cm to 175.5 cm) over this same time period.

Among all women, mean age-adjusted height was 162.1 cm (63.8 in) in 1999–2000 and 161.7 cm (63.7 in) in 2015–2016. No significant linear trends were seen over time in age-adjusted estimates of height overall, for any race and Hispanic-origin subgroup, or among women aged 20–39 or 60 and over. However, the overall crude estimate of mean height for all women decreased significantly from 162.1 cm in 1999–2000 to 161.5 cm in 2015–2016 and, for women aged 40–59, decreased from 162.8 cm to 162.1 cm over the same time period.

Waist circumference

Estimates of mean waist circumference for adult men and women aged 20 and over from 1999–2000 through 2015–2016 are presented in Tables 5 and 6. In 2015–2016, the age-adjusted mean waist circumference in men was 102.1 cm (40.2 in), up from 99.1 cm (39.0 in) in 1999–2000. Among women, the age-adjusted mean waist circumference was 98.0 cm (38.6 in) in 2015–2016, up from 92.2 cm (36.3 in) in 1999–2000. Overall, a consistent significant linear increase in waist circumference was seen over time for both men and women that was significant for all race and Hispanic-origin and age subgroups except non-Hispanic black men, all Hispanic men (measured from 2007–2008 through 2015–2016), and non-Hispanic Asian men and women (measured from 2011–2012 through 2015–2016). Similar to mean body weight, among non-Hispanic black men, mean waist circumference increased from 1999–2000 (95.3 cm) until 2005–2006 (99.2 cm) and did not change significantly after 2005–2006.

BMI

Estimates of mean BMI for adult men and women aged 20 and over from 1999–2000 through 2015–2016 are presented in Table 7. In 2015–2016, age-adjusted mean BMI was 29.1 in men and 29.6 in women, up from 27.8 in men and 28.2 in women during 1999–2000. Trends in BMI were similar to trends found for both waist circumference and body weight. A consistent significant linear increase in BMI was found over time for both men and women overall and for each race and Hispanic-origin and age subgroup except non-Hispanic black men and non-Hispanic Asian men and women. No significant changes in BMI were found over time among non-Hispanic Asian men and women (measured from 2011–2012 through 2015–2016 only). Among non-Hispanic black men, BMI increased from 27.5 in 1999–2000 to 28.9 in 2005–2006. After 2005–2006, BMI remained level.

Discussion and Conclusions

A previous report using NHANES data showed an overall increase in mean weight, height, and BMI from 1960–1962 through 1999–2002 (6). On average, both men and women gained more than 24 pounds between 1960 and 2002. During the same time, height increased approximately 1 inch. The current report provides updated data on trends in weight, height, waist circumference, and BMI from 1999–2000 through 2015–2016, showing an increase of over 8 pounds in men and 7 pounds in women over this time period and overall, no increase in height.

A strength of using NHANES to monitor weight and height in the U.S. population is the use of standardized measures over time. A limitation of NHANES is the smaller sample sizes for some subgroups, thus limiting potential subgroup analyses. Data from future cycles of NHANES will provide more data points to examine trends in the all Hispanic and non-Hispanic Asian populations.

In conclusion, mean weight, waist circumference, and BMI in adults have increased over the past 18 years. Conversely, mean height did not change in many demographic subgroups, and in some groups was lower in 2015–2016 than in 1999–2000.

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Table 1. Mean weight (kilograms) among men and women aged 20 and over, by survey years, age group, and race and Hispanic origin: United States, 1999–2016

Sex, age, and race and Hispanic origin	Survey years									*p* for linear trend
	1999–2000	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016	
Men	Mean (standard error)									
20 and over[1] (crude)	85.8 (0.7)	87.0 (0.5)	87.8 (0.5)	88.9 (0.8)	88.3 (0.7)	89.1 (0.6)	88.2 (0.7)	89.4 (0.6)	89.7 (0.9)	<0.001
20 and over[1,2] (age adjusted)	85.9 (0.7)	86.7 (0.5)	87.7 (0.5)	88.7 (0.8)	88.2 (0.7)	89.0 (0.6)	88.1 (0.6)	89.3 (0.6)	89.8 (0.9)	<0.001
Age group:										
20–39	84.3 (0.9)	85.3 (0.7)	86.4 (1.0)	87.1 (1.1)	86.1 (1.0)	87.6 (0.9)	86.5 (0.9)	88.2 (1.2)	89.3 (1.4)	<0.001
40–59	88.1 (1.2)	89.7 (0.7)	90.0 (0.9)	92.1 (1.1)	90.7 (0.9)	91.6 (1.1)	90.9 (1.0)	91.0 (0.8)	91.1 (0.9)	0.032
60 and over	85.2 (0.8)	84.5 (0.7)	86.2 (0.8)	86.2 (0.6)	88.0 (0.8)	87.2 (0.7)	86.4 (1.2)	88.6 (1.2)	88.3 (0.8)	<0.001
Race and Hispanic origin[2]:										
Non-Hispanic white	87.2 (0.8)	88.3 (0.6)	89.0 (0.6)	89.7 (0.7)	89.9 (0.6)	90.5 (0.6)	89.2 (0.8)	90.8 (0.9)	91.7 (1.1)	<0.001
Non-Hispanic black	85.6 (0.8)	86.6 (0.9)	89.1 (1.7)	91.2 (0.9)	89.4 (0.9)	91.2 (1.1)	90.0 (1.0)	90.4 (1.2)	89.7 (1.2)	0.002†
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	72.1 (0.7)	73.4 (0.6)	73.1 (0.6)	0.331
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	83.5 (1.1)	84.8 (1.1)	84.9 (0.8)	86.0 (1.4)	86.4 (0.9)	0.041
Mexican-American	80.7 (0.7)	80.5 (0.8)	81.7 (1.0)	81.4 (0.9)	83.5 (1.2)	84.2 (1.3)	85.9 (1.1)	87.1 (1.1)	86.4 (1.1)	<0.001
Women										
20 and over[1] (crude)	74.2 (0.8)	73.9 (0.6)	74.5 (0.7)	74.9 (0.8)	75.4 (0.6)	75.4 (0.4)	75.8 (0.6)	77.0 (0.6)	77.3 (0.8)	<0.001
20 and over[1,2] (age adjusted)	74.3 (0.8)	73.9 (0.6)	74.4 (0.8)	74.7 (0.8)	75.4 (0.6)	75.4 (0.4)	75.8 (0.6)	77.2 (0.6)	77.4 (0.8)	<0.001
Age group:										
20–39	73.4 (1.0)	72.1 (0.9)	72.8 (1.1)	72.8 (1.1)	75.6 (1.2)	74.5 (1.0)	74.9 (0.8)	76.8 (0.8)	76.0 (0.8)	<0.001
40–59	76.8 (1.3)	76.5 (1.1)	77.6 (1.1)	78.1 (1.2)	77.2 (0.8)	76.1 (0.7)	78.2 (0.8)	79.5 (1.2)	80.0 (1.4)	0.026
60 and over	71.6 (0.6)	72.7 (0.7)	72.1 (0.6)	72.6 (0.9)	72.3 (0.5)	75.6 (0.6)	73.7 (1.0)	74.0 (0.8)	75.5 (1.2)	<0.001
Race and Hispanic origin[2]:										
Non-Hispanic white	73.4 (1.0)	73.6 (0.6)	73.8 (0.9)	74.5 (0.9)	75.2 (1.0)	74.8 (0.5)	75.8 (0.8)	77.3 (0.8)	77.5 (1.0)	<0.001
Non-Hispanic black	84.3 (1.1)	81.3 (0.9)	84.0 (1.1)	83.5 (1.0)	83.9 (1.3)	85.9 (0.9)	86.2 (1.0)	86.2 (0.9)	84.4 (1.1)	0.007
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	59.8 (0.8)	59.4 (0.8)	60.1 (0.5)	0.751
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	72.9 (0.6)	72.6 (0.7)	73.7 (0.6)	75.5 (0.9)	76.6 (0.7)	<0.001
Mexican-American	71.4 (1.0)	71.4 (1.0)	73.8 (1.2)	72.9 (1.1)	72.9 (0.4)	73.3 (0.6)	74.9 (1.1)	77.1 (1.0)	78.0 (0.7)	<0.001‡

--- Data not available.
† Includes a significant quadratic term for 1999–2016. Mean weight increased from 1999–2000 through 2005–2006 ($p < 0.001$) and remained level until 2015–2016 ($p = 0.44$). Slopes for line segments are significantly different ($p < 0.001$).
‡ Includes a significant quadratic term for 1999–2016. Mean weight remained level from 1999–2000 through 2009–2010 ($p = 0.073$) and then increased until 2015–2016 ($p < 0.001$). Slopes for line segments are significantly different ($p = 0.004$).
[1]Includes other races not shown separately.
[2]Age adjusted to the projected 2000 U.S. census population using age groups 20–39, 40–59, and 60 and over.
[3]Includes Mexican-American persons.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

Table 2. Mean weight (pounds) among men and women aged 20 and over, by survey years, age group, and race and Hispanic origin: United States, 1999–2016

Sex, age, and race and Hispanic origin	Survey years								
	1999–2000	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016
Men	Mean (standard error)								
20 and over[1] (crude)	189.1 (1.5)	191.8 (1.1)	193.5 (1.1)	196.0 (1.7)	194.7 (1.4)	196.3 (1.4)	194.4 (1.4)	197.0 (1.2)	197.8 (1.9)
20 and over[1,2] (age adjusted)	189.4 (1.5)	191.2 (1.2)	193.3 (1.1)	195.7 (1.7)	194.6 (1.4)	196.2 (1.3)	194.3 (1.4)	197.0 (1.3)	197.9 (2.0)
Age group:									
20–39	185.8 (2.0)	188.1 (1.6)	190.4 (2.3)	192.1 (2.3)	189.9 (2.1)	193.1 (1.9)	190.7 (1.9)	194.4 (2.7)	196.9 (3.1)
40–59	194.3 (2.6)	197.7 (1.5)	198.4 (2.0)	203.0 (2.5)	199.9 (2.0)	202.0 (2.4)	200.4 (2.3)	200.7 (1.8)	200.9 (2.0)
60 and over	187.8 (1.7)	186.2 (1.5)	190.0 (1.7)	190.0 (1.4)	194.0 (1.8)	192.1 (1.5)	190.5 (2.5)	195.4 (2.7)	194.7 (1.9)
Race and Hispanic origin[2]:									
Non-Hispanic white	192.3 (1.7)	194.6 (1.3)	196.3 (1.3)	197.8 (1.6)	198.2 (1.3)	199.5 (1.4)	196.7 (1.8)	200.2 (2.0)	202.2 (2.4)
Non-Hispanic black	188.7 (1.7)	190.8 (1.9)	196.4 (3.8)	201.0 (1.9)	197.1 (2.0)	201.1 (2.4)	198.4 (2.1)	199.3 (2.6)	197.7 (2.6)
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	159.1 (1.6)	161.7 (1.4)	161.1 (1.3)
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	184.1 (2.4)	187.0 (2.4)	187.2 (1.8)	189.6 (3.1)	190.5 (1.9)
Mexican-American	177.9 (1.6)	177.5 (1.7)	180.1 (2.1)	179.3 (2.0)	184.0 (2.7)	185.6 (2.8)	189.5 (2.5)	191.9 (2.3)	190.4 (2.5)
Women									
20 and over[1] (crude)	163.6 (1.7)	162.9 (1.2)	164.2 (1.6)	165.1 (1.7)	166.1 (1.3)	166.2 (0.9)	167.1 (1.3)	169.8 (1.3)	170.5 (1.7)
20 and over[1,2] (age adjusted)	163.8 (1.7)	162.8 (1.3)	164.1 (1.7)	164.8 (1.7)	166.3 (1.4)	166.1 (1.0)	167.2 (1.3)	170.1 (1.4)	170.6 (1.7)
Age group:									
20–39	161.9 (2.1)	158.9 (2.1)	160.6 (2.4)	160.5 (2.4)	166.6 (2.7)	164.3 (2.1)	165.1 (1.8)	169.4 (1.7)	167.6 (1.9)
40–59	169.4 (2.9)	168.6 (2.4)	171.0 (2.5)	172.3 (2.7)	170.2 (1.8)	167.8 (1.5)	172.3 (1.7)	175.2 (2.7)	176.4 (3.0)
60 and over	157.9 (1.3)	160.3 (1.4)	159.0 (1.3)	160.2 (1.9)	159.5 (1.1)	166.6 (1.3)	162.5 (2.3)	163.1 (1.7)	166.5 (2.6)
Race and Hispanic origin[2]:									
Non-Hispanic white	161.9 (2.2)	162.2 (1.3)	162.6 (2.0)	164.1 (1.9)	165.8 (2.2)	165.0 (1.2)	167.1 (1.9)	170.4 (1.8)	170.9 (2.1)
Non-Hispanic black	185.9 (2.3)	179.3 (1.9)	185.1 (2.3)	184.1 (2.3)	185.0 (3.0)	189.5 (1.9)	190.0 (2.2)	190.0 (1.9)	186.1 (2.4)
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	131.8 (1.7)	131.0 (1.8)	132.4 (1.1)
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	160.7 (1.3)	160.1 (1.6)	162.4 (1.3)	166.3 (2.1)	169.0 (1.6)
Mexican-American	157.5 (2.2)	157.5 (2.1)	162.7 (2.7)	160.8 (2.3)	160.8 (0.9)	161.6 (1.4)	165.0 (2.4)	170.0 (2.2)	171.9 (1.5)

--- Data not available.
[1]Includes other races not shown separately.
[2]Age adjusted to the projected 2000 U.S. census population using age groups 20–39, 40–59, and 60 and over.
[3]Includes Mexican-American persons.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

Table 3. Mean height (centimeters) among men and women aged 20 and over, by survey years, age group, and race and Hispanic origin: United States, 1999–2016

Sex, age, and race and Hispanic origin	Survey years									*p* for linear trend
	1999–2000	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016	
Men	Mean (standard error)									
20 and over[1] (crude)	175.7 (0.2)	176.4 (0.2)	176.5 (0.2)	176.2 (0.2)	175.9 (0.3)	175.9 (0.3)	175.7 (0.3)	175.8 (0.3)	175.3 (0.3)	0.006†
20 and over[1,2] (age adjusted)	175.6 (0.2)	176.2 (0.2)	176.4 (0.2)	176.2 (0.2)	175.8 (0.3)	175.9 (0.3)	175.7 (0.3)	175.8 (0.3)	175.4 (0.3)	0.040‡
Age group:										
20–39	176.2 (0.2)	177.1 (0.3)	177.0 (0.4)	176.9 (0.2)	176.3 (0.4)	176.4 (0.4)	176.6 (0.3)	176.3 (0.3)	176.1 (0.3)	0.096
40–59	176.3 (0.4)	176.8 (0.4)	177.1 (0.3)	176.7 (0.4)	176.6 (0.4)	176.8 (0.4)	175.8 (0.6)	176.4 (0.5)	175.8 (0.4)	0.047
60 and over	173.5 (0.3)	173.6 (0.4)	174.3 (0.3)	173.9 (0.2)	173.8 (0.3)	173.6 (0.3)	174.0 (0.4)	174.2 (0.4)	173.4 (0.5)	0.965
Race and Hispanic origin[2]:										
Non-Hispanic white	177.0 (0.3)	177.3 (0.2)	177.8 (0.3)	177.4 (0.2)	177.5 (0.3)	177.5 (0.3)	177.2 (0.4)	177.2 (0.4)	177.4 (0.3)	0.885
Non-Hispanic black	176.0 (0.3)	177.1 (0.2)	176.6 (0.3)	177.2 (0.3)	176.5 (0.2)	176.0 (0.4)	176.0 (0.4)	176.6 (0.4)	175.5 (0.3)	0.004
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	170.0 (0.2)	169.9 (0.7)	169.7 (0.4)	0.329
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	169.4 (0.4)	170.4 (0.5)	170.4 (0.4)	171.0 (0.4)	169.5 (0.5)	0.779
Mexican-American	169.0 (0.3)	169.8 (0.4)	170.1 (0.5)	169.5 (0.4)	169.0 (0.4)	169.7 (0.5)	170.1 (0.4)	170.7 (0.4)	168.8 (0.4)	0.113
Women										
20 and over[1] (crude)	162.1 (0.3)	162.2 (0.2)	162.3 (0.3)	162.1 (0.2)	162.2 (0.2)	161.9 (0.2)	162.0 (0.3)	161.6 (0.3)	161.5 (0.3)	0.010
20 and over[1,2] (age adjusted)	162.1 (0.2)	162.1 (0.2)	162.4 (0.3)	162.1 (0.2)	162.3 (0.2)	162.0 (0.2)	162.1 (0.4)	161.8 (0.3)	161.7 (0.3)	0.092
Age group:										
20–39	163.2 (0.3)	162.8 (0.3)	163.4 (0.3)	163.0 (0.3)	163.4 (0.3)	163.1 (0.3)	163.5 (0.4)	162.8 (0.3)	162.7 (0.4)	0.407
40–59	162.8 (0.4)	163.1 (0.2)	162.7 (0.4)	162.7 (0.3)	162.8 (0.3)	162.5 (0.2)	162.4 (0.5)	162.4 (0.4)	162.1 (0.4)	0.041
60 and over	159.0 (0.2)	159.4 (0.2)	159.9 (0.4)	159.6 (0.3)	159.7 (0.3)	159.6 (0.3)	159.5 (0.4)	159.0 (0.3)	159.3 (0.5)	0.588
Race and Hispanic origin[2]:										
Non-Hispanic white	163.1 (0.2)	163.1 (0.2)	163.3 (0.2)	163.2 (0.1)	163.5 (0.2)	163.3 (0.2)	163.6 (0.4)	163.0 (0.3)	163.3 (0.3)	0.788
Non-Hispanic black	163.0 (0.3)	162.8 (0.3)	162.7 (0.4)	162.5 (0.3)	163.2 (0.4)	162.6 (0.3)	163.0 (0.4)	162.8 (0.4)	162.6 (0.3)	0.827
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	157.2 (0.3)	156.6 (0.5)	156.2 (0.5)	0.102
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	156.7 (0.4)	156.7 (0.3)	156.7 (0.3)	157.6 (0.3)	156.7 (0.3)	0.592
Mexican-American	156.8 (0.3)	156.9 (0.5)	157.3 (0.3)	157.2 (0.3)	156.2 (0.3)	156.2 (0.3)	156.3 (0.4)	157.0 (0.3)	156.1 (0.4)	0.159

--- Data not available.
† Includes a significant quadratic term for 1999–2016. Mean height increased from 1999–2000 through 2003–2004 ($p = 0.017$) and then decreased until 2015–2016 ($p < 0.001$). Slopes for line segments are significantly different ($p = 0.003$).
‡ Includes a significant quadratic term for 1999–2016. Mean height increased from 1999–2000 through 2003–2004 ($p = 0.009$) and then decreased until 2015–2016 ($p = 0.002$). Slopes for line segments are significantly different ($p = 0.003$).
[1]Includes other races not shown separately.
[2]Age adjusted to the projected 2000 U.S. census population using age groups 20–39, 40–59, and 60 and over.
[3]Includes Mexican-American persons.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

Table 4. Mean height (inches) among men and women aged 20 and over, by survey years, age group, and race and Hispanic origin: United States, 1999–2016

Sex, age, and race and Hispanic origin	Survey years								
	1999–2000	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016
Men	Mean (standard error)								
20 and over[1] (crude)	69.2 (0.1)	69.4 (0.1)	69.5 (0.1)	69.4 (0.1)	69.2 (0.1)	69.3 (0.1)	69.2 (0.1)	69.2 (0.1)	69.0 (0.1)
20 and over[1,2] (age adjusted)	69.2 (0.1)	69.4 (0.1)	69.4 (0.1)	69.4 (0.1)	69.2 (0.1)	69.3 (0.1)	69.2 (0.1)	69.2 (0.1)	69.1 (0.1)
Age group:									
20–39	69.4 (0.1)	69.7 (0.1)	69.7 (0.2)	69.7 (0.1)	69.4 (0.2)	69.4 (0.2)	69.5 (0.1)	69.4 (0.1)	69.3 (0.1)
40–59	69.4 (0.2)	69.6 (0.1)	69.7 (0.1)	69.6 (0.2)	69.5 (0.2)	69.6 (0.2)	69.2 (0.2)	69.4 (0.2)	69.2 (0.2)
60 and over	68.3 (0.1)	68.4 (0.1)	68.6 (0.1)	68.5 (0.1)	68.4 (0.1)	68.4 (0.1)	68.5 (0.2)	68.6 (0.2)	68.3 (0.2)
Race and Hispanic origin[2]:									
Non-Hispanic white	69.7 (0.1)	69.8 (0.1)	70.0 (0.1)	69.8 (0.1)	69.9 (0.1)	69.9 (0.1)	69.8 (0.1)	69.8 (0.2)	69.8 (0.1)
Non-Hispanic black	69.3 (0.1)	69.7 (0.1)	69.5 (0.1)	69.8 (0.1)	69.5 (0.1)	69.3 (0.2)	69.3 (0.1)	69.5 (0.2)	69.1 (0.1)
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	66.9 (0.1)	66.9 (0.3)	66.8 (0.1)
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	66.7 (0.2)	67.1 (0.2)	67.1 (0.1)	67.3 (0.2)	66.7 (0.2)
Mexican-American	66.5 (0.1)	66.9 (0.2)	67.0 (0.2)	66.8 (0.2)	66.5 (0.2)	66.8 (0.2)	67.0 (0.2)	67.2 (0.2)	66.5 (0.2)
Women									
20 and over[1] (crude)	63.8 (0.1)	63.9 (0.1)	63.9 (0.1)	63.8 (0.1)	63.9 (0.1)	63.7 (0.1)	63.8 (0.1)	63.6 (0.1)	63.6 (0.1)
20 and over[1,2] (age adjusted)	63.8 (0.1)	63.8 (0.1)	63.9 (0.1)	63.8 (0.1)	63.9 (0.1)	63.8 (0.1)	63.8 (0.1)	63.7 (0.1)	63.7 (0.1)
Age group:									
20–39	64.3 (0.1)	64.1 (0.1)	64.3 (0.1)	64.2 (0.1)	64.3 (0.1)	64.2 (0.1)	64.4 (0.2)	64.1 (0.1)	64.0 (0.2)
40–59	64.1 (0.2)	64.2 (0.1)	64.1 (0.2)	64.0 (0.1)	64.1 (0.1)	64.0 (0.1)	63.9 (0.2)	63.9 (0.1)	63.8 (0.2)
60 and over	62.6 (0.1)	62.8 (0.1)	63.0 (0.2)	62.8 (0.1)	62.9 (0.1)	62.8 (0.1)	62.8 (0.2)	62.6 (0.1)	62.7 (0.2)
Race and Hispanic origin[2]:									
Non-Hispanic white	64.2 (0.1)	64.2 (0.1)	64.3 (0.1)	64.3 (0.1)	64.4 (0.1)	64.3 (0.1)	64.4 (0.2)	64.2 (0.1)	64.3 (0.1)
Non-Hispanic black	64.2 (0.1)	64.1 (0.1)	64.1 (0.2)	64.0 (0.1)	64.3 (0.1)	64.0 (0.1)	64.2 (0.1)	64.1 (0.2)	64.0 (0.1)
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	61.9 (0.1)	61.6 (0.2)	61.5 (0.2)
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	61.7 (0.1)	61.7 (0.1)	61.7 (0.1)	62.0 (0.1)	61.7 (0.1)
Mexican-American	61.7 (0.1)	61.8 (0.2)	61.9 (0.1)	61.9 (0.1)	61.5 (0.1)	61.5 (0.1)	61.5 (0.2)	61.8 (0.1)	61.5 (0.2)

--- Data not available.
[1]Includes other races not shown separately.
[2]Age adjusted to the projected 2000 U.S. census population using age groups 20–39, 40–59, and 60 and over.
[3]Includes Mexican-American persons.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

Table 5. Mean waist circumference (centimeters) among men and women aged 20 and over, by survey years, age group, and race and Hispanic origin: United States, 1999–2016

Sex, age, and race and Hispanic origin	Survey years									*p* for linear trend
	1999–2000	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016	
Men	Mean (standard error)									
20 and over[1] (crude)	98.6 (0.6)	99.2 (0.4)	100.4 (0.4)	101.2 (0.8)	100.8 (0.5)	100.9 (0.6)	101.1 (0.7)	101.8 (0.4)	102.3 (0.8)	<0.001
20 and over[1,2] (age adjusted)	99.1 (0.6)	99.4 (0.4)	100.5 (0.3)	101.3 (0.6)	100.8 (0.5)	100.8 (0.5)	101.0 (0.6)	101.6 (0.4)	102.1 (0.8)	<0.001
Age group:										
20–39	94.2 (0.7)	94.8 (0.6)	95.8 (0.6)	96.3 (0.9)	95.6 (0.7)	96.0 (0.7)	95.8 (0.9)	97.0 (1.1)	98.2 (1.1)	0.002
40–59	101.2 (1.0)	101.5 (0.5)	102.6 (0.7)	104.0 (0.9)	102.9 (0.7)	103.0 (0.8)	103.8 (0.7)	103.4 (0.5)	103.5 (0.9)	0.012
60 and over	104.1 (0.6)	104.0 (0.5)	105.3 (0.6)	105.5 (0.5)	106.5 (0.6)	105.5 (0.6)	105.4 (0.9)	106.9 (0.9)	106.6 (0.7)	0.001
Race and Hispanic origin[2]:										
Non-Hispanic white	99.9 (0.6)	100.6 (0.5)	101.5 (0.4)	101.9 (0.6)	101.8 (0.5)	101.7 (0.6)	101.6 (0.7)	102.7 (0.6)	103.1 (0.9)	<0.001
Non-Hispanic black	95.3 (0.5)	95.7 (0.6)	98.1 (1.1)	99.2 (0.7)	98.1 (0.7)	98.9 (0.7)	99.3 (0.7)	98.5 (0.9)	99.2 (1.1)	<0.001†
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	90.1 (0.6)	91.1 (0.5)	91.5 (0.6)	0.090
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	100.7 (0.9)	100.9 (0.7)	101.1 (0.7)	101.7 (1.1)	102.5 (0.7)	0.063
Mexican-American	98.5 (0.6)	97.7 (0.5)	99.1 (0.8)	98.9 (0.9)	101.1 (1.0)	100.8 (0.8)	102.2 (1.1)	102.9 (0.9)	102.7 (0.8)	<0.001
Women										
20 and over[1] (crude)	92.2 (0.9)	92.7 (0.5)	94.2 (0.5)	94.0 (0.7)	95.0 (0.5)	95.4 (0.4)	96.3 (0.6)	97.4 (0.5)	98.4 (0.7)	<0.001
20 and over[1,2] (age adjusted)	92.2 (0.9)	92.7 (0.4)	94.0 (0.6)	93.6 (0.7)	94.8 (0.5)	95.1 (0.4)	96.0 (0.5)	97.1 (0.6)	98.0 (0.7)	<0.001
Age group:										
20–39	88.5 (1.0)	88.7 (0.9)	90.5 (0.9)	89.5 (0.8)	92.1 (1.0)	91.8 (0.9)	92.6 (0.9)	94.3 (0.7)	94.2 (0.9)	<0.001
40–59	94.0 (1.3)	94.0 (0.9)	95.9 (0.6)	96.0 (1.1)	96.1 (0.7)	95.8 (0.5)	97.9 (0.6)	98.9 (1.0)	100.0 (1.1)	<0.001
60 and over	95.8 (0.7)	97.3 (0.4)	97.1 (0.5)	96.8 (0.7)	97.5 (0.5)	99.7 (0.5)	98.8 (1.0)	99.2 (0.7)	101.3 (1.0)	<0.001
Race and Hispanic origin[2]:										
Non-Hispanic white	91.2 (1.1)	91.9 (0.5)	93.2 (0.8)	93.0 (0.8)	94.2 (0.9)	94.4 (0.6)	95.7 (0.7)	96.7 (0.6)	97.6 (0.8)	<0.001
Non-Hispanic black	98.5 (0.9)	97.0 (1.1)	100.1 (0.9)	98.7 (0.6)	100.1 (1.0)	101.1 (1.0)	102.0 (0.6)	102.7 (0.7)	102.0 (1.2)	<0.001
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	84.9 (0.7)	85.8 (0.8)	85.6 (0.6)	0.423
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	96.2 (0.6)	96.4 (0.7)	97.2 (0.8)	98.3 (1.1)	100.0 (0.6)	<0.001
Mexican-American	93.3 (1.2)	94.5 (0.9)	97.1 (1.0)	96.0 (0.5)	96.9 (0.5)	97.8 (0.6)	99.0 (1.1)	99.9 (1.1)	101.6 (0.5)	<0.001

--- Data not available.
† Includes a significant quadratic term for 1999–2016. Mean waist circumference increased from 1999–2000 through 2005–2006 ($p < 0.001$) and remained level until 2015–2016 ($p = 0.948$). Slopes for line segments are significantly different ($p = 0.004$).
[1]Includes other races not shown separately.
[2]Age adjusted to the projected 2000 U.S. census population using age groups 20–39, 40–59, and 60 and over.
[3]Includes Mexican-American persons.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

Table 6. Mean waist circumference (inches) among men and women aged 20 and over, by survey years, age group, and race and Hispanic origin: United States, 1999–2016

Sex, age, and race and Hispanic origin	Survey years								
	1999–2000	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016
Men	Mean (standard error)								
20 and over[1] (crude)	38.8 (0.2)	39.1 (0.1)	39.5 (0.1)	39.9 (0.3)	39.7 (0.2)	39.7 (0.2)	39.8 (0.3)	40.1 (0.1)	40.3 (0.3)
20 and over[1,2] (age adjusted)	39.0 (0.2)	39.1 (0.2)	39.6 (0.1)	39.9 (0.2)	39.7 (0.2)	39.7 (0.2)	39.8 (0.2)	40.0 (0.2)	40.2 (0.3)
Age group:									
20–39	37.1 (0.3)	37.3 (0.2)	37.7 (0.2)	37.9 (0.3)	37.6 (0.3)	37.8 (0.3)	37.7 (0.4)	38.2 (0.4)	38.7 (0.4)
40–59	39.8 (0.4)	40.0 (0.2)	40.4 (0.3)	41.0 (0.4)	40.5 (0.3)	40.6 (0.3)	40.9 (0.3)	40.7 (0.2)	40.7 (0.3)
60 and over	41.0 (0.2)	41.0 (0.2)	41.4 (0.2)	41.5 (0.2)	41.9 (0.2)	41.5 (0.2)	41.5 (0.4)	42.1 (0.4)	42.0 (0.3)
Race and Hispanic origin[2]:									
Non-Hispanic white	39.3 (0.3)	39.6 (0.2)	39.9 (0.2)	40.1 (0.2)	40.1 (0.2)	40.0 (0.3)	40.0 (0.3)	40.4 (0.3)	40.6 (0.4)
Non-Hispanic black	37.5 (0.2)	37.7 (0.3)	38.6 (0.4)	39.1 (0.3)	38.6 (0.3)	38.9 (0.3)	39.1 (0.3)	38.8 (0.4)	39.1 (0.4)
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	35.5 (0.2)	35.9 (0.2)	36.0 (0.2)
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	39.6 (0.3)	39.7 (0.3)	39.8 (0.3)	40.0 (0.5)	40.3 (0.3)
Mexican-American	38.8 (0.2)	38.5 (0.2)	39.0 0.3	38.9 (0.4)	39.8 (0.4)	39.7 (0.3)	40.2 (0.4)	40.5 (0.3)	40.4 (0.3)
Women									
20 and over[1] (crude)	36.3 (0.4)	36.5 (0.2)	37.1 (0.2)	37.0 (0.3)	37.4 (0.2)	37.6 (0.2)	37.9 (0.2)	38.3 (0.2)	38.7 (0.3)
20 and over[1,2] (age adjusted)	36.3 (0.3)	36.5 (0.2)	37.0 (0.2)	36.9 (0.3)	37.3 (0.2)	37.5 (0.2)	37.8 (0.2)	38.2 (0.2)	38.6 (0.3)
Age group:									
20–39	34.8 (0.4)	34.9 (0.4)	35.6 (0.4)	35.2 (0.3)	36.3 (0.4)	36.1 (0.4)	36.5 (0.4)	37.1 (0.3)	37.1 (0.4)
40–59	37.0 (0.5)	37.0 (0.4)	37.8 (0.3)	37.8 (0.4)	37.8 (0.3)	37.7 (0.2)	38.6 (0.2)	38.9 (0.4)	39.4 (0.4)
60 and over	37.7 (0.3)	38.3 (0.1)	38.2 (0.2)	38.1 (0.3)	38.4 (0.2)	39.2 (0.2)	38.9 (0.4)	39.1 (0.3)	39.9 (0.4)
Race and Hispanic origin[2]:									
Non-Hispanic white	35.9 (0.4)	36.2 (0.2)	36.7 (0.3)	36.6 (0.3)	37.1 (0.4)	37.2 (0.2)	37.7 (0.3)	38.1 (0.2)	38.4 (0.3)
Non-Hispanic black	38.8 (0.4)	38.2 (0.4)	39.4 (0.3)	38.9 (0.2)	39.4 (0.4)	39.8 (0.4)	40.1 (0.3)	40.4 (0.3)	40.2 (0.5)
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	33.4 (0.3)	33.8 (0.3)	33.7 (0.2)
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	37.9 (0.3)	38.0 (0.3)	38.3 (0.3)	38.7 (0.4)	39.4 (0.2)
Mexican-American	36.7 (0.5)	37.2 (0.4)	38.2 (0.4)	37.8 (0.2)	38.2 (0.2)	38.5 (0.2)	39.0 (0.4)	39.3 (0.4)	40.0 (0.2)

--- Data not available.
[1]Includes other races not shown separately.
[2]Age adjusted to the projected 2000 U.S. census population using age groups 20–39, 40–59, and 60 and over.
[3]Includes Mexican-American persons.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

Table 7. Mean body mass index among men and women aged 20 and over, by survey years, age group, and race and Hispanic origin: United States, 1999–2016

Sex, age, and race and Hispanic origin	Survey years									*p* for linear trend
	1999–2000	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016	
Men	Mean (standard error)									
20 and over[1] (crude)	27.7 (0.2)	27.9 (0.2)	28.1 (0.1)	28.6 (0.3)	28.5 (0.2)	28.7 (0.2)	28.5 (0.2)	28.8 (0.2)	29.1 (0.3)	<0.001
20 and over[1,2] (age adjusted)	27.8 (0.2)	27.9 (0.2)	28.1 (0.1)	28.5 (0.2)	28.5 (0.2)	28.7 (0.2)	28.5 (0.2)	28.8 (0.2)	29.1 (0.3)	<0.001
Age group:										
20–39	27.0 (0.3)	27.1 (0.2)	27.5 (0.3)	27.8 (0.3)	27.6 (0.2)	28.1 (0.3)	27.7 (0.3)	28.3 (0.4)	28.7 (0.4)	<0.001
40–59	28.3 (0.4)	28.7 (0.3)	28.7 (0.3)	29.4 (0.3)	29.0 (0.2)	29.3 (0.3)	29.4 (0.3)	29.2 (0.3)	29.4 (0.3)	0.005
60 and over	28.2 (0.2)	28.1 (0.2)	28.3 (0.2)	28.4 (0.2)	29.1 (0.2)	28.8 (0.3)	28.5 (0.4)	29.1 (0.4)	29.2 (0.2)	<0.001
Race and Hispanic origin[2]:										
Non-Hispanic white	27.8 (0.3)	28.1 (0.2)	28.1 (0.2)	28.5 (0.2)	28.5 (0.2)	28.7 (0.2)	28.4 (0.2)	28.9 (0.2)	29.1 (0.3)	<0.001
Non-Hispanic black	27.5 (0.2)	27.6 (0.3)	28.5 (0.5)	28.9 (0.3)	28.7 (0.3)	29.3 (0.3)	28.9 (0.3)	28.9 (0.3)	29.0 (0.4)	<0.001†
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	24.9 (0.2)	25.4 (0.2)	25.3 (0.1)	0.187
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	29.0 (0.4)	29.1 (0.3)	29.2 (0.2)	29.3 (0.4)	30.0 (0.3)	0.033
Mexican-American	28.2 (0.2)	27.8 (0.3)	28.2 (0.3)	28.2 (0.3)	29.1 (0.4)	29.2 (0.3)	29.6 (0.3)	29.8 (0.3)	30.2 (0.4)	<0.001
Women										
20 and over[1] (crude)	28.2 (0.3)	28.1 (0.2)	28.3 (0.3)	28.5 (0.3)	28.6 (0.2)	28.7 (0.1)	28.9 (0.2)	29.5 (0.3)	29.6 (0.3)	<0.001
20 and over[1,2] (age adjusted)	28.2 (0.3)	28.1 (0.2)	28.2 (0.3)	28.4 (0.3)	28.6 (0.2)	28.7 (0.1)	28.8 (0.2)	29.5 (0.3)	29.6 (0.3)	<0.001
Age group:										
20–39	27.5 (0.3)	27.2 (0.3)	27.3 (0.4)	27.3 (0.4)	28.3 (0.4)	28.0 (0.3)	28.0 (0.3)	28.9 (0.3)	28.7 (0.4)	<0.001
40–59	29.0 (0.5)	28.7 (0.4)	29.3 (0.4)	29.5 (0.5)	29.1 (0.3)	28.8 (0.2)	29.7 (0.3)	30.1 (0.4)	30.4 (0.5)	0.004
60 and over	28.3 (0.2)	28.6 (0.3)	28.1 (0.2)	28.5 (0.3)	28.3 (0.2)	29.6 (0.3)	28.9 (0.4)	29.2 (0.2)	29.8 (0.4)	<0.001
Race and Hispanic origin[2]:										
Non-Hispanic white	27.6 (0.4)	27.6 (0.2)	27.6 (0.4)	27.9 (0.3)	28.1 (0.4)	28.0 (0.2)	28.3 (0.3)	29.1 (0.3)	29.1 (0.3)	<0.001
Non-Hispanic black	31.6 (0.4)	30.6 (0.4)	31.7 (0.4)	31.6 (0.4)	31.4 (0.4)	32.4 (0.4)	32.4 (0.3)	32.5 (0.4)	31.9 (0.4)	0.005
Non-Hispanic Asian	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	24.2 (0.3)	24.3 (0.3)	24.6 (0.2)	0.231
Hispanic[3]	--- ---	--- ---	--- ---	--- ---	29.7 (0.3)	29.5 (0.2)	30.0 (0.3)	30.3 (0.4)	31.2 (0.3)	<0.001
Mexican-American	29.0 (0.4)	29.1 (0.5)	29.8 (0.5)	29.5 (0.4)	29.9 (0.3)	29.9 (0.2)	30.6 (0.5)	31.1 (0.4)	31.9 (0.4)	<0.001

--- Data not available.
† Includes a significant quadratic term for 1999–2016. Mean body mass index increased from 1999–2000 through 2005–2006 ($p < 0.001$) and remained level until 2015–2016 ($p = 0.867$). Slopes for line segments are significantly different ($p < 0.004$).
[1]Includes other races not shown separately.
[2]Age adjusted to the projected 2000 U.S. census population using age groups 20–39, 40–59, and 60 and over.
[3]Includes Mexican-American persons.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

Technical Notes

Table I. Unweighted sample size for mean weight among men and women aged 20 and over, by survey years, age group, and race and Hispanic origin: United States, 1999–2016

Sex, age, and race and Hispanic origin	Survey years								
	1999–2000	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016
Men	Sample size								
20 and over[1]	2,053	2,270	2,252	2,245	2,756	2,903	2,597	2,649	2,591
Age group:									
20–39	670	755	763	797	897	953	947	913	884
40–59	597	777	650	710	881	986	827	899	835
60 and over	786	738	839	738	978	964	823	837	872
Race and Hispanic origin:									
Non-Hispanic white	949	1,189	1,193	1,148	1,339	1,402	966	1,136	892
Non-Hispanic black	377	438	434	510	555	541	665	559	533
Non-Hispanic Asian	---	---	---	---	---	---	368	300	323
Hispanic[2]	---	---	---	---	740	804	516	574	742
Mexican-American	542	489	461	445	462	532	267	362	426
Women									
20 and over[1]	2,092	2,248	2,208	2,135	2,809	3,042	2,606	2,831	2,760
Age group:									
20–39	655	741	668	714	881	1,014	871	909	907
40–59	655	725	663	718	910	1,019	902	1,000	951
60 and over	782	782	877	703	1,018	1,009	833	922	902
Race and Hispanic origin:									
Non-Hispanic white	892	1,179	1,183	1,054	1,283	1,448	941	1,218	863
Non-Hispanic black	425	445	448	516	592	539	706	562	597
Non-Hispanic Asian	---	---	---	---	---	---	370	323	317
Hispanic[2]	---	---	---	---	829	882	523	647	894
Mexican-American	574	455	416	403	486	548	237	377	498

--- Data not available.
[1]Includes other races not shown separately.
[2]Includes Mexican-American persons.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

Table II. Unweighted sample size for mean height among men and women aged 20 and over, by survey years, age group, and race and Hispanic origin: United States, 1999–2016

Sex, age, and race and Hispanic origin	Survey years								
	1999–2000	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016
Men	Sample size								
20 and over[1]	2,047	2,303	2,242	2,248	2,753	2,902	2,596	2,646	2,599
Age group:									
20–39	670	780	761	797	897	954	948	913	883
40–59	595	790	649	711	883	989	827	897	836
60 and over	782	733	832	740	973	959	821	836	880
Race and Hispanic origin:									
Non-Hispanic white	947	1,191	1,185	1,148	1,337	1,404	965	1,132	898
Non-Hispanic black	375	453	433	513	554	539	665	559	532
Non-Hispanic Asian	---	---	---	---	---	---	368	301	323
Hispanic[2]	---	---	---	---	740	804	516	574	745
Mexican-American	540	503	460	445	461	532	266	362	429
Women									
20 and over[1]	2,345	2,562	2,421	2,452	2,869	3,109	2,663	2,896	2,828
Age group:									
20–39	905	1,057	884	1,035	936	1,080	925	972	972
40–59	660	743	666	722	912	1,021	906	1,005	955
60 and over	780	762	871	695	1,021	1,008	832	919	901
Race and Hispanic origin:									
Non-Hispanic white	1,004	1,325	1,287	1,195	1,294	1,471	960	1,241	879
Non-Hispanic black	453	496	483	558	606	551	722	584	612
Non-Hispanic Asian	---	---	---	---	---	---	380	330	326
Hispanic[2]	---	---	---	---	860	906	534	656	917
Mexican-American	650	530	473	505	508	568	244	379	511

--- Data not available.
[1]Includes other races not shown separately.
[2]Includes Mexican-American persons.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

Table III. Unweighted sample size for mean waist circumference among men and women aged 20 and over, by survey years, age group, and race and Hispanic origin: United States, 1999–2016

Sex, age, and race and Hispanic origin	Survey years								
	1999–2000	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016
Men	Sample size								
20 and over[1]	2,012	2,246	2,164	2,154	2,640	2,777	2,484	2,543	2,479
Age group:									
20–39	663	750	737	769	863	906	919	893	856
40–59	584	774	633	681	855	958	798	876	804
60 and over	765	722	794	704	922	913	767	774	819
Race and Hispanic origin:									
Non-Hispanic white	934	1,172	1,143	1,101	1,277	1,349	928	1,085	858
Non-Hispanic black	363	435	417	485	533	502	632	533	506
Non-Hispanic Asian	---	---	---	---	---	---	350	289	304
Hispanic[2]	---	---	---	---	714	779	494	558	717
Mexican-American	533	485	447	431	445	515	256	349	413
Women									
20 and over[1]	2,029	2,224	2,104	2,043	2,686	2,872	2,449	2,679	2,584
Age group:									
20–39	632	737	649	692	848	967	833	876	860
40–59	643	722	644	705	884	979	862	960	904
60 and over	754	765	811	646	954	926	754	843	820
Race and Hispanic origin:									
Non-Hispanic white	865	1,172	1,123	1,008	1,219	1,384	883	1,151	818
Non-Hispanic black	405	434	424	487	571	478	656	525	547
Non-Hispanic Asian	---	---	---	---	---	---	348	306	286
Hispanic[2]	---	---	---	---	796	848	500	619	852
Mexican-American	563	448	403	389	469	531	232	356	471

--- Data not available.
[1]Includes other races not shown separately.
[2]Includes Mexican-American persons.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

Table IV. Unweighted sample size for mean body mass index among men and women aged 20 and over, by survey years, age group, and race and Hispanic origin: United States, 1999–2016

Sex, age, and race and Hispanic origin	Survey years								
	1999–2000	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016
Men	Sample size								
20 and over[1]	2,047	2,224	2,242	2,240	2,747	2,896	2,591	2,642	2,590
Age group:									
20–39	670	755	761	796	897	953	947	913	883
40–59	595	773	649	709	881	986	826	897	835
60 and over	782	696	832	735	969	957	818	832	872
Race and Hispanic origin:									
Non-Hispanic white	947	1,158	1,185	1,145	1,333	1,398	963	1,131	892
Non-Hispanic black	375	436	433	509	553	539	663	557	532
Non-Hispanic Asian	---	---	---	---	---	---	368	300	323
Hispanic[2]	---	---	---	---	739	804	515	574	742
Mexican-American	540	482	460	444	461	532	266	362	426
Women									
20 and over[1]	2,085	2,199	2,201	2,125	2,808	3,040	2,600	2,825	2,757
Age group:									
20–39	653	740	668	713	881	1,014	871	909	907
40–59	653	721	662	718	910	1,019	901	999	950
60 and over	779	738	871	694	1,017	1,007	828	917	900
Race and Hispanic origin:									
Non-Hispanic white	888	1,146	1,177	1,049	1,283	1,448	938	1,215	861
Non-Hispanic black	424	439	448	513	591	538	703	562	596
Non-Hispanic Asian	---	---	---	---	---	---	370	323	317
Hispanic[2]	---	---	---	---	829	881	523	644	894
Mexican-American	572	450	415	402	486	547	237	375	498

--- Data not available.
[1]Includes other races not shown separately.
[2]Includes Mexican-American persons.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

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