



July 2009

Prevalence of Underweight Among Children and Adolescents: United States, 2003-2006

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

Underlying health conditions can result in underweight. In addition, among children underweight can reflect acute malnutrition. Results from the 2003-2006 National Health and Nutrition Examination Survey (NHANES), using measured heights and weights, indicate that an estimated 3.3% of children and adolescents aged 2-19 years are underweight (see [table](#)). Trends from 1971-1974 to 2003-2006 show that there has been an overall significant decrease in underweight among children and adolescents from 5.1% to 3.3%. Underweight significantly decreased from 5.8% to 2.8% among 2-5 year olds and from 5.3% to 2.7% among 6-11 year olds between 1971-1974 and 2003-2006. Among adolescents aged 12-19, underweight decreased although not significantly from 4.7% to 3.8% during the same time period. Surveys before 1971 did not include children 2-5 years.

Body mass index (BMI), expressed as weight/height² (BMI;kg/m²) is commonly used to classify weight status among adults, and is also recommended to identify children's weight status. Cutoff criteria are based on the sex specific 2000 CDC BMI-for-age growth charts for the United States. Based on current recommendations of expert committees, children with BMI values below the 5th percentile of the sex specific BMI-for-age growth charts are categorized as underweight.

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

Table. Prevalence of underweight among children and adolescents aged 2-19 years: United States, selected years 1963-1965 through 2003-2006

Age (in years) ¹	NHANES (1963-1965 and 1966-1970) ²	NHANES (1971-1974)	NHANES (1976-1980)	NHANES (1988-1994)	NHANES (1999-2002)	NHANES (2003-2006)
Total	-	5.1	4.5	4.0	3.7	3.3
2-5	-	5.8	5.3	4.3	3.8	2.8
6-11	5.8	5.3	4.2	3.9	3.8	2.7
12-19	4.6	4.7	4.4	3.9	3.7	3.8

- Quantity zero.

¹Excludes pregnant girls starting with 1971-1974. Pregnancy status not available for 1963-1965 and 1966-1970.

²Data for 1963-1965 are for children 6-11 years of age; data for 1966-1970 are for adolescents 12-17 years of age, not 12-19 years.

NOTE: NHANES is National Health and Nutrition Examination Survey.