



The Center for
Health and Health
Care in Schools
The George Washington University

Childhood Obesity

What the research tells us

References:

Overview

- 1 National Center for Health Statistics. Health, United States, 2002 with chartbook on trends in the health of Americans. Overweight children and adolescents 6 – 19 years of age, according to sex, age, race and Hispanic origin: United States, selected years 1963-65 through 1999-2000. Hyattsville (MD): 2002. Table 71.
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- 5 Wang G and Dietz WH. Economic burden of obesity in youths aged 6 to 17 years: 1979-1999. *Pediatr*. 2002;109(5): e81-89.
- 6 Tremblay MS and Willms JD. Is the Canadian childhood obesity epidemic related to physical inactivity? *Int J Obesity*. 2003;27(9):1100-1105.
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Definitions

In children and teens, body mass index (BMI-for-age) is used to assess underweight, overweight, and risk for overweight. BMI is based on growth charts for age and gender and is often referred to as BMI-for-age.

- **Overweight:** BMI-for-age > 95th percentile
- **At risk of overweight:** BMI-for-age 85th percentile to < 95th percentile

Source: US Centers for Disease Control and Prevention. Division of Nutrition and Physical Activity. BMI-for-Age. Available at <http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-for-age.htm>

Overview

Obesity Rates are Increasing

The percent of school-age children 6 – 11 that are overweight more than doubled between the late 1970s and 2000, rising from 6.5% to 15.3%. The percent of overweight adolescents ages 12 – 19 tripled from 5.0% to 15.5% during the same time period.¹

Rates for Boys and Girls Remain Similar

Although the percentage of overweight children and adolescents increased from the 1960s to 2000, the rates remained similar for boys and girls. In 2000, 16% of all boys ages 6 – 11 were overweight or obese while 14.5% of all girls were overweight. Among adolescents 12 – 19, 15.5% of both boys and girls were overweight or obese.²

Some Groups of Children are More Affected by Obesity than Others

Obesity is impacting young people of Mexican and African-American descent particularly. Twenty-seven and one-half percent of Mexican male teenagers are reported as overweight; 26.6% of non-Hispanic black young women are reported as overweight.³

Income May Make a Difference

Adolescents from families below 130% of the federal poverty threshold are twice as likely to be overweight (16%) compared to those from families that are above 130% of the federal poverty level (8%).⁴

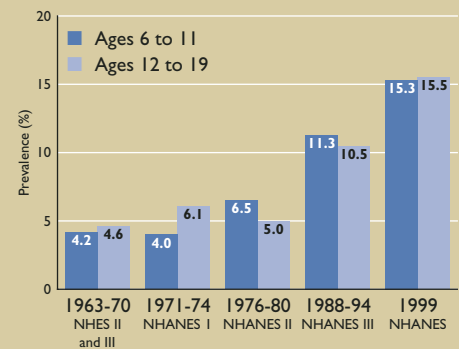
Economic Costs Associated with Obesity are Increasing

Hospitalizations among children and adolescents (6 – 17 years of age) for diseases associated with obesity increased sharply between 1979 and 1999. Hospital costs (based on 2001 constant US dollars) more than tripled, from \$35 million to \$127 million.⁵

Childhood Obesity is Increasing in Other Industrialized Countries

Obesity among Canadian children ages 7 – 13 is reported as tripling between 1981 and 1996.⁶ A community-based study in Germany found that between 1975 and 1995 obesity prevalence among boys ages 7 – 14 increased from 10% to 16.3% and in girls from 11.7% to 20.7%.⁷

Prevalence of Overweight* Among US Children and Adolescents



*Gender and age-specific BMI > the 95th percentile
Source: National Center for Health Statistics. Health, United States, 2002. Table 71.

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**Health Consequences of
Childhood Obesity**

- 1 Belamarich PF, Luder E, Kattan M, et al. Do obese inner-city children with asthma have more symptoms than nonobese children with asthma? *Pediatr.* 2000;106(6):1436-1441.
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Health Consequences of Childhood Obesity

Asthma

In a recent study of children with asthma, obese children and adolescents used more medicine, wheezed more, and a greater proportion of these children made unscheduled visits to emergency rooms than their non-obese peers.¹

Type 2 Diabetes

Studies in the US link obesity in children and adolescents to an increase in Type 2 diabetes that can cause blindness, heart and kidney disease, and loss of limbs.^{2,3,4}

High Blood Pressure

Significantly elevated blood pressure, which is associated with coronary artery disease, has been found more commonly in obese children and adolescents compared to their non-obese peers.^{5,6,7}

Sleep Apnea

A study of 41 obese children (>150% of ideal body weight) found that one-third of these children reported symptoms consistent with those of sleep apnea. Sleep apnea, a breathing disorder causing brief interruptions of breathing during sleep, is associated with decreased learning and memory functions.⁸

Mental Health

Obesity has been associated with low self-esteem in some adolescents. A longitudinal study found that obese Hispanic and white females showed significant decreases in self-esteem by ages 13 and 14 compared with non-obese Hispanic and white females. Obese African-American young women did not show a similar decline.⁹ Obese children with decreased levels of self-esteem reported increased rates of loneliness, sadness, and nervousness, and were more likely to report smoking and consuming alcohol.¹⁰ Obese teen males showed slightly decreased levels of self-esteem. There were no significant racial differences among young males.¹¹

Adult Obesity

Approximately 50% of children and adolescents who are obese will become obese adults. Adult obesity is a risk factor for major health conditions, including diabetes, heart disease, high blood pressure, stroke, gallbladder disease, cancer (endometrial, colon, kidney, gallbladder, and postmenopausal breast cancer), and osteoarthritis.^{12,13,14}

What Do Parents Think?

According to two national surveys, parents support school efforts to strengthen exercise and nutrition programs.

- 96% of parents believe that educating students about nutrition and exercise is important.¹
- 95% of parents think physical education should be part of a school curriculum for all students in grades k – 12.²
- 85% of parents said they would support programs in schools to help fight childhood obesity.³
- 76% of parents think “more school physical education could help control or prevent childhood obesity.”⁴
- 95% of parents think “regular, daily physical activity helps children do better academically.”⁵
- 73% of parents think “parents and school officials should work together to make decisions about what students should eat and drink at school.”⁶

¹ The Center for Health and Health Care in Schools. *Parents Overwhelmingly Favor Providing Health Care Services In Schools.* Available at <http://www.healthinschools.org>.

² National Association for Sport & Physical Education. *Parents Believe Physical Activity Key to Preventing Childhood Obesity, 2003.* Available at http://www.aah-perd.org/inaspe/template.cfm?template=pr_042903.html.

³ The Center for Health and Health Care in Schools, op. cit.

⁴ National Association for Sport & Physical Education, op. cit.

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Physical Activity and Schools

Physical Activity Among School-Aged Children

A recent survey reports 38.5% of children aged 9 – 13 participated in organized physical activity and 77.4% of children engaged in free-time physical activity during non-school hours.¹

Hispanic (25.9%) and non-Hispanic black (24.1%) children were significantly less likely to participate in organized physical activity compared to white, non-Hispanic (46.6%) children. Children of parents with lower incomes and educational levels were also less likely to participate in organized physical activity.²

Sixty-five percent of students in grades 9 – 12 participated in vigorous activity and one-quarter of students participated in moderate activity during a seven-day period. Male students (72.6%) were more likely to engage in vigorous activity than female students (57%). Hispanic and African-American students (11.2% and 12.9%, respectively) were significantly more likely to report no vigorous or moderate physical activity compared to white students (8.2%).³

Over half (51.7%) of US students in grades 9 – 12 were enrolled in a physical education (PE) class and one-third (32.2%) of them had daily physical education. Of the 51.7% enrolled in physical education class, 83.4% of them reported exercising at least 20 minutes during an average class.⁴

Physical Education Standards and Guidelines in Schools

More than half (60.8%) of the states required schools and school districts to follow national or state physical education guidelines while nearly a quarter of the states encouraged schools and school districts to follow national or state guidelines.⁵

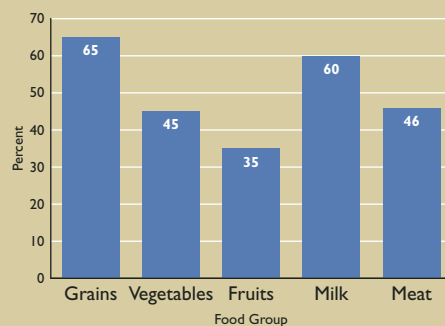
More than 80% of the states and nearly three-quarters of school districts required schools to provide adapted physical education, to include physical education in individualized education plans (IEPs), and to mainstream students into regular physical education, as appropriate.⁶

School Organized Physical Education and Activity

Eight percent of elementary schools, 6.4% of middle/junior high schools, and 5.8% of senior high schools provided daily physical education during the school year.⁷

Forty-nine percent of schools reported offering intramural activities or physical activity clubs for students.⁸ Seventy-one percent of elementary schools provided “regularly scheduled recess” for students in kindergarten through grade 5.⁹

Percentage of School-Aged Children Meeting Minimum Food Group Targets, 1994-1996 CSFII



*Minimum Pyramid Target in servings: Grains=6, Vegetables=3, Fruits=2, Milk=2, Meat=2.
Source: US Department of Agriculture. Food and Nutrition Service. Children's diet in the mid-1990s: dietary intake and its relationship with school meal participation. 2001.

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Nutrition and Schools

Food Consumption by School-Age Children

The percentages of children meeting the minimum number of daily food group servings specified in the Food Guide Pyramid are: 35% for fruit, 46% for meat, 45% for vegetables, 65% for grains, and 60% for milk.¹

Only 2 percent of school-age children meet the recommended minimum number of servings for all five major food groups in the Food Guide Pyramid.²

Children age nine and older are heavy consumers of sodas. By the time they are 14 years of age or older, 32% of young women and 52% of young men are consuming three or more servings of soda a day.³

What Schools Can Do to Improve Children's Nutrition

Eighty-eight percent of schools participate in the United States Department of Agriculture (USDA) National School Lunch Program and 64% participate in the USDA School Breakfast Program. Daily more than 27 million children receive lunch and 7 million receive breakfast through these programs.⁴

A pilot program in four school districts demonstrated that fat and sodium levels in school lunches could be reduced while retaining student participation in the school lunch program.⁵

School food service managers and school officials report that expanding the number and variety of healthy food choices increased the likelihood that students would select them.⁶

Providing students with adequate time and a pleasant environment for lunch is a step that schools can take to encourage healthy eating habits.⁷

Schools do not have to follow the USDA's Dietary Guidelines for foods sold à la carte, food sold in snack bars, and food sold through vending machines.⁸ Schools can promote healthy eating habits by providing more nutritious food and beverages through the à la carte programs and limiting sweetened drinks and high fat snacks in vending machines.⁹

Children Consuming Three or More Servings* of Soft Drinks Per Day

Age	Females	Males
6-8 Years	3%	7%
9-13 Years	21%	21%
14-18 Years	32%	52%

*One serving equals one eight ounce cup.

Source: US Department of Agriculture, Food and Nutrition Service. Children's diet in the mid-1990s: dietary intake and its relationship with school meal participation. 2001.



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