

Physical Education Matters

■ A Full Report *January 2008*

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INTRODUCTION

There is unprecedented need to reform physical education (PE) in California's schools. High levels of obesity and diabetes and low fitness levels in California children, particularly in Latino, African American and Native American youth, indicate the need for our schools to make PE a priority. Action to improve the quantity and quality of PE should be guided by the best available evidence. Quality PE meets state standards and ensures adequate physical activity.

This report identifies several areas in which California PE is serving children poorly and summarizes research on effective strategies to improve PE. There are many opportunities for improving PE, but they require policy and practice changes at the state, district, and school levels. We hope this information will be helpful to educators, health professionals, lawmakers, parents, and other groups working to improve PE for the benefit of children's health and education.

This report is an expanded version of a policy brief published by The California Endowment in January 2007. Both versions of this report, along with related information on improving PE and physical activity, can be found at www.calendow.org.

SUMMARY OF FINDINGS

After reviewing the status of school PE recommendations, requirements, compliance, and resources in California and nationally, the following conclusions can be drawn:

- ✓ Both quantity and quality of California PE are deficient K-12, but the problems are most severe in elementary schools.
- ✓ PE quantity and quality are particularly deficient for low - income students and those in racial and ethnic groups at high risk for overweight and obesity.
- ✓ Personnel and material resources are clearly inadequate to support quality PE in many schools, particularly those in less affluent communities.

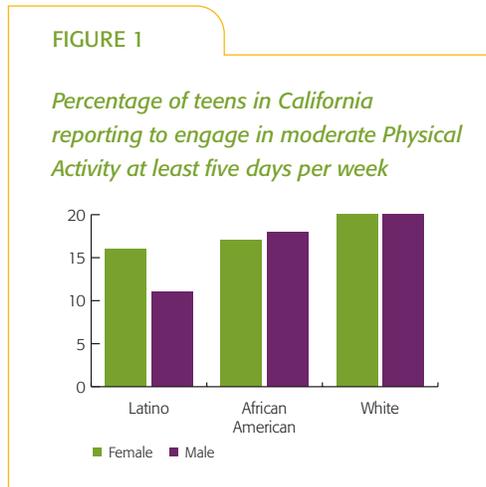
- ✓ Grants and sponsorship from businesses or local sports teams may be needed in low-resource schools.
- ✓ Improving the quantity and quality of PE is likely to improve the health and academic performance of students. Time spent in moderate to vigorous activity is key.
- ✓ Research-based, activity-focused PE programs for schools at all levels have been shown to improve physical activity and provide other benefits, such as improved concentration and decreased disruptive behavior.
- ✓ New state funding provides an unprecedented opportunity to improve the quantity and quality of PE in California, but it is only a first step.
- ✓ Initiatives to improve school PE by private sponsors and foundations provide welcome incentives for innovation, but public funding is necessary for sustainable improvements for all students.
- ✓ For school PE to become part of the solution to the childhood obesity epidemic, policy changes are needed to improve the quantity and quality of PE at the state, district and individual school levels.

WHY PHYSICAL ACTIVITY IS ESSENTIAL FOR THE HEALTH OF CHILDREN

Obesity is now seen as the most critical health problem facing children. Since 1980, childhood obesity rates have more than doubled in California and nationwide.¹ More than 12 percent of teens in California are classified as overweight or obese and are at an increased risk for developing Type 2 diabetes.^{2,3,4,5} Rates of both obesity and diabetes are much higher for Latino, African-American and Native-American youth.^{4,3} Participation in daily physical activity plays a vital role in maintaining health among children and adolescents.

The U.S. Centers for Disease Control and Prevention (CDC) recommends 60 minutes of moderate to vigorous physical activity per day for children and adolescent.⁶ Many youth are not meeting these guidelines, and some groups have particularly low levels of physical activity. California teens from the poorest families were least likely to engage in moderate physical activity five or more days each week,⁷ so the youth with the least resources also are at highest risk for health problems. Only 11 percent of male Latino teens in California report engaging in moderate physical activity at least five days per week, compared to 18 percent of male African-American teens and 20 percent of male White teens. Female Latino teens reported slightly higher activity than males at 16 percent, while both African-American

and White female teens reported similar amounts of activity as their male counterparts.⁷



The Institute of Medicine report on Preventing Childhood Obesity concluded that obesity should be treated as urgently as infectious disease epidemics like polio.⁸ Schools, communities, industry and families need to become engaged in serious efforts to increase physical activity and improve nutrition for youth. School PE can play an essential role.

WHY PHYSICAL EDUCATION IS GOOD FOR CHILDREN AND SCHOOLS

School PE is the primary instrument for preparing children with the skills, knowledge and confidence to lead physically active lives.⁹ Children who take PE report more total physical activity on school days than students who do not take PE.¹⁰ Several national organizations and a California Department of Education (CDE) Task Force reviewed the evidence on the

benefits of PE for children’s health.^{6,8,11}

The CDE Task Force made recommendations that included the following:

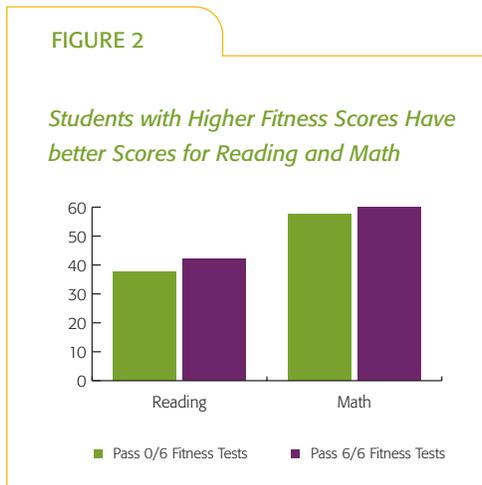
- ✓ Include PE as a core curriculum and treat physical activity as essential to all students’ education and health.
- ✓ Maintain and enforce the required 200 minutes of PE in kindergarten and grades 1-5 and the required 400 minutes of PE in grades 6-12, with a recommended additional 100 minutes of physical education each 10 school days, exclusive of recesses and the lunch period.
- ✓ Do not grant exemptions to these minimum requirements to any school or class.
- ✓ Ensure that at least 50 percent of PE time is spent engaging in moderate to vigorous physical activity.
- ✓ Encourage and provide funds for PE class size to be similar to that of core curriculum courses.
- ✓ Strongly encourage implementation of evidence-based programs and practices with demonstrated impact on physical activity.¹¹

Ensuring that each child and teen participates in daily physical activity plays a vital role in maintaining and enhancing physical and emotional health. National experts recommend 60 minutes of moderate to vigorous physical activity per day for children and adolescents,^{6,12} and active

PE classes contribute to the total physical activity children need.

ACTIVITY-FOCUSED PHYSICAL EDUCATION CAN CONTRIBUTE TO ACADEMIC PERFORMANCE AND POSITIVE CLASSROOM BEHAVIOR

A common reason for reducing time, leadership and resources for PE is the claim that time spent in PE detracts from academic performance. To the contrary, several studies show that students who spend more time in PE do not have lower grades or achievement test scores, and sometimes, more PE leads to higher scores.^{13,14}



Studies in California and elsewhere show that:

- ✓ More physically active and fit students have better grades and achievement test scores.^{15,16,17,18}
- ✓ PE and physical activity can improve academic achievement by enhancing concentration¹⁹ and by helping students be more attentive.²⁰
- ✓ In general, aerobic activity not only

increases blood flow to the brain, but also speeds recall and reasoning skills.^{21,22}

- ✓ Most, but far from all, California school administrators are convinced of the value of PE, believing high-quality PE can enhance concentration (69%), decrease discipline problems (63%), and improve academic performance (63%).²³

WHY THEN IS PHYSICAL EDUCATION NOT SEEN AS AN ACADEMIC PRIORITY?

PE was omitted as a core education subject in the federal No Child Left Behind Act, helping to perpetuate what, according to PE specialists, is one of the most important barriers to high-quality PE: PE's perceived low value in the academic community.²⁴ Schools are required to focus on reading and math performance as quality indicators for continued funding, and PE is not a factor in these critical decisions.

The University of California and comparable institutions do not consider PE grades in their admissions process, adding to the low academic value of PE. While Missouri stipulates PE must be passed to graduate high school,²⁵ California does not require PE grades to be included in GPA.

School and district administrators may place a lower priority on PE for several reasons, including that schools are not held accountable by state or federal education departments for meeting the required PE

TABLE 1

<i>Organization</i>	<i>Bi-weekly minutes of PE</i>	<i>Moderate to Vigorous Physical Activity During PE</i>
California Statute	200 (elementary)	Not specified
	400 (secondary)	
National Association for Sport & PE	300 (elementary)	Not specified
	450 (elementary)	
Healthy People 2010	Not specified	50% of PE class time
American Heart Association	300 (elementary)	Not specified, although the importance of active classes is stressed
	450 (elementary)	
American Diabetic Association	300 (elementary)	Not specified
	450 (secondary)	

minutes, ensuring quality PE or meeting FITNESSGRAM test standards. Unlike other subjects with annual tests, students in California only take the FITNESSGRAM tests in grades 5,7 and 9.²⁶

PHYSICAL EDUCATION QUALITY AND QUANTITY

There are three elements that contribute to PE's impact on health: quantity of PE (i.e., how many minutes children take PE); quality of PE (i.e., how many minutes are spent in moderate to vigorous physical activity); and the number of children enrolled PE. A recent study by UCLA's Center for Health Policy indicated that from the three options above, increasing minutes spent in moderate to vigorous activity in PE would have the greatest impact on health.²⁷

REQUIREMENTS FOR PHYSICAL EDUCATION ARE NOT BEING MET

CALIFORNIA REQUIREMENTS FOR PHYSICAL EDUCATION MINUTES FALL SHORT OF NATIONAL GUIDELINES

Several national groups have made recommendations for PE minutes, as shown in Table 1. What they have in common is that all recommendations are higher than California PE requirements. The National Association for Sports and Physical Education (NASPE) recommends 300 minutes every two weeks for elementary students and 450 minutes every two weeks for middle and high school students.²⁸ At the elementary level, Louisiana and New Jersey are the only states meeting the recommendation, while Montana is the only state that meets the national recommendation for secondary schools.²⁸ Both the American Heart Association²⁹ and American Diabetes Association³⁰ have endorsed the NASPE standards for PE minutes.

As shown in Table 1, California state requirements for PE class minutes are substantially lower than the national recommendations. For elementary students, California requirements are only 2/3 of national recommendations. Table 1 makes another critical point. None of the groups that recommend PE minutes provide any guidance on the amount of physical activity that should be provided during PE class. Only Healthy People 2010 specifies that at least 50 percent of PE class time should be spent in moderate to vigorous physical activity. Yet, it is the physical activity in PE classes that has the most direct impact on children's health.

SCHOOLS ARE NOT EVEN MEETING CALIFORNIA'S LOW PHYSICAL EDUCATION MINUTE REQUIREMENTS

Of schools monitored during the 2004-2005 academic year, 48 percent of elementary schools and 24 percent of middle and high schools were noncompliant with PE minute requirements.³¹ Based on direct observations, elementary classroom teachers provided only about 30 minutes per week of PE, far below the mandated 100 minutes.³¹ Because California PE requirements are so low in elementary schools, and lack of compliance is so high, the PE deficiency is most severe in elementary schools.

THERE IS LITTLE MONITORING AND ENFORCEMENT OF PHYSICAL EDUCATION REQUIREMENTS

Across the nation and in California, PE requirements are rarely enforced.³² In California, schools are only considered for monitoring of their compliance to PE requirements every four years, and they may be exempted if they meet academic goals. There are no real consequences for failure to comply. Schools that do not enforce requirements only need to submit written plans for improvement. In a recent survey, 13 percent of 9th grade students reported they took PE for part of the year and 10 percent reported they did not take PE at all during the year.³³ A critical step toward improving PE in California is to take the requirements seriously and enforce them.

STUDENTS ARE NOT SUFFICIENTLY ACTIVE DURING PHYSICAL EDUCATION

The national health objective is for students to be physically active for 50 percent of PE class time.³⁴ However, California law and regulations do not stipulate the number of minutes of activity required during PE class time. Observations of California PE classes show that children spend less than 50 percent of class time being physically active, regardless of whether they are taught by classroom teachers^{35,36} or PE specialists.^{37,38} Activity time during PE is especially low in California's elementary and secondary schools in low-income communities.³⁸

Based on a survey in California, 79 percent of teens who attend daily PE classes report they are active (played sports or exercised) for 20 minutes or more during the class.³⁹ These reports are likely to be overestimated and, given that the range for other states is 76 to 92 percent, this estimate places California on the lower end of the spectrum.³⁹

EXEMPTIONS TO PE REQUIREMENTS ARE COMMONPLACE, SO MANY HIGH SCHOOL STUDENTS TAKE NO PHYSICAL EDUCATION AT ALL

California is among the 18 states that allow exemptions from required high school PE for such activities as driver's education and athletics (at the district's discretion).²⁸

Although there are requirements for high school PE, it is possible for students to be exempted from PE for two years throughout grades 10 to 12.⁴⁰ Starting in July 2007, 9th graders are required to pass the FITNESSGRAM to be eligible for two-year exemptions.⁴¹ The school district may also permanently exempt a student if he/she is 16 years and has been enrolled in the 10th grade longer than a year. This exemption does not employ PE achievement criteria for the decision making process.

In addition, students from poorer families report they are less likely to be required to take PE in comparison with students from more affluent families.⁴²

California uses the FITNESSGRAM tests to assess health-related fitness of students.

Many students are not passing FITNESSGRAM fitness tests, and there are large disparities by race-ethnicity.⁴³ Based on the documented deficiencies in California PE, it is not surprising that pass rates are low. Less than 30 percent of students meet all six health-related fitness standards in grades 5, 7 and 9.⁴³ The racial-ethnic differences are consistent with the pattern of lower quantity and quality of PE in low-resource schools serving mainly minority students. For example, in grade 5, 34 percent of Whites passed all 6 standards, compared to 23 percent of African Americans and 20 percent of Latinos.⁴³

In summary, PE is critical for improving health and preventing obesity among youth, because it can affect virtually all children for most of their school careers.

Despite PE being part of California's educational commitment for decades, PE has been neglected. PE requirements are below national standards, do not consider physical activity time that is most related to health, and no one is held accountable for failure to meet requirements. Students suffering most from this pattern of neglect are low-income and minority youth who are at highest risk for inactivity and obesity. The children at highest risk could benefit most from improved PE. The good news is there are several pathways for improving the quantity and quality of PE that have been shown to be effective. Research-based solutions are outlined in the following section.

WHAT MATTERS FOR QUALITY PHYSICAL EDUCATION?

THE CURRICULUM MATTERS

PE curricula come from both the health and education fields and their differing approaches need to be reconciled. Even corporate sponsors are now offering PE programs.^{44,45} Because California does not adopt instructional materials for PE as it does for other mandated disciplines, schools and districts have many choices but little guidance about the most effective programs.

CDC's Task Force on Community Preventive Services⁶ and the Institute of Medicine⁸ strongly recommend activity-focused PE as an effective way to increase physical activity. Numerous studies show that specific PE curricula designed to provide opportunities for activity to all students are more effective than the usual PE within the study schools.^{46,47,48,49,50}

- ✓ CATCH and SPARK increased physical activity levels during PE, quality of teaching, fitness and sports skills in elementary schools. Both studies were conducted at least partly in California.^{46,47}
- ✓ M-SPAN showed physical activity during middle school PE could be improved 20 percent without increasing class time. This study was conducted in California.⁴⁸

- ✓ LEAP showed that an active PE program for high school girls improved physical activity over usual PE.⁴⁹

Activity-focused PE curricula evaluated by research are available for all levels of schools, but it is unclear how many California schools are using these or similar programs.

The State Board of Education adopted PE content standards in 2005 that provide guidance in adopting or developing curricula that meet educational standards. There are currently no evaluations of which curricula are consistent with the standards, nor is there an evaluation of the new standards to verify their impact on physical activity time in class. Unlike other subjects, there are no specifically funded professional development programs for PE staff. The California Association for Health, Physical Education, Recreation, and Dance (CAHPERD) sponsors standards training for PE teachers at the district level, and detailed grade-level PE frameworks are being developed to specify goals and outcomes for each of the five standards to guide implementation.

On the following page are some national and state-specific resources that exist for PE curricula, PE policies and data on both PE and physical activity.

National and State-specific Resources

Physical Education Curricula

- ✓ CATCH PE curriculum provides a developmentally appropriate physical education program which develops health related fitness, skill competency and cognitive understanding about the importance of physical activity for all children. Based on a national study. For grades K-8. http://www.sph.uth.tmc.edu/catch/curriculum_pe.htm
- ✓ SPARK is a research-based curriculum that emphasizes moderate to vigorous activity, fitness, sport skills, enjoyment of PE, academic achievement and activity levels away from school. Based on studies conducted in California elementary and secondary schools. For grades K-12. <http://www.sparkpe.org>
- ✓ The Exemplary Physical Education Curriculum (EPEC) is a standards-based curriculum that promotes the teaching of knowledge, skills and attitudes that will enable children to be active for life. For grades K-12. <http://www.michiganfitness.org/EPEC/default.htm>

Physical Education Policy Resources

- ✓ Action for Healthy Kids provides resources on local wellness policies, coordinated school health programs, PE and success stories. <http://www.actionforhealthykids.org>
- ✓ California School Board Association (CSBA) has guidelines and training for policy development, and CSBA/Project LEAN are providing training for policy implementation http://www.csba.org/PS/nutrition_phys_resources.cfm
- ✓ NASPE offers physical activity policy samples in its publication, "Fit, Healthy and Ready to Learn. http://www.nasbe.org/healthy_schools/FHRTL.htm
- ✓ Dianne Wilson-Graham is PE consultant for the California State Department of Education. Curriculum frameworks and instructional materials are available at and <http://www.cde.ca.gov/ci/pe/>
- ✓ The California Association for Health, PE, recreation and dance (CAHPERD) gives updates on current PE policies and legislation, along with links to nationals and state PE resources. <http://www.cahperd.org/aboutCAHPERD.html>

Physical Education Data Resources

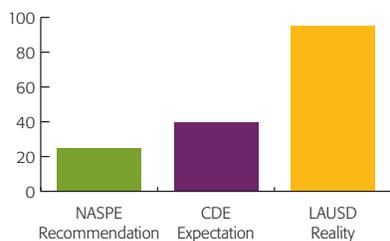
- ✓ California Health Interview Survey (CHIS) offers state and local self-reported data on health behaviors for both teens and adults. Also provides information on how policymakers can use CHIS data. <http://www.chis.ucla.edu/>
- ✓ California Physical Fitness Tests are administered to 3rd, 5th and 7th graders across the state. Students are tested on six different fitness standards, including aerobic capacity. Results are available by state, county, district and schools, as well as the year administered. <http://data1.cde.ca.gov/dataquest/>
- ✓ California Healthy Eating and Exercise Practices Survey (CHEEPS) data tables provide detailed information about California children's fruit and vegetable consumption, physical and sedentary activity, knowledge and awareness of the California Children's 5 a Day—Power Play! Campaign, and factors that influence these behaviors including out-of-home eating, school environment, poverty status, and weight status. <http://www.dhs.ca.gov/ps/cdic/cpns/research/default.htm>
- ✓ California Teen Eating Exercise and Nutrition Survey (CalTEENS) data tables provide detailed information about California adolescent eating and physical activity behaviors. The CalTEENS covers dietary intake and practices, physical and sedentary activity, factors that influence these behaviors including out-of-home eating, social norms, school environment, weight status, weight loss practices, as well as knowledge, attitudes and beliefs associated with eating and exercise. <http://www.dhs.ca.gov/ps/cdic/cpns/research/default.htm>
- ✓ National Association for Sport and PE (NASPE) produces a report each year entitled "Shape of the Nation." The 2006 report details each state's policies on items such as time requirements, exemptions, class size, standards, etc. <http://www.aahperd.org/naspe/ShapeOfTheNation/>
- ✓ Centers for Disease Control - Division of Adolescent and School Health (CDC-DASH) conducts surveillance activities to monitor six categories of priority health risk behaviors, including sexual behaviors and school health policies and programs among all 50 states. These activities are primarily conducted through CDC's Youth Risk Behavior Surveillance System (YRBSS), the School Health Profiles, and School Health Policies and Programs Study (SHPPS). <http://www.cdc.gov/HealthyYouth/about/index.htm>

CLASS SIZE MATTERS

The California Teachers' Association stresses the importance of smaller class sizes to improve performance.⁵¹ However, in California there are no state standards for PE (or other subject) class sizes. One-fourth of the states have policies for PE class sizes, with 27:1 as the average maximum allowable rate for elementary PE and 34:1 in high schools.²⁷ NASPE recommends a student-teacher ratio of 25:1 in elementary PE classes,⁵² and it has been proposed that PE student-teacher ratios should be the same as those for other subjects.⁵³ Large class size is the number one barrier to high-quality PE according to PE specialists,²⁴ and large classes have a detrimental effect on physical activity levels in PE.³⁸

FIGURE 3

Physical Education Class Sizes are too Large in California



California has the largest class sizes in the country.⁵¹ The CDE reports middle and high schools should plan on facilities that accommodate an average PE class size of 40 students per teacher.⁵⁴ In LAUSD, the five largest PE class sizes averaged 93 students in middle schools and 88 students in high

schools.⁵⁵ In Fresno, 81 percent of high school PE classes and 55 percent of middle school PE classes had more than 40 students.⁵⁶ California PE is unlikely to improve much until class sizes are reduced.

QUALIFIED TEACHERS MATTER

Certified PE specialists provide more PE and higher quality PE than classroom teachers.^{57,58} Thus, a CDE Task Force recommends credentialed PE teachers at all levels.¹¹ Despite this recommendation, schools continue to assign classroom teachers, with no professional preparation in PE, to teach an estimated 85 percent or more of elementary PE classes.⁹ University students majoring in K-12 education are required to take few if any PE instruction courses during their training.

In 1994, more than 50 percent of California districts had no full time PE specialists teaching elementary school.²³ Even when an elementary school has a PE specialist, that one person is usually able to provide PE to students only once per week. A recent California study showed elementary schools with the lowest overall FITNESSGRAM scores did not have designated PE teachers or structured classes, while the highest scoring schools had PE teachers, well structured PE classes and complied with the required 200 minutes/two weeks of PE.⁵⁹

To begin improving this situation, in 2007, the California government made available

\$40 million annually to hire PE specialists for grades K-8. This funding is both needed and welcomed, but the funds will pay for much less than one full-time teacher in each school. Each year, only 1,100 schools—just 16% of California’s total⁶⁰—will receive \$35,000, less than the cost of half a teacher. Schools will be selected to receive funding by lottery, a system that will not reduce income-based disparities in students’ access to PE specialists.

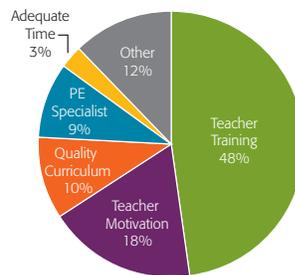
PROFESSIONAL DEVELOPMENT MATTERS

Professional development in activity-focused PE should be one of the highest priorities for improving PE, because of substantial evidence for its effectiveness. Professional development is particularly needed for the classroom teachers who continue to be the main instructors of PE in elementary schools.

While fewer than 10 percent of California school administrators reported the most important factor in implementing quality elementary PE was having PE specialists, nearly half (47%) reported the most important factor was teacher training.²³ Major studies show professional development and ongoing support improve elementary classes taught by classroom teachers, and those improvements are maintained for years.^{46,47,58}

FIGURE 4

Administrators Believe Teacher Training is Important for Quality Physical Education



PHYSICAL ENVIRONMENT MATTERS

School PE facilities, such as playing fields, indoor gyms and equipment are essential for high-quality PE. Larger school play areas are associated with increased physical activity in middle school students.^{38,61} The *Williams v. California* Settlement provided approximately \$1 billion for books, qualified teachers, and adequate classroom facilities, but PE curriculum, PE training for teachers and PE facilities/equipment were not designated any of this money.⁶² Elementary teachers identify inadequate facilities and equipment as among the top three barriers to meeting PE guidelines.⁶³ CDE recognizes the necessity of adequate facilities for PE and has published site requirements based on enrollment.⁵⁴ In a worldwide survey on PE, more than 50 percent of schools in the United States reported their facilities to be inadequate, compared to the global figure of 69 percent.⁶⁴ No information on the adequacy of PE facilities for California schools could be found.

FUNDING MATTERS

A one-time allocation of \$500 million was made to California schools in 2007 for improving PE, arts and music. While these funds could be used for staff development, there is little or no accountability for how they will be spent. CAHPERD offers its “Five Strategic Recommendations”⁶⁵ on how to best spend the funds, and the California School Boards Association offers guidance in allocating the money.⁶⁶

Having adequate PE equipment and supplies is considered essential for quality programs⁵² and is a strong predictor of continued use of an activity-focused PE curriculum.⁶⁷ The one-time funds of \$500 million can be used on equipment and supplies, so these funds may make a small but important impact.

Alternative sources of funding for equipment, instruction and staff training should be considered. Commercial organizations are working with schools to improve PE and physical activity. On the following page are examples of commercial organizations involved in sponsoring PE or physical activity programs for schools.

These programs show corporate interest in improving PE and physical activity of youth. However, these programs need to be evaluated and should not be used as a substitute for fully funded activity-focused PE. It is important that low-resource schools place a high priority on applying for grants

to support PE programs, such as Carol M. White Physical Education Program grants, local foundations or the school’s Parent-Teacher-Organization.

*Commercial Organizations Involved
in Sponsoring Physical Education or
Physical Activity Programs for Schools*

Athletes for Education	Provides schools with the opportunity purchase athletic equipment at a reduced price, and also places athletes from the University of San Diego as mentors in elementary schools.	http://www.afefoundation.org/main.html
McDonalds - Passport to Play	Provides a PE curriculum for grades 3-5.	http://www.mcdonalds.com/usa/good/balanced__active_lifestyles.html
Nike-Jordan Fundamentals	Grant available for materials, supplies, equipment, transportation, field trips, software and evaluation, with a focus on low-income schools.	http://www.nike.com/jump-man23/features/fundamentals/overview.html
Nike- NikeGO PE	Grants are available at the elementary level for PE equipment, teacher training and curriculum.	http://www.nike.com/nikebiz/nikego/learn_nikegope.jsp
San Diego Chargers - Chargers Champions	Grants are available to San Diego-area schools for equipment and facilities.	http://www.chargers.com/community/champions/
Saucony Inc. - The Saucony Run for Good Foundation	Grants are available to help fund running programs to low-income participants.	http://www.sauconyrunforgood.com/
24-Hr. Fitness - The Varsity Program	Varsity team members can use the fitness facilities for free at designated times.	http://www.24hourfitness.com/Varsity.do
World Golf Foundation - First Tee National School Program	School must raise \$2,100, but that funding provides equipment, teacher training, and facilitated visits to golf facilities. Currently in Florida elementary schools, but plans to expand to all levels of schools nationwide.	http://www.thefirstteensp.org/Club/Scripts/Home/home.asp

LEGISLATION MATTERS

If schools are to meet PE requirements and standards, knowledge and enforcement of current legislation is needed. The following is a brief review of relevant California legislation on PE.

Highlights of California Physical Education Legislation

Below are recent pieces of PE legislation that parents and administrators should be aware of and ensure that schools are implementing said policies.

SB 1131 - 9/20/06	One time funds, to use for professional development, equipment and supplies for physical education and the visual and performing arts.
SB 78 - 9/20/03	Starting July 2007, students must pass the Physical Fitness Test in 9th grade in order to be eligible to receive two year exemption. ^{41,68}
SB-1868 - 9/30/02	The Educational Code is amended to adopt rules and regulations to secure establishment of courses in PE in elementary and secondary schools. PE manuals to be distributed to all teachers and schools to be encouraged to provide quality PE, which develops the knowledge, attitudes and skills to be physically active for life.
AB-1793 - 9/27/02	The State Board of Education is required to adopt model PE curriculum content standards, encourage school districts to employ credentialed PE teachers and encourage PE to be taught for a no less than 200 minutes each 10 school days. ⁶⁹
HB-2907 - 9/30/00	The Educational Code is amended to include "physical education with an emphasis given to physical activities that are conducive to health and to vigor of mind and body" for grades 7-12. High school students are also required to complete two PE courses, which amounts to 2 years of PE. ⁶⁹
SB-896 - 9/30/98	Every 2 years, school districts are required to administer a physical performance test to students in grades 5, 7, 9 and submit results to the CDE.

SPECIAL ATTENTION FOR GIRLS IN PHYSICAL EDUCATION

Because girls are less active than boys throughout childhood and adolescence,⁷¹ PE may be an especially important time for girls to be active. A California study showed middle school girls were less active during PE than boys.³⁷ Girls from minority backgrounds tend to be even less active during PE. A study followed African-American and White girls for 10 years. While both groups decreased physical activity over the years, the African American girls had a lower physical activity level at the start and showed a more dramatic decrease throughout.⁷² Declines in physical activity were more highly correlated with weight gain in African American than in White girls. Compared to White and Asian girls, national data show Black and Hispanic girls were less physically active.⁷¹ Girls like PE less than boys, and girls' liking for PE declines with age.⁷³ A qualitative study in California and Texas found that a barrier to girls' participation was favoritism toward boys by male PE teachers and coaches.⁷⁴

When teen girls suggested strategies to improve their experience of PE, one theme was to offer more activities girls enjoy. Another theme was to offer girls choices about the types of activities in PE, the intensity of activities, activities with or without boys and activities that involved more skills, like ball sports.⁷⁵ Offering more activity choices for all children during PE may help increase physical activity levels in girls.

CONCLUSIONS

The epidemics of childhood obesity and diabetes are worsening, and these health crises create an urgent need to improve physical activity among California youth, as well as improve eating habits. Low-income, African-American, Latino and Native-American youth make up a large percent of California public school students, and these groups are at greatly increased risk of physical inactivity and its health consequences. Schools, communities, industry and families have all been called upon to contribute to solutions for these health problems.

PE is the primary institution for preparing young people to lead active lives and is the only physical activity education program that can reach virtually all youth, regardless of race/ethnicity and income. Research supports the wisdom of California's commitment to providing PE to students at all levels.

PE has the potential to increase physical activity, improve health, and contribute to academic performance in all students. Many studies show active and fit children with activity-focused PE tend to have better academic performance than others. Therefore, concerns about harming academic achievement should no longer be accepted as an excuse for poor PE.

Promises made about PE in California have not been kept, and no one is being held accountable for the failures. There is no mechanism for enforcing PE requirements. California schools fall short of national and state recommendations for PE minutes and amount of activity in PE classes. The requirement of two high school PE courses is often negated by exemptions. University preparatory requirements often logistically preclude students from enrolling in high school PE classes.

There is consistent evidence that quantity and quality of PE is worse in low-resource schools, so it is a high priority to target the neediest schools for improvements. Means testing must drive funding allocations, and schools must be open to accepting support even if it requires additional effort.

Girls are less physically active and have a poorer experience of PE than boys, so special efforts at all schools are needed to ensure PE is responsive to the needs and interests of girls as well as boys.

Personnel and material resources are clearly inadequate to support quality PE in California. Large PE class sizes, lack of PE specialists, and lack of investment in teacher training are major contributors to reduced quality of PE. The adequacy of physical facilities and equipment for PE is unknown. Inequities in access to PE-related resources between low- and high-income schools have not been assessed, but are likely reflected

in ethnic and socioeconomic disparities in fitness levels.

The good news is that research-based PE programs for schools at all levels have been shown to improve physical activity and provide other benefits. Efforts to improve PE are coming from both education and health sectors. Though these groups are both working to increase physical activity, they are using different strategies, and there is a need for these groups to work together on a common vision to achieve both health and education goals.

More good news is that new state funding and federally mandated policies to support improved PE provide an unprecedented opportunity to improve the quantity and quality of PE in California schools.

However, there are important limitations to these initiatives:

- ✓ There are no mechanisms to support implementation or monitoring of federally mandated school wellness policies.
- ✓ New ongoing state funding for PE will support less than one full-time PE specialist for only a small proportion of schools. Selecting schools based on a lottery will not reduce disparities.
- ✓ One-time state funding for PE, Art and Music is a good beginning, but there is no accountability for wise use of the funds.

California's failure to provide excellent PE appears to be harming the health, and possibly the academic performance, of children. Low-income and racial/ethnic minority students tend to go to schools with the poorest PE programs and have the lowest fitness score. California's Departments of Education and Public Health need to collaborate more effectively to improve PE for all our children.

RECOMMENDATIONS

School PE is the primary institution for preparing young people to lead active lives and is the only physical activity promotion program that can reach virtually all youth, regardless of race/ethnicity and income. For school PE to become part of the solution to the childhood obesity epidemic, research findings indicate policy and practice changes to improve the quantity and quality of PE are necessary. Everyone has a role — advocacy groups, parents, teachers, administrators, academics, policymakers and health professionals. Following are recommended policy goals:

- ✓ Ensure PE minutes provided to each student meet or exceed state requirements by improved monitoring and enforcement.
- ✓ Ensure all PE classes are taught by certified PE specialists who receive continuing professional development. If classroom teachers provide PE, they must receive adequate training
- in PE instructional methods during undergraduate preparation and continuing education.
- ✓ Encourage the adoption and implementation of activity-focused PE curricula that are research-based and consistent with content standards.
- ✓ Increase required PE minutes in elementary schools.
- ✓ Eliminate exemptions from PE, except for medical contraindications.
- ✓ Ensure PE class sizes are consistent with those of other subjects.
- ✓ Ensure there are adequate indoor and outdoor facilities and sufficient equipment for PE.
- ✓ Target funding for improving PE quantity and quality to schools serving low-resource communities.
- ✓ Enhance the value of PE within the education community by including PE in school accountability measures, including PE grades in GPA's used by universities, and adding PE as a core subject in the federal No Child Left Behind act.
- ✓ Encourage the CDE, school districts and schools to partner with the Department of Health Care Services and the California Department of Public Health, local public health departments, and community organizations to build advocacy and support for the policies and funding required to improve school PE.

- ✓ Collaborate with the CDE to ensure that the concerns of health and PE advocates and PE specialists are reflected in the framework of the new PE standards in California.

REFERENCES

1. Centers for Disease Control and Prevention. "Overweight Among U.S. Children and Adolescents National Health and Nutrition Examination Survey," 2004.
2. Ogden CL, Flegal KM, Carroll MD, Johnson CL. "Prevalence and Trends in Overweight Among US Children and Adolescents, 1999-2000." JAMA (Journal of the American Medical Association) 2002, vol. 288, pp.1728-1732.
3. ADA (American Diabetes Association) <http://www.diabetes.org/diabetes-statistics/prevalence.jsp>
4. Copeland K et al. "Type 2 Diabetes in Children and Adolescents: Risk Factors, Diagnosis, and Treatment" Clinical Diabetes 2005. vol. 23 (4).
5. Childhood Overweight Rates on the Rise in California Assembly Districts" California Center for Public Health Advocacy, 2005.
6. Kahn EB, Ramsey LT, Heath GW, Howze EH, Powell KE, Stone EJ, et al. Increasing physical activity. A report on recommendations of the task force on community preventive services. Centers for Disease Control, Task Force on Community Preventive Services. 2001. Berkeley, CA. Available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5018a1.htm> Accessed on 1/4/07.
7. California Health Interview Survey 2003 (Adolescents reporting moderate physical activity on at least 5 days per week). available at <http://www.chis.ucla.edu/main/DO2/easy/output.asp> accessed on 12/12/06.
8. Koplan JP, Liverman CT, Kraak VI, Eds. Preventing childhood obesity: Health in the balance. Institute of Medicine. 2005. Available at <http://www.nap.edu/catalog/11015.html>. Accessed on 1/4/07.
9. Sallis JF, McKenzie TL. Physical education's role in public health. Research Quarterly for Exercise and Sport. 1991; 62: 124-137.
10. Keihner AJ, Garbolino T, Hudes M. Findings from the 1999 California Children's Healthy Eating and Exercise Practices Survey. 2004. Available at <http://www.dhs.cagov/ps/cdic/cpns/research/download/calcheeps/calcheeps-low.pdf>. Accessed 1/8/07.
11. California department of education task force recommendations- Superintendent O'Connell's Task Force for Childhood Obesity, Type 2 Diabetes, and Cardiovascular Disease. December 2004. Available at <http://www.cde.ca.gov/ls/he/cd/recommendations.asp>. Accessed on 1/5/07.
12. Strong WB, Malina RM, Blimkie CJR, Daniels SR, Dishman RK, Gutin B, et al. Evidence based physical activity for school-age children. The Journal of Pediatrics. 2005; 146: 732-737.
13. Shephard R. Curricular physical activity and academic performance. Pediatric Exercise Science. 1997; 9: 113-126.
14. Sallis JF, McKenzie TL, Kolody B, Lewis M, Marshall S, Rosengard P. Effects of health-related physical education on academic achievement: Project SPARK. Research Quarterly for Exercise & Sport. 1999; 70: 127-134.

15. Hanson T, Austin G, Lee-Bayha J. Student health risks, resilience and academic performance in California. WestEd. Available at http://www.wested.org/chks/pdf/ensuring_nclb.ppt. Accessed on 1/8/07.
16. Field T, Diego M, Sanders CE. Exercise in positively related to adolescents' relationships and academics. *Adolescence*. 2001; 36: 106-110.
17. Coe DP, Pivarnik JM, Womack CJ, Reeves MJ, Malina RM. Effect of physical education and activity level on academic achievement in children. *Medicine & Science in Sports and Exercise*. 2006; 38: 1515-1519
18. Grissom JB. Physical fitness and academic achievement. *Journal of Exercise Physiology online*. 2005; 8: 11-25.
19. Raviv S, Low M. Influence of physical activity on concentration among junior high-school students. *Perceptual and Motor Skills*. 1990; 70: 67-74.
20. Metzler, M. A classroom-based physical activity and academic content program: More than a pause that refreshes? A Report to International Life Sciences Institute. Atlanta, GA. www.ils.org
21. Etnier J, Johnston R, Dagenbach D, Pollard RJ, Rejeski WJ, Berry M. The relationships among pulmonary function, aerobic fitness, and cognitive functioning in older COPD patients. *Chest*, Official publication of the American College of Chest Physicians. 1999; 116: 953-960. Available at <http://chestjournal.org/cgi/content/abstract/116/4/953>. Accessed on 2/13/07.
22. Van Boxtel MP, Langerak K, Houx PJ, Jolles J. Self-reported physical activity, subjective health and cognitive performance in older adults. *Experimental Aging Research*. 1996; 22: 363-379. Available at http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8968708&dopt=Citation. Accessed on 2/13/07.
23. Sallis JF, McKenzie TL, Kolody B, Curtis P. Assessing district administrators' perceptions of elementary school physical education. *Journal of Physical Education, Recreation, and Dance*. 1996; 67(8): 25-29.
24. Barosso C, McCullum-Gomez C, Hoelscher DM, Kelder SH, Murray NG. Self-reported barriers to quality physical education by physical education specialists in Texas. *Journal of School Health*. 2005; 75: 313-319.
25. State Physical Education Requirements, (information taken from NASPE) accessed at http://drwoolward.com/commentary/state_pe_requirements.htm on 12/5/06.
26. California Department of Education, Physical Fitness Testing Regulations. Available at <http://www.cde.ca.gov/ta/tg/pf/pftregs06.asp>. Accessed on 7/17/07.
27. Health Impact Assessment of Potential Modifications to Physical Education Requirements in California. January 10, 2007. Health Impact Assessment group. UCLA School of Public Health. CDC-SHPPS data was analyzed. <http://www.ph.ucla.edu/hs/health-impact>.
28. Shape of the Nation Report-Status of Physical Education in the USA. National Association for Sport and Physical Education and the American Heart Association. 2006. Reston, VA. Available at <http://www.americanheart.org/downloadable/heart/1154607764279ShapeOfTheNation.pdf>. Accessed on 1/8/07.

29. American Heart Association. Physical Education in Schools. Available at <http://www.americanheart.org/presenter.jhtml?identifier=3010854>. Accessed on 9/4/07.
30. American Diabetes Association. ADA's Educational Lesson and Activities Align with National Health and Physical Education Standards. Available at http://schoolwalk.diabetes.org/site/DocServer/Alignment_all.pdf?docID=2263. Accessed on 9/5/07.
31. Coordinated compliance reviews 2004-05 physical education summary 2004-05. California Center for Public Health Advocacy. (A percentage of schools was sampled.) www.publichealthadvocacy.org/
32. Trust for America's Health. F as in Fat: How obesity policies are failing in America (Issue Report). Washington, DC: Trust for America's Health, 2004. Available at <http://www.healthyamericans.org>. Accessed on 1/31/07.
33. Center for Weight and Health, University of California, Berkeley (2007): Preliminary baseline findings from the Healthy Eating Active Communities Initiative Evaluation.
34. Healthy People 2010-Chapter 22 Physical Activity and Fitness, CDC and President's Council on Fitness. Available at <http://hp2010.nhlbi.nih.gov/2010Objs/22Physical.html#Toc471793048>. Accessed on 12/4/06.
35. McKenzie TL, Faucette FN, Sallis JF, Roby JJ, Kolody, B. Effects of a curriculum and in-service program on the quantity and quality of elementary physical education classes. *Research Quarterly for Exercise and Sport*. 1993; 64: 178-187.
36. McKenzie TL, Feldman H, Woods SE, Romero KA, Dahlstrom V, Stone EJ, Strikmiller PK, Williston JM, Harsha DW. Children's activity levels and lesson context during third grade PE. *Research Quarterly for Exercise and Sport*. 1995; 66: 184-193.
37. McKenzie TL, Marshall SJ, Sallis JF, Conway TL. Student activity levels, lesson context, and teacher behavior during middle school physical education. *Research Quarterly for Exercise and Sport*. 2000; 71: 249-259.
38. UCLA Center to Eliminate Health Disparities. Failing Fitness: Physical Activity and Physical Education in Schools. A policy brief from The California Endowment. Los Angeles, CA, January 2007. www.calendow.org.
39. Center for Disease Control and Prevention. Youth Risk Behavioral Surveillance- United States 2005. Summaries, June 9, 2006. *MMWR* 2006; 55 (No.SS-5). Available at <http://www.cdc.gov/mmwr/PDF/SS/SS5505.pdf>. Accessed on 5/14/07.
40. Physical Education High School Requirements (EC 51225.3). State of California Physical Education Requirements. Available at <http://www.cde.ca.gov/be/pn/im/documents/info-wav-jun06item01a2.doc>. Accessed on 1/8/07.
41. Update SB-78 9th Grade Fitness Test Requirements. Available at http://www.cahperd.org/divisions/phys_ed/images/Update-SB%2078%209th.pdf. Accessed 12/15/06.
42. California Health Interview Survey 2005 (Adolescent who reported they were required to take PE in school). Available at <http://www.chis.ucla.edu/main/DQ2/easy/output.asp>. Accessed on 3/5/07.

43. 2005-06 California Physical Fitness Report, Summary of Results. Accessed at http://data1.cde.ca.gov/dataquest/PhysFitness/PFT-est_St_2006.asp?cYear=2005-06&cChoice=PFTes1&RptNumber=0 on 12/4/06.
44. Available at http://www.nike.com/nike-biz/nikego/learn_nikego.jsp. Accessed on 1/5/06.
45. Available at http://www.mcdepk.com/passporttoplay/media/ptp_fact_sheet.pdf. Accessed on 1/5/06.
46. Sallis JF, McKenzie TL, Alcaraz JE, Kolody B, Faucette N, Hovell MF. The effects of a 2-year physical education program (SPARK) on physical activity and fitness in elementary school students. *American Journal of Public Health*. 1997; 87: 1328-1334.
47. McKenzie TL, Nader PR, Strikmiller PK, Yang M, Stone EJ, Perry CL, et al. School physical education: Effect of the child and adolescent trial for cardiovascular health. *Preventive Medicine*. 1996; 25: 423-431.
48. McKenzie TL, Sallis JE, Prochaska JJ, Conway TL, Marshall SJ, Rosengard P. Evaluation of a two-year middle-school physical education intervention: M-SPAN. *Medicine and Science in Sports and Exercise*. 2004; 36:1382-1388.
49. Pate RR, Ward DS, Saunders RP, Felton G, Dishman RK, Dowda M. Promotion of physical activity among high-school girls: A randomized controlled trial. *American Journal of Public Health*. 2005; 95: 1582-1587.
50. Exemplary Physical Education Curriculum. The Governors Council on Physical Fitness, Health and Sports and the Michigan Fitness Foundation. Available at <http://www.michiganfitness.org/EPEC/default.htm#Research>. Accessed 2/13/07.
51. Issues in Education: Class Size Reduction. California Teachers' Association. Available at <http://www.cta.org/issues/other/Class+Size+Reduction.htm>. Accessed on 12/7/06.
52. Guideline for facilities, equipment and instructional materials for elementary education. Council of Physical Education for Children- A Position Paper from the National Association for Sport and Physical Education. July 2001. Available at http://www.aahperd.org/NASPE/pdf_files/pos_papers/instructional_mat.pdf. Accessed on 1/8/07.
53. Thissen-Midler M. The Quality Teaching Network in Physical Education. Physical education lifeline: Curriculum and instruction resource for physical education educators. Minnesota Dept. of Education. March 2006. Available at <http://children.state.mn.us/mdeprod/groups/Standards/documents/Publication/009432.pdf>. Accessed on 1/8/07.
54. Physical Education Guidelines Middle and High School. School Facilities (California Department of Education). Last modified 11/29/06. Available at <http://www.cde.ca.gov/ls/fa/sf/peguidemidhi.asp>. Accessed on 12/14/06.
55. Blume H. It's a Stretch for Schools to Find Enough Space for PE. *Los Angeles Times*. November 27, 2006. Available at <http://www.latimes.com/news/local/la-me-physed-27nov27,0,2673162.story?coll=la-headlines-california>. Accessed on 12/7/06.

56. Herzog J. Physical Education Class Size Investigation- Fresno Unified School District. October and November 2005.
57. McKenzie TL, Stone EJ, Feldman HA, Epping JN, Yang M, Strikmiller PK, et al. Effects of the CATCH physical education intervention: teacher type and lesson location. *American Journal of Preventive Medicine*. 2001; 21:101-109.
58. McKenzie TL, Sallis JK, Kolody B, Faucette FN. Long-term effects of a physical education curriculum and staff development program: SPARK. *Research Quarterly on Exercise & Sport*. 1997; 68: 280-291.
59. Singh S, McMahan S. An evaluation of the relationship between academic performance and physical fitness measures in California schools. *California Journal of Health Promotion*. 2006; 4: 207-214.
60. Ed- Data: State of California Education Profile 2005-2006. Available at <http://www.ed-data.k12.ca.us/Navigation/fsTwoPanel.asp?bottom=%2Fprofile.asp%3Flevel%3D04%26reportNumber%3D16>. Accessed on 1/8/07.
61. Cradock AL, Melly SJ, Allen JG, Gortmaker SL. Characteristics of school campuses and youth physical activity: Does size matter? Presented at Active Living Research Conference. Coronado, CA. February 16-18, 2006. www.activelivingresearch.org.
62. *The Williams v. California Settlement: The First Year of Implementation*. A Report by Counsel for the *Williams* Plaintiffs. November 2005. Available at http://www.aclu-sc.org/attach/w/williams_first_year_report.pdf. Accessed on 2/13/07.
63. Dwyer JJ. Teachers' perspective on barriers to implementing physical activity curriculum guidelines for school children in Toronto. *Canadian Journal of Public Health*. 2003; 94: 448-52.
64. Hardman K, Marshall JJ. Physical education in schools: preliminary finding of a worldwide survey part II. *Journal of International Council for Health, Physical Education, Recreation, Sport and Dance*. 2000; 36: 8-11.
65. 2006-2007 Visual and Performing Arts and Physical Education Funding. Five Strategic Recommendations for Maximizing Opportunities. Available at http://www.cahperd.org/images/pdf_docs/5_Recommendations_11-22-06.pdf. Accessed on 2/12/07.
66. California School Boards Association. Physical Education and California Schools. Governance and Policy Services Policy Briefs. October 2006. Available at http://www.cahperd.org/images/pdf_docs/CA%20PE%20fitness%20academic%20CSBA%2006.pdf. Accessed on 2/12/07.
67. Dowda M, Sallis JE, McKenzie TL, Rosengard P, Kohl III HW. Evaluating the sustainability of SPARK physical education: A case study of translating research into practice. *Research Quarterly for Exercise and Sport*. 2005; 76: 11-19.
68. Physical Education Legislative Update - October 5, 2006. California Association for Health, Physical Education, Recreation and Dance- Current Legislation. Available at http://www.cahperd.org/legislation/current_legislation.html. Accessed on 1/31/07.
69. Silberman K. Review five years of state physical education and physical activity legislation. Presented at the Physical Activity

Policy in Action: Scanning the Landscape, A National Conference. June 9, 2004. Washington DC. Available at <http://www.aahperd.org/aahperd/nclb/NCLBSilberman.ppt#308,2>. Accessed on 1/31/07.

70. SB 896 enrolled. Available at http://info.sen.ca.gov/pub/97-98/bill/sen/sb_0851-0900/sb_896_bill_19980827_enrolled.html. Accessed on 1/31/07.
71. Gordon-Larsen P, McMurray RG, Popkin BM. Determinants of adolescent physical activity and inactivity patterns. *Pediatrics*. 2000;105:E83.
72. Kim SY, Glynn NW, Kriska AM, Barton BA, Krosenberg SS, Daniels SR, et al. Decline in physical activity in black girls and white girls during adolescence. *New England Journal of Medicine*. 2002; 347:709-15.
73. Prochaska JJ, Sallis JF, Slymen DJ, McKenzie TL. A longitudinal study of children's enjoyment of physical education. *Pediatric Exercise Science*. 2003; 15: 170-178.
74. Taylor WC, Yancey AY, Leslie J, Murray NG, Cumming SS, Sharkey SA. Physical Activity Among African American and Latino Middle School Girls: Consistent Beliefs, Expectations and Experiences Across Two Sites. *Women & Health*. 1999; 30: 67-82.
75. Moe SG, Pickrel J, McKenzie TL, Strikmiller PK, Coombs D, Murrie D. Using school-level interviews to develop a multi-site PE intervention program. *Health Education & Behavior*. 2006; 33: 52-65.

