

Participation in High School Physical Education --- United States, 1991--2003

Physical education (PE) can increase student participation in moderate to vigorous physical activity ([1](#)) and help high school students gain the knowledge, attitudes, and skills they need to engage in lifelong physical activity ([2](#)). Two national health objectives for 2010 are to 1) increase to >50% the proportion of adolescents who participate in daily school PE (objective no. 22-9) and 2) increase to >50% the proportion of adolescents who spend at least half of school PE class time being physically active (objective no. 22-10) ([3](#)). To examine changes in PE class participation among high school students in the United States during 1991--2003, CDC analyzed data from the national Youth Risk Behavior Survey (YRBS). This report summarizes the results of that analysis, which indicated that 1) the proportion of students attending PE class daily declined significantly during 1991--1995 and did not change during 1995--2003 and 2) the proportion of students exercising or playing sports for >20 minutes during PE class 3--5 days per week did not change significantly during 1991--2003. If the national health objectives are to be achieved, coordinated efforts involving schools, communities, and policy makers are needed to provide daily, quality PE for all youth.

The national YRBS, a component of CDC's Youth Risk Behavior Surveillance System, used independent three-stage cluster samples for the

1991--2003 surveys to obtain cross-sectional data representative of public- and private-school students in grades 9--12 in the 50 states and the District of Columbia. During 1991--2003, sample sizes ranged from 10,904 to 16,296, school response rates ranged from 70% to 81%, student response rates ranged from 83% to 90%, and overall response rates ranged from 60% to 70%. For each cross-sectional survey, students completed an anonymous, self-administered questionnaire that included identically worded questions about participation in PE class.

For this analysis, temporal changes were assessed for three behaviors: 1) being enrolled in a PE class (i.e., attending a PE class on >1 day in an average week when in school), 2) attending PE class daily (i.e., 5 days in an average week when in school), and 3) being physically active during PE class, as defined in the national health objective 22-10 baseline measure (i.e., among all students, exercising or playing sports for >20 minutes during an average PE class 3--5 days per week). Data are presented only for non-Hispanic black, non-Hispanic white, and Hispanic students because the numbers of students from other racial/ethnic populations were too small for meaningful analysis.

Data were weighted to provide national estimates, and SUDAAN was used for all data analyses. Temporal changes were analyzed by using logistic regression analyses that assessed linear and quadratic time effects simultaneously and controlled for sex, race/ethnicity, and grade. Quadratic trends indicated significant but nonlinear trends in the data over time. When a significant quadratic trend accompanied a significant linear trend, the data demonstrated a nonlinear variation (e.g., leveling off or change in direction) in addition to an overall increase or decrease over time. All results were statistically significant ($p < 0.05$) unless otherwise noted.

During 1991--2003, the prevalence of students being enrolled in PE class overall and among female, male, white, Hispanic, 9th-, 10th-, 11th-, or 12th-grade students did not change significantly ([Table](#)). Among black students, the prevalence of being enrolled in PE class declined

significantly during 1991--1997 and did not change significantly during 1997--2003.

Significant linear and quadratic trends were detected for attending PE class daily. Overall, the prevalence of attending PE class daily declined significantly from 1991 (41.6%) to 1995 (25.4%) and did not change significantly from 1995 (25.4%) to 2003 (28.4%). Similar significant linear and quadratic trends were detected among female and male students. A significant decline during 1991--1999, followed by no significant change during 1999--2003, was detected among black and 10th-grade students. A significant decline during 1991--1995, followed by a significant increase during 1995--2003, was detected among 11th-grade students. A significant linear decline during 1991--2003 was detected among white, Hispanic, and 9th-grade students.

During 1991--2003, the prevalence of being physically active during PE class, overall, and among female, male, white, Hispanic, 9th-, 10th-, 11th-, and 12th-grade students did not change significantly. Among black students, the prevalence of being physically active during PE class declined significantly during 1991--1995 and did not change significantly during 1995--2003.

Reported by: *R Lowry, MD, N Brener, PhD, S Lee, PhD, Div of Adolescent and School Health; J Epping, MEd, J Fulton, PhD, Div of Nutrition and Physical Activity, National Center for Chronic Disease Prevention and Health Promotion; D Eaton, PhD, EIS Officer, CDC.*

Editorial Note:

The prevalence of overweight among U.S. adolescents aged 12--19 years has tripled, from 5% in 1980 to 15% in 2000 (4). Inactivity among adolescents is a contributing factor to the increasing trends in overweight (5). Regular physical activity has additional health benefits, including improvements in aerobic endurance and muscular strength, reduction of

risk factors for cardiovascular and other chronic diseases, increases in bone mass density, higher levels of self-esteem and self-concept, and lower levels of anxiety and stress (2). In 2003, one third of high school students did not engage in the minimum recommended level of moderate or vigorous physical activity (6). Schools have been recognized as a key setting for increasing participation in physical activity among students (5). The findings in this report indicate that the prevalence of being enrolled in PE class and being physically active during PE class has not increased since 1991. In addition, the prevalence of attending PE class daily declined significantly during 1991--1995 and did not change during 1995--2003.

The findings in this report are subject to at least two limitations. First, these data pertain only to youths who attended high school. Nationwide, among persons aged 16--17 years, approximately 6% were not enrolled in a high school program and had not completed high school (7). Second, the extent of underreporting or overreporting in YRBS cannot be determined; however, the survey questions demonstrate test/retest reliability (8).

Progress has not been made toward reaching the national health objectives for 2010 related to PE. In 2003, only 55.7% of high school students were enrolled in a PE class, only 28.4% were attending PE class daily, and only 39.2% were physically active during PE class. In addition, female students and students in higher grades were consistently at greatest risk for not reaching the national health objectives for PE. To help schools implement comprehensive school health programs aimed at increasing physical activity among youth, CDC developed Guidelines for School and Community Programs to Promote Lifelong Physical Activity Among Young People (2). Although the guidelines recommend daily PE for all students, only 5.8% of senior high schools require daily PE or its equivalent for the entire school year for students in all grades in the school (9).

A coordinated, multilevel approach involving schools, communities, and policy makers is needed to increase participation in daily, quality PE among all students (2,10). This might be particularly important for high

school students, as physical activity levels tend to decline substantially during adolescence (5,6). Schools and communities should ensure that PE programs have sufficient resources to deliver quality instruction, consistent with national standards, in safe, attractive, and well-maintained facilities. Policies should require that PE instruction be provided by credentialed PE teachers in classes with teacher-to-student ratios comparable with those in other subjects. Teachers should use methods that allow students to be actively engaged during most of the class time. Curricula should emphasize participation in physical activities for all students and help students gain the knowledge, attitudes, motor skills, behavioral skills, and confidence they will need to adopt and maintain physically active lifestyles.

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Table

[Return to top.](#)

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