

## Prevalence of Obesity Among Children and Adolescents: United States, Trends 1963–1965 Through 2009–2010

by Cheryl D. Fryar, M.S.P.H.; Margaret D. Carroll, M.S.P.H.; and Cynthia L. Ogden, Ph.D., Division of Health and Nutrition Examination Surveys

The federal Healthy People 2020 initiative identified obesity as one of its leading health indicators and called for a reduction in the proportion of children and adolescents who are obese, but the United States has made little progress toward the target goal. The national prevalence of obesity is monitored using data from the National Health and Nutrition Examination Survey (NHANES).

Results from the 2009–2010 NHANES, using measured heights and weights, indicate that an estimated 16.9% of children and adolescents aged 2–19 years are obese. Between 1976–1980 and 2009–2010, the prevalence of obesity increased. However, between 1999–2000 and 2009–2010, no significant trend was observed in obesity prevalence in girls, although a significant increase was seen in boys.

[Table 1](#) shows the increase in obesity that has occurred since 1976–1980. Among preschool children aged 2–5 years, obesity increased from 5.0% to 12.1% between 1976–1980 and 2009–2010; it increased from 6.5% to 18.0% among those aged 6–11. Among adolescents aged 12–19, obesity increased from 5.0% to 18.4% during the same period.

[Figure 1](#) shows the trends in obesity among 2- to 19-year-olds since 1971–1974 by sex.

Body mass index (BMI), expressed as weight in kilograms divided by height in meters squared ( $\text{kg}/\text{m}^2$ ), is commonly used to classify obesity among adults and is recommended for use with children. Cutoff criteria are based on the Centers for Disease Control and Prevention's 2000 BMI-for-age growth charts for the United States. Based on current recommendations of expert committees, children and adolescents with BMI values at or above the 95th percentile of the sex-specific BMI growth charts are categorized as obese. This differs from previous years when children above this cutoff were labeled overweight. The change in terminology reflects the labels used by organizations such as the Institute of Medicine and the American Academy of Pediatrics. For more information, see: Ogden CL, Flegal KM. Changes in terminology for childhood overweight and obesity. National health statistics reports; no 25. Hyattsville, MD: National Center for Health Statistics. 2010.

### Racial and ethnic disparities in adolescent obesity

Significant racial and ethnic disparities occur in obesity prevalence among U.S. adolescent girls. [Table 2](#) shows the estimates in obesity prevalence by race and ethnicity for adolescent boys and girls since NHANES III (1988–1994).



In 2009–2010 and 1988–1994, no significant differences in prevalence of obesity by race and ethnicity were observed among adolescent boys.

Between 1988–1994 and 2009–2010, the prevalence of obesity increased ([Figure 2](#)):

- From 11.6% to 17.5% among non-Hispanic white boys.
- From 10.7% to 22.6% among non-Hispanic black boys.
- From 14.1% to 28.9% among Mexican-American boys.

Among girls in the 2009–2010 survey period, non-Hispanic black adolescents (24.8%) were significantly more likely to be obese compared with non-Hispanic white adolescents (14.7%). Similarly, non-Hispanic black adolescent girls (16.3%) were more likely to be obese compared with non-Hispanic white adolescent girls (8.9%) in the 1988–1994 period.

Between 1988–1994 and 2009–2010 the prevalence of obesity increased ([Figure 3](#)):

- From 8.9% to 14.7% among non-Hispanic white girls.
- From 16.3% to 24.8% among non-Hispanic black girls.
- From 13.4% to 18.6% among Mexican-American girls.

NHANES uses stratified, multistage probability samples of the civilian noninstitutionalized U.S. population. A household interview and a physical examination are conducted for each survey participant. During the physical examination, conducted in a mobile examination center, height and weight are measured as part of a more comprehensive set of body measurements. These measurements are taken by trained health technicians, using standardized measuring procedures and equipment. Observations for persons missing a valid height or weight measurement or for pregnant females are not included in the data analysis.

#### **For more detailed estimates see**

- Ogden CL, Flegal KM, Carroll MD, Johnson CL. Prevalence and trends in overweight among U.S. children and adolescents, 1999–2000. *JAMA* 288:1728–32. 2002.
- Ogden CL, Carroll MD, Curtin LR, McDowell MA, Tabak CJ, Flegal KM. Prevalence of overweight and obesity in the United States, 1999–2004. *JAMA* 295:1549–55. 2006.
- Ogden CL, Carroll MD, Curtin LR, Lamb MM, Flegal KM. Prevalence of high body mass index in U.S. children and adolescents, 2007–2008. *JAMA* 303(3):242–9. 2010.
- Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of obesity and trends in body mass index among US children and adolescents, 1999–2010. *JAMA* 307(5):483–90. 2012.

#### **This *Health E-Stat* from NHANES supersedes the earlier versions below.**

- Prevalence of Obesity Among Children and Adolescents: United States, Trends 1963-1965 through 2007-2008

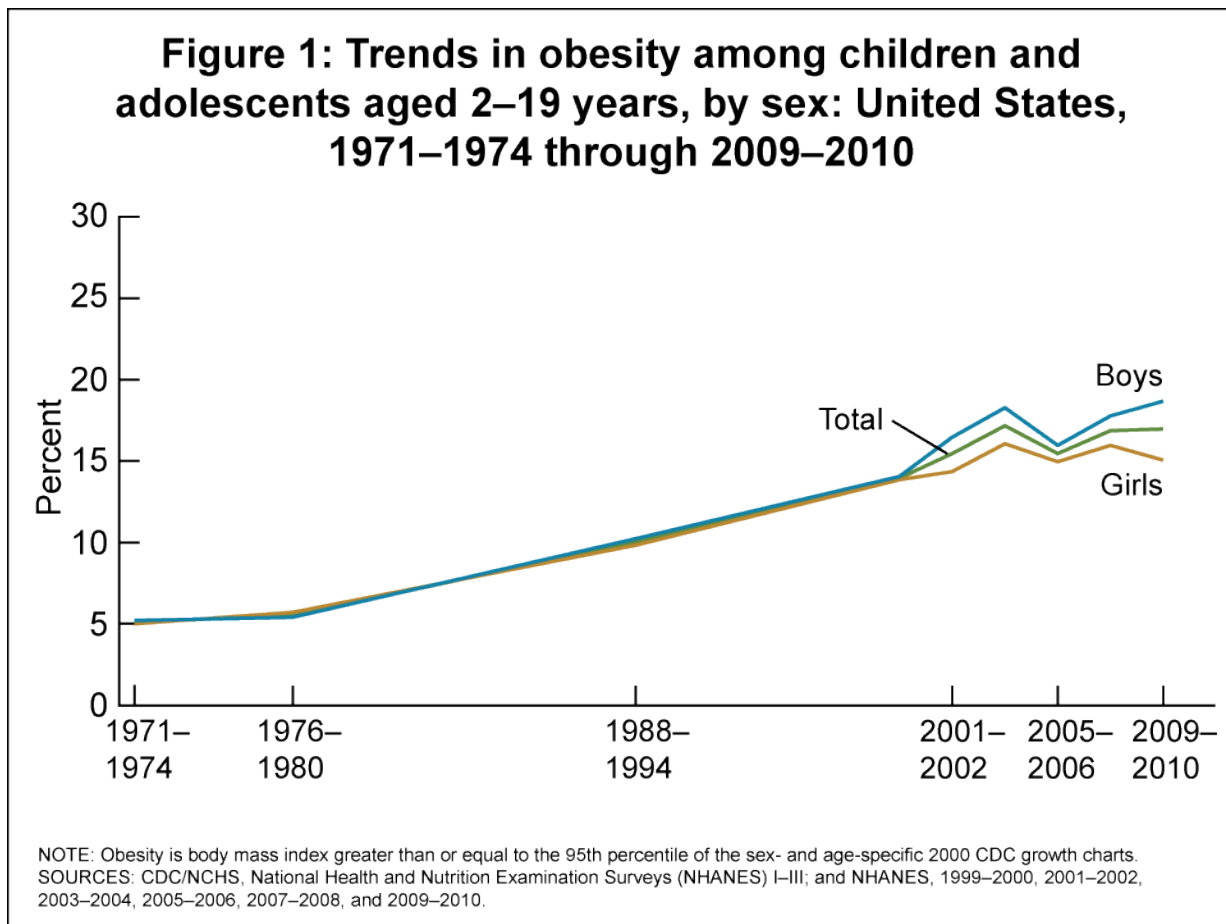
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[http://www.cdc.gov/nchs/data/hestat/obesity\\_child\\_07\\_08/obesity\\_child\\_07\\_08.htm](http://www.cdc.gov/nchs/data/hestat/obesity_child_07_08/obesity_child_07_08.htm)

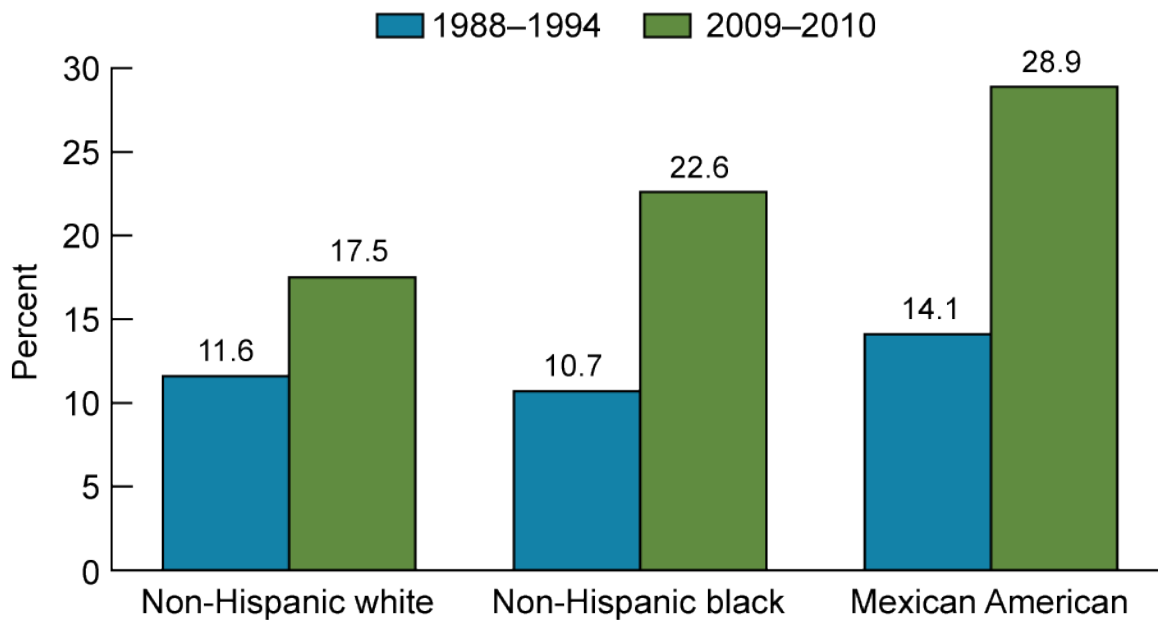
■ Prevalence of overweight among children and adolescents: United States, 2003–2004.  
Available from: [http://www.cdc.gov/nchs/data/hestat/overweight/overweight\\_child\\_03.htm](http://www.cdc.gov/nchs/data/hestat/overweight/overweight_child_03.htm).

■ Prevalence of overweight among children and adolescents: United States, 1999–2002.  
Available from: <http://www.cdc.gov/nchs/data/hestat/overweight/overweight99.htm>.

## Figures

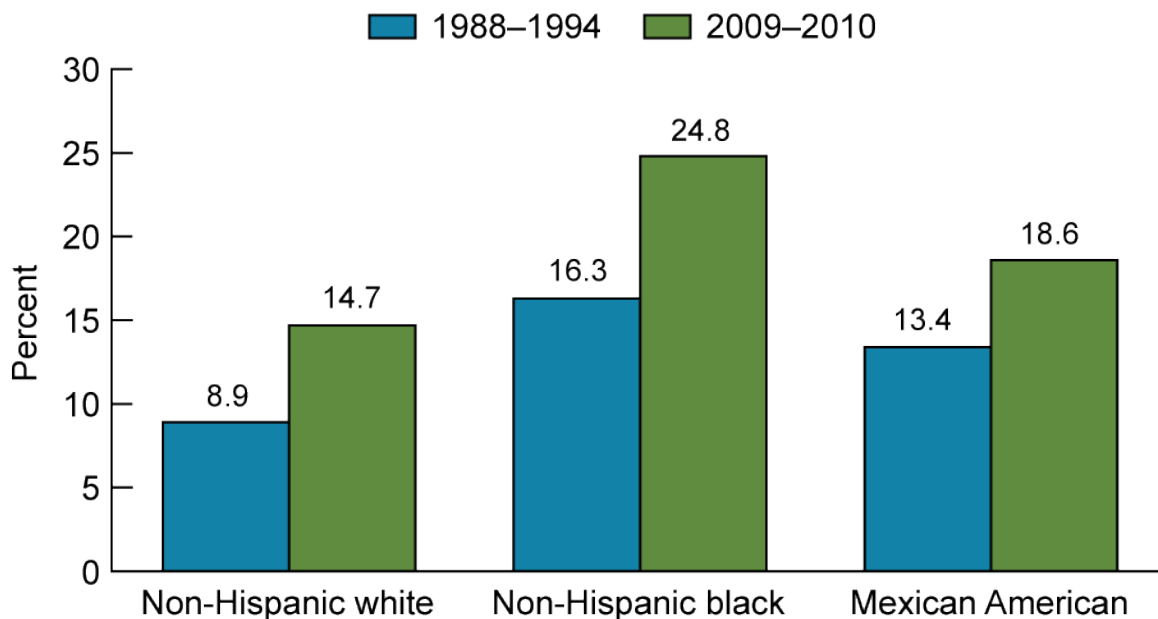


**Figure 2: Prevalence of obesity among boys aged 12–19 years, by race and ethnicity: United States, 1988–1994 and 2009–2010**



NOTE: Obesity is body mass index greater than or equal to the 95th percentile of the sex- and age-specific 2000 CDC growth charts.  
 SOURCES: CDC/NCHS, National Health and Nutrition Examination Survey (NHANES) III, 1988–1994, and NHANES, 2009–2010.

**Figure 3: Prevalence of obesity among girls aged 12–19 years, by race and ethnicity: United States, 1988–1994 and 2009–2010**



NOTE: Obesity is body mass index greater than or equal to the 95th percentile from the sex- and age-specific 2000 CDC growth charts.  
 SOURCES: CDC/NCHS, National Health and Nutrition Examination Survey (NHANES) III, 1988–1994, and NHANES, 2009–2010.

## Tables

Table 1. Prevalence of obesity among children and adolescents aged 2–19 years: United States, selected years 1963–1965 through 2009–2010

Age (years) <sup>1</sup>	NHES 1963–1965 1966–1970 <sup>2</sup>	NHANES I 1971–1974	NHANES II 1976–1980	NHANES III 1988–1994	NHANES 1999–2000	NHANES 2001–2002	NHANES 2003–2004	NHANES 2005–2006	NHANES 2007–2008	NHANES 2009–2010
2–19	( <sup>3</sup> )	5.1	5.5	10.0	13.9	15.4	17.1	15.4	16.8	16.9
2–5	( <sup>3</sup> )	4.8	5.0	7.2	10.3	10.6	13.9	10.7	10.1	12.1
6–11	4.2	4.0	6.5	11.3	15.1	16.2	18.8	15.1	19.6	18.0
12–19	4.6	6.1	5.0	10.5	14.8	16.7	17.4	17.8	18.1	18.4
Boys:										
All	( <sup>3</sup> )	5.2	5.4	10.2	14.0	16.4	18.2	15.9	17.7	18.6
2–5	( <sup>3</sup> )	4.9	4.6	6.2	9.5	10.7	15.1	10.4	9.3	14.4
6–11	4.0	4.3	6.7	11.6	15.8	17.5	19.9	16.2	21.2	20.1
12–19	4.5	6.0	4.8	11.3	14.8	17.6	18.2	18.2	19.3	19.6
Girls:										
All	( <sup>3</sup> )	5.0	5.7	9.8	13.8	14.3	16.0	14.9	15.9	15.0
2–5	( <sup>3</sup> )	4.8	5.4	8.2	11.2	10.5	12.7	11.0	10.9	9.6
6–11	4.5	3.6	6.4	11.0	14.3	14.8	17.6	14.1	18.0	15.7
12–19	4.7	6.2	5.3	9.7	14.8	15.7	16.4	17.3	16.8	17.1

<sup>1</sup>Excludes pregnant females starting with 1971–1974. Pregnancy status not available for 1963–1965 and 1966–1970.

<sup>2</sup>Data for 1963–1965 are for children aged 6–11 years; data for 1966–1970 are for adolescents aged 12–17, not 12–19.

<sup>3</sup>Children aged 2–5 years were not included in surveys undertaken in the 1960s.

NOTES: Obesity is body mass index greater than or equal to the 95th percentile from the sex- and age-specific 2000 CDC growth charts. NHES is National Health Examination Survey; NHANES is National Health and Nutrition Examination Survey.

SOURCES: CDC/NCHS, NHES and NHANES.

Table 2. Prevalence of obesity among adolescents aged 12–19 years: United States, selected years 1988–1994 through 2009–2010

	NHANES III 1988–1994	NHANES 1999–2000	NHANES 2001–2002	NHANES 2003–2004	NHANES 2005–2006	NHANES 2007–2008	NHANES 2009–2010
Boys:							
All	11.3	14.8	17.6	18.2	18.2	19.3	19.6
Non-Hispanic white	11.6	11.8	16.6	19.1	15.5	16.7	17.5
Non-Hispanic black	10.7	21.1	16.7	18.4	18.4	19.8	22.6
Mexican American	14.1	27.2	21.8	18.3	25.6	26.8	28.9
Girls <sup>1</sup> :							
All	9.7	14.8	15.7	16.4	17.3	16.8	17.1
Non-Hispanic white	8.9	11.0	13.7	15.4	13.5	14.5	14.7
Non-Hispanic black	16.3	25.2	22.0	25.4	29.8	29.2	24.8
Mexican American	13.4	19.3	20.3	14.1	25.4	17.4	18.6

<sup>1</sup>Excludes pregnant females.

NOTES: Obesity is body mass index greater than or equal to the 95th percentile from the sex- and age-specific 2000 CDC growth charts. NHANES is National Health and Nutrition Examination Survey.

SOURCE: CDC/NCHS, NHANES.