



Increasing and Improving Physical Education and Physical Activity in Schools: Benefits for Children's Health and Educational Outcomes

April 25, 2015

Position

Physical education in the nation's schools is an important part of a student's comprehensive, well-rounded education program and a means of positively affecting life-long health and well-being. At a minimum, the physical education program should provide physical activity to enhance current health while teaching knowledge and skills that foster a long-term commitment to physical activity as part of a healthy lifestyle that will help children prevent numerous conditions, including abnormal cholesterol, high blood pressure, hyperglycemia, obesity, and ultimately heart disease as well as a host of other non-communicable diseases and mental health problems. The American Heart Association, the American Cancer Society Cancer Action Network, and the American Diabetes Association advocate for more frequent, effective physical education in all schools. Optimally, physical education will engage students in health-promoting physical activity for at least half of class time and teach them the knowledge and skills necessary for lifelong physical activity. Physical education should be supplemented, but not replaced, by additional physical activity opportunities including classroom physical activity breaks, active learning, intramurals, afterschool programs, and recess. School districts should be held accountable for offering effective physical education and providing other opportunities for students to be physically active during the school day. Students should be assessed for their knowledge gain in physical education and physical fitness status and improvement over time. In addition, schools should report these results to the district and appropriate state agency in an aggregate manner and make these data available to the public.

The Importance of Physical Education

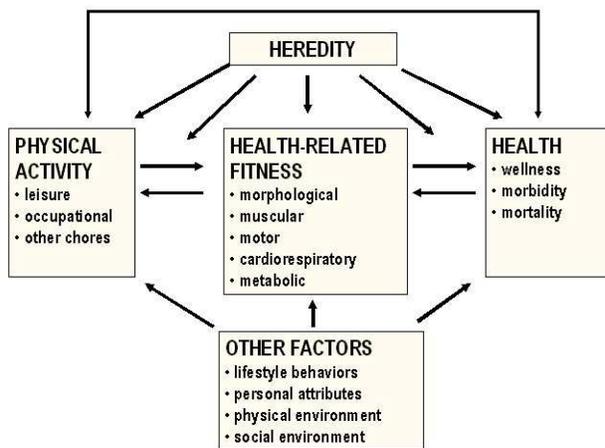
Physical education has been the cornerstone of providing physical activity in American schools for over a century. Furthermore, it teaches students the basics of physical literacy and how to integrate exercise into their lives in order to establish a lifetime of healthy living. Regular physical activity is associated with a healthier, longer life and with a lower risk of heart disease, high blood pressure, diabetes, obesity, mental health problems and some cancers.¹ The *2008 Physical Activity Guidelines for Americans*² and national public health organizations, including the American Cancer Society,³ the American Heart Association,⁴ the American Diabetes Association, and the Society of Health and Physical Educators (SHAPE America) and the Institute of Medicine⁵ recommend that children engage in at least 60 minutes of physical activity each day and at least 30 minutes of this should be in school. Physical education should be an important source of that physical activity time. The American Heart Association, the American Cancer Society Cancer Action Network, the American Diabetes Association, SHAPE America as well as other national groups including the National Association of State Boards of Education (NASBE), the Centers for Disease Control and Prevention and the Institute of Medicine recommend 150 minutes of physical education each week for children in elementary school and 225 minutes per week for middle school and high school. At least 50 percent of physical education class time should be spent in moderate to vigorous physical activity.

Background

Physical inactivity has now been described as a pandemic with far-reaching health, economic, environmental, and social consequences.⁶ According to the World Health Organization, rising levels of physical inactivity have led to adverse health consequences and are the fourth leading risk factor for global mortality.⁷ Physical inactivity is the principal cause of burden for 21-25 percent of breast and colon cancer, 27 percent of diabetes, and 30 percent of ischemic heart disease.⁸ The prevalence of childhood obesity has more than doubled in children and quadrupled in adolescents in the past 30 years.^{9,10} In a comparison of objectively measured physical activity of youth in 10 countries, U.S. children had the lowest amount of physical activity, half the amount of the highest country.¹¹ Unfortunately, many youth are increasingly sedentary throughout their day, meeting neither physical education nor national physical activity recommendations. Physical education in schools has been decreasing in recent years.¹² Only 3.8 percent of elementary, 7.9 percent of middle, and 2.1 percent of high schools provide daily physical education or its equivalent for the entire school year.¹³ Twenty-two percent of schools do not require students to take any physical education at all.² Nationwide, only 48.0 percent of high school students attend at least some physical education classes in any of their grades and 29.4 percent of those students have daily physical education.¹⁴ Recent analysis shows that physical education continues to decline in schools while opportunities for school-based sports programs have increased for some students.¹²

As depicted in **Figure 1**, the relationship between physical activity, health-related fitness, and health is complex and also impacted by the physical and social environments where children spend a majority of their time. Research has found several correlates with youth physical fitness in schools including mandatory physical education participation, classroom physical activity breaks, teachers' demographics and training, the length of recess, school physical activity equipment and facilities and access to them outside of school hours, the establishment of a school wellness policy, active transportation policy, and practicing fitness testing before administration of the test.^{15,16,17,18} In general, as children increase the intensity and duration of their physical activity, their physical fitness will increase. Physical fitness is the outcome measure of more frequent, and more intense physical activity. A higher level of physical fitness is associated with lower all-cause mortality as well as cardiovascular disease and associated risk factors in adults, whereas a low level of fitness is associated with a host of deleterious health consequences including obesity, high blood pressure, colon cancer, diabetes, osteoporosis, and depression.¹⁹

Figure 1. The relationships between physical activity, health-related fitness and health²⁰



Although school districts are required to include goals for physical activity in their local school wellness policies (as mandated by the federal Child Nutrition and WIC Reauthorization Act of 2004 and Healthy,

Hunger-Free Kids Act of 2010), they are not required to address physical education specifically. Despite the lack of this requirement, more than 90 percent of students are in school districts with wellness policies that address physical education. However, only 10 percent of students are enrolled in a district with a wellness policy that requires students to engage in moderate to vigorous physical activity for at least half of physical education class time.²¹ Only six percent of elementary school students and two percent of middle and high school students are in a locally-regulated school district with a wellness policy that requires 150 minutes per week of physical education at the elementary level and 225 minutes per week of physical education at the middle and high school level.²¹

There is strong public support for increasing physical education in schools. The vast majority (95 percent) of parents of children under 18 think physical education should be part of a school curriculum for all students in grades K-12.²² The majority of parents (ranging from 54 percent to 84 percent) also believe that physical education is at least as important as other academic subjects, depending on the subject being compared.²² Numerous professional associations, medical societies, and government agencies formally support the need for physical activity for youth and for quality physical education in schools.²³

Overview of the Evidence on Outcomes of Physical Education

A large number of studies have focused on the impact of improving physical education in schools by updating physical education curricula, increasing the number of classes offered, and improving teacher training, often in coordination with additional educational or home-based components.^{24,25,26,27,28,29,30} In a systematic review of research on activity time in physical education programs, findings indicated that students' aerobic and physical fitness levels improved in programs that intentionally increased the amount of student physical activity time.^{29, 31,32,33,34} Compliance with state physical education laws or regulations where states have requirements for the time in physical education is critical for realizing improvement in student fitness.²⁹ The benefits of modifying the school physical education curricula are experienced across diverse racial, ethnic, and socioeconomic groups, among boys and girls, elementary- and high-school students, and in urban and rural settings.³⁵ Comprehensive physical activity programs in schools including physical education have demonstrated improvement in alleviating risk factors for cardiovascular disease and diabetes as well as other chronic disease.^{36, 37,33, 38,39}

The Whole School, Whole Community, Whole Child Model⁴⁰, which expands on the eight elements of the Centers for Disease Control and Prevention's coordinated school health approach, of which physical education is a central component, will augment prevention efforts and help improve fitness, academic performance, mental health, physical health and well-being across the school environment. A growing body of evidence demonstrates that the benefits of physical education exist beyond the classroom. Physical fitness and participating in sports and physical activity can have a positive impact on cognitive ability, avoiding tobacco use, and reducing insomnia, depression, and anxiety.^{2, 41} Physically fit children have higher scholastic achievement, better classroom behavior, greater ability to focus, and less absenteeism than their unfit counterparts.^{42-44,45, 46} Research indicates that physical fitness is an even better predictor of academic achievement than body mass index (BMI).⁴⁷ School-based physical activity correlates with the improved academic performance and may be an important strategy to address health disparities and achievement gap.^{48-50,51,52,53,54,55,56,57 58} Several large-scale studies found improvements in students' academic performance and cognitive ability with increased time spent in physical education, especially when taught by certified, licensed teachers.^{59 60 61 62} Additionally, children who spent time in physical education in place of a classroom activity performed no worse academically than students not enrolled in physical education.^{63 64}

Studies have demonstrated the feasibility of conducting, recording, and reporting annual school-based assessments of cardiorespiratory fitness⁶⁵ and such fitness assessments can be a valuable supplement to

BMI assessment.⁶⁶ These data can be provided on reports to students and parents and reported in an aggregate manner to the local district and relevant state agencies as a means of conducting public health surveillance on youth fitness status across the population, convincing policy makers of the need for robust physical education in schools, and tailoring programming and interventions to meet the needs of students.⁶⁷

Quality and Quantity of Physical Education

Physical education should be a cornerstone for a total of 60 minutes of physical activity before, during and after the school day. Physical education is the only physical activity-related policy or program that can reach and benefit all students – including students with disabilities. Under the Individuals with Disabilities Education Act (IDEA) and Rehabilitation Act regulations, schools must generally provide a free and appropriate public education that enables students to participate in physical education in the least restrictive environment. Adapted physical education must be provided when a student’s Individualized Education Plan or Section 504 Plan includes it.

Physical education policy should prioritize a quality, standards-based approach while, simultaneously and/or subsequently, trying to increase the amount of time physical education is offered in schools. According to national recommendations, a physical education program should enhance the physical, mental, and social/emotional development of every child and incorporate fitness education and assessment to help children understand, improve and/or maintain their physical well-being.

The core components of physical education are a curriculum that meets the National Standards and Grade-Level Outcomes for K-12 Physical Education taught by a licensed, certified physical education teacher in a setting with adequate equipment and facilities where the pupil-teacher ratio is equivalent to that in other classrooms and where students are active for at least 50 percent of class time.⁶⁸ Certified physical educators should also serve as school-site physical activity leaders that promote physical activity both within and beyond the regular school day.

A comprehensive self-assessment of physical education programs, such as the Physical Education Curriculum Analysis Tool (PECAT), can provide schools with important information about their alignment with national standards for curriculum content and student assessment. Robust assessments and evaluations help identify curriculum changes designed to deliver high quality physical education to students.

Increasing School-Based Physical Activity

In addition to physical education, other opportunities exist to increase the level of physical activity at school. Classroom-based physical activity, recess, active transportation policies that encourage safe walking or biking to and from school, intramural, club, and sports activity programs, and other types of before and after school physical activity opportunities should supplement physical activity provided through physical education. Shared use policies that make physical activity facilities available to the community during out-of-school time should also be in place to facilitate physical activity outside of school hours. Increasing other school-based physical activity should not be an excuse to cut or substitute for the quantity of physical education.⁶⁹ Physical activity is neither an equivalent to nor substitute for physical education, but both can contribute meaningfully to the development of healthy, active children.⁷⁰ According to SHAPE America, physical activity is bodily movement of any type and may include recreational, fitness, and sport activities such as jumping rope, playing soccer, lifting weights, as well as daily activities such as walking to the store, taking the stairs, or raking leaves.⁷¹

In addition to their health benefits, physical activity breaks can improve children’s cognitive functioning and attention and behavior in the classroom and they are effective in high risk populations.^{72,51,73,74 58} In order for classroom teachers to carve out time for these physical activity breaks, schools should optimally have policies in place requiring them as part of the daily schedule and should provide training to teachers on how to conduct them.⁷⁵ Structured physical activity during recess can increase the time students are active and also reduce bullying.⁷⁶

Physical activity must be moderate to vigorous and occur for an adequate duration to provide health benefits.² Walking between classes and occasional field trips should not count toward meeting regular physical activity requirements. It is recommended that school-age children, including those with disabilities, accumulate at least 60 minutes per day of physical activity and avoid prolonged periods of inactivity.

Specific Policy Recommendations:

Standards-based Curriculum

- Require states to adopt physical education curriculum standards that are aligned with national standards and are systematically reviewed and updated.
- Require all school districts to develop and implement a planned, K-12 sequential physical education curriculum that adheres to national and state standards for physical education and includes a comprehensive student assessment program.

Accountability

- States should require school districts and schools to complete comprehensive self-assessments of their physical education program and physical activity offerings using the School Health Index at regular intervals consistent with state and district assessment. The results of the assessment should be integrated into the district or school’s long-term strategic planning, School Improvement Plan, or school wellness policy, to address the quality and quantity of physical education offered.³¹
- As part of this assessment, schools should report the following:
 - How many students are taking physical education
 - How many days per year students are taking physical education
 - How many total minutes of physical activity per week
 - How many class periods per week of physical education
 - Whether the school and/or district has adopted metrics for assessing their physical education program
 - Whether there are requirements for fitness, cognitive, and affective assessment in physical education that are based on student improvement and knowledge gain
 - Implementation of the Presidential Youth Fitness Program and using Fitnessgram
 - How many of the district’s physical education teachers are licensed, certified, and endorsed to teach physical education, show plans for ensuring all physical education teachers get these credentials, and show progress for meeting these teaching quality goals.
- States should require school districts and schools to report the findings of their self- assessment and fitness testing to the appropriate state agency in an aggregate manner and to parents and members of the community through typical communication channels such as websites, school newsletters, school board reports, and presentations. Schools and school districts should also review the aggregate fitness test results with the self-assessment of the programs they are offering in order to determine if additional or improved programming is needed.

Licensed, Certified Teachers and Professional Development

- Require all physical education teachers to be certified, licensed and endorsed to teach physical education and provide grants to districts to assure their physical education teachers receive adequate professional development specific to their field on an annual basis, especially districts serving at-risk students and minority populations.
- Integrate public health into professional development, educating members of the profession on their role within the public health model.
- Require teachers to keep current on emerging technologies, model programs, and improved teaching methods.

Physical Education as part of the Curriculum

- Incorporate physical education as a core academic subject.
- Physical education teachers should coordinate the physical activity initiatives that are integrated throughout the school day. Teachers should use physical education homework to extend time spent in physical activity and improve knowledge gain.

Recommended Time for Physical Education and Physical Activity

- Require school districts and schools provide all students with 150 minutes per week of physical education in elementary schools and 225 minutes per week in middle schools and high schools. Achieve best practice of students being physically active for at least 50 percent of physical education class time.
- Provide adequate physical education and other physical activity opportunities to facilitate school-age children accumulating at least 60 minutes of physical activity before, during and after school and avoiding prolonged periods of inactivity. The key method for achieving this goal is physical education supplemented by additional physical activity opportunities throughout the day.⁵
- Require physical education credit(s) for graduation from high school with appropriate accommodations and considerations for children with disabilities and medical conditions.

Adequate Resources for Physical Education

- Hire a physical education coordinator at the state level to provide resources and offer support to school districts across the state.
- Hire a physical education administrator in the school district to provide support to physical educators in the school district.
- Assure that physical education programs have appropriate equipment and adequate facilities and appropriate student-teacher ratios since research shows that increasing access to human and material resources during class enhances the opportunity for students to engage in the recommended amount and intensity of physical activity.⁷⁷
- Support federal funding for the Carol M. White Physical Education for Progress Grants and require robust outcome evaluation that assesses levels of physical education and physical activity in the target population including the number of students who meet the 60 minutes of daily physical activity and the number of students who meet the threshold for healthy fitness zone in five of the six areas in Fitnessgram. Ask the Department of Education to have a third party conduct external evaluation of some sample of the schools that includes pre- and post-measures of activity, fitness status and improvement, knowledge gain, and facilities improvement.

Waivers/Substitutions

- Disallow automatic waivers or substitutions for physical education.

- Disallow the ability of states, school districts, schools, teachers, and coaches to assign or withhold physical activity as punishment.
- Do not allow waivers for students with disabilities, but rather allow modifications or adaptations that allow physical education courses to meet the needs of disabled students.
- Do not allow students to opt out of physical education to prepare for other classes or standardized tests.

Conclusion

The American Heart Association, the American Cancer Society Cancer Action Network, and the American Diabetes Association will continue to support standards-based, robust, more frequent physical education and physical activity in schools. By addressing physical education across the country—the educational component, accountability, as well as the amount of activity and time spent—policymakers, decision makers, and teachers will maximize children’s potential for a lifetime of physical activity, health, and wellness.

Approaches in Legislation for Improving Student Physical Fitness in Schools through Physical Education and Physical Activity

<p>Mandatory physical education</p>	<ul style="list-style-type: none"> • Using a planned, sequential K-12 physical education curriculum that adheres to national and state standards to implement physical education. • Adequate equipment, facilities, student-teacher ratios • No waivers, substitutions, exemptions • Taught by licensed, certified physical education teachers • Annual professional development for physical education teachers that is specific to their field and integrates the public health model • No waivers for students with disabilities, but rather allow modifications or adaptations that allow physical education courses to meet the needs of disabled students • Fitness and cognitive assessment in physical education that is reported to parents for individual student progress and to the community and relevant state agencies in an aggregate manner • Require 150 minutes of physical education per week in elementary school and 225 minutes per week of physical education in middle school and high school
<p>School-based Physical Activity</p>	<ul style="list-style-type: none"> • Daily use of classroom physical activity breaks • An implemented school wellness policy that establishes requirements for physical activity and physical education • An active transportation policy to and from school • Daily elementary school recess for at least 20 minutes • A shared use policy that makes physical activity facilities available to the community during out of school time • Intramural/club/sports activities provided by the school/district
<p>Assessment/Accountability</p>	<ul style="list-style-type: none"> • Fitness and cognitive assessment in physical education that is reported to parents for individual student progress and to the community and relevant state agencies in an aggregate manner • School-based comprehensive self-assessment of physical education programs and physical activity offerings using existing tools such as the Physical Education Curriculum Analysis Tool. The results of the assessment should be integrated into the school district or school’s

long-term strategic planning and/or school improvement plan, and school wellness policy.

We are extremely grateful to the expert advisory group that helped develop this policy statement.

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