

(LEAP), was in a high school setting.¹¹ LEAP focused on tailoring physical education to the needs of girls, to reduce sex-based disparities in physical activity. Forty-five percent of high school girls exposed to the intervention reported 1 or more 30-minute time blocks of vigorous physical activity over a 3-day period, compared to 36% of girls in the control settings. MSPAN and LEAP preceded the Trial of Activity in Adolescent Girls (TAAG), a middle-school physical activity intervention for girls whereby McKenzie et al.¹² reported adolescent girls fell far short of the Healthy People 2010 goal of 50% of physical education time engaged in physical activity.

Published research shows physical activity in physical education can be increased in primary and secondary schools. Accordingly, the evidence is sufficient for the Task Force on Community Preventive Services¹³ to “strongly recommend” enhanced physical education as an evidence-based approach to promote physical activity. Though successful in increasing physical activity, none of these studies reported a significant intervention effect on weight or body fat, perhaps an important consideration given the recent interest in childhood obesity levels.

Support for School Physical Activity

The American Academy of Pediatrics (AAP) states, “Schools are in a uniquely favorable position to increase physical activity and fitness among students.”¹⁴, p. 1156 They noted that if physical activity can be emphasized during the childhood years, it may promote more activity throughout life. Thus, increased physical activity should be a goal for all children. To achieve this goal, the first recommendation made by the AAP is to achieve “comprehensive, preferably daily, physical education for children in grades kindergarten through 12.”¹⁴, p. 1156 As well, in 2006, the AAP Council on Sports Medicine and Fitness and Council on School Health¹⁵ focused on childhood obesity and physical inactivity and stated, “Physical activity needs to be promoted at home, in the community, and at school, but school is perhaps the most encompassing way for all children to benefit.”¹⁵, p. 1837 The AAP further advocates for “the reinstatement of compulsory, quality, daily PE classes in all schools (kindergarten through grade 12) taught by qualified,

Percentage of Students Attending Physical Education 1 or More Days in an Average Week

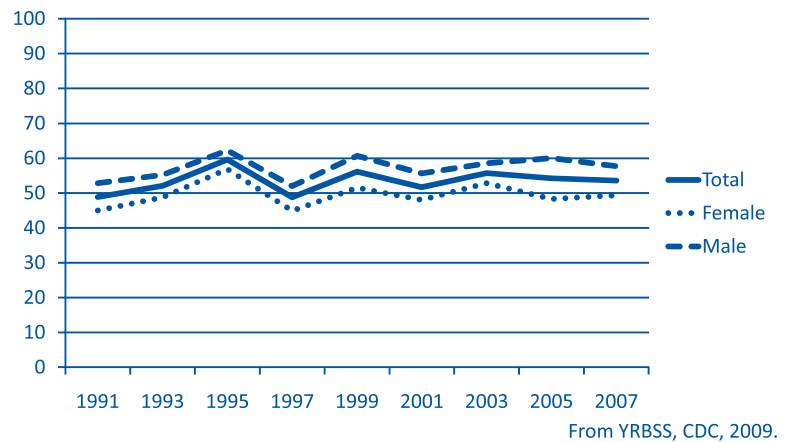


Figure 1.
Percentage of Students Attending Physical Education 1 or More Days in an Average Week

trained educators.”¹⁵, p. 1839 Similarly, the Surgeon General’s Report on Physical Activity and Health¹⁶ suggests, schools and universities need to reintroduce daily, quality physical activity as a key component of a comprehensive education. Clearly, physical education is viewed as a potential component in addressing health issues.

Physical education is a national priority. Several Healthy People 2010¹⁷ objectives are aimed at the obesity epidemic and physical education. These objectives include increasing the proportion of schools that require daily physical education for all students (Objective 22-8) as suggested by many sources and studies to increase physical activity, reduce overweight and obesity, and generally improve health. Despite these objectives, one may ask, is physical education in its current form effective in meeting national recommendations? Perhaps not, as there is considerable variability in how physical education is administered and implemented in states and school districts in the U.S.

What is the Current State of American Physical Education?

Most states require physical education, but have no minimum time standard. Many states offer exemptions and frequent requirement “loopholes.” Only two states, Illinois and Massachusetts, require daily physical education. However,

Percentage of Students Attending Physical Education 5 Days in an Average Week

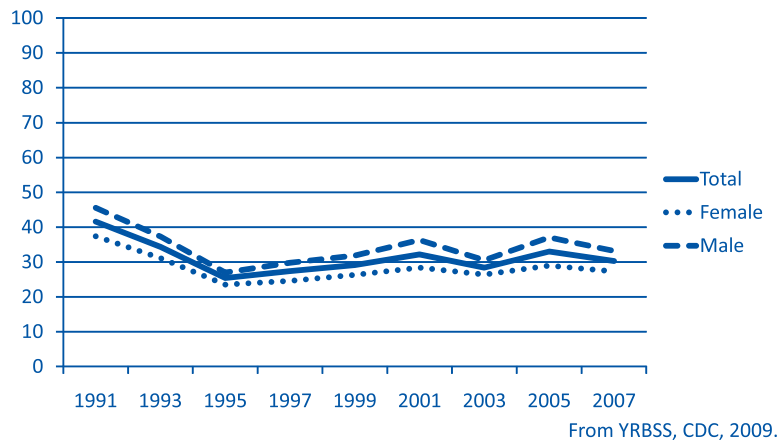


Figure 2.
Percentage of Students Attending Physical Education
5 Days in an Average Week

both states allow exemptions from the requirement. The Shape of the Nation¹⁸ reports that for elementary, middle, and high school respectively, 36, 33, and 42 states mandated physical education, but 22%, or less (depending upon the school level), mandated a minimum number of minutes. Only two states met the recommendation of 150 minutes or more of physical education per week at the elementary school level. Forty-seven states have standards for physical education, but only 15 required assessment to determine if programs were achieving those standards. Eleven states required physical fitness assessment. Twelve states allowed credit for online physical education courses. NASPE concludes, “. . . most states are not living up to the recommendations of multiple reports and ‘calls for action’ from the federal government and other national organizations regarding physical education . . .”^{18, p. 6}

Lee, Burgeson, Fulton, and Spain¹⁹ reported on national physical education and physical activity data from the School Health Policies and Programs Study (SHPPS). Most (70.5%) states have policies requiring districts or schools to adhere to national or state physical education standards or guidelines. “Nationwide, 78.3% of schools required students to take *some* physical education.”^{19, p. 449} Few schools required daily physical education (36 weeks, 150 minutes per week in

elementary and 225 minutes per week in middle and secondary schools) and only 3.8%, 7.9%, and 2.1% of elementary, middle, and high schools, respectively, provided *daily* physical education in all grades in the school. These percentages increased to 13.7%, 15.2%, and 3.0%, respectively, for elementary, middle, and high schools when 3 days per week for the entire school year was the standard. A variety of exemptions from physical education was allowed. The physical education requirement data differ little from the previous SHPPS research 6 years earlier.²⁰ Nader,²¹ reporting on third grade students from 9 U.S. states, found children to experience an average physical education class time of 33 minutes twice per week with 25 minutes of that time at a moderate-to-vigorous intensity, a figure far less than national standards.

While there is support for physical education, many students are not exposed to daily quality physical education. Figures 1 and 2 present the percentage of students who went to physical education 1 or more days per week (Figure 1) and 5 days per week (Figure 2) based on the Youth Risk Behavior Surveillance System from the Centers for Disease Control and Prevention. Approximately 50% of students attend physical education 1 or more times per week but only about 33% attend daily physical education; figures that have changed little in the last decade.

A Case Study: California

California, the largest U.S. state,²² comprising over 10% of the American population, provides an interesting example of the impact of policies on physical education mandates, physical fitness, and performance outcomes. The California Education Code requires a minimum of 200 minutes every 10 days of school be spent on physical education for grades 1 through 6, not including recesses or lunches. Similarly, 400 minutes per every 10 days must be spent on physical education for grades 7 through 12. The Education Code further states that children’s fitness and motor development are considered of “equal importance” to the other aspects of a school’s curriculum.²³

California children are also required to have their physical fitness tested in grades 5, 7, and 9 using the FITNESSGRAM®.²⁴ In 2006, nearly 1.5 million children were tested across California. According to the California Physical Fitness Test – Report to the Governor and the Legislature,^{25, 26} results were a “modest” (1%) improvement over the 2005 results. Approximately 30% of California students tested achieved the minimum fitness level or Healthy Fitness Zone (HFZ) for all six areas of testing.²⁵ These results led State Superintendent of Public Instruction Jack O’Connell to conclude, “. . . too many of our students are leading sedentary lives . . .”^{26, p. 1} and “We should be very concerned for our students’ health, their academic success, and the long-term effects this will have.”^{p. 2}

By 2008, 28.5%, 32.9%, and 35.6% of students tested in grades 5, 7, and 9, respectively, achieved the HFZ for all six test items. This was a 1.4%, 2.0%, and 5.5% increase over the previous year, prompting Superintendent O’Connell to refer to the improvement as “baby steps,” necessitating “additional encouragement from school administrators, teachers and parents.” Despite California’s emphasis on physical education time and fitness testing, the results of physical fitness testing in California have been less than promising.²⁷

A recent report published by The California Endowment²⁸ examined the current state of physical activity and physical education in 77 schools from 10 school districts across California. Elementary schools offered considerably less than California’s required 200 minutes of physical education every 10 days. These schools averaged 32 minutes less than the requirement with some schools offering slightly more than a third of the time required. Most middle and high schools fared better at meeting the requirement for 400 minutes every 10 days, though many only achieved 75% of the requirement. Elementary school physical education classes were found to be the least active of the three school levels spending, on average, 65 minutes less than middle or high school students in moderate-to-vigorous physical activity during physical education class. High school students were found to average nearly 2 hours per week of moderate-to-vigorous physical activity with middle school students averaging about 75% of that. Students in these schools were found to average 4 minutes per hour of vigorous activity time falling far below daily standards recommended by Healthy People 2010.²⁹ Interestingly, there are no state-mandated implications for California schools or districts not meeting the statewide requirements.

Per unit of time, classes with 45 or more students engaged in half the physical activity (10%) than classes with 25 students or less (20% of class time). Students in lower socioeconomic schools were also found to spend 20% less time engaged in physical activity in physical education class than students in higher socioeconomic schools. A positive relationship was reported between the amount of physical activity during physical education class and fitness scores generated by the school.²⁸

These findings led to the conclusion that the quantity and quality of physical education in the schools studied “is deficient”^{28, p. 6} with the greatest deficiency appearing at the elementary level. Attaining adequate quantity and quality of physical education is particularly important to lower socioeconomic students who are at highest risk for morbidities, yet schools with the greatest percentages of lower socioeconomic students consistently show the greatest physical education deficiencies. To enhance the opportunity for more activity time during physical education class, class size should be similar to other classes in the school curriculum.²⁸

Initiatives to Increase School Physical Education

Several states have initiated legislation to increase school physical education to address the increases in youth physical activity in attempts to address childhood physical activity, overweight, and obesity. Cawley, Meyerhoefer, and Newhouse³⁰ noted that in one year alone, 2005, 44 states introduced legislation designed to increase physical education time or change the quality of the programs. This included Alabama and its proposal to hire nearly 300 physical education teachers per year for two years, and Maryland and its decision to retain a full-time state-level director of physical education. Texas passed legislation in 2007 (SB 530) requiring annual health-related fitness testing in grades 3 through 12 and a specified minimum number of physical activity minutes per day through grade 8. Texas is considering (SB 891) additional legislation regarding physical education curriculum. Georgia (HB 299) recently enacted legislation regarding youth fitness assessment and physical education instruction. Nationally, the Fit Kids Act is being considered which amends No Child Left Behind legislation to support quality physical education through grade 12.

It is questionable whether such actions result in children actually increasing physical activity, losing/controlling

weight, and/or improving health. In a study of 37,000 students who completed the Youth Risk Behavior Survey from 1999, 2001, and 2003, Crawley et al.³⁰ showed that more physical education class time does not equate to more physical activity, or even “. . . more time in the gym.”^{30, p. 62} Active participation time in physical education class was only 16 minutes per day with 2 minutes per day for a median student. The median time was believed to be this low as a result of many high schools only requiring physical education for one or two years while many schools offer physical education a few days per week. Thus, the low median time spent in physical education could be a function of over a quarter of all physical education classes in the U.S. failing to comply with their own state’s regulations. According to Crawley et al., too often classes are simply a matter of “. . . letting them play,”⁶² which may result in demotivating, and unstructured class environments with little physical activity. Even for those classes that are relatively physically active, what effect does this increase in overall physical activity have on out-of-school participation in physical activity? Cawley et al.³⁰ posit that such increases in physical activity during class appear to increase overall physical activity levels for girls, although a similar effect does not appear for boys. As a result, overall effects on physical activity levels seen in physical education class may have very little effect on physical activity, weight loss, and any attempts to address nationwide obesity levels. The conclusion from the various nationwide and state assessments is that physical education has *not* been an effective agent of change.

Improving Physical Education: Policies and Practices

One of the most common recommendations to enhance the effect of physical education is to increase the *quantity and quality* of physical education in the schools. Several Surgeons General and the AAP have argued for compulsory, quality, daily PE, taught by qualified teachers in grades K-12. Nevertheless, no federal law mandates physical education. Moreover, education is largely a state and local issue. While some states have established their own minimum time requirements for physical education (22% of states for the elementary level, 14% for the middle school level, and 20% for the high school level), most do not require students to participate in a minimum number of minutes of physical education per week. In addition, over a third of states with time requirements allow exemptions if the student participates in activities such as ROTC, interscholastic sports, and marching band.¹⁸

National recommendations have been made regarding minimum time requirements in school physical education with one of the most commonly cited being 150 minutes per week for elementary schools and 225 minutes per week at the high school level.³¹ However, few states met this requirement at any grade level.¹⁸ Healthy People 2010²⁹ also recommends that 50% of class time be allocated to physical activity. Physical education is included often in the 2008 Physical Activity Guidelines for Americans.³² Quality physical education is important and programs need to provide sufficient physical activity experiences. In several publications, Simons-Morton et al.³³⁻³⁵ report physical education classes often engage in actual physical activity levels below that suggested in national health objectives (50% of class time). They suggest that quality programs can result in increased physical activity in physical education classes.³

A review of interventions designed to increase physical activity found that school physical education programs that were effective in increasing moderate-to-vigorous physical activity time did so by adding new or more physical education classes, lengthening existing physical education class time, or increasing the amount of time allocated to physical activity during class.¹³ This suggests a need to increase physical education class time in the nation’s schools. However, without maintaining or improving program quality, additional physical education time could be wasted. Increasing physical education program quality may be the most significant factor. One of the most common quality-related recommendations is for programs to be standards based. Standards provide a set of program objectives designed to assure quality in instruction and student learning outcomes. Having standards for student learning in physical education has been deemed a “critical element of a quality physical education program.”^{18, p. 2}

Another way of maintaining accountability in school-based physical education is to include physical education in school accountability measures. Examples include making physical education a part of the school core curriculum, including physical education in the grade point calculation for university admission, and including physical education in schools’ educational report cards used to rate specific subjects within a school curriculum. According to the National Association for Sport and Physical Education (NASPE),¹⁸ 36 states have such a report card for subjects, yet only three states (California, Hawaii, and Illinois) include physical education in the report card.

Other sources also recommend that programs be based on enjoyable activities that help the “. . . student develop knowledge, attitudes, motor skills, and behavioral skills that will ultimately lead to the development of competence and confidence in movement.”^{14, p. 1156} Emphasis on enjoyable activity is believed to lead children and youth to adopt and maintain physically active lifestyles into adulthood. If students become more physically active throughout life, it is expected that fitness levels will rise and morbidity levels will decline.^{14,18,36}

More research is needed on the effects of the time spent in physical activity during physical education classes on out-of-class physical activity levels and the resultant health effects. Cawley, et al.³⁰ state, “. . . relatively little research has systematically examined how much PE (as it is currently constituted) contributes to weight loss or lowers the risk of obesity . . . ”^{p. 62} Similar research is needed to understand how physical education can impact other morbidities, such as diabetes and hypertension, that are increasing in children and youth.

NASPE’s Shape of the Nation report¹⁸ suggests that additional areas of study should include examinations of:

- The relationship between motor skill competence gained in physical education class and physical activity levels across the lifespan,
- The amount of school physical education necessary to meet appropriate standards,
- Valid and reliable instruments for assessing physical activity levels, and
- Actual financial costs associated with daily physical education programs in the schools.

Summary Statement

School physical education has been promoted by numerous expert sources as one of the most promising interventions in our nation’s battle against physical inactivity, obesity, and morbidities.^{1,13-15,29,37,38} Additional resources are available providing suggestions for enhanced physical education experiences.^{39,40} Nevertheless, critics contend that, in its present and most common form, it may not be achieving the expected results.^{18-20,28,30} Regardless of the level of success achieved through physical education programs, much room remains for improvement. It is hoped that these changes will enable school physical education to be one of the most positive and powerful change agents in the serious health concerns facing the youth of our country.

School physical education has been promoted by numerous expert sources as one of the most promising interventions in our nation's battle against physical inactivity, obesity, and morbidities.

However, much room remains for improvement.

Changes to the curriculum with the adoption of standards and enforcement of state policies can make school physical education one of the most positive and powerful change agents for the serious health concerns facing our country.

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