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Anthropometric Reference Data for Children and Adults: United States, 2003–2006

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Abstract

Objective—This report presents national anthropometric reference data for all ages of the U.S. population in 2003–2006, adding to results published previously from 1960–2002.

Methods—Data are from the National Health and Nutrition Examination Survey (NHANES), a complex, stratified, and multistage probability sample of the civilian, noninstitutionalized U.S. population. Anthropometry measurements were obtained from 19,593 survey participants. The anthropometric measures included weight, height, recumbent length, circumferences, limb lengths, and skinfold thickness measurements.

Results—The tables in this report include weighted population means, standard errors of the means, and selected percentiles of body measurement values. Because measurements varied by sex and age (as well as race and ethnicity in adults), results are reported by these subgroups.

Conclusions—These latest NHANES data add to the knowledge about trends in child growth and development and trends in the distribution of body measurements, such as weight and height, in the U.S. population.

Keywords: anthropometry • body measures • nutrition surveys • National Health and Nutrition Examination Survey (NHANES)

Methods

National Health and Nutrition Examination Surveys (NHANES) are conducted by the the Centers for Disease Control and Prevention's National Center for Health Statistics (NCHS). NHANES data are the primary source of body measurement and related health and nutrition data for the civilian, noninstitutionalized U.S. population. Surveys were conducted on a periodic basis from 1960 to 1994. NHANES became a continuous survey in 1999. Each of the continuous NHANES annual survey samples is nationally representative; 2 or more years of data are required for subgroup analyses (2). NHANES 1999–2006 data were released publicly in four data sets, each one spanning 2 years (1999–2000, 2001–2002, 2003–2004, and 2005–2006) (3–5). A combined 4-year dataset based on 2003–2004 and 2005–2006 data was used for this report to improve the stability and reliability of the statistical estimates (4–5). Additional 2-year data sets will be released in the future as more data become available.

Household interviews and health examinations are used to collect NHANES data. All health examinations

Introduction

The field of anthropometry encompasses a variety of human body measurements, such as weight, height, and size, including skinfold thicknesses, circumferences, lengths, and breadths. Anthropometry is a key component of nutritional status assessment in children and adults (1). Anthropometric data for

children reflect general health status, dietary adequacy, and growth and development over time. In adults, body measurement data are used to evaluate health and dietary status, disease risk, and body composition changes that occur over the adult lifespan. This report provides anthropometric reference data for U.S. children and adults of all ages.



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are conducted in mobile examination centers. The examination centers are staffed by full-time personnel, including health technicians who obtain body measurements from survey participants. All of the NHANES health technicians completed a comprehensive body measurement training program that utilized videotape, demonstration, and practice exercises with an expert examiner. Health technician performance was monitored by means of direct observation, data review, and expert examiner evaluations.

Although portions of the health examination component have varied during the surveys' history, much of the anthropometry component methodology has remained consistent over time. The NHANES anthropometry examinations are completed in a room that is equipped with a digital scale, a wall-mounted stadiometer, a bench, a wall mirror, an infantometer, and a computer workstation. A health technician performs the anthropometry exam and is assisted by a recorder. NHANES subjects wear socks and disposable examination gowns during the examination. The use of consistent data collection methods in representative population samples makes possible the examination of trends in body measurements over time in the U.S. population.

Sample description

NHANES is a complex, multistage probability sample of the civilian noninstitutionalized U.S. population. The NHANES 2003–2006 sample included participants of all ages. Adolescents 12–19 years of age, persons 60 years of age and older, Mexican Americans, black persons, and low-income persons were oversampled to improve the precision of the statistical estimates for these groups. Additional information pertaining to the NHANES 2003–2006 survey design, survey methodology, and public-use data is available on the NHANES website (4–5).

The analytic sample for this report was based on the 2003–2006 examined sample of 19,593 persons. Pregnant

females were excluded from the tabulations of weight, body mass index (BMI), circumference measurements, and skinfold thickness data.

Anthropometry examination component

The *NHANES 2005–2006 Anthropometry Training and Procedures Manual* describes the protocol, equipment, quality control, and measurement procedures that were used during the NHANES anthropometry examination (6). An anthropometry methodology videotape that was produced during NHANES III (1988–1994) illustrates the NHANES anthropometry methodology that was used to collect the 2003–2006 data (7).

Weight was measured to the nearest 0.1 kilogram. Stature, length, and circumference measurements were made to the nearest millimeter. Skinfold thickness measures were made to the nearest 0.1 millimeter. Weight was measured using a digital floor scale, and an infantometer was used to measure recumbent length on infants and young children. Standing height was measured with a wall-mounted stadiometer. Head circumference measurements were made using a plastic head circumference measurement tape. 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-arm circumference was measured with a tape measure. Triceps and subscapular skinfolds were measured with a skinfold caliper. Waist circumference was measured with a tape measure at the uppermost lateral border of the hip crest (ilium). Weight, recumbent length, and standing height values were recorded automatically. The other body measurement data were recorded using computer-assisted data entry, and all results were based on a single body measurement examination.

In addition to the measurements above, three additional measurements were taken on participants aged 8 years and older. Upper leg length measurements were taken on seated

participants; the distance from the inguinal crease to the distal end of the femur was measured. Maximal calf circumference was also measured in a seated position; a measurement tape was positioned around the calf at the point of maximum circumference. Mid-thigh circumference was measured on standing participants with the measurement tape placed around the mid-thigh, perpendicular to the long axis of the femur bone.

Statistical analysis

Population means, standard errors of the means, and percentiles were weighted using the NHANES 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 (8).

The reliability of the estimates produced for this report was evaluated. The relative standard error (RSE), calculated as the standard error divided by the estimate, and minimum sample size criterion were used. NCHS recommends that an estimate with an RSE greater than 30 percent be considered unreliable (2). The recommended minimum sample sizes were based on a combination of the average design effects and specified proportions (or percentiles) (9). The average design effects reflect the impact of the complex sample design on variance estimates. They were calculated as the ratio of the variance of a statistic (accounting for the complex sample design) to the variance of the same statistic based on a hypothetical simple random sample of the same size. Average design effects were calculated for each anthropometry variable over sex for children and adolescents and over sex and race-ethnicity for adults aged 20 years and older. Minimum sample sizes for a specified design effect and percentile were obtained from published tables (9). The percentile

estimates that did not meet the standards for either RSE or minimum sample size were replaced with asterisks (Tables 1–41).

The age categories used for adults aged 20 years and older were based on the survey sample domains that were recommended in the NHANES Analytic Guidelines (2). The results for participants who were under 20 years of age are by single years or, in the case of infants under 1 year of age, single months of age.

Results

The anthropometric measurements that were performed in the survey are listed in Table A. Results for children

are reported by sex and age group, and the results for adults aged 20 years and older are also presented by sex, race-ethnicity group, and age. Results from previous surveys for most measurements have been reported for the National Health Examination Survey and NHANES conducted from 1960–2002 (10–30).

References

1. Simko MD, Cowell C, Gilbride JA. Nutrition assessment: A comprehensive guide for planning intervention. 2nd ed. Gaithersburg, MD: Aspen Publishers. 1995.
2. Centers for Disease Control and Prevention. Analytic guidelines. Hyattsville, MD: National Center for Health Statistics. Available from: http://www.cdc.gov/nchs/data/nhanes/nhanes_03_04/nhanes_analytic_guidelines_dec_2005.pdf. September 2006.
3. National Center for Health Statistics. National Health and Nutrition Examination Surveys 1999–2006. <http://www.cdc.gov/nchs/about/major/nhanes/datalink.htm>.
4. National Center for Health Statistics. National Health and Nutrition Examination Survey, 2003–2004 examination files. Available from: http://www.cdc.gov/nchs/about/major/nhanes/nhanes2003-2004/exam03_04.htm. 2005.
5. National Center for Health Statistics. National Health and Nutrition

Table A. Anthropometric measurements performed in the National Health and Nutrition Examination Survey, 2003–2006

Table number	Measurement (unit of measure)	Age group and sex
1	Weight (kilograms)	Birth–19 years of age
2	Weight (pounds)	Birth–19 years of age
3	Weight (kilograms)	Females 20 years and older
4	Weight (pounds)	Females 20 years and older
5	Weight (kilograms)	Males 20 years and older
6	Weight (pounds)	Males 20 years and older
7	Standing height (centimeters)	Males and females 2–19 years
8	Standing height (inches)	Males and females 2–19 years
9	Standing height (centimeters)	Females 20 years and older
10	Standing height (inches)	Females 20 years and older
11	Standing height (centimeters)	Males 20 years and older
12	Standing height (inches)	Males 20 years and older
13	Body mass index (BMI value)	Males and females 2–19 years
14	Body mass index (BMI value)	Females 20 years and older
15	Body mass index (BMI value)	Males 20 years and older
16	Head circumference (centimeters)	Birth–6 months
17	Recumbent length (centimeters)	Birth–47 months
18	Waist circumference (centimeters)	Males and females 2–19 years
19	Waist circumference (centimeters)	Females 20 years and older
20	Waist circumference (centimeters)	Males 20 years and older
21	Mid-arm circumference (centimeters)	Males and females 2 months–19 years
22	Mid-arm circumference (centimeters)	Females 20 years and older
23	Mid-arm circumference (centimeters)	Males 20 years and older
24	Upper arm length (centimeters)	Males and females 2 months–19 years
25	Upper arm length (centimeters)	Females 20 years and older
26	Upper arm length (centimeters)	Males 20 years and older
27	Subscapular skinfold (millimeters)	Males and females 2 months–19 years
28	Subscapular skinfold (millimeters)	Females 20 years and older
29	Subscapular skinfold (millimeters)	Males 20 years and older
30	Triceps skinfold (millimeters)	Males and females 2 months–19 years
31	Triceps skinfold (millimeters)	Females 20 years and older
32	Triceps skinfold (millimeters)	Males 20 years and older
33	Maximal calf circumference (centimeters)	Males and females 8–19 years
34	Maximal calf circumference (centimeters)	Females 20 years and older
35	Maximal calf circumference (centimeters)	Males 20 years and older
36	Upper leg length (centimeters)	Males and females 8–19 years
37	Upper leg length (centimeters)	Females 20 years and older
38	Upper leg length (centimeters)	Males 20 years and older
38	Mid-thigh circumference (centimeters)	Males and females 8–19 years
40	Mid-thigh circumference (centimeters)	Females 20 years and older
41	Mid-thigh circumference (centimeters)	Males 20 years and older

- Examination Survey, 2005–2006 examination files. Available from: http://www.cdc.gov/nchs/about/major/nhanes/nhanes2005-2006/exam05_06.htm. 2007.
6. Centers for Disease Control and Prevention. NHANES anthropometry and physical activity monitor procedures manual. Available from: http://www.cdc.gov/nchs/data/nhanes/nhanes_05_06/BM.pdf. January 2005.
 7. Centers for Disease Control and Prevention. NHANES III anthropometric procedures video. Washington, DC: U.S. Government Printing Office. GPO stock no: 017–022–01335–5. Available from: <http://www.cdc.gov/nchs/about/major/nhanes/avideo.htm>.
 8. Wolter KM. Introduction to variance estimation. New York, NY: Springer-Verlag. 1990.
 9. National Center for Health Statistics. Analytic and reporting guidelines: The Third National Health and Nutrition Examination Survey, NHANES III (1988–94), appendix B. Available from: <http://www.cdc.gov/nchs/data/nhanes/nhanes3/nh3gui.pdf>. October 1996.
 10. Stoudt HW, Damon A, McFarland R, Roberts J. Skin folds, body girths, biacromial diameter, and selected anthropometric indices of adults, United States, 1960–1962. National Center for Health Statistics. Vital Health Stat 11(35). Available from: http://www.cdc.gov/nchs/data/series/sr_11/sr11_035acc.pdf. 1970.
 11. Stoudt HW, Damon A, McFarland R, Roberts J. Weight, height, and selected body dimensions of adults: United States, 1960–1962. National Center for Health Statistics. Vital Health Stat 11(8). 1965.
 12. Roberts J. Weight by height and age of adults: United States, 1960–1962. National Center for Health Statistics. Vital Health Stat 11(14). 1966.
 13. Malina RM, Hamill PVV, Johnston FE, Lemeshow S. Selected body measurements of children 6–11 years, United States. National Center for Health Statistics. Vital Health Stat 11(123). Available from: http://www.cdc.gov/nchs/data/series/sr_11/sr11_123acc.pdf. 1973.
 14. Hamill PV, Johnston FE, Lemeshow S. Height and weight of youths 12–17 years, United States. National Center for Health Statistics. Vital Health Stat 11(124). Available from: http://www.cdc.gov/nchs/data/series/sr_11/sr11_124.pdf. 1973.
 15. 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.
 16. 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). Available from: http://www.cdc.gov/nchs/data/series/sr_11/sr11_219.pdf. 1981.
 17. 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). Available from: http://www.cdc.gov/nchs/data/series/sr_11/sr11_238.pdf. 1987.
 18. Najjar MF, Kuczarski RJ. Anthropometric data and prevalence of overweight for Hispanics: 1982–84. Vital Health Stat 11(239). Available from: http://www.cdc.gov/nchs/data/series/sr_11/sr11_239.pdf. 1989.
 19. National Center for Health Statistics. Anthropometric Reference Data, United States, 1988–1994. Available from: http://www.cdc.gov/nchs/about/major/nhanes/anthropometric_measures.htm.
 20. Ogden CL, Fryar CD, Carroll MD, Flegal KM. Mean body weight, height, and body mass index, United States 1960–2002. Advance data from vital and health statistics; no 347. Hyattsville, MD: National Center for Health Statistics. 2004.
 21. 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.
 22. Ogden CL, Carroll MD, Curtin LR, McDowell MA, Tabak CJ, Flegal KM. Prevalence of overweight and obesity in the United States, 1999–2004. JAMA 295(13):1549–55. 2006.
 23. Freedman DS, Khan LK, Serdula MK, Ogden CL, Dietz WH. Racial and ethnic differences in secular trends for childhood BMI, weight, and height. Obesity (Silver Spring) 14(2):301–8. 2006.
 24. Flegal KM, Ogden CL, Carroll MD. Prevalence and trends in overweight in Mexican-American adults and children. Nutr Rev 62(7 Pt 2):S144–8. 2004.
 25. Hedley AA, Ogden CL, Johnson CL, Carroll MD, Curtin LR, Flegal KM. Prevalence of overweight and obesity among U.S. children, adolescents, and adults, 1999–2002. JAMA 291(23):2847–50. 2004.
 26. Ogden CL, Carroll MD, Flegal KM. Epidemiologic trends in overweight and obesity. Endocrinol Metab Clin North Am 32(4):741–60.vii. 2003.
 27. Ogden CL, Flegal KM, Carroll MD, Johnson CL. Prevalence and trends in overweight among U.S. children and adolescents, 1999–2000. JAMA 288(14):1728–32. 2002.
 28. Flegal KM, Carroll MD, Ogden CL, Johnson CL. Prevalence and trends in obesity among U.S. adults, 1999–2000. JAMA 288(14):1723–7. 2002.
 29. Ogden CL, Troiano RP, Briefel RR, Kuczarski RJ, Flegal KM, Johnson CL. Prevalence of overweight among preschool children in the United States, 1971 through 1994. Pediatrics 99(4):E1. 1997.
 30. Kuczarski RJ, Flegal KM, Campbell SM, Johnson CL. Increasing prevalence of overweight among U.S. adults. The National Health and Nutrition Examination Surveys, 1960 to 1991. JAMA 272(3):205–11. 1994.

Table 1. Weight in kilograms for children and adolescents from birth through 19 years of age by sex and age, by mean, standard error of the mean, and selected percentiles: United States, 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Kilograms												
Birth to 2 months	101	5.2	0.12	*	*	4.2	4.6	5.2	5.9	6.3	*	*
3–5 months	139	7.3	0.08	*	6.2	6.4	6.7	7.2	7.8	8.0	8.2	*
6–8 months	130	8.4	0.13	*	6.8	7.2	7.6	8.4	9.1	9.5	9.9	*
9–11 months	124	9.7	0.15	*	*	8.6	8.9	9.7	10.4	10.6	*	*
1 year	360	11.6	0.12	8.9	9.2	9.8	10.5	11.5	12.6	13.3	13.8	14.4
2 years	292	14.1	0.14	11.3	12.0	12.3	12.8	13.9	15.1	15.8	16.4	16.9
3 years	210	15.8	0.16	*	13.4	13.6	14.2	15.3	17.1	18.1	18.7	*
4 years	208	18.6	0.31	*	15.2	15.5	16.2	18.1	20.0	21.3	22.7	*
5 years	202	22.1	0.49	*	17.4	18.1	18.9	21.0	23.5	25.2	26.9	*
6 years	176	24.2	0.33	*	19.5	20.0	20.9	23.7	26.2	27.6	29.5	*
7 years	181	26.6	0.58	*	19.6	21.0	22.4	25.6	29.6	32.3	33.9	*
8 years	151	31.4	0.90	*	23.4	24.2	25.3	29.0	34.3	38.3	41.9	*
9 years	176	34.6	0.71	*	25.8	26.6	28.2	32.3	39.4	42.5	44.1	*
10 years	172	40.1	0.86	*	28.4	29.7	31.7	37.3	45.1	53.6	56.8	*
11 years	158	46.8	1.62	*	33.2	34.1	35.5	44.2	54.0	63.3	67.0	*
12 years	275	50.8	1.23	32.0	35.9	37.0	39.5	46.9	57.3	65.1	72.8	82.9
13 years	284	57.8	1.37	35.9	39.4	41.9	43.9	55.6	64.4	73.5	81.0	90.9
14 years	260	63.1	1.73	42.5	43.9	47.2	51.4	59.8	70.7	76.5	84.3	99.1
15 years	270	70.2	1.36	48.5	52.4	55.0	58.2	66.3	76.9	84.7	89.9	100.4
16 years	308	76.1	1.50	53.4	55.3	57.9	61.5	70.7	88.5	96.3	101.9	116.1
17 years	279	75.0	1.30	54.1	56.7	58.6	60.9	70.6	84.2	92.0	101.3	111.0
18 years	283	77.2	1.67	53.7	57.2	59.4	64.0	72.7	83.7	97.8	105.8	110.4
19 years	271	80.2	1.60	54.3	58.1	61.2	64.7	76.5	92.9	99.6	107.3	117.3
Female												
Birth to 2 months	81	4.9	0.10	*	*	*	4.4	4.9	5.4	*	*	*
3–5 months	94	6.8	0.10	*	*	*	6.2	6.6	7.3	*	*	*
6–8 months	122	8.1	0.13	*	*	7.1	7.3	8.0	8.8	9.2	*	*
9–11 months	126	9.2	0.11	*	*	8.0	8.2	9.0	10.0	10.3	*	*
1 year	328	10.9	0.11	8.4	8.8	9.1	9.9	10.9	11.9	12.5	13.0	13.4
2 years	335	13.4	0.13	10.2	10.7	11.2	12.1	13.1	14.4	15.4	16.1	16.8
3 years	191	15.8	0.20	*	12.8	13.4	14.1	15.5	16.8	17.8	18.5	*
4 years	226	17.9	0.21	*	14.8	15.2	16.1	17.5	19.4	20.2	20.8	*
5 years	199	20.5	0.37	*	15.9	16.9	17.6	19.6	22.1	24.4	25.5	*
6 years	193	23.4	0.49	*	18.4	19.1	19.9	22.1	25.3	27.4	29.7	*
7 years	157	27.3	0.62	*	21.1	21.7	23.9	25.7	29.7	33.6	35.5	*
8 years	184	30.7	0.94	*	22.3	23.5	25.0	28.2	33.9	39.1	42.1	*
9 years	185	36.7	0.99	*	26.2	27.8	29.6	34.0	42.0	46.7	50.7	*
10 years	189	42.4	1.07	*	29.1	30.7	32.5	40.5	49.0	55.5	58.5	*
11 years	175	49.2	1.31	*	33.3	34.8	38.0	47.3	56.7	62.4	68.2	*
12 years	249	52.9	1.31	*	36.4	40.4	43.6	49.5	59.7	67.4	76.2	*
13 years	292	57.4	0.98	36.8	41.2	43.0	47.1	54.4	63.4	72.6	76.0	88.5
14 years	269	58.8	1.75	*	44.0	45.8	48.5	54.4	64.8	75.8	81.0	*
15 years	248	60.9	0.76	*	46.5	47.6	50.7	57.6	67.6	76.7	81.0	*
16 years	253	61.5	0.95	*	47.2	49.5	53.2	58.8	67.0	71.5	79.6	*
17 years	252	66.0	1.66	*	49.1	51.4	54.1	60.6	71.9	79.7	87.3	*
18 years	272	67.6	2.15	*	47.8	49.7	54.6	63.0	76.2	86.2	92.1	*
19 years	239	67.4	1.79	*	50.9	52.8	55.3	63.0	73.6	84.3	92.7	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

NOTE: Pregnant females were excluded.

Table 2. Weight in pounds for children and adolescents from birth through 19 years of age by sex and age, by mean, standard error of the mean, and selected percentiles: United States, 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Pounds												
Birth to 2 months	101	11.5	0.27	*	*	9.2	10.1	11.5	12.9	13.8	*	*
3–5 months	139	16.0	0.18	*	13.6	14.1	14.7	15.9	17.1	17.7	18.1	*
6–8 months	130	18.6	0.30	*	15.0	15.9	16.7	18.5	20.0	20.9	21.8	*
9–11 months	124	21.5	0.32	*	*	18.9	19.7	21.4	23.0	23.4	*	*
1 year	360	25.5	0.28	19.6	20.3	21.5	23.1	25.3	27.7	29.3	30.5	31.6
2 years	292	31.1	0.31	24.8	26.5	27.2	28.2	30.7	33.2	34.9	36.1	37.2
3 years	210	34.8	0.35	*	29.5	30.1	31.3	33.8	37.8	39.9	41.2	*
4 years	208	40.9	0.68	*	33.4	34.2	35.8	39.8	44.0	46.9	50.1	*
5 years	202	48.7	1.07	*	38.4	40.0	41.7	46.3	51.7	55.5	59.3	*
6 years	176	53.3	0.72	*	43.0	44.1	46.1	52.2	57.8	60.8	65.1	*
7 years	181	58.7	1.28	*	43.3	46.3	49.3	56.4	65.2	71.3	74.6	*
8 years	151	69.3	1.99	*	51.7	53.4	55.7	64.0	75.6	84.5	92.3	*
9 years	176	76.3	1.57	*	56.9	58.7	62.2	71.2	86.9	93.7	97.2	*
10 years	172	88.3	1.89	*	62.6	65.4	70.0	82.2	99.5	118.2	125.3	*
11 years	158	103.2	3.58	*	73.2	75.2	78.2	97.4	119.0	139.6	147.8	*
12 years	275	112.0	2.71	70.5	79.2	81.6	87.0	103.3	126.3	143.6	160.5	182.7
13 years	284	127.4	3.03	79.1	86.9	92.4	96.8	122.5	142.0	162.0	178.6	200.5
14 years	260	139.1	3.81	93.6	96.9	104.2	113.4	131.8	155.9	168.6	185.8	218.4
15 years	270	154.9	2.99	106.9	115.4	121.2	128.3	146.1	169.4	186.8	198.1	221.3
16 years	308	167.7	3.31	117.8	121.8	127.8	135.7	155.8	195.1	212.3	224.7	256.0
17 years	279	165.4	2.86	119.2	125.0	129.2	134.2	155.6	185.7	202.8	223.4	244.7
18 years	283	170.2	3.68	118.5	126.2	130.8	141.1	160.3	184.6	215.5	233.2	243.3
19 years	271	176.8	3.54	119.7	128.1	134.8	142.5	168.7	204.8	219.7	236.5	258.6
Female												
Birth to 2 months	81	10.9	0.22	*	*	*	9.7	10.8	11.8	*	*	*
3–5 months	94	14.9	0.23	*	*	*	13.7	14.5	16.2	*	*	*
6–8 months	122	17.9	0.30	*	*	15.7	16.1	17.7	19.4	20.2	*	*
9–11 months	126	20.2	0.25	*	*	17.5	18.1	19.9	22.1	22.7	*	*
1 year	328	24.1	0.24	18.4	19.3	20.0	21.7	24.1	26.3	27.5	28.6	29.5
2 years	335	29.5	0.29	22.4	23.7	24.6	26.6	29.0	31.8	34.0	35.4	37.0
3 years	191	34.8	0.45	*	28.2	29.5	31.2	34.2	37.0	39.3	40.8	*
4 years	226	39.4	0.46	*	32.6	33.5	35.4	38.6	42.7	44.6	45.8	*
5 years	199	45.3	0.82	*	35.1	37.2	38.7	43.3	48.7	53.8	56.1	*
6 years	193	51.5	1.08	*	40.6	42.1	43.8	48.8	55.8	60.4	65.5	*
7 years	157	60.2	1.37	*	46.5	47.9	52.7	56.6	65.5	74.1	78.3	*
8 years	184	67.7	2.07	*	49.3	51.8	55.1	62.1	74.8	86.3	92.8	*
9 years	185	81.0	2.18	*	57.9	61.3	65.3	75.0	92.7	102.8	111.8	*
10 years	189	93.5	2.35	*	64.1	67.7	71.6	89.2	108.1	122.4	129.1	*
11 years	175	108.4	2.88	*	73.3	76.7	83.7	104.3	125.1	137.6	150.3	*
12 years	249	116.7	2.88	*	80.2	89.0	96.0	109.1	131.7	148.5	168.0	*
13 years	292	126.4	2.15	81.2	90.9	94.7	103.9	119.9	139.8	160.0	167.6	195.2
14 years	269	129.6	3.85	*	97.1	101.1	106.8	120.0	142.9	167.2	178.6	*
15 years	248	134.2	1.67	*	102.4	104.9	111.7	126.9	149.0	169.0	178.5	*
16 years	253	135.6	2.10	*	104.2	109.1	117.3	129.7	147.7	157.7	175.5	*
17 years	252	145.6	3.65	*	108.1	113.3	119.4	133.6	158.5	175.6	192.5	*
18 years	272	149.0	4.75	*	105.3	109.6	120.3	138.8	168.1	190.0	203.0	*
19 years	239	148.6	3.95	*	112.2	116.4	121.9	138.9	162.2	185.8	204.3	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

NOTE: Pregnant females were excluded.

Table 3. Weight in kilograms for females 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States, 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Kilograms												
20 years and over	4,330	74.7	0.53	50.5	53.5	56.1	60.2	70.7	84.3	94.1	101.8	113.6
20–29 years	706	70.7	1.03	48.0	51.3	53.1	56.3	65.3	78.8	88.7	98.6	110.7
30–39 years	663	74.7	1.06	51.2	54.1	56.5	59.8	70.2	83.6	94.3	101.7	114.2
40–49 years	779	77.7	1.03	52.3	55.2	58.2	62.8	72.9	89.2	100.1	106.6	116.9
50–59 years	602	78.0	1.15	51.8	54.7	57.5	62.9	73.7	88.1	99.4	106.3	117.8
60–69 years	694	77.3	0.91	51.9	56.8	59.2	64.0	74.0	86.9	96.4	102.0	112.9
70–79 years	468	70.6	1.07	49.4	53.2	55.1	60.0	68.3	78.9	84.1	91.2	98.9
80 years and over	418	64.5	0.69	46.1	49.8	52.3	55.3	63.8	71.9	76.7	80.6	86.4
Non-Hispanic white												
20 years and over	2,233	74.3	0.57	50.8	53.8	56.4	60.3	70.1	83.4	92.6	100.7	111.6
20–39 years	615	72.1	0.99	50.4	52.7	54.6	58.1	67.1	80.7	90.2	98.5	110.7
40–59 years	674	77.6	0.91	52.2	55.4	57.8	62.8	72.9	88.3	97.7	106.1	116.6
60 years and over	944	72.0	0.60	49.1	53.5	55.7	60.6	70.0	80.7	87.0	93.1	102.1
Non-Hispanic black												
20 years and over	959	83.8	0.71	53.0	57.9	61.4	68.6	80.2	95.1	105.8	114.4	125.2
20–39 years	329	82.4	1.33	52.5	56.4	59.7	66.6	77.6	94.3	104.0	113.2	124.3
40–59 years	355	86.2	0.73	54.5	60.5	66.5	72.2	82.1	97.1	108.1	117.8	126.4
60 years and over	275	82.0	1.33	52.8	56.1	59.4	66.1	79.0	93.9	101.8	108.4	118.7
Mexican American												
20 years and over	817	73.6	0.94	50.5	53.8	56.3	60.7	70.8	83.1	90.8	96.9	103.9
20–39 years	300	72.8	1.24	49.8	53.0	54.7	59.6	70.4	82.9	90.0	95.7	103.9
40–59 years	234	76.4	1.22	53.7	56.5	59.1	63.5	73.4	85.5	94.0	99.7	106.9
60 years and over	283	69.4	1.01	49.8	52.4	55.1	58.9	67.4	77.9	84.0	89.0	98.3

¹Persons of other races and unknown race and ethnicity are included.

NOTE: Pregnant females were excluded.

Table 4. Weight in pounds for females 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States, 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Pounds												
20 years and over	4,330	164.7	1.17	111.2	118.0	123.8	132.8	155.8	185.9	207.5	224.3	250.4
20–29 years	706	155.9	2.27	105.8	113.1	117.0	124.1	144.0	173.7	195.5	217.4	244.2
30–39 years	663	164.7	2.34	112.8	119.3	124.5	131.9	154.8	184.3	208.0	224.3	251.8
40–49 years	779	171.3	2.27	115.3	121.8	128.2	138.4	160.8	196.6	220.7	235.0	257.7
50–59 years	602	172.1	2.53	114.1	120.7	126.7	138.7	162.5	194.2	219.1	234.3	259.7
60–69 years	694	170.5	2.02	114.3	125.1	130.6	141.1	163.1	191.6	212.6	224.9	248.8
70–79 years	468	155.6	2.35	109.0	117.3	121.4	132.2	150.6	174.0	185.3	201.0	218.0
80 years and over	418	142.2	1.53	101.7	109.9	115.3	121.8	140.6	158.5	169.0	177.7	190.5
Non-Hispanic white												
20 years and over	2,233	163.7	1.26	112.1	118.5	124.3	133.0	154.5	183.9	204.2	221.9	246.0
20–39 years	615	158.9	2.17	111.2	116.1	120.4	128.1	148.0	177.9	198.8	217.1	244.0
40–59 years	674	171.0	2.01	115.2	122.1	127.5	138.5	160.7	194.6	215.3	233.8	257.0
60 years and over	944	158.8	1.32	108.3	118.0	122.9	133.6	154.2	178.0	191.8	205.2	225.1
Non-Hispanic black												
20 years and over	959	184.8	1.56	116.9	127.6	135.3	151.2	176.8	209.6	233.3	252.2	275.9
20–39 years	329	181.6	2.94	115.8	124.3	131.7	146.8	171.0	207.9	229.2	249.6	274.0
40–59 years	355	190.1	1.61	120.2	133.4	146.5	159.2	180.9	214.2	238.4	259.7	278.7
60 years and over	275	180.8	2.94	116.3	123.7	131.1	145.7	174.2	207.0	224.4	238.9	261.8
Mexican American												
20 years and over	817	162.2	2.07	111.4	118.6	124.1	133.7	156.0	183.1	200.2	213.6	229.1
20–39 years	300	160.5	2.73	109.8	116.9	120.6	131.4	155.2	182.7	198.4	210.9	229.2
40–59 years	234	168.4	2.68	118.4	124.6	130.2	139.9	161.9	188.4	207.3	219.7	235.7
60 years and over	283	153.0	2.22	109.8	115.6	121.6	129.9	148.6	171.7	185.3	196.2	216.8

¹Persons of other races and unknown race and ethnicity are included.

NOTE: Pregnant females were excluded.

Table 5. Weight in kilograms for males 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States, 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Kilograms												
20 years and over	4,489	88.3	0.46	62.2	66.7	70.1	75.2	85.6	98.4	106.4	111.5	122.6
20–29 years	811	85.4	1.06	59.9	63.4	66.5	71.4	81.1	94.3	104.6	111.5	122.6
30–39 years	741	88.1	0.80	62.6	67.1	70.0	74.3	85.9	98.1	104.3	109.6	120.8
40–49 years	769	91.8	0.83	65.9	71.1	74.1	79.3	88.9	101.2	109.8	114.0	124.7
50–59 years	591	90.2	0.95	64.5	69.1	72.6	77.0	88.7	100.5	108.0	113.1	124.4
60–69 years	669	90.0	0.98	63.8	68.5	72.0	77.7	88.0	100.2	108.0	112.9	121.3
70–79 years	555	85.0	0.92	61.4	65.4	68.4	73.4	83.8	94.7	98.9	104.5	116.7
80 years and over	353	76.3	0.62	55.4	59.7	63.4	66.9	75.5	84.7	89.4	92.9	99.7
Non-Hispanic white												
20 years and over	2,339	89.6	0.48	64.2	68.6	71.7	76.8	87.3	99.2	107.0	111.9	122.7
20–39 years	666	87.7	0.90	62.6	66.5	69.9	74.6	84.2	96.9	104.4	109.8	122.2
40–59 years	709	92.5	0.85	66.9	72.1	75.1	79.8	90.5	102.6	110.2	114.6	124.1
60 years and over	964	87.2	0.58	62.4	66.7	69.8	75.5	85.4	96.4	103.9	109.8	118.7
Non-Hispanic black												
20 years and over	941	90.6	0.99	62.3	66.6	70.2	75.0	86.2	100.5	109.6	117.8	137.2
20–39 years	361	91.8	1.50	62.0	66.6	70.4	74.4	86.2	102.7	112.1	122.3	143.1
40–59 years	316	91.2	1.16	63.4	68.2	70.5	75.9	86.7	100.6	107.6	118.5	137.6
60 years and over	264	85.7	1.21	59.6	64.0	67.3	72.2	84.4	96.9	105.2	109.3	116.7
Mexican American												
20 years and over	903	81.9	0.85	60.0	62.7	66.0	70.5	79.6	90.0	97.7	102.1	112.9
20–39 years	375	82.1	1.31	59.8	61.7	64.8	69.3	79.0	91.1	99.5	103.2	114.3
40–59 years	247	82.0	0.92	61.2	65.5	68.5	72.4	80.6	89.0	93.5	97.5	109.3
60 years and over	281	79.8	1.15	55.6	61.2	64.9	68.6	78.6	89.2	95.2	99.4	107.1

¹Persons of other races and unknown race and ethnicity are included.

Table 6. Weight in pounds for males 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States, 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Pounds												
20 years and over	4,489	194.7	1.02	137.1	147.0	154.6	165.7	188.8	216.8	234.5	245.8	270.3
20–29 years	811	188.3	2.33	132.0	139.7	146.5	157.3	178.7	207.9	230.5	245.8	270.3
30–39 years	741	194.1	1.77	137.9	148.0	154.2	163.8	189.3	216.3	230.0	241.6	266.4
40–49 years	769	202.3	1.83	145.4	156.7	163.3	174.8	196.1	223.1	242.0	251.2	275.0
50–59 years	591	198.8	2.10	142.2	152.2	159.9	169.8	195.5	221.6	238.1	249.4	274.3
60–69 years	669	198.3	2.16	140.7	151.1	158.7	171.2	194.1	220.8	238.1	248.9	267.4
70–79 years	555	187.4	2.03	135.4	144.2	150.7	161.8	184.7	208.8	218.0	230.4	257.4
80 years and over	353	168.1	1.36	122.1	131.5	139.8	147.6	166.5	186.7	197.0	204.9	219.9
Non-Hispanic white												
20 years and over	2,339	197.4	1.05	141.6	151.3	158.0	169.2	192.5	218.6	236.0	246.7	270.5
20–39 years	666	193.5	1.98	138.1	146.6	154.1	164.5	185.7	213.7	230.2	242.0	269.4
40–59 years	709	203.8	1.88	147.5	158.9	165.5	176.0	199.6	226.2	243.0	252.7	273.5
60 years and over	964	192.3	1.27	137.5	147.1	154.0	166.4	188.3	212.5	229.1	242.1	261.6
Non-Hispanic black												
20 years and over	941	199.8	2.19	137.3	146.8	154.7	165.3	190.1	221.5	241.7	259.6	302.5
20–39 years	361	202.4	3.31	136.8	146.8	155.2	164.0	190.0	226.4	247.2	269.6	315.5
40–59 years	316	201.0	2.56	139.7	150.3	155.3	167.4	191.1	221.7	237.3	261.3	303.2
60 years and over	264	189.0	2.66	131.3	141.1	148.4	159.3	186.1	213.7	231.8	240.9	257.2
Mexican American												
20 years and over	903	180.5	1.88	132.3	138.2	145.5	155.5	175.5	198.3	215.4	225.1	248.8
20–39 years	375	181.1	2.89	131.9	136.0	142.9	152.7	174.1	200.9	219.5	227.5	251.9
40–59 years	247	180.7	2.03	134.9	144.5	151.0	159.6	177.7	196.3	206.2	214.9	240.9
60 years and over	281	175.9	2.55	122.6	134.9	143.2	151.3	173.2	196.7	209.8	219.1	236.2

¹Persons of other races and unknown race and ethnicity are included.

Table 7. Height in centimeters for children and adolescents aged 2–19 years by sex and age, by mean, standard error of the mean, and selected percentiles: United States, 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Centimeters												
2 years	258	91.9	0.22	*	86.9	88.0	89.2	91.9	94.5	96.2	96.8	*
3 years	209	98.5	0.44	*	92.6	93.3	94.9	98.2	102.1	103.8	105.2	*
4 years	206	107.1	0.44	*	99.9	102.0	104.4	106.8	110.8	111.8	113.9	*
5 years	202	114.4	0.52	*	107.0	108.5	111.4	114.6	117.9	119.6	120.8	*
6 years	176	120.6	0.47	*	114.0	115.7	117.5	120.8	124.0	125.6	127.0	*
7 years	181	124.7	0.75	*	113.5	115.6	120.2	125.2	129.3	131.5	133.1	*
8 years	152	131.1	0.68	*	123.6	124.6	127.1	130.3	134.6	138.0	139.1	*
9 years	176	136.8	0.49	*	129.2	130.3	132.9	137.1	141.4	143.3	143.9	*
10 years	171	142.3	0.77	*	133.0	134.3	136.8	141.5	147.0	149.3	151.3	*
11 years	158	150.0	1.16	*	140.6	141.4	144.4	149.4	156.1	159.8	161.1	*
12 years	275	154.7	0.54	*	145.2	146.5	149.5	153.9	160.3	162.5	164.8	*
13 years	284	161.9	0.87	*	149.7	151.7	154.1	162.2	168.3	171.3	173.5	*
14 years	260	168.7	0.70	*	158.4	159.9	163.1	169.0	174.7	177.5	179.0	*
15 years	270	173.6	0.61	*	163.5	165.4	169.2	174.8	178.0	180.2	182.0	*
16 years	308	175.9	0.66	164.2	166.9	167.8	170.4	176.0	180.2	183.8	186.9	188.7
17 years	278	176.6	0.49	*	167.5	168.7	171.2	176.8	181.7	183.4	185.2	*
18 years	284	176.8	0.54	*	167.1	169.5	172.4	176.4	181.3	183.5	186.3	*
19 years	271	176.7	0.91	*	165.3	168.0	170.8	177.4	182.5	185.5	186.6	*
Female												
2 years	285	90.2	0.39	*	84.0	84.8	87.2	90.2	93.2	94.5	95.6	*
3 years	187	98.3	0.35	*	91.9	93.7	95.9	98.1	101.5	102.8	104.1	*
4 years	225	105.2	0.40	*	99.2	100.6	101.9	105.2	107.9	110.4	111.9	*
5 years	199	112.2	0.54	*	105.2	105.8	107.4	111.7	116.6	119.0	119.6	*
6 years	193	119.0	0.53	*	112.7	113.3	114.8	118.2	122.8	125.7	127.6	*
7 years	157	125.8	0.77	*	118.0	119.3	121.4	125.6	129.3	131.5	133.1	*
8 years	184	131.3	0.54	*	123.3	124.3	126.8	130.5	135.2	137.9	138.7	*
9 years	185	138.6	0.70	*	130.2	131.4	133.4	138.3	143.7	146.0	147.1	*
10 years	189	144.2	0.73	*	135.0	136.9	138.6	143.7	148.7	151.3	152.8	*
11 years	174	151.3	0.69	*	141.1	143.8	146.2	151.4	156.9	159.9	161.3	*
12 years	249	156.7	0.55	*	148.3	149.4	152.0	156.7	160.8	164.0	166.6	*
13 years	292	158.6	0.62	147.1	150.0	151.2	153.8	157.7	163.0	166.5	167.9	170.5
14 years	270	160.5	0.58	*	150.7	152.3	155.7	161.0	165.0	167.5	169.3	*
15 years	254	162.1	0.60	*	154.3	155.9	158.4	162.0	165.8	168.5	170.1	*
16 years	261	162.9	0.58	*	153.6	154.7	157.0	162.8	168.7	171.5	172.4	*
17 years	275	162.2	0.41	*	155.6	157.0	158.5	162.2	166.2	168.0	169.2	*
18 years	304	163.0	0.49	151.9	154.7	156.1	158.4	162.8	167.6	169.8	171.1	173.3
19 years	267	163.1	0.58	*	153.1	155.4	158.1	163.3	168.0	170.3	172.4	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

Table 8. Height in inches for children and adolescents aged 2–19 years by sex and age, by mean, standard error of the mean, and selected percentiles: United States, 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Inches												
2 years	258	36.2	0.09	*	34.2	34.7	35.1	36.2	37.2	37.9	38.1	*
3 years	209	38.8	0.17	*	36.5	36.7	37.4	38.7	40.2	40.9	41.4	*
4 years	206	42.2	0.17	*	39.3	40.1	41.1	42.1	43.6	44.0	44.8	*
5 years	202	45.0	0.20	*	42.1	42.7	43.9	45.1	46.4	47.1	47.6	*
6 years	176	47.5	0.19	*	44.9	45.5	46.3	47.6	48.8	49.4	50.0	*
7 years	181	49.1	0.29	*	44.7	45.5	47.3	49.3	50.9	51.8	52.4	*
8 years	152	51.6	0.27	*	48.7	49.0	50.0	51.3	53.0	54.3	54.8	*
9 years	176	53.9	0.19	*	50.9	51.3	52.3	54.0	55.7	56.4	56.6	*
10 years	171	56.0	0.30	*	52.4	52.9	53.9	55.7	57.9	58.8	59.6	*
11 years	158	59.1	0.46	*	55.4	55.7	56.8	58.8	61.4	62.9	63.4	*
12 years	275	60.9	0.21	*	57.2	57.7	58.9	60.6	63.1	64.0	64.9	*
13 years	284	63.7	0.34	*	58.9	59.7	60.7	63.9	66.3	67.4	68.3	*
14 years	260	66.4	0.28	*	62.3	63.0	64.2	66.5	68.8	69.9	70.5	*
15 years	270	68.3	0.24	*	64.4	65.1	66.6	68.8	70.1	70.9	71.7	*
16 years	308	69.2	0.26	64.6	65.7	66.1	67.1	69.3	71.0	72.4	73.6	74.3
17 years	278	69.5	0.19	*	65.9	66.4	67.4	69.6	71.5	72.2	72.9	*
18 years	284	69.6	0.21	*	65.8	66.7	67.9	69.4	71.4	72.2	73.3	*
19 years	271	69.6	0.36	*	65.1	66.1	67.3	69.8	71.8	73.0	73.5	*
Female												
2 years	285	35.5	0.15	*	33.1	33.4	34.3	35.5	36.7	37.2	37.6	*
3 years	187	38.7	0.14	*	36.2	36.9	37.8	38.6	40.0	40.5	41.0	*
4 years	225	41.4	0.16	*	39.1	39.6	40.1	41.4	42.5	43.5	44.1	*
5 years	199	44.2	0.21	*	41.4	41.6	42.3	44.0	45.9	46.8	47.1	*
6 years	193	46.9	0.21	*	44.4	44.6	45.2	46.6	48.4	49.5	50.2	*
7 years	157	49.5	0.30	*	46.5	47.0	47.8	49.5	50.9	51.8	52.4	*
8 years	184	51.7	0.21	*	48.5	48.9	49.9	51.4	53.2	54.3	54.6	*
9 years	185	54.5	0.28	*	51.2	51.7	52.5	54.5	56.6	57.5	57.9	*
10 years	189	56.8	0.29	*	53.2	53.9	54.6	56.6	58.5	59.6	60.1	*
11 years	174	59.6	0.27	*	55.6	56.6	57.6	59.6	61.8	63.0	63.5	*
12 years	249	61.7	0.22	*	58.4	58.8	59.8	61.7	63.3	64.6	65.6	*
13 years	292	62.4	0.24	57.9	59.1	59.5	60.5	62.1	64.2	65.6	66.1	67.1
14 years	270	63.2	0.23	*	59.3	60.0	61.3	63.4	65.0	65.9	66.7	*
15 years	254	63.8	0.24	*	60.7	61.4	62.4	63.8	65.3	66.3	67.0	*
16 years	261	64.1	0.23	*	60.5	60.9	61.8	64.1	66.4	67.5	67.9	*
17 years	275	63.9	0.16	*	61.3	61.8	62.4	63.8	65.4	66.1	66.6	*
18 years	304	64.2	0.19	59.8	60.9	61.5	62.3	64.1	66.0	66.8	67.3	68.2
19 years	267	64.2	0.23	*	60.3	61.2	62.2	64.3	66.1	67.0	67.9	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

Table 9. Height in centimeters for females 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States, 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,857	162.2	0.16	150.7	153.3	154.9	157.7	162.2	166.7	169.1	170.8	173.1
20–29 years	1,061	163.2	0.31	152.2	154.8	156.5	158.7	163.0	167.9	169.8	171.4	172.8
30–39 years	842	163.2	0.32	152.4	154.4	156.2	158.9	163.0	167.6	170.4	172.0	174.2
40–49 years	784	163.1	0.29	152.1	153.9	155.8	158.5	163.1	167.6	169.8	171.9	174.0
50–59 years	604	162.2	0.34	150.7	153.3	155.4	158.1	162.1	166.8	168.7	170.3	172.4
60–69 years	691	161.8	0.33	151.9	153.8	155.1	157.6	161.9	165.9	168.0	170.0	171.5
70–79 years	463	159.2	0.34	149.0	150.9	152.6	155.0	159.0	163.7	165.5	167.4	169.4
80 years and over	412	156.0	0.37	146.2	148.0	149.4	151.7	155.8	159.7	162.3	164.3	166.1
Non-Hispanic white												
20 years and over	2,477	163.0	0.15	152.1	154.4	156.3	158.7	163.0	167.5	169.7	171.3	173.6
20–39 years	866	164.8	0.22	154.7	157.2	158.6	160.7	164.7	168.9	171.1	172.4	174.4
40–59 years	677	163.6	0.27	152.6	155.5	157.5	159.4	163.4	167.7	169.9	171.8	174.0
60 years and over	934	160.2	0.27	149.7	152.0	153.6	155.9	159.8	164.5	166.7	168.6	170.5
Non-Hispanic black												
20 years and over	1,035	162.7	0.26	151.5	153.9	155.5	158.2	162.7	167.0	169.6	171.0	173.8
20–39 years	407	163.2	0.43	151.6	154.7	156.3	158.5	163.0	167.3	170.1	171.8	174.5
40–59 years	355	163.2	0.40	152.2	154.1	155.9	158.7	163.5	167.5	169.7	171.2	173.7
60 years and over	273	160.6	0.32	150.0	152.6	153.6	156.2	160.5	165.2	166.8	169.0	170.5
Mexican American												
20 years and over	975	157.8	0.24	147.3	149.8	151.1	153.6	157.8	161.9	164.3	166.2	168.1
20–39 years	455	158.7	0.32	148.2	150.7	152.5	154.6	159.0	162.6	165.0	166.6	168.9
40–59 years	238	157.7	0.48	*	149.9	151.1	153.5	157.6	161.7	164.0	165.8	*
60 years and over	282	153.9	0.48	144.9	145.9	147.4	150.1	154.0	158.1	159.7	161.6	164.3

* Figure does not meet standards of reliability or precision.

¹Persons of other races and unknown race and ethnicity are included.

Table 10. Height in inches for females 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Inches												
20 years and over	4,857	63.8	0.06	59.3	60.3	61.0	62.1	63.8	65.6	66.6	67.2	68.2
20–29 years	1,061	64.3	0.12	59.9	60.9	61.6	62.5	64.2	66.1	66.9	67.5	68.0
30–39 years	842	64.3	0.13	60.0	60.8	61.5	62.5	64.2	66.0	67.1	67.7	68.6
40–49 years	784	64.2	0.12	59.9	60.6	61.4	62.4	64.2	66.0	66.9	67.7	68.5
50–59 years	604	63.9	0.13	59.3	60.4	61.2	62.2	63.8	65.7	66.4	67.1	67.9
60–69 years	691	63.7	0.13	59.8	60.5	61.1	62.1	63.7	65.3	66.1	66.9	67.5
70–79 years	463	62.7	0.13	58.6	59.4	60.1	61.0	62.6	64.4	65.2	65.9	66.7
80 years and over	412	61.4	0.15	57.5	58.3	58.8	59.7	61.3	62.9	63.9	64.7	65.4
Non-Hispanic white												
20 years and over	2,477	64.2	0.06	59.9	60.8	61.5	62.5	64.2	66.0	66.8	67.5	68.4
20–39 years	866	64.9	0.09	60.9	61.9	62.4	63.3	64.8	66.5	67.4	67.9	68.7
40–59 years	677	64.4	0.11	60.1	61.2	62.0	62.8	64.3	66.0	66.9	67.6	68.5
60 years and over	934	63.1	0.11	58.9	59.8	60.5	61.4	62.9	64.8	65.6	66.4	67.1
Non-Hispanic black												
20 years and over	1,035	64.1	0.10	59.7	60.6	61.2	62.3	64.0	65.8	66.8	67.3	68.4
20–39 years	407	64.3	0.17	59.7	60.9	61.5	62.4	64.2	65.9	67.0	67.6	68.7
40–59 years	355	64.3	0.16	59.9	60.7	61.4	62.5	64.4	65.9	66.8	67.4	68.4
60 years and over	273	63.2	0.12	59.1	60.1	60.5	61.5	63.2	65.0	65.7	66.5	67.1
Mexican American												
20 years and over	975	62.1	0.10	58.0	59.0	59.5	60.5	62.1	63.7	64.7	65.4	66.2
20–39 years	455	62.5	0.13	58.3	59.3	60.1	60.9	62.6	64.0	64.9	65.6	66.5
40–59 years	238	62.1	0.19	*	59.0	59.5	60.4	62.0	63.7	64.6	65.3	*
60 years and over	282	60.6	0.19	57.1	57.4	58.0	59.1	60.6	62.2	62.9	63.6	64.7

* Figure does not meet standards of reliability or precision.

¹Persons of other races and unknown race and ethnicity are included.

Table 11. Height in centimeters for males 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,482	176.3	0.17	163.6	166.6	168.4	171.3	176.3	181.5	184.4	186.0	188.7
20–29 years	808	177.6	0.34	164.2	167.1	169.3	172.3	177.8	183.0	185.3	186.8	190.1
30–39 years	742	176.4	0.33	162.7	165.9	167.9	171.4	176.4	181.5	184.6	186.4	189.6
40–49 years	769	177.1	0.28	165.6	168.2	169.8	172.3	177.0	181.8	184.6	186.2	188.0
50–59 years	591	176.6	0.38	165.1	167.2	168.8	171.4	176.6	181.5	184.6	186.5	189.1
60–69 years	668	175.4	0.28	163.1	166.2	167.8	170.5	175.3	180.7	182.7	184.8	187.2
70–79 years	555	173.8	0.41	162.1	164.1	166.3	168.6	174.0	178.5	180.4	182.9	185.7
80 years and over	349	170.7	0.36	159.2	161.7	163.4	166.4	170.7	175.0	177.8	179.0	181.2
Non-Hispanic white												
20 years and over	2,331	177.5	0.20	166.0	168.5	170.2	172.6	177.4	182.4	184.9	186.5	189.1
20–39 years	664	178.9	0.25	167.4	170.1	171.9	174.4	178.9	183.4	185.7	187.7	190.3
40–59 years	710	178.0	0.35	167.3	169.2	170.8	173.1	177.9	182.8	185.2	186.6	188.8
60 years and over	957	174.6	0.20	162.6	165.2	167.1	169.8	174.6	179.7	182.2	183.7	186.4
Non-Hispanic black												
20 years and over	943	177.2	0.20	165.4	167.8	169.8	172.3	177.0	181.9	184.7	186.4	189.6
20–39 years	361	178.0	0.35	166.3	167.9	170.1	173.1	177.7	183.0	185.2	187.1	190.6
40–59 years	316	177.4	0.33	166.0	168.6	170.3	172.7	177.2	181.6	184.5	186.6	189.0
60 years and over	266	174.3	0.52	163.0	164.7	166.8	169.4	174.0	179.1	181.8	183.5	185.7
Mexican American												
20 years and over	902	170.3	0.34	158.7	161.1	163.0	165.2	170.4	174.9	177.0	178.9	182.0
20–39 years	375	170.6	0.46	158.3	161.2	163.3	165.3	170.6	175.2	177.6	180.5	183.7
40–59 years	246	170.2	0.40	159.4	161.4	163.3	165.6	170.8	174.9	176.3	178.1	180.1
60 years and over	281	167.8	0.42	157.7	159.4	160.8	163.4	167.8	172.4	173.7	175.1	176.9

¹Persons of other races and unknown race and ethnicity are included.

Table 12. Height in inches for males 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Inches												
20 years and over	4,482	69.4	0.07	64.4	65.6	66.3	67.4	69.4	71.5	72.6	73.2	74.3
20–29 years	808	69.9	0.13	64.7	65.8	66.6	67.8	70.0	72.0	73.0	73.5	74.8
30–39 years	742	69.4	0.13	64.1	65.3	66.1	67.5	69.5	71.5	72.7	73.4	74.7
40–49 years	769	69.7	0.11	65.2	66.2	66.8	67.9	69.7	71.6	72.7	73.3	74.0
50–59 years	591	69.5	0.15	65.0	65.8	66.5	67.5	69.5	71.5	72.7	73.4	74.4
60–69 years	668	69.0	0.11	64.2	65.4	66.1	67.1	69.0	71.1	71.9	72.7	73.7
70–79 years	555	68.4	0.16	63.8	64.6	65.5	66.4	68.5	70.3	71.0	72.0	73.1
80 years and over	349	67.2	0.14	62.7	63.6	64.3	65.5	67.2	68.9	70.0	70.5	71.3
Non-Hispanic white												
20 years and over	2,331	69.9	0.08	65.4	66.3	67.0	68.0	69.8	71.8	72.8	73.4	74.5
20–39 years	664	70.4	0.10	65.9	67.0	67.7	68.6	70.4	72.2	73.1	73.9	74.9
40–59 years	710	70.1	0.14	65.9	66.6	67.3	68.2	70.0	72.0	72.9	73.5	74.3
60 years and over	957	68.8	0.08	64.0	65.0	65.8	66.8	68.8	70.7	71.7	72.3	73.4
Non-Hispanic black												
20 years and over	943	69.8	0.08	65.1	66.1	66.9	67.8	69.7	71.6	72.7	73.4	74.6
20–39 years	361	70.1	0.14	65.5	66.1	67.0	68.1	70.0	72.0	72.9	73.7	75.1
40–59 years	316	69.8	0.13	65.4	66.4	67.0	68.0	69.8	71.5	72.7	73.5	74.4
60 years and over	266	68.6	0.20	64.2	64.9	65.7	66.7	68.5	70.5	71.6	72.2	73.1
Mexican American												
20 years and over	902	67.0	0.13	62.5	63.4	64.2	65.0	67.1	68.8	69.7	70.5	71.6
20–39 years	375	67.2	0.18	62.3	63.5	64.3	65.1	67.1	69.0	69.9	71.1	72.3
40–59 years	246	67.0	0.16	62.8	63.6	64.3	65.2	67.2	68.9	69.4	70.1	70.9
60 years and over	281	66.1	0.17	62.1	62.7	63.3	64.3	66.1	67.9	68.4	68.9	69.6

¹Persons of other races and unknown race and ethnicity are included.

Table 13. Body mass index values for children and adolescents aged 2–19 years by sex and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Body mass index												
2 years	258	16.8	0.10	15.1	15.3	15.6	15.8	16.6	17.6	18.1	18.3	19.2
3 years	209	16.2	0.11	*	14.5	14.8	15.3	16.2	16.9	17.2	17.6	*
4 years	206	16.2	0.14	*	14.1	14.3	14.8	16.0	16.9	17.7	18.4	*
5 years	202	16.8	0.25	*	14.2	14.5	14.9	16.0	17.5	18.5	19.5	*
6 years	176	16.5	0.15	*	14.2	14.7	15.0	16.1	17.4	18.7	19.1	*
7 years	181	16.9	0.24	*	14.3	14.7	15.1	16.2	17.6	19.3	20.0	*
8 years	151	18.1	0.35	*	14.6	15.0	15.5	17.2	19.1	20.8	22.5	*
9 years	176	18.4	0.34	*	14.7	15.1	15.7	17.3	20.3	21.6	22.7	*
10 years	171	19.6	0.33	*	15.5	15.7	16.5	18.0	21.8	24.4	26.0	*
11 years	158	20.5	0.54	*	15.9	16.5	16.9	18.3	22.8	26.6	27.4	*
12 years	275	21.0	0.44	15.2	16.0	16.6	17.3	19.7	23.2	25.8	28.1	31.8
13 years	284	21.8	0.40	15.7	16.8	17.3	17.8	20.8	24.0	25.9	28.5	31.5
14 years	260	22.0	0.51	16.4	17.2	17.5	18.5	20.9	23.8	26.4	29.1	32.4
15 years	270	23.2	0.36	17.7	17.9	18.7	19.7	21.9	25.0	27.7	30.5	31.6
16 years	308	24.5	0.43	17.5	18.9	19.4	20.3	22.6	27.7	30.6	32.7	35.5
17 years	278	24.0	0.45	18.3	18.8	19.0	20.0	22.4	26.7	29.4	31.3	34.0
18 years	283	24.6	0.54	17.7	19.0	19.6	20.9	23.1	27.5	30.2	31.7	36.3
19 years	271	25.6	0.53	18.4	19.3	20.1	21.6	24.2	28.6	31.7	34.0	36.4
Female												
2 years	285	16.6	0.11	*	14.7	15.1	15.4	16.3	17.4	18.3	18.7	*
3 years	187	16.3	0.18	*	14.5	14.8	15.1	15.9	16.9	18.0	19.0	*
4 years	224	16.1	0.14	*	14.3	14.6	15.0	15.8	16.7	17.1	18.0	*
5 years	199	16.2	0.19	*	14.3	14.5	14.9	15.5	16.9	18.1	18.9	*
6 years	193	16.4	0.21	*	14.1	14.5	14.8	15.9	17.3	18.4	19.4	*
7 years	157	17.1	0.26	*	14.4	14.8	15.2	16.4	18.2	19.6	20.5	*
8 years	184	17.6	0.42	*	14.2	14.6	15.1	16.6	18.7	21.5	22.8	*
9 years	185	18.9	0.36	*	15.1	15.5	15.9	18.1	21.1	22.6	24.4	*
10 years	189	20.2	0.40	*	15.3	15.7	16.5	19.3	22.4	25.7	26.9	*
11 years	174	21.3	0.47	*	15.9	16.3	17.6	20.6	23.9	26.1	28.4	*
12 years	249	21.4	0.45	*	15.5	16.9	18.0	20.0	23.1	27.5	29.0	*
13 years	292	22.7	0.35	*	17.0	17.8	18.9	21.4	25.8	28.1	30.1	*
14 years	269	22.8	0.62	*	17.7	18.1	18.6	21.2	25.2	28.9	31.0	*
15 years	247	23.2	0.28	*	18.3	18.7	19.7	22.1	25.8	27.3	29.4	*
16 years	253	23.2	0.39	*	18.5	19.1	20.1	21.5	25.0	27.4	30.1	*
17 years	252	25.0	0.60	*	19.1	19.5	20.7	22.9	27.4	30.8	32.7	*
18 years	271	25.4	0.80	*	18.5	19.1	20.7	23.5	28.2	33.1	34.7	*
19 years	238	25.3	0.64	*	19.6	20.1	21.1	23.6	27.4	31.1	33.7	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.NOTE: Pregnant females were excluded. Body mass index (BMI) is calculated as follows: BMI = weight(kilograms)/height(meters²).

Table 14. Body mass index values for females 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Body mass index												
20 years and over	4,313	28.4	0.19	19.4	20.7	21.6	23.1	26.9	32.2	35.5	38.1	41.6
20–29 years	705	26.5	0.36	18.2	19.4	20.1	21.4	24.4	30.0	33.4	35.9	41.3
30–39 years	663	28.1	0.38	19.4	20.3	21.2	22.9	26.1	32.2	35.4	37.9	41.2
40–49 years	778	29.2	0.39	19.8	21.2	21.9	23.6	27.5	33.4	36.9	38.9	43.5
50–59 years	602	29.6	0.39	20.2	21.3	22.4	23.9	28.3	33.9	37.7	40.2	44.1
60–69 years	691	29.5	0.33	20.6	22.1	23.2	24.7	28.1	32.9	36.1	37.9	42.0
70–79 years	463	27.8	0.40	19.6	21.1	22.5	24.0	27.0	30.9	33.1	35.8	39.6
80 years and over	411	26.4	0.27	19.7	20.8	21.7	23.1	26.0	29.6	31.7	33.0	34.3
Non-Hispanic white												
20 years and over	2,222	27.9	0.22	19.3	20.5	21.4	22.9	26.4	31.6	34.9	37.3	41.1
20–39 years	615	26.5	0.36	19.0	19.6	20.4	21.6	24.5	30.1	33.8	36.0	40.4
40–59 years	673	29.0	0.35	19.8	21.0	21.7	23.5	27.3	33.3	36.5	38.8	43.0
60 years and over	934	28.0	0.21	19.8	21.3	22.4	24.0	27.1	31.0	33.4	35.8	39.6
Non-Hispanic black												
20 years and over	956	31.6	0.28	20.5	22.2	23.7	25.9	30.5	36.2	39.7	41.4	46.4
20–39 years	328	30.8	0.46	19.8	21.3	22.5	24.8	29.4	35.1	39.5	40.9	45.4
40–59 years	355	32.4	0.33	20.6	23.3	24.8	27.1	30.8	37.4	40.4	43.2	47.3
60 years and over	273	31.8	0.44	22.1	23.1	24.0	26.0	31.0	35.9	38.3	41.2	46.4
Mexican American												
20 years and over	815	29.5	0.37	20.8	22.1	22.8	24.6	28.2	33.2	36.3	38.1	42.6
20–39 years	300	28.8	0.47	20.2	21.3	22.1	23.6	27.7	32.8	35.2	37.8	42.5
40–59 years	234	30.7	0.50	22.0	23.0	23.8	25.2	29.9	34.6	37.6	39.0	43.1
60 years and over	281	29.2	0.44	21.9	22.7	23.6	25.1	28.2	32.4	34.5	36.1	40.2

¹Persons of other races and unknown race and ethnicity are included.

NOTE: Pregnant females were excluded. Body mass index (BMI) is calculated as follows: BMI = weight(kilograms)/height(meters²).

Table 15. Body mass index values for males 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Body mass index												
20 years and over	4,474	28.4	0.14	20.8	22.1	23.1	24.6	27.7	31.2	33.4	35.3	38.6
20–29 years	808	27.0	0.31	19.2	20.7	21.7	23.1	25.8	30.1	32.6	34.2	38.9
30–39 years	741	28.2	0.23	21.0	22.3	23.1	24.5	27.6	31.0	32.9	34.7	37.7
40–49 years	768	29.2	0.26	22.1	23.1	24.0	25.5	28.4	31.9	34.1	36.0	38.8
50–59 years	590	28.9	0.27	21.1	22.4	23.6	25.3	28.1	31.7	34.3	36.5	39.3
60–69 years	665	29.2	0.29	21.5	23.1	24.1	25.8	28.6	32.0	34.2	36.2	38.5
70–79 years	554	28.1	0.25	21.1	22.3	23.5	24.8	27.6	30.9	32.8	34.2	36.5
80 years and over	348	26.2	0.19	19.7	21.0	21.7	23.1	26.1	28.7	30.4	31.8	33.3
Non-Hispanic white												
20 years and over	2,328	28.4	0.16	20.9	22.2	23.1	24.7	27.7	31.2	33.6	35.4	38.6
20–39 years	664	27.4	0.26	20.1	21.4	22.2	23.5	26.4	30.2	32.6	34.2	37.3
40–59 years	708	29.2	0.26	21.6	23.0	24.0	25.5	28.4	31.8	34.3	36.4	39.2
60 years and over	956	28.6	0.16	21.2	22.7	23.9	25.2	28.1	31.2	33.2	35.2	37.8
Non-Hispanic black												
20 years and over	939	28.8	0.30	20.5	21.5	22.8	24.4	27.5	32.0	34.6	36.7	41.4
20–39 years	360	28.9	0.45	20.2	20.8	22.1	24.0	27.8	32.0	34.8	38.2	42.4
40–59 years	316	28.9	0.37	21.3	22.4	23.1	24.7	27.3	32.0	34.6	36.9	41.3
60 years and over	263	28.1	0.30	20.4	21.6	22.9	24.4	27.3	31.5	33.6	35.1	38.0
Mexican American												
20 years and over	901	28.2	0.26	21.2	22.8	23.5	24.9	27.7	30.6	32.4	34.0	37.1
20–39 years	375	28.1	0.36	20.8	22.4	23.2	24.7	27.7	30.7	32.8	34.0	37.7
40–59 years	246	28.3	0.31	21.9	23.4	24.1	25.7	27.9	30.5	31.6	33.0	36.2
60 years and over	280	28.2	0.33	21.5	23.0	23.7	24.9	27.5	30.7	33.0	34.6	36.2

¹Persons of other races and unknown race and ethnicity are included.

NOTE: Body mass index (BMI) is calculated as follows: BMI = weight(kilograms)/height(meters²).

Table 16. Head circumference in centimeters for infants from birth through 6 months of age by sex and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Centimeters												
Birth–2 months	100	39.1	0.21	*	*	37.4	37.9	39.0	40.5	40.8	*	*
3–5 months	137	42.9	0.17	*	40.6	41.2	41.7	42.8	43.8	44.6	44.7	*
6 months	44	44.2	0.34	*	*	*	*	*	*	*	*	*
Female												
Birth–2 months	81	38.4	0.18	*	*	37.1	37.5	38.4	39.2	39.7	*	*
3–5 months	93	41.3	0.16	*	*	39.6	40.3	41.5	42.4	42.6	*	*
6 months	41	43.2	0.30	*	*	*	*	*	*	*	*	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

Table 17. Recumbent length in centimeters for children from birth through 47 months of age by sex and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Centimeters												
0–2 months	100	56.9	0.42	*	*	53.2	54.7	57.0	59.7	60.5	*	*
3–5 months	139	64.4	0.39	*	60.8	61.1	62.3	64.3	66.5	67.3	68.1	*
6–8 months	130	69.2	0.36	*	64.8	65.6	67.3	69.2	71.5	72.2	73.0	*
9–11 months	123	73.8	0.33	*	70.4	70.9	71.6	74.0	75.4	76.8	77.3	*
12–23 months	353	82.3	0.30	74.7	76.4	77.4	78.6	82.3	85.9	87.5	88.6	91.1
24–35 months	268	92.4	0.28	85.5	87.3	88.1	89.6	92.3	95.1	96.7	97.9	99.2
36–47 months	198	99.4	0.42	*	93.3	93.8	95.9	99.2	102.9	104.4	106.0	*
Female												
0–2 months	80	56.5	0.62	*	*	*	54.3	56.0	57.9	*	*	*
3–5 months	94	63.1	0.36	*	*	59.7	61.5	63.5	64.9	65.8	*	*
6–8 months	121	67.8	0.35	*	*	65.1	66.3	67.9	69.2	70.5	*	*
9–11 months	125	71.6	0.27	*	*	68.4	70.1	71.9	73.4	74.2	*	*
12–23 months	324	80.5	0.29	73.3	75.0	75.7	76.8	80.6	84.0	85.2	86.3	88.1
24–35 months	312	90.4	0.40	82.3	84.0	84.9	87.0	90.3	93.9	95.6	96.3	97.8
36–47 months	183	99.5	0.37	*	93.2	95.2	97.0	99.4	102.2	103.8	105.1	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

Table 18. Waist circumference in centimeters for children and adolescents aged 2–19 years by sex and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Centimeters												
2 years	231	48.7	0.25	*	45.0	45.4	46.4	48.3	50.9	51.9	52.8	*
3 years	199	50.2	0.30	*	45.9	46.5	47.7	50.0	52.3	53.4	54.3	*
4 years	199	52.3	0.40	*	47.4	47.9	49.0	51.5	54.3	55.8	58.0	*
5 years	198	56.5	0.73	*	49.4	50.4	51.4	54.4	58.3	60.8	64.1	*
6 years	174	57.0	0.46	*	50.8	52.3	53.0	55.5	59.4	63.0	65.7	*
7 years	177	58.9	0.77	*	51.8	52.4	53.4	56.5	61.9	65.8	69.7	*
8 years	146	63.2	1.11	*	53.7	54.8	56.3	59.7	67.3	72.1	81.0	*
9 years	173	64.9	0.91	*	55.0	55.5	57.0	63.0	68.8	75.5	77.0	*
10 years	171	69.1	0.93	*	57.4	58.0	60.0	65.4	76.3	81.9	86.2	*
11 years	153	72.9	1.63	*	58.2	60.3	61.6	67.4	83.1	89.5	93.5	*
12 years	272	75.3	1.17	59.1	60.9	62.0	64.6	71.2	82.5	88.5	91.5	107.9
13 years	282	77.9	1.13	62.2	63.7	64.9	66.8	74.6	84.2	89.4	97.4	107.1
14 years	257	78.3	1.34	63.4	65.7	66.9	68.6	73.8	82.9	93.5	99.4	103.0
15 years	266	81.3	0.92	66.5	68.1	69.4	72.1	78.2	86.9	92.8	98.9	104.3
16 years	303	85.5	1.12	68.1	70.4	71.1	74.3	79.0	94.3	105.0	109.8	114.5
17 years	272	83.9	0.87	68.8	70.7	71.6	74.1	79.0	90.4	99.5	105.2	110.7
18 years	277	86.3	1.44	69.6	70.9	72.5	75.2	81.3	95.4	103.4	107.1	116.4
19 years	262	88.1	1.27	70.0	72.2	74.0	76.5	83.5	96.8	106.0	110.9	118.6
Female												
2 years	269	48.4	0.29	*	43.4	44.5	45.4	48.3	50.5	52.5	53.5	*
3 years	177	50.5	0.36	*	46.0	46.5	47.9	49.6	51.7	54.1	54.8	*
4 years	223	52.6	0.34	*	47.5	48.4	49.6	52.3	54.6	55.7	57.2	*
5 years	194	54.9	0.64	*	49.0	49.6	50.7	53.0	57.1	60.8	63.4	*
6 years	188	56.2	0.50	*	49.8	50.6	52.0	55.1	58.9	61.6	63.1	*
7 years	154	60.0	0.85	*	52.5	53.1	55.0	57.9	62.6	67.8	71.0	*
8 years	179	62.6	1.19	*	52.8	53.5	54.8	58.8	65.9	75.5	80.1	*
9 years	183	67.5	1.06	*	56.3	57.8	59.7	64.5	72.8	77.9	80.5	*
10 years	183	71.4	1.02	*	58.6	60.1	62.3	69.1	77.9	84.1	86.0	*
11 years	172	75.1	1.13	*	61.0	61.8	65.1	72.5	82.5	90.3	92.5	*
12 years	242	75.3	1.06	*	60.6	63.6	66.1	73.6	80.6	89.2	94.3	*
13 years	289	78.4	0.88	61.8	65.0	65.9	69.1	75.5	84.7	94.3	97.8	100.1
14 years	265	79.1	1.50	*	66.7	67.9	70.1	74.8	85.8	91.8	99.2	*
15 years	237	80.4	0.90	*	67.2	69.6	71.6	76.7	87.8	92.6	99.0	*
16 years	248	79.9	0.98	*	67.9	69.7	71.7	77.2	84.7	91.6	98.6	*
17 years	244	83.4	1.23	*	68.5	71.1	74.1	79.0	87.7	98.7	101.3	*
18 years	268	84.0	1.52	*	68.5	70.6	73.2	80.5	90.5	100.7	106.6	*
19 years	230	85.8	1.71	*	69.5	71.5	73.6	81.3	92.7	102.9	107.8	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

NOTE: Pregnant females were excluded.

Table 19. Waist circumference in centimeters for females 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,134	94.1	0.44	71.9	74.8	77.4	81.8	92.0	104.0	110.8	115.6	123.3
20–29 years	680	88.2	0.90	68.6	71.7	73.1	75.8	84.3	96.7	106.1	113.5	119.5
30–39 years	648	91.6	0.92	71.6	74.1	76.2	79.6	89.3	100.2	106.9	111.8	121.1
40–49 years	767	95.2	0.75	72.9	76.2	79.3	83.7	92.6	105.4	111.4	116.8	125.5
50–59 years	582	96.9	0.92	72.3	76.3	78.8	84.8	95.4	108.1	113.8	117.7	127.7
60–69 years	670	98.6	0.62	75.7	79.8	82.8	88.1	97.1	108.8	114.8	118.9	123.8
70–79 years	441	96.2	0.91	72.6	79.0	82.6	87.5	96.1	103.9	109.7	113.1	120.8
80 years and over	346	94.0	0.72	74.9	78.6	80.8	86.1	93.9	101.6	105.5	109.3	112.8
Non-Hispanic white												
20 years and over	2,127	93.7	0.54	71.8	74.3	76.8	81.5	91.7	103.6	110.4	115.2	122.6
20–39 years	599	88.9	0.90	70.2	72.8	74.0	76.9	85.2	97.4	105.3	112.3	119.9
40–59 years	664	95.4	0.73	72.0	75.3	78.0	83.2	93.3	105.9	111.9	116.9	125.6
60 years and over	864	96.6	0.51	74.7	78.8	82.0	87.3	96.0	104.9	110.6	114.9	121.5
Non-Hispanic black												
20 years and over	906	99.2	0.55	73.6	77.7	81.0	87.0	97.4	110.2	116.5	121.7	129.5
20–39 years	315	95.8	1.04	70.9	74.6	77.3	81.8	93.4	107.3	114.4	119.1	128.2
40–59 years	343	101.2	0.73	75.9	81.3	85.6	89.2	99.7	111.6	117.3	123.5	131.4
60 years and over	248	102.4	0.75	79.4	83.5	86.4	91.1	100.9	112.4	118.8	121.9	128.5
Mexican American												
20 years and over	790	95.8	0.79	75.9	78.6	80.9	85.2	94.1	104.3	110.0	114.7	121.2
20–39 years	292	93.8	0.93	74.6	77.3	79.7	83.4	91.7	102.9	107.8	112.0	120.5
40–59 years	228	98.2	1.07	77.4	80.5	83.1	88.1	96.5	107.0	112.7	116.1	123.6
60 years and over	270	98.4	0.82	80.1	83.1	87.0	90.0	97.4	106.4	111.5	113.1	121.2

¹Persons of other races and unknown race and ethnicity are included.

NOTE: Pregnant females were excluded.

Table 20. Waist circumference in centimeters for males 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,310	100.8	0.43	78.6	82.6	85.9	90.4	99.6	109.8	115.0	119.2	127.8
20–29 years	783	93.8	0.80	73.5	76.8	78.8	82.8	90.9	101.3	108.4	113.3	123.9
30–39 years	715	98.2	0.63	78.9	81.9	85.1	88.9	96.8	105.7	111.4	115.0	120.7
40–49 years	750	102.9	0.66	82.4	86.6	89.3	93.4	101.8	111.4	115.3	119.6	128.6
50–59 years	564	103.9	0.69	83.6	87.1	90.2	94.0	102.9	111.1	117.3	122.3	129.7
60–69 years	649	106.7	0.74	84.6	90.2	93.0	97.5	105.5	115.6	120.8	124.6	129.9
70–79 years	530	105.4	0.73	84.8	88.9	91.8	96.1	104.4	113.5	118.3	121.9	129.1
80 years and over	319	100.4	0.38	82.1	84.9	88.4	92.5	100.2	108.0	112.9	116.0	119.4
Non-Hispanic white												
20 years and over	2,242	102.0	0.45	80.2	84.2	87.0	91.6	101.0	110.7	116.1	120.0	128.7
20–39 years	652	96.5	0.63	76.7	79.9	81.9	86.0	94.1	104.1	110.6	114.1	123.4
40–59 years	686	104.3	0.65	84.2	88.2	90.5	95.1	103.1	112.0	117.0	122.3	130.4
60 years and over	904	106.3	0.41	85.7	90.2	93.0	96.9	105.1	114.7	118.9	123.3	129.8
Non-Hispanic black												
20 years and over	899	98.3	0.73	74.2	78.4	81.5	86.8	95.9	107.4	114.8	119.6	130.2
20–39 years	345	95.5	1.04	73.3	76.0	78.2	82.9	92.4	104.9	112.6	117.0	130.3
40–59 years	299	100.0	0.95	77.9	81.5	83.7	89.2	97.3	108.2	114.9	120.4	130.7
60 years and over	255	102.0	0.86	79.3	83.0	88.6	92.2	101.8	110.4	117.7	121.0	125.0
Mexican American												
20 years and over	875	97.8	0.85	79.3	83.2	85.6	88.9	96.7	104.6	109.4	113.2	118.9
20–39 years	358	96.2	1.07	76.6	81.3	83.9	87.3	94.2	102.8	108.6	112.0	118.8
40–59 years	243	99.4	0.71	*	85.8	88.3	93.1	98.3	105.4	109.0	111.3	*
60 years and over	274	103.0	0.89	84.0	89.6	92.1	95.7	102.1	110.4	115.6	118.5	121.6

* Figure does not meet standards of reliability or precision.

¹Persons of other races and unknown race and ethnicity are included.

Table 21. Mid-arm circumference in centimeters for children and adolescents aged 2 months–19 years by sex and age, by mean, standard error of the mean, and selected percentiles: United States, 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Centimeters												
2 months	13	*	*	*	*	*	*	*	*	*	*	*
3–5 months	133	14.1	0.07	*	12.9	13.2	13.5	14.1	14.7	15.0	15.2	*
6–8 months	129	14.7	0.13	*	13.2	13.6	13.9	14.6	15.5	15.9	16.3	*
9–11 months	123	15.3	0.12	*	*	14.2	14.7	15.2	15.9	16.4	*	*
1 year	341	15.6	0.09	13.7	14.0	14.2	14.7	15.6	16.4	16.9	17.3	17.5
2 years	270	16.1	0.09	14.3	14.5	14.9	15.3	16.0	16.9	17.3	17.5	18.1
3 years	199	16.6	0.11	*	14.7	15.1	15.4	16.3	17.3	18.0	18.4	*
4 years	200	17.3	0.18	*	15.2	15.5	16.0	17.1	18.1	18.8	19.5	*
5 years	200	18.4	0.24	*	15.9	16.2	16.6	17.9	19.1	20.1	21.2	*
6 years	174	18.9	0.15	*	16.4	16.9	17.4	18.5	20.2	21.4	21.7	*
7 years	177	19.7	0.24	*	16.9	17.4	17.9	19.1	20.6	21.8	23.1	*
8 years	146	20.9	0.31	*	17.8	18.1	18.4	20.3	22.2	23.6	24.4	*
9 years	173	21.7	0.32	*	17.6	18.2	19.1	21.3	23.6	24.8	25.8	*
10 years	170	23.4	0.31	*	19.1	19.7	20.5	22.2	26.1	28.1	29.4	*
11 years	154	24.6	0.55	*	19.5	20.3	21.3	23.3	27.6	29.7	31.3	*
12 years	271	25.4	0.42	19.4	20.3	20.9	22.0	24.2	28.2	30.0	32.6	34.3
13 years	282	26.8	0.38	20.3	21.5	22.4	23.5	26.1	29.5	31.8	32.6	34.3
14 years	257	27.7	0.40	21.1	22.9	23.2	24.2	27.2	30.0	31.8	33.7	36.1
15 years	267	29.3	0.33	24.0	24.6	25.1	26.3	28.3	32.2	33.4	34.5	36.2
16 years	302	30.8	0.37	24.5	25.6	26.0	26.8	29.8	33.6	36.8	38.3	39.7
17 years	273	30.7	0.36	24.9	26.1	26.6	27.3	29.6	33.1	35.0	37.1	38.8
18 years	278	31.5	0.42	24.7	26.2	27.0	28.3	30.2	34.4	36.2	37.8	39.8
19 years	266	32.4	0.41	25.6	26.9	27.5	29.0	31.9	35.3	38.2	38.8	40.6
Female												
2 months	10	*	*	*	*	*	*	*	*	*	*	*
3–5 months	93	13.8	0.11	*	*	*	13.1	13.6	14.2	*	*	*
6–8 months	120	14.6	0.11	*	*	13.4	13.7	14.4	15.4	15.9	*	*
9–11 months	122	15.0	0.13	*	*	13.7	14.2	14.9	15.9	16.3	*	*
1 year	319	15.4	0.09	13.1	13.7	14.0	14.5	15.4	16.1	16.6	17.0	17.5
2 years	305	16.1	0.09	14.1	14.4	14.7	15.1	16.0	17.0	17.6	17.9	18.4
3 years	176	16.8	0.12	*	15.2	15.4	15.8	16.6	17.3	18.1	18.5	*
4 years	223	17.4	0.12	*	15.6	15.9	16.2	17.1	18.3	18.9	19.2	*
5 years	195	17.9	0.18	*	15.8	16.1	16.6	17.4	19.1	20.0	20.6	*
6 years	187	18.8	0.19	*	16.3	16.9	17.3	18.3	19.7	20.7	22.0	*
7 years	155	20.1	0.25	*	17.0	17.3	18.1	19.4	21.5	23.3	24.0	*
8 years	181	20.9	0.42	*	17.1	17.8	18.5	20.1	22.4	24.8	25.6	*
9 years	183	22.5	0.38	*	18.6	19.0	19.8	22.1	25.2	26.4	27.2	*
10 years	183	23.9	0.37	*	18.9	19.8	20.8	23.3	26.2	28.3	30.0	*
11 years	174	25.3	0.41	*	20.1	20.7	21.7	24.8	28.1	29.6	30.8	*
12 years	243	25.5	0.44	*	20.8	21.5	22.6	24.5	27.2	29.9	32.0	*
13 years	289	26.9	0.32	19.9	21.6	22.5	23.8	25.7	29.5	31.7	32.7	35.8
14 years	264	27.0	0.52	*	22.2	22.6	23.4	26.1	29.4	32.0	33.2	*
15 years	240	27.7	0.27	*	22.9	23.6	24.7	26.7	30.5	32.1	33.2	*
16 years	248	27.8	0.34	*	23.3	23.9	24.9	26.8	29.5	32.0	33.4	*
17 years	247	29.0	0.46	*	23.4	24.4	25.3	28.1	31.4	33.0	35.5	*
18 years	272	29.3	0.58	*	23.3	24.1	25.6	28.3	32.1	34.6	36.5	*
19 years	235	29.4	0.51	*	24.6	25.0	25.9	28.0	31.1	34.2	36.9	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

NOTE: Pregnant females were excluded.

Table 22. Mid-arm circumference in centimeters for females 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,195	31.9	0.15	24.3	25.7	26.5	27.9	31.0	35.1	37.4	39.2	42.0
20–29 years	685	30.3	0.30	23.5	24.2	25.1	26.2	29.0	33.1	35.8	37.6	41.4
30–39 years	652	31.9	0.29	24.7	25.8	26.9	27.9	30.7	35.3	37.9	39.5	41.3
40–49 years	773	32.7	0.28	24.9	26.2	27.1	28.7	31.7	35.9	38.2	40.1	42.4
50–59 years	585	32.8	0.23	25.6	26.3	27.4	28.6	32.0	35.9	38.5	40.0	42.3
60–69 years	683	33.0	0.20	25.5	27.0	27.8	29.0	32.1	36.1	37.9	39.5	43.7
70–79 years	452	31.3	0.28	24.4	25.8	26.7	27.9	30.6	34.1	35.9	37.3	39.5
80 years and over	365	29.2	0.23	22.7	23.8	24.9	26.1	28.9	32.0	33.5	34.5	36.0
Non-Hispanic white												
20 years and over	2,158	31.7	0.18	24.2	25.6	26.4	27.8	30.8	34.8	36.9	38.7	41.5
20–39 years	602	30.8	0.30	23.7	24.9	25.7	27.1	29.5	33.5	36.3	38.3	40.6
40–59 years	665	32.5	0.23	25.0	26.1	27.0	28.4	31.6	35.6	37.9	39.8	42.2
60 years and over	891	31.4	0.17	23.8	25.6	26.6	27.9	30.9	34.4	36.3	37.4	40.1
Non-Hispanic black												
20 years and over	925	34.4	0.25	25.3	26.8	28.2	29.9	33.9	38.0	40.5	42.3	45.6
20–39 years	319	33.6	0.38	24.6	26.0	27.1	28.8	33.0	37.5	40.0	41.5	44.6
40–59 years	347	35.3	0.31	26.1	27.8	29.6	31.0	34.7	39.2	41.4	43.1	45.8
60 years and over	259	34.2	0.45	25.7	26.8	28.3	30.1	34.1	37.3	39.7	41.3	45.3
Mexican American												
20 years and over	798	32.2	0.25	25.3	26.4	27.2	28.6	31.6	35.1	37.4	38.6	40.5
20–39 years	294	31.7	0.34	25.0	26.0	26.5	28.0	31.1	34.6	36.9	37.9	40.3
40–59 years	231	33.2	0.29	26.6	27.7	28.3	29.7	32.5	36.0	38.1	39.2	40.5
60 years and over	273	32.1	0.30	25.5	26.2	27.5	28.5	31.4	35.2	36.5	38.3	40.5

¹Persons of other races and unknown race and ethnicity are included.

NOTE: Pregnant females were excluded.

Table 23. Mid-arm circumference in centimeters for males 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,349	34.1	0.11	27.5	29.0	29.9	31.2	33.8	36.6	38.2	39.5	41.4
20–29 years	791	33.7	0.23	26.7	28.1	29.4	30.6	33.1	36.4	38.2	39.3	41.8
30–39 years	726	34.6	0.17	28.6	29.7	30.4	31.6	34.1	36.8	38.4	39.8	41.9
40–49 years	751	35.1	0.20	28.7	30.2	31.0	32.5	34.7	37.5	38.9	40.2	42.2
50–59 years	570	34.2	0.20	27.9	29.4	30.1	31.3	33.9	36.6	38.3	39.4	41.4
60–69 years	652	34.0	0.23	27.7	29.4	30.1	31.1	33.7	36.4	37.9	39.1	40.6
70–79 years	534	32.5	0.19	26.2	27.8	28.6	30.0	32.3	34.7	36.2	37.5	38.8
80 years and over	325	29.9	0.15	24.4	25.8	26.5	27.6	29.9	31.8	32.8	34.3	35.4
Non-Hispanic white												
20 years and over	2,264	34.2	0.13	27.6	29.1	30.0	31.3	33.9	36.7	38.2	39.5	41.3
20–39 years	658	34.2	0.22	27.6	29.1	29.9	31.3	33.7	36.7	38.2	39.7	41.9
40–59 years	692	34.8	0.22	28.5	30.0	30.7	32.3	34.6	37.2	38.7	40.1	41.5
60 years and over	914	33.0	0.14	26.4	28.1	29.1	30.4	32.6	35.3	37.0	38.1	40.0
Non-Hispanic black												
20 years and over	908	35.0	0.21	28.0	29.3	30.0	31.6	34.4	37.9	39.7	41.5	44.4
20–39 years	351	35.5	0.31	28.3	29.1	30.5	31.8	35.0	38.2	40.8	42.5	45.4
40–59 years	298	35.1	0.29	28.6	29.6	30.1	31.8	34.4	37.9	39.5	41.3	43.6
60 years and over	259	33.3	0.25	25.2	27.4	28.7	30.4	33.2	36.1	37.9	39.0	40.7
Mexican American												
20 years and over	880	33.3	0.19	27.7	28.7	29.6	30.9	33.1	35.6	36.9	37.9	39.8
20–39 years	364	33.5	0.30	27.8	28.7	29.7	31.0	33.2	35.9	37.2	38.2	40.0
40–59 years	243	33.2	0.19	*	29.0	29.7	31.1	33.2	35.4	36.3	37.0	*
60 years and over	273	32.2	0.33	25.6	27.4	28.3	29.7	31.9	34.7	36.2	37.0	38.6

* Figure does not meet standards of reliability or precision.

¹Persons of other races and unknown race and ethnicity are included.

Table 24. Upper arm length in centimeters for children and adolescents aged 2 months–19 years by sex and age, by mean, standard error of the mean, and selected percentiles: United States, 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Centimeters												
2 months	13	*	*	*	*	*	*	*	*	*	*	*
3–5 months	133	12.8	0.09	*	*	11.8	11.9	12.7	13.4	13.7	*	*
6–8 months	129	13.9	0.18	*	*	12.4	12.8	13.8	14.8	15.1	*	*
9–11 months	123	15.1	0.14	*	*	14.0	14.3	15.0	15.9	16.0	*	*
1 year	343	16.7	0.10	14.4	14.9	15.2	15.8	16.9	17.5	18.0	18.2	18.9
2 years	271	18.8	0.09	*	17.1	17.4	17.9	18.7	19.5	19.9	20.4	*
3 years	199	20.2	0.14	*	18.3	18.6	19.3	20.2	21.2	21.7	22.0	*
4 years	201	21.9	0.14	*	19.9	20.2	20.9	21.9	22.9	23.5	24.0	*
5 years	200	23.8	0.16	*	21.9	22.0	22.7	23.9	24.6	25.0	25.7	*
6 years	174	25.0	0.13	*	23.2	23.5	24.0	25.0	25.8	26.5	26.7	*
7 years	177	26.2	0.16	*	23.7	24.2	24.9	26.0	27.5	28.2	28.5	*
8 years	146	27.6	0.22	*	25.3	25.5	26.3	27.6	28.7	29.2	29.5	*
9 years	173	29.1	0.18	*	26.9	27.3	27.9	28.9	30.5	31.0	31.3	*
10 years	170	30.5	0.23	*	27.9	28.4	28.8	30.2	32.1	32.9	33.6	*
11 years	154	32.3	0.32	*	28.7	29.9	30.7	32.2	34.3	34.9	35.8	*
12 years	271	33.3	0.22	*	30.0	30.7	31.5	33.3	34.5	35.8	36.5	*
13 years	282	34.9	0.24	*	31.5	31.9	32.9	34.8	36.7	37.5	38.3	*
14 years	257	36.4	0.26	*	33.1	33.7	34.6	36.4	38.0	38.9	39.9	*
15 years	267	37.7	0.18	*	35.0	35.4	36.1	37.6	39.1	40.0	40.3	*
16 years	302	38.3	0.18	34.8	35.8	36.1	36.6	38.0	39.9	40.5	41.0	41.8
17 years	273	38.6	0.16	*	35.6	36.1	37.0	38.7	40.1	41.0	41.6	*
18 years	279	38.8	0.16	*	35.7	36.1	37.0	38.8	40.5	41.2	42.0	*
19 years	266	38.9	0.22	*	35.2	36.4	37.5	38.9	40.1	41.1	41.8	*
Female												
2 months	10	*	*	*	*	*	*	*	*	*	*	*
3–5 months	93	12.2	0.16	*	*	11.0	11.4	12.0	12.9	13.3	*	*
6–8 months	120	13.6	0.15	*	*	12.4	12.9	13.5	14.0	14.6	*	*
9–11 months	122	14.4	0.11	*	*	13.5	13.9	14.5	15.0	15.3	*	*
1 year	320	16.2	0.09	13.5	14.3	14.7	15.2	16.2	17.2	17.7	18.0	18.5
2 years	306	18.4	0.10	16.3	16.7	17.0	17.5	18.4	19.2	19.5	19.9	20.5
3 years	177	20.2	0.11	*	18.8	18.9	19.4	20.0	21.0	21.5	21.8	*
4 years	223	21.5	0.11	*	19.5	19.9	20.7	21.4	22.4	22.7	23.0	*
5 years	195	22.9	0.15	*	21.0	21.3	21.9	22.9	23.9	24.2	24.7	*
6 years	188	24.6	0.14	*	22.9	23.0	23.4	24.4	25.4	26.0	26.7	*
7 years	155	26.1	0.17	*	24.0	24.3	24.9	25.9	27.0	28.1	28.4	*
8 years	181	27.4	0.15	*	25.3	25.7	26.1	27.2	28.7	29.4	29.7	*
9 years	183	29.3	0.19	*	26.6	27.0	27.6	29.3	30.7	31.5	31.9	*
10 years	183	30.8	0.21	*	28.0	28.4	29.4	30.8	32.0	32.9	33.5	*
11 years	174	32.3	0.22	*	29.4	29.9	30.6	32.4	33.8	34.6	34.9	*
12 years	243	33.9	0.18	*	31.0	31.4	32.3	33.9	35.3	36.0	36.8	*
13 years	289	34.5	0.14	31.1	31.9	32.5	33.3	34.3	36.1	36.7	37.0	37.7
14 years	265	34.9	0.19	*	32.4	33.0	33.5	34.6	36.2	37.0	37.7	*
15 years	246	35.1	0.19	*	32.4	32.9	33.8	34.8	36.5	37.3	37.9	*
16 years	255	35.3	0.16	*	32.7	33.0	33.9	35.2	36.5	37.4	38.0	*
17 years	271	35.3	0.15	*	32.8	33.1	33.9	35.0	36.6	37.4	37.9	*
18 years	304	35.7	0.26	32.3	32.9	33.4	34.0	35.8	37.0	38.0	38.5	39.7
19 years	264	35.5	0.19	*	32.4	33.1	33.8	35.5	36.9	37.9	38.2	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

Table 25. Upper arm length in centimeters for females 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,722	36.0	0.06	32.4	33.2	33.7	34.4	35.9	37.4	38.2	38.8	39.7
20–29 years	1,035	35.7	0.10	32.3	33.1	33.5	34.3	35.5	37.0	37.9	38.5	39.1
30–39 years	824	36.0	0.12	32.5	33.2	33.6	34.3	35.8	37.4	38.1	38.8	39.9
40–49 years	778	36.1	0.10	32.4	33.2	33.9	34.5	35.9	37.6	38.5	39.0	39.9
50–59 years	585	35.9	0.12	32.2	33.2	33.6	34.3	35.8	37.4	38.2	38.7	39.4
60–69 years	683	36.4	0.11	32.9	33.5	34.0	34.9	36.3	37.7	38.4	39.0	40.1
70–79 years	453	36.0	0.12	32.3	33.3	34.0	34.5	35.9	37.2	37.9	38.6	39.9
80 years and over	364	35.6	0.11	32.1	33.0	33.4	34.0	35.5	37.1	37.8	38.0	39.0
Non-Hispanic white												
20 years and over	2,405	36.1	0.05	32.7	33.4	33.9	34.5	35.9	37.4	38.2	38.7	39.7
20–39 years	849	36.0	0.10	32.7	33.4	33.8	34.5	35.8	37.3	38.0	38.7	39.5
40–59 years	666	36.1	0.07	32.6	33.3	33.8	34.5	35.9	37.5	38.4	38.9	39.9
60 years and over	890	36.1	0.08	32.9	33.5	34.0	34.7	36.0	37.4	38.0	38.6	39.7
Non-Hispanic black												
20 years and over	1,001	37.0	0.07	33.4	34.0	34.6	35.4	36.9	38.2	39.0	39.7	40.9
20–39 years	394	36.8	0.14	33.4	33.9	34.2	35.0	36.7	38.1	38.8	39.4	40.5
40–59 years	347	37.0	0.09	33.3	34.3	34.9	35.5	37.0	38.3	39.1	39.6	40.5
60 years and over	260	37.3	0.18	33.8	34.3	34.8	35.5	37.0	38.7	39.8	40.6	41.4
Mexican American												
20 years and over	953	35.1	0.08	32.0	32.6	33.1	33.9	35.0	36.4	37.0	37.6	38.5
20–39 years	445	35.1	0.10	31.9	32.5	33.2	33.9	35.0	36.3	37.0	37.6	38.5
40–59 years	235	35.3	0.11	32.4	32.9	33.3	34.0	35.2	36.4	37.0	37.5	38.4
60 years and over	273	34.8	0.13	31.2	32.2	32.7	33.2	34.6	36.2	37.1	37.7	38.1

¹Persons of other races and unknown race and ethnicity are included.

Table 26. Upper arm length in centimeters for males 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,348	39.4	0.06	35.6	36.4	37.0	37.8	39.4	40.9	41.6	42.4	43.1
20–29 years	790	39.2	0.11	35.5	36.2	36.8	37.5	39.2	40.7	41.5	42.3	43.0
30–39 years	726	39.1	0.11	35.2	35.9	36.5	37.4	39.1	40.6	41.3	41.9	42.9
40–49 years	751	39.5	0.08	35.9	36.5	37.2	37.9	39.5	40.9	41.6	42.1	43.0
50–59 years	569	39.6	0.12	35.8	36.7	37.2	38.0	39.6	41.0	42.2	42.7	43.4
60–69 years	653	39.7	0.10	36.0	36.7	37.2	38.1	39.7	41.2	42.0	42.5	43.2
70–79 years	534	39.5	0.14	35.6	36.5	37.0	37.8	39.4	41.2	41.9	42.5	43.4
80 years and over	325	38.9	0.10	35.6	36.3	36.8	37.4	38.8	40.3	41.0	41.5	42.0
Non-Hispanic white												
20 years and over	2,264	39.7	0.07	36.1	36.9	37.4	38.0	39.6	41.0	41.8	42.5	43.2
20–39 years	658	39.5	0.11	35.9	36.6	37.3	38.0	39.4	40.9	41.5	42.2	43.0
40–59 years	692	39.8	0.09	36.4	37.1	37.5	38.2	39.8	41.2	42.0	42.6	43.3
60 years and over	914	39.7	0.07	36.1	36.9	37.4	38.1	39.6	41.2	42.0	42.5	43.2
Non-Hispanic black												
20 years and over	909	39.9	0.09	36.0	37.0	37.4	38.3	39.9	41.4	42.3	43.0	43.9
20–39 years	351	39.9	0.13	35.9	36.9	37.4	38.3	39.9	41.4	42.5	43.0	43.9
40–59 years	298	39.9	0.12	35.9	36.9	37.4	38.4	39.8	41.4	42.2	42.9	43.9
60 years and over	260	39.9	0.15	36.6	37.0	37.5	38.2	39.9	41.2	42.0	42.7	43.6
Mexican American												
20 years and over	880	37.9	0.12	34.6	35.2	35.6	36.3	37.7	39.4	40.1	40.7	41.5
20–39 years	364	37.9	0.16	34.4	35.0	35.6	36.2	37.5	39.5	40.2	40.9	41.6
40–59 years	243	38.1	0.14	35.0	35.4	35.9	36.5	37.9	39.4	40.0	40.5	41.2
60 years and over	273	37.9	0.13	34.5	35.0	35.4	36.2	37.9	39.3	40.0	40.5	41.0

¹Persons of other races and unknown race and ethnicity are included.

Table 27. Subscapular skinfold thickness in millimeters for children and adolescents aged 2 months–19 years by sex and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Millimeters												
2 months	12	*	*	*	*	*	*	*	*	*	*	*
3–5 months	126	8.3	0.20	*	*	6.5	7.0	7.9	9.2	10.6	*	*
6–8 months	126	7.6	0.18	*	*	5.8	6.2	7.3	8.4	9.2	*	*
9–11 months	121	7.6	0.26	*	*	5.6	5.9	7.1	9.0	9.5	*	*
1 year	333	6.8	0.11	4.8	5.0	5.2	5.7	6.5	7.5	8.2	8.5	9.7
2 years	255	6.5	0.10	*	4.8	4.9	5.2	6.0	7.1	8.2	8.5	*
3 years	195	6.7	0.18	*	4.4	4.7	5.2	6.2	7.7	8.4	9.1	*
4 years	197	6.1	0.19	*	4.1	4.3	4.8	5.4	6.3	7.3	8.4	*
5 years	196	7.3	0.46	*	4.3	4.5	4.9	5.9	7.3	9.1	11.9	*
6 years	170	7.0	0.20	*	4.3	4.5	4.9	5.9	7.9	9.2	10.5	*
7 years	174	7.1	0.35	*	4.3	4.5	4.9	5.9	7.5	9.0	10.4	*
8 years	140	7.9	0.53	*	4.2	4.4	4.8	5.9	8.7	11.3	15.0	*
9 years	164	8.8	0.50	*	4.4	4.9	5.4	6.7	9.7	14.3	16.5	*
10 years	165	10.4	0.65	*	4.9	5.1	5.9	7.4	13.4	17.1	20.4	*
11 years	141	10.7	0.59	*	5.2	5.4	5.9	7.8	14.8	17.3	20.5	*
12 years	258	11.5	0.61	4.9	5.1	5.5	6.0	8.5	14.6	18.1	21.9	29.3
13 years	272	12.0	0.64	5.0	5.6	6.1	6.6	9.3	15.2	19.8	22.4	25.8
14 years	242	10.6	0.46	*	5.7	6.1	6.7	8.5	13.4	15.8	19.3	*
15 years	257	11.2	0.41	6.0	6.5	6.9	7.2	9.0	12.9	15.2	20.1	24.5
16 years	285	12.7	0.38	6.4	6.7	7.2	7.8	9.6	16.3	20.8	23.6	26.5
17 years	256	12.7	0.60	6.2	7.1	7.5	8.2	10.0	14.4	20.5	24.2	27.8
18 years	257	13.9	0.69	7.1	7.4	8.0	8.7	10.5	17.4	21.7	24.5	28.4
19 years	240	14.5	0.62	*	7.8	8.2	9.1	12.4	18.0	21.4	26.1	*
Female												
2 months	10	*	*	*	*	*	*	*	*	*	*	*
3–5 months	92	8.4	0.26	*	*	5.9	6.4	8.1	9.6	10.4	*	*
6–8 months	116	8.4	0.37	*	*	5.9	6.3	7.8	9.6	10.8	*	*
9–11 months	120	8.3	0.16	*	5.9	6.1	6.6	7.9	9.2	10.4	11.0	*
1 year	310	7.3	0.12	4.9	5.1	5.3	5.9	6.9	8.3	8.9	9.3	10.5
2 years	292	7.0	0.16	4.5	4.9	5.0	5.4	6.3	7.9	9.0	9.8	10.7
3 years	173	7.2	0.23	*	4.6	4.9	5.3	6.5	8.0	9.1	11.0	*
4 years	216	7.2	0.21	*	4.9	5.0	5.2	6.3	7.9	9.5	10.4	*
5 years	191	7.8	0.40	*	4.9	5.2	5.4	6.3	8.2	9.9	12.1	*
6 years	185	7.5	0.24	*	4.5	4.8	5.3	6.5	8.4	10.3	11.8	*
7 years	148	8.5	0.40	*	4.6	5.0	5.4	7.3	9.8	11.9	12.9	*
8 years	174	9.1	0.53	*	4.7	5.0	5.5	6.8	10.1	13.4	17.9	*
9 years	174	11.1	0.50	*	5.4	6.1	6.7	9.4	13.7	17.6	19.0	*
10 years	168	12.1	0.44	*	5.7	6.1	7.4	10.1	16.1	19.1	20.2	*
11 years	158	13.5	0.61	*	6.3	6.8	8.0	11.5	17.9	21.0	23.2	*
12 years	225	12.4	0.61	*	6.1	6.9	7.9	10.6	15.3	19.0	20.6	*
13 years	268	14.6	0.65	6.0	7.1	7.7	8.7	12.7	18.3	23.9	26.3	28.9
14 years	240	14.0	0.72	6.9	7.6	8.1	9.0	11.7	16.3	20.8	24.1	29.8
15 years	220	15.7	0.49	*	7.9	8.6	9.9	13.9	20.2	22.8	24.4	*
16 years	226	14.8	0.52	*	8.1	8.6	9.3	12.9	17.5	20.7	24.9	*
17 years	213	16.2	0.56	*	8.3	9.0	10.5	14.2	19.6	24.6	27.3	*
18 years	226	16.7	0.62	*	8.4	9.3	10.8	15.0	20.9	24.2	25.8	*
19 years	192	18.2	0.78	*	8.5	9.0	10.7	16.5	24.4	25.9	28.1	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

NOTE: Pregnant females were excluded.

Table 28. Subscapular skinfold thickness in millimeters for females 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Millimeters												
20 years and over	3,186	20.8	0.24	8.4	10.0	11.3	13.9	20.3	26.8	30.4	32.6	35.1
20–29 years	526	18.3	0.49	7.6	8.9	10.0	11.7	16.3	24.1	27.3	30.5	33.9
30–39 years	492	21.1	0.50	9.2	10.6	11.8	14.3	20.2	27.4	30.9	32.2	35.3
40–49 years	521	22.2	0.46	9.1	10.7	12.3	15.2	22.7	28.5	31.8	33.9	35.6
50–59 years	405	22.6	0.41	8.8	11.6	13.0	16.5	22.6	28.9	31.7	34.1	36.2
60–69 years	534	22.3	0.41	9.1	10.9	13.5	16.7	21.8	28.0	32.0	33.0	34.9
70–79 years	375	19.3	0.54	7.4	9.3	10.5	13.8	19.3	23.9	27.0	29.5	32.4
80 years and over	333	16.1	0.36	6.9	8.1	8.8	10.4	14.4	21.3	24.4	25.4	28.2
Non-Hispanic white												
20 years and over	1,804	20.1	0.26	8.1	9.6	10.8	13.2	19.4	25.8	29.9	31.7	34.8
20–39 years	516	18.8	0.45	7.8	9.2	10.3	12.1	16.8	24.4	28.5	31.0	33.8
40–59 years	513	21.7	0.39	8.7	10.4	12.1	14.8	21.9	28.3	30.9	33.3	35.6
60 years and over	775	19.4	0.37	7.6	9.2	10.2	12.9	19.3	24.8	27.8	30.2	33.0
Non-Hispanic black												
20 years and over	571	24.0	0.54	9.5	12.0	13.4	17.5	24.3	30.8	33.8	34.6	36.8
20–39 years	210	22.4	0.81	*	10.7	12.0	15.0	22.4	29.4	32.5	34.0	*
40–59 years	182	26.1	0.66	*	15.1	17.0	20.6	26.5	32.6	34.2	35.3	*
60 years and over	179	24.0	0.71	*	12.6	13.9	17.6	23.6	30.2	32.5	35.1	*
Mexican American												
20 years and over	569	23.2	0.59	10.9	13.6	14.6	17.2	23.2	28.2	31.2	33.5	35.7
20–39 years	200	23.0	0.89	*	11.9	13.9	16.3	23.2	28.7	31.9	34.0	*
40–59 years	145	24.1	0.50	*	15.1	16.2	18.8	24.0	28.3	31.1	33.2	*
60 years and over	224	21.6	0.50	*	13.2	14.1	17.1	20.6	25.7	29.4	31.2	*

* Figure does not meet standards of reliability or precision.

¹Persons of other races and unknown race and ethnicity are included.

NOTE: Pregnant females were excluded.

Table 29. Subscapular skinfold thickness in millimeters for males 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups												
Millimeters												
20 years and over	3,529	19.3	0.17	8.9	10.2	11.5	13.9	18.6	24.1	26.9	29.1	32.1
20–29 years	688	16.8	0.34	7.8	8.8	9.4	11.1	15.7	20.9	23.9	26.0	29.6
30–39 years	583	19.1	0.31	8.8	10.3	11.9	13.2	18.5	24.0	26.7	28.2	31.1
40–49 years	576	20.7	0.34	9.4	11.1	12.8	15.6	20.2	25.7	28.7	30.3	32.4
50–59 years	442	20.2	0.40	9.4	11.3	12.9	14.9	19.9	24.9	27.4	29.7	32.4
60–69 years	493	21.1	0.38	10.9	12.1	14.2	16.4	20.5	24.9	27.9	30.4	34.4
70–79 years	455	19.8	0.32	9.9	12.1	13.2	15.5	18.9	23.5	26.7	29.2	32.6
80 years and over	292	17.0	0.36	8.3	9.2	10.4	11.9	16.4	20.7	23.1	25.7	27.1
Non-Hispanic white												
20 years and over	1,900	19.1	0.18	8.9	10.1	11.4	13.7	18.4	23.9	26.6	28.7	32.0
20–39 years	575	17.3	0.35	8.0	9.0	9.8	11.8	16.3	21.4	24.8	26.8	29.5
40–59 years	554	20.5	0.32	9.5	11.2	12.9	15.1	20.1	25.2	28.0	30.0	32.6
60 years and over	771	19.8	0.23	10.1	11.5	12.7	15.2	19.2	23.4	26.7	28.7	32.1
Non-Hispanic black												
20 years and over	664	19.3	0.35	8.0	9.1	10.2	12.8	18.6	24.8	28.4	30.9	33.8
20–39 years	271	18.5	0.51	7.9	8.6	10.0	11.9	17.2	23.8	26.8	29.2	34.0
40–59 years	204	19.6	0.60	8.4	9.2	10.4	13.4	18.9	25.8	28.7	30.7	33.0
60 years and over	189	21.1	0.49	7.1	8.7	12.1	15.3	21.0	26.1	30.4	32.8	35.7
Mexican American												
20 years and over	720	19.7	0.50	9.7	10.8	12.5	14.9	19.4	23.8	26.3	28.2	31.4
20–39 years	301	19.4	0.67	*	10.4	12.0	14.1	19.2	23.7	26.4	28.2	*
40–59 years	194	20.2	0.48	*	12.2	13.6	16.3	20.1	24.2	26.3	27.9	*
60 years and over	225	19.6	0.62	*	10.4	12.5	15.2	19.0	22.9	25.8	29.3	*

* Figure does not meet standards of reliability or precision.

Table 30. Triceps skinfold thickness in millimeters for children and adolescents aged 2 months–19 years by sex and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Millimeters												
2 months	11	*	*	*	*	*	*	*	*	*	*	*
3–5 months	128	11.0	0.25	*	8.4	8.7	9.0	10.5	12.0	13.9	14.5	*
6–8 months	128	10.6	0.26	*	7.3	8.0	8.9	10.1	12.3	13.0	13.4	*
9–11 months	122	10.2	0.30	*	*	7.7	8.1	9.7	11.9	12.9	*	*
1 year	336	9.8	0.19	6.4	7.2	7.4	8.0	9.4	11.0	12.0	12.5	14.3
2 years	260	9.6	0.13	6.3	6.8	7.2	8.0	9.5	11.1	12.0	12.7	13.2
3 years	195	9.3	0.21	*	6.4	6.9	7.3	9.0	10.7	11.4	12.0	*
4 years	199	9.1	0.26	*	6.2	6.5	7.0	8.3	10.4	11.5	12.3	*
5 years	197	10.0	0.32	*	6.1	6.5	7.2	8.7	11.0	12.9	15.8	*
6 years	173	9.8	0.25	*	6.0	6.3	7.1	8.9	11.9	13.0	14.6	*
7 years	176	10.5	0.53	*	6.2	6.6	7.4	8.9	12.1	13.7	15.4	*
8 years	146	11.7	0.69	*	6.2	6.4	7.2	10.0	14.5	17.7	20.6	*
9 years	173	12.6	0.51	*	6.4	6.9	7.6	11.4	16.2	19.3	20.3	*
10 years	169	14.4	0.54	*	7.4	8.1	8.8	12.2	18.9	21.2	24.1	*
11 years	147	15.3	0.93	*	7.6	8.0	9.3	13.1	19.3	24.2	26.6	*
12 years	265	15.4	0.56	6.1	7.4	8.4	9.5	12.9	20.4	23.4	26.5	28.9
13 years	277	14.6	0.58	6.3	6.8	7.4	8.2	12.3	18.7	23.9	26.2	28.7
14 years	253	13.4	0.62	*	6.4	6.8	7.8	10.4	17.7	22.6	24.9	*
15 years	263	12.6	0.45	6.4	6.7	7.3	8.0	9.9	15.4	19.2	22.4	26.4
16 years	290	13.6	0.47	5.8	6.2	6.8	7.4	9.9	19.1	24.5	26.3	29.1
17 years	259	12.7	0.56	5.2	6.0	6.5	7.3	10.1	17.2	19.8	22.4	26.4
18 years	266	13.1	0.88	5.4	6.2	6.5	7.2	9.9	17.8	20.8	24.7	28.7
19 years	254	13.6	0.72	*	5.9	6.9	7.9	11.0	16.2	22.9	26.6	*
Female												
2 months	9	*	*	*	*	*	*	*	*	*	*	*
3–5 months	91	10.8	0.31	*	*	8.0	8.9	10.6	11.9	13.4	*	*
6–8 months	120	11.1	0.30	*	*	7.6	8.8	11.3	12.8	13.9	*	*
9–11 months	118	10.8	0.24	*	*	8.0	8.9	10.9	12.3	12.9	*	*
1 year	316	10.1	0.19	6.5	7.2	7.5	8.3	9.7	11.4	12.7	13.2	14.6
2 years	299	10.5	0.21	6.3	7.0	7.7	8.4	10.1	12.4	13.2	14.2	15.3
3 years	174	10.2	0.28	*	6.7	7.0	7.6	9.4	11.9	13.2	14.8	*
4 years	220	10.6	0.23	*	7.1	7.4	8.2	10.3	12.1	13.2	14.2	*
5 years	194	10.7	0.32	*	7.2	7.6	8.4	9.9	12.1	13.3	14.9	*
6 years	188	10.8	0.30	*	6.2	6.9	8.0	10.0	12.9	14.7	15.1	*
7 years	153	12.7	0.38	*	7.7	8.0	8.8	11.0	15.0	18.4	19.8	*
8 years	176	12.6	0.48	*	7.4	7.8	8.7	11.0	15.3	17.7	20.1	*
9 years	182	15.5	0.59	*	8.4	9.2	10.7	14.1	18.4	22.2	24.6	*
10 years	176	16.4	0.60	*	8.3	9.6	11.3	15.1	19.9	22.8	26.6	*
11 years	167	17.6	0.72	*	8.8	9.3	11.2	16.0	22.9	26.0	28.5	*
12 years	231	16.0	0.52	*	8.9	9.2	11.1	14.6	19.8	22.8	25.5	*
13 years	274	18.8	0.49	9.2	10.2	10.8	12.9	18.3	23.2	26.0	29.2	32.1
14 years	252	18.3	0.84	*	10.1	11.1	12.9	16.2	23.9	26.4	27.6	*
15 years	226	19.7	0.65	*	11.0	11.9	13.8	18.5	23.8	26.4	30.0	*
16 years	236	18.8	0.72	*	10.5	11.2	13.2	17.1	23.3	27.0	29.3	*
17 years	227	20.3	0.56	*	11.3	13.1	14.6	18.7	25.1	28.0	29.7	*
18 years	246	21.0	0.76	*	11.1	12.8	14.8	20.1	26.2	29.9	33.2	*
19 years	208	20.5	0.80	*	11.2	12.3	14.2	19.9	25.2	27.1	29.5	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

NOTE: Pregnant females were excluded.

Table 31. Triceps skinfold thickness in millimeters for females 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Millimeters												
20 years and over	3,552	24.1	0.22	11.6	13.9	15.5	18.3	24.0	29.9	32.4	34.2	36.4
20–29 years	599	21.8	0.44	10.4	11.9	13.2	15.5	21.1	27.3	30.3	32.4	34.7
30–39 years	538	24.3	0.54	12.1	14.7	15.8	18.2	23.9	30.2	32.9	35.3	37.4
40–49 years	617	25.1	0.44	12.1	14.1	15.9	19.5	25.6	30.9	33.6	35.2	36.9
50–59 years	477	25.6	0.36	13.3	16.1	17.5	20.5	25.9	31.0	33.2	34.9	36.5
60–69 years	570	25.3	0.42	13.4	16.6	18.1	20.3	25.4	30.2	32.8	34.2	36.0
70–79 years	408	23.2	0.41	11.2	14.2	15.7	17.9	22.9	28.7	31.1	32.7	36.0
80 years and over	343	20.2	0.41	10.1	11.3	12.7	14.7	19.0	25.0	28.5	30.1	32.7
Non-Hispanic white												
20 years and over	1,909	23.9	0.26	11.6	13.7	15.3	18.0	23.8	29.8	32.3	34.0	36.1
20–39 years	540	22.8	0.50	11.1	13.1	14.1	16.8	22.1	28.5	31.6	33.2	36.4
40–59 years	565	25.1	0.40	12.3	14.7	16.3	19.8	25.5	31.0	33.1	34.4	36.7
60 years and over	804	23.5	0.34	11.2	13.9	15.6	18.0	23.5	28.8	31.8	32.9	35.2
Non-Hispanic black												
20 years and over	686	25.4	0.37	10.6	14.1	16.0	19.5	25.9	31.6	34.5	35.9	37.3
20–39 years	242	24.1	0.61	10.1	12.4	14.4	18.1	24.2	30.0	33.1	35.0	37.2
40–59 years	231	27.1	0.45	10.6	16.1	18.2	22.0	28.0	33.8	35.7	36.8	38.2
60 years and over	213	24.9	0.44	11.2	14.4	16.3	18.9	25.1	30.8	33.1	34.7	36.2
Mexican American												
20 years and over	676	24.9	0.53	13.3	15.9	17.2	19.9	24.3	30.1	32.6	34.6	36.3
20–39 years	244	24.6	0.62	13.0	14.8	16.8	19.2	23.5	30.2	32.5	34.7	36.3
40–59 years	196	26.0	0.64	*	17.0	18.6	21.2	26.1	30.1	33.5	34.9	*
60 years and over	236	23.0	0.35	*	14.4	15.6	18.9	22.2	27.3	30.4	32.3	*

* Figure does not meet standards of reliability or precision.

¹Persons of other races and unknown race and ethnicity are included.

NOTE: Pregnant females were excluded.

Table 32. Triceps skinfold thickness in millimeters for males 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Millimeters												
20 years and over	4,152	15.0	0.19	6.1	7.3	8.3	10.1	13.8	18.8	21.9	24.2	28.1
20–29 years	755	14.3	0.35	5.0	6.2	7.1	8.8	12.7	18.9	21.7	25.4	29.4
30–39 years	690	14.7	0.28	5.8	7.1	8.2	10.0	13.6	18.3	21.4	23.4	27.0
40–49 years	705	15.3	0.35	6.6	7.6	8.7	10.4	13.9	19.2	22.3	24.1	27.9
50–59 years	542	15.1	0.41	6.2	7.4	8.9	10.8	14.1	18.5	21.5	23.2	26.7
60–69 years	618	16.1	0.43	7.3	8.3	9.4	11.2	14.9	19.7	22.5	25.2	30.3
70–79 years	520	15.6	0.33	7.1	8.7	9.5	11.0	14.0	19.2	22.5	25.0	29.1
80 years and over	322	13.9	0.26	6.8	7.6	8.3	9.7	12.7	16.2	19.8	21.6	24.4
Non-Hispanic white												
20 years and over	2,177	15.2	0.21	6.1	7.4	8.6	10.3	13.9	19.1	22.1	24.4	28.5
20–39 years	639	14.5	0.33	5.4	6.4	7.5	9.2	13.1	18.7	21.4	24.0	28.5
40–59 years	651	15.5	0.38	6.4	7.6	9.1	10.9	14.1	19.3	22.5	24.3	28.0
60 years and over	887	15.8	0.31	7.3	8.6	9.4	11.1	14.4	19.1	22.4	24.9	29.7
Non-Hispanic black												
20 years and over	838	14.3	0.22	4.9	6.1	7.0	8.7	12.8	18.4	21.8	24.1	28.1
20–39 years	318	14.4	0.39	4.7	5.3	6.3	8.4	12.8	18.9	22.4	24.8	30.8
40–59 years	274	13.7	0.36	5.4	6.5	7.1	8.7	12.2	17.4	20.3	22.0	24.7
60 years and over	246	15.5	0.42	4.8	6.9	7.9	10.0	14.0	20.4	24.0	26.2	29.9
Mexican American												
20 years and over	848	14.2	0.40	6.2	7.4	8.5	9.8	13.0	17.1	20.1	22.9	26.3
20–39 years	348	14.8	0.59	6.0	7.2	8.5	10.0	13.4	18.0	21.8	24.4	27.3
40–59 years	238	13.3	0.33	*	7.7	8.2	9.1	12.0	15.9	18.0	19.7	*
60 years and over	262	13.7	0.45	*	8.1	8.6	9.7	12.5	16.0	19.6	21.1	*

* Figure does not meet standards of reliability or precision.

¹Persons of other races and unknown race and ethnicity are included.

Table 33. Maximal calf circumference in centimeters for children and adolescents aged 8–19 years by sex and age, by mean, standard error of the mean, and selected percentiles: United States, 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Centimeters												
8 years	139	28.0	0.30	*	*	25.2	25.9	27.5	29.6	31.3	*	*
9 years	172	28.6	0.30	*	25.4	25.9	26.5	28.1	30.3	31.7	32.9	*
10 years	171	30.4	0.33	*	25.9	26.5	27.5	29.9	32.8	34.6	35.5	*
11 years	153	32.0	0.51	*	27.6	28.0	28.7	31.7	34.3	36.0	36.9	*
12 years	270	33.1	0.38	*	28.2	28.8	29.9	32.5	35.7	37.0	38.9	*
13 years	282	34.9	0.36	*	29.8	30.4	31.6	34.4	37.2	39.1	40.1	*
14 years	256	36.1	0.42	*	31.3	32.1	33.4	35.5	37.8	40.0	41.5	*
15 years	266	37.1	0.34	*	32.3	32.8	34.1	36.8	39.1	41.0	42.4	*
16 years	303	38.2	0.37	*	33.0	33.6	34.9	36.9	40.9	42.7	43.3	*
17 years	273	37.9	0.36	*	33.1	33.8	34.9	37.2	40.4	42.7	43.6	*
18 years	275	38.2	0.38	*	33.4	34.2	35.2	37.8	40.3	41.9	43.6	*
19 years	263	38.8	0.36	*	33.6	34.8	35.8	38.1	41.4	43.5	44.6	*
Female												
8 years	172	27.6	0.34	*	24.1	24.5	25.6	27.2	28.8	30.1	31.5	*
9 years	182	29.7	0.38	*	25.5	26.4	27.1	28.7	31.4	33.8	34.3	*
10 years	182	31.4	0.37	*	27.0	27.8	28.8	30.6	33.7	35.9	36.5	*
11 years	172	33.1	0.41	*	27.6	28.5	29.8	32.9	36.0	37.1	38.4	*
12 years	243	34.0	0.42	*	29.1	30.0	31.4	33.3	36.3	37.6	39.9	*
13 years	289	35.4	0.30	*	30.5	31.0	32.5	34.7	37.5	39.2	42.5	*
14 years	266	35.5	0.48	*	31.0	31.5	32.7	34.8	37.6	40.0	40.9	*
15 years	236	35.9	0.27	*	31.9	32.7	33.8	35.6	37.6	39.1	40.5	*
16 years	246	36.3	0.21	*	32.0	32.5	33.9	36.1	38.1	39.0	40.6	*
17 years	245	37.3	0.41	*	32.7	33.5	34.4	36.4	39.7	40.9	42.3	*
18 years	269	37.4	0.53	*	32.2	33.3	34.5	36.5	39.5	42.3	43.2	*
19 years	233	37.4	0.42	*	32.9	33.4	34.5	36.5	39.6	41.2	44.1	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

NOTE: Pregnant females were excluded.

Table 34. Maximal calf circumference in centimeters for females 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,133	38.3	0.13	31.8	33.0	33.8	35.0	37.5	40.9	43.0	44.7	47.1
20–29 years	676	37.8	0.25	31.5	32.4	33.1	34.5	37.1	40.2	41.9	43.7	46.6
30–39 years	648	38.7	0.23	32.2	33.6	34.1	35.3	38.0	41.2	43.4	45.3	47.2
40–49 years	765	39.2	0.27	32.8	33.8	34.6	35.7	38.5	42.1	44.2	45.6	47.8
50–59 years	578	38.7	0.24	32.3	33.4	34.3	35.5	37.7	41.3	43.1	44.3	47.4
60–69 years	673	38.5	0.30	31.5	32.6	33.6	35.2	37.6	41.1	43.1	44.6	47.2
70–79 years	437	36.8	0.27	31.1	32.1	32.9	33.9	36.2	39.0	40.6	42.0	44.7
80 years and over	356	35.5	0.19	29.8	30.8	31.7	33.1	35.4	37.7	38.7	39.8	41.4
Non-Hispanic white												
20 years and over	2,124	38.4	0.14	32.1	33.1	34.0	35.1	37.6	40.9	43.1	44.8	47.2
20–39 years	595	38.4	0.23	32.2	33.0	33.9	35.0	37.7	40.5	42.8	44.6	47.1
40–59 years	660	39.1	0.21	32.9	34.0	34.6	35.7	38.2	41.9	43.8	45.5	47.8
60 years and over	869	37.5	0.17	31.2	32.3	33.1	34.4	36.8	39.8	41.5	43.1	45.6
Non-Hispanic black												
20 years and over	912	39.6	0.17	32.1	33.6	34.9	36.1	39.1	42.5	44.6	46.2	48.6
20–39 years	317	39.9	0.27	32.4	34.1	35.1	36.1	39.2	42.9	45.5	46.8	48.8
40–59 years	341	39.9	0.25	32.6	34.1	35.3	36.5	39.5	42.6	44.5	45.2	48.6
60 years and over	254	38.4	0.31	31.1	32.2	33.2	35.0	37.8	41.8	43.4	44.9	47.7
Mexican American												
20 years and over	789	37.3	0.23	31.2	32.3	33.1	34.4	36.6	39.7	41.5	42.9	45.1
20–39 years	293	37.4	0.30	31.2	32.2	33.1	34.3	36.6	39.9	41.7	43.0	45.1
40–59 years	228	37.9	0.31	31.9	33.1	33.9	35.0	37.1	40.1	41.7	43.4	46.3
60 years and over	268	35.6	0.21	30.1	30.9	31.6	33.0	35.2	37.7	39.0	40.4	42.4

¹Persons of other races and unknown race and ethnicity are included.

NOTE: Pregnant females were excluded.

Table 35. Maximal calf circumference in centimeters for males 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,303	39.5	0.09	33.6	34.7	35.6	36.9	39.2	41.9	43.4	44.4	46.4
20–29 years	779	39.4	0.19	33.5	34.7	35.4	36.7	38.7	41.3	43.4	45.1	47.3
30–39 years	714	39.8	0.17	34.1	34.9	35.8	36.9	39.5	42.2	43.5	44.5	46.5
40–49 years	748	40.3	0.16	34.7	35.9	36.5	37.8	40.0	42.7	44.2	44.9	46.7
50–59 years	568	39.8	0.20	33.7	34.9	35.9	37.2	39.6	42.0	43.4	44.6	46.0
60–69 years	648	39.2	0.18	33.4	34.5	35.7	36.9	39.1	41.7	42.8	43.6	44.8
70–79 years	530	38.0	0.22	32.3	33.7	34.2	35.5	37.7	40.2	41.3	42.5	44.2
80 years and over	316	36.1	0.16	31.1	32.3	32.8	34.0	36.0	38.0	39.3	40.0	41.0
Non-Hispanic white												
20 years and over	2,245	39.8	0.11	33.9	35.0	35.9	37.1	39.4	42.1	43.5	44.5	46.6
20–39 years	648	39.8	0.17	34.2	35.1	35.9	37.0	39.4	42.0	43.6	44.8	47.4
40–59 years	691	40.4	0.19	34.4	35.9	36.7	38.0	40.1	42.6	44.2	44.9	46.6
60 years and over	906	38.6	0.14	32.7	33.8	34.6	36.1	38.3	40.8	42.2	43.1	44.5
Non-Hispanic black												
20 years and over	900	39.7	0.18	33.5	34.6	35.5	36.7	39.4	42.1	44.0	45.5	47.2
20–39 years	348	40.2	0.27	33.8	35.0	35.9	37.0	39.7	42.6	45.0	46.4	48.0
40–59 years	299	39.8	0.23	33.5	35.1	36.0	37.1	39.5	41.8	43.8	44.6	46.8
60 years and over	253	38.0	0.23	32.1	33.7	34.4	35.3	37.8	40.4	41.6	42.9	44.6
Mexican American												
20 years and over	865	37.9	0.18	32.7	33.5	34.5	35.6	37.7	39.9	41.2	42.2	43.4
20–39 years	355	38.1	0.26	33.0	33.6	34.6	35.6	37.8	40.0	41.8	42.7	44.2
40–59 years	240	37.9	0.20	32.5	34.3	34.9	35.8	37.9	39.6	40.7	41.6	42.6
60 years and over	270	36.5	0.25	30.8	32.0	32.7	34.3	36.3	38.7	39.8	40.6	42.4

¹Persons of other races and unknown race and ethnicity are included.

Table 36. Upper leg length in centimeters for children and adolescents aged 8–19 years by sex and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Centimeters												
8 years	138	30.8	0.27	*	*	28.2	29.0	31.0	32.7	33.2	*	*
9 years	172	32.9	0.26	*	29.4	30.1	31.2	32.6	34.5	35.7	36.0	*
10 years	169	34.6	0.33	*	30.5	31.4	32.6	34.2	36.7	37.7	38.6	*
11 years	153	36.4	0.40	*	*	33.1	33.8	36.1	38.4	39.7	*	*
12 years	268	38.0	0.24	*	33.7	34.5	35.5	38.1	40.1	40.7	41.7	*
13 years	282	40.1	0.30	*	35.9	36.9	37.9	39.9	42.1	43.3	44.0	*
14 years	255	41.7	0.27	*	37.5	38.0	38.9	41.7	44.0	44.9	45.9	*
15 years	265	43.1	0.26	*	39.4	40.0	41.1	42.9	44.8	45.9	46.6	*
16 years	301	43.3	0.24	*	40.0	40.6	41.2	43.2	44.9	45.9	46.6	*
17 years	271	43.8	0.24	*	39.8	40.7	42.1	43.7	45.5	46.7	47.2	*
18 years	274	43.6	0.23	*	40.0	40.4	41.2	43.6	45.4	46.7	47.4	*
19 years	261	43.8	0.37	*	39.5	40.2	41.2	44.0	46.0	47.3	48.3	*
Female												
8 years	171	31.0	0.30	*	*	28.0	29.0	30.7	32.7	33.7	*	*
9 years	182	33.5	0.35	*	30.0	30.5	31.4	33.2	35.1	36.6	37.2	*
10 years	182	34.7	0.29	*	31.3	31.9	32.6	34.5	35.9	37.5	38.4	*
11 years	171	37.0	0.27	*	*	33.9	34.8	37.1	38.8	39.9	*	*
12 years	242	38.4	0.28	*	34.5	35.0	36.3	38.2	40.7	41.9	42.2	*
13 years	287	38.9	0.27	*	35.5	36.4	37.1	38.9	40.8	41.6	42.0	*
14 years	266	39.3	0.30	*	35.8	36.5	37.2	39.3	40.8	42.1	43.4	*
15 years	243	39.5	0.25	*	36.4	37.0	37.5	39.4	41.1	42.1	42.8	*
16 years	251	39.5	0.22	*	36.0	36.6	37.7	39.2	41.2	42.1	43.2	*
17 years	265	39.5	0.19	*	36.1	36.6	37.5	39.6	41.1	42.1	42.9	*
18 years	299	39.7	0.26	*	36.1	36.7	37.8	39.9	41.5	42.6	43.3	*
19 years	260	39.6	0.27	*	35.8	36.7	37.7	39.2	41.7	43.0	43.6	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

Table 37. Upper leg length in centimeters for females 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,593	38.0	0.14	32.6	33.9	34.7	36.0	38.1	40.2	41.2	41.9	43.0
20–29 years	1,010	39.2	0.15	34.5	35.7	36.2	37.2	39.2	41.0	41.8	42.7	43.9
30–39 years	808	39.0	0.19	33.6	35.1	35.9	36.8	39.1	40.9	41.9	42.7	43.9
40–49 years	762	38.3	0.16	33.0	34.5	35.3	36.4	38.4	40.3	41.2	41.9	42.4
50–59 years	567	37.4	0.23	32.1	33.3	34.1	35.3	37.4	39.6	40.7	41.5	42.8
60–69 years	665	37.0	0.22	31.4	32.9	33.6	34.9	37.0	39.1	40.2	40.9	42.0
70–79 years	433	36.3	0.16	30.9	32.0	32.9	34.5	36.5	38.4	39.6	40.3	41.0
80 years and over	348	35.8	0.22	30.6	31.9	32.9	34.0	35.8	37.7	39.0	39.7	41.2
Non-Hispanic white												
20 years and over	2,346	38.1	0.14	33.0	34.2	35.0	36.2	38.2	40.2	41.1	41.8	42.7
20–39 years	830	39.4	0.15	35.0	36.0	36.5	37.6	39.5	40.9	41.8	42.5	43.6
40–59 years	654	38.0	0.17	33.1	34.4	35.1	36.3	38.0	39.9	41.1	41.7	42.4
60 years and over	862	36.6	0.19	31.5	32.7	33.5	34.7	36.7	38.6	39.7	40.5	41.6
Non-Hispanic black												
20 years and over	963	39.6	0.19	33.2	35.0	35.9	37.4	39.9	41.9	43.2	44.1	45.2
20–39 years	385	40.9	0.27	35.3	36.5	37.4	38.6	41.0	43.0	44.1	44.9	46.1
40–59 years	333	39.2	0.25	32.8	34.5	35.7	37.1	39.6	41.2	42.4	43.6	44.5
60 years and over	245	37.4	0.24	*	32.3	33.6	35.2	37.5	39.9	41.1	41.8	*
Mexican American												
20 years and over	926	36.3	0.21	31.0	32.4	33.0	34.4	36.3	38.2	39.5	40.1	41.3
20–39 years	434	37.1	0.24	32.5	33.5	34.2	35.4	36.9	38.7	39.9	40.8	41.4
40–59 years	229	35.8	0.25	*	31.9	32.6	33.6	35.9	37.8	38.9	39.6	*
60 years and over	263	33.6	0.35	*	29.1	30.4	31.6	33.7	35.7	36.8	37.5	*

* Figure does not meet standards of reliability or precision.

¹Persons of other races and unknown race and ethnicity are included.

Table 38. Upper leg length in centimeters for males 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,272	42.2	0.13	36.5	37.9	38.7	40.0	42.1	44.4	45.6	46.5	47.7
20–29 years	776	43.4	0.17	38.3	39.4	40.3	41.3	43.3	45.5	46.7	47.5	48.3
30–39 years	708	42.7	0.20	37.4	38.5	39.5	40.5	42.7	44.8	45.9	47.0	48.5
40–49 years	742	42.4	0.18	37.2	38.4	39.1	40.1	42.4	44.5	45.8	46.6	47.5
50–59 years	563	41.8	0.18	36.5	38.0	38.5	39.7	41.8	44.0	45.1	45.7	46.9
60–69 years	643	40.9	0.19	35.0	36.5	37.3	38.5	40.9	43.1	44.3	45.2	46.3
70–79 years	529	40.5	0.21	35.0	36.1	37.3	38.3	40.2	42.7	43.8	45.0	46.0
80 years and over	311	39.6	0.24	34.3	35.5	36.2	37.7	39.9	41.4	42.4	43.3	44.9
Non-Hispanic white												
20 years and over	2,231	42.3	0.16	36.8	38.2	39.0	40.2	42.3	44.5	45.6	46.5	47.6
20–39 years	648	43.4	0.20	38.5	40.0	40.6	41.4	43.2	45.1	46.4	47.3	48.4
40–59 years	687	42.3	0.18	37.2	38.4	39.1	40.2	42.2	44.4	45.5	46.5	47.2
60 years and over	896	40.7	0.17	35.1	36.4	37.4	38.4	40.5	42.9	44.0	45.0	46.2
Non-Hispanic black												
20 years and over	892	43.8	0.17	38.2	39.5	40.3	41.4	43.8	46.0	47.2	47.9	49.5
20–39 years	344	44.8	0.19	39.9	40.8	41.4	42.6	44.9	46.9	47.9	49.0	50.0
40–59 years	296	43.4	0.24	38.3	39.3	40.0	41.1	43.4	45.3	46.9	47.5	48.8
60 years and over	252	41.6	0.22	35.0	37.0	38.0	39.7	41.6	43.7	44.8	45.6	47.2
Mexican American												
20 years and over	856	40.6	0.21	35.4	36.4	37.1	38.2	40.3	42.6	43.9	44.9	46.1
20–39 years	350	40.9	0.25	*	36.8	37.6	38.6	40.6	42.9	44.4	45.5	*
40–59 years	236	40.3	0.25	*	36.2	37.0	38.0	40.2	42.3	43.2	44.1	*
60 years and over	270	38.8	0.43	*	34.5	35.0	36.5	38.9	41.2	42.4	43.1	*

* Figure does not meet standards of reliability or precision.

¹Persons of other races and unknown race and ethnicity are included.

Table 39. Mid-thigh circumference in centimeters for children and adolescents aged 8–19 years by sex and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Sex and age ¹	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
Male												
Centimeters												
8 years	138	38.3	0.54	*	*	33.6	34.2	37.5	41.2	43.0	*	*
9 years	170	39.9	0.83	*	33.1	33.9	35.0	38.7	42.7	45.1	46.9	*
10 years	169	42.2	0.46	*	35.5	36.4	37.7	40.9	46.0	48.7	50.6	*
11 years	153	44.1	0.82	*	*	37.2	38.4	42.3	48.7	51.6	*	*
12 years	266	46.0	0.65	*	38.0	39.1	40.7	45.2	50.1	52.8	56.1	*
13 years	281	47.9	0.60	*	40.1	41.1	42.3	46.6	51.5	54.9	57.2	*
14 years	254	49.3	0.77	*	41.7	42.9	44.2	48.8	51.6	54.7	58.4	*
15 years	264	51.4	0.59	*	43.4	44.5	46.6	50.1	56.0	57.7	59.1	*
16 years	302	53.5	0.58	*	45.6	46.1	47.0	51.4	60.0	62.3	64.2	*
17 years	270	53.3	0.63	*	45.5	46.6	47.8	52.0	56.9	60.0	63.8	*
18 years	271	53.6	0.75	*	45.0	45.9	48.1	52.7	57.3	60.5	63.0	*
19 years	261	54.8	0.66	*	45.9	47.4	49.4	53.8	59.3	62.1	65.3	*
Female												
8 years	171	38.2	0.64	*	32.1	32.8	34.6	36.9	40.4	42.8	44.6	*
9 years	182	40.8	0.57	*	34.6	35.5	36.8	40.1	44.2	46.9	49.3	*
10 years	181	43.1	0.59	*	36.0	37.1	38.4	41.7	46.3	49.3	51.1	*
11 years	170	45.7	0.69	*	37.0	38.4	40.1	45.5	50.1	51.6	54.2	*
12 years	243	46.5	0.59	*	38.1	39.6	42.1	45.5	49.4	54.0	56.4	*
13 years	287	48.4	0.48	*	40.0	41.3	43.5	47.2	51.6	56.1	58.0	*
14 years	265	49.0	0.78	*	41.4	42.4	44.2	47.3	52.8	56.7	58.6	*
15 years	236	49.7	0.49	*	42.4	43.5	45.0	49.0	53.2	56.0	58.5	*
16 years	245	50.0	0.41	*	43.5	44.6	46.1	48.9	52.4	54.9	57.3	*
17 years	240	51.9	0.65	*	43.8	45.3	46.7	49.9	55.5	58.7	60.1	*
18 years	266	52.1	0.94	*	43.5	44.6	46.2	50.0	55.9	61.0	63.2	*
19 years	231	52.3	0.74	*	44.3	45.3	47.9	50.9	54.6	60.0	62.8	*

* Figure does not meet standards of reliability or precision.

¹Age shown is age at time of examination.

NOTE: Pregnant females were excluded.

Table 40. Mid-thigh circumference in centimeters for females 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,065	52.9	0.21	42.4	44.2	45.4	47.4	51.6	57.2	60.4	63.2	67.4
20–29 years	667	52.9	0.44	42.2	44.1	45.1	47.3	51.5	57.0	59.9	63.2	69.1
30–39 years	641	54.2	0.41	44.0	45.3	46.5	48.2	52.8	59.2	62.2	65.5	68.8
40–49 years	756	54.4	0.40	43.7	45.6	46.9	48.7	53.0	58.8	62.6	64.8	70.2
50–59 years	566	53.2	0.43	43.1	44.8	46.1	47.9	51.8	57.5	60.4	62.7	66.0
60–69 years	660	52.2	0.40	41.8	43.6	45.1	47.1	51.3	56.0	58.9	61.9	65.8
70–79 years	433	49.6	0.36	40.2	41.8	43.4	44.8	48.6	53.6	56.4	57.7	62.0
80 years and over	342	47.5	0.27	38.2	40.0	41.3	43.5	47.2	51.3	53.5	55.0	56.8
Non-Hispanic white												
20 years and over	2,093	52.5	0.22	42.4	44.2	45.5	47.4	51.3	56.7	59.5	62.2	66.2
20–39 years	586	53.2	0.41	43.1	44.7	45.9	47.6	51.7	57.5	60.5	63.2	67.5
40–59 years	650	53.6	0.35	43.6	45.4	46.7	48.3	52.1	57.8	60.9	63.3	67.5
60 years and over	857	50.2	0.24	40.1	42.3	43.9	45.5	49.3	54.3	56.5	58.0	62.3
Non-Hispanic black												
20 years and over	888	58.0	0.33	44.7	47.5	49.2	52.1	57.0	62.8	66.2	69.4	74.3
20–39 years	313	58.8	0.55	45.5	48.1	49.9	52.1	57.9	64.3	67.5	70.8	75.0
40–59 years	334	58.3	0.45	45.5	47.8	50.4	52.8	57.3	62.8	65.8	68.7	74.9
60 years and over	241	55.3	0.59	42.3	44.5	46.5	49.4	55.2	60.8	63.4	64.5	70.6
Mexican American												
20 years and over	776	52.0	0.43	42.4	44.0	45.3	47.0	50.8	55.9	58.8	60.7	64.9
20–39 years	288	52.4	0.54	42.5	44.2	45.4	47.7	50.9	56.6	59.3	61.1	64.8
40–59 years	225	52.5	0.63	*	45.1	46.1	47.3	51.4	55.4	59.4	61.2	*
60 years and over	263	48.5	0.39	40.1	40.9	42.2	44.2	47.6	52.1	54.5	56.9	58.4

* Figure does not meet standards of reliability or precision.

¹Persons of other races and unknown race and ethnicity are included.

NOTE: Pregnant women were excluded.

Table 41. Mid-thigh circumference in centimeters for males 20 years of age and older by race and ethnicity and age, by mean, standard error of the mean, and selected percentiles: United States 2003–2006

Race and ethnicity and age	Number examined	Mean	Standard error	Percentile								
				5th	10th	15th	25th	50th	75th	85th	90th	95th
All race and ethnicity groups ¹												
Centimeters												
20 years and over	4,255	53.8	0.14	44.4	46.5	47.8	49.8	53.3	57.2	59.7	61.4	64.6
20–29 years	777	55.1	0.35	45.4	47.1	48.5	50.8	54.0	58.4	61.7	64.2	68.6
30–39 years	706	55.1	0.27	46.7	48.1	49.2	51.0	54.3	58.7	60.9	62.5	65.0
40–49 years	741	55.0	0.25	46.8	48.0	49.4	51.1	54.5	58.2	60.5	62.0	65.0
50–59 years	561	53.2	0.29	44.4	46.8	48.1	49.7	52.8	56.2	58.2	59.6	63.1
60–69 years	643	51.9	0.29	43.7	45.4	46.3	48.4	51.7	55.1	56.9	57.9	60.9
70–79 years	526	50.0	0.27	42.7	44.4	45.1	46.4	49.9	52.8	54.6	56.0	58.5
80 years and over	301	46.6	0.20	39.5	41.0	42.3	43.6	46.2	49.7	51.2	52.6	54.2
Non-Hispanic white												
20 years and over	2,221	53.7	0.15	44.5	46.5	47.8	49.9	53.4	57.1	59.6	61.0	63.9
20–39 years	648	55.1	0.31	46.1	47.8	49.0	51.0	54.2	58.4	61.0	62.9	66.5
40–59 years	686	54.3	0.27	45.9	47.8	48.7	50.8	54.0	57.6	59.6	61.0	63.7
60 years and over	887	50.6	0.18	42.4	44.3	45.2	46.6	50.8	53.9	55.7	57.1	59.8
Non-Hispanic black												
20 years and over	886	56.1	0.37	45.4	47.4	49.0	50.9	55.4	59.9	63.5	65.2	69.0
20–39 years	343	58.1	0.53	46.8	49.0	50.6	52.6	57.1	62.4	65.1	68.3	73.1
40–59 years	294	55.5	0.46	45.0	47.6	49.0	50.6	55.0	59.1	61.7	64.4	66.2
60 years and over	249	51.9	0.36	43.3	44.9	45.9	47.8	51.6	55.6	58.0	59.0	61.1
Mexican American												
20 years and over	856	52.6	0.27	44.4	46.3	47.4	49.2	52.1	55.5	57.5	59.7	62.4
20–39 years	350	53.7	0.44	45.6	47.3	48.3	50.0	53.0	56.4	59.4	60.6	63.4
40–59 years	236	51.5	0.28	44.4	46.1	47.2	48.6	51.4	54.1	55.7	56.5	59.4
60 years and over	270	49.0	0.32	40.3	42.8	43.7	45.5	48.5	52.1	54.3	55.4	56.9

¹Persons of other races and unknown race and ethnicity are included.

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