

Executive Summary and Key Messages

In response to a desire from both federal and non-federal stakeholders for the *2008 Physical Activity Guidelines for Americans* to be updated on a regular basis, the U.S. Department of Health and Human Services (HHS) Office of Disease Prevention and Health Promotion (ODPHP), the President's Council on Fitness, Sports & Nutrition (PCFSN), the Centers for Disease Control and Prevention (CDC), and the National Institutes of Health (NIH) formed a federal steering group to discuss this issue. Although research and new findings in the realm of physical activity continue to emerge, the group believed that the current *Physical Activity Guidelines for Americans* recommendations would change little if they were updated. Therefore, the steering group recommended a Midcourse Report, which would provide an opportunity for experts to review and highlight a specific topic of importance related to the Guidelines and to communicate findings to the public. The steering group identified "strategies to increase physical activity among youth" as a topic area that would help to inform current practice related to the Guidelines.

Physical Activity Guidelines for Americans Midcourse Report: Strategies to Increase Physical Activity Among Youth is intended to identify interventions that can help increase physical activity in youth across a variety of settings. A subcommittee of the PCFSN comprised of experts in physical activity was convened to examine the evidence and deliver their findings in the Midcourse Report. The subcommittee focused on physical activity in general and did not examine specific types of activity, such as muscle- or bone-strengthening physical activities. The subcommittee also did not consider efforts to reduce sedentary time or screen time. The primary audiences for the report are policymakers, health care and public health professionals, and leaders in the settings covered in the report.

Recognizing that many settings have the potential to increase physical activity among youth, the subcommittee focused on five settings in which

physical activity interventions for youth have been studied and evaluated and for which review articles existed: schools, preschool and childcare centers, community, family and home, and primary care. To assess the literature on these settings, the subcommittee and a literature review team from Washington University in St. Louis analyzed findings from review articles using a review-of-reviews approach.

This report discusses the importance of each of the five settings and its relation to youth physical activity, presents a review of and conclusions about the strength of evidence supporting interventions to increase physical activity, and describes research needs. The report also discusses several notable precedents for policy involvement in youth physical activity, describes the potential for policy and programs to further encourage increased physical activity among youth, and discusses other approaches to consider in developing strategies to increase physical activity among youth.

The remainder of this Executive Summary highlights key findings and recommendations from the *Midcourse Report* and discusses overarching needs for future research. Table 1 provides a summary of these findings and research needs.

Key Findings and Recommendations

School Settings Hold a Realistic and Evidence-based Opportunity to Increase Physical Activity Among Youth and Should be a Key Part of a National Strategy to Increase Physical Activity

More than 95 percent of youth are enrolled in schools, and a typical school day lasts approximately 6 to 7 hours, making schools an ideal setting to provide physical activity to students.¹ Sufficient evidence is available to recommend wide implementation of multi-component school-based programs. These types of programs provide enhanced physical education (PE)

(e.g., increased lesson time, delivery by well-trained specialists, and instructional practices that provide substantial moderate-to-vigorous physical activity), as well as classroom activity breaks, activity sessions before and/or after school, and active transportation to school.

Similarly, well-designed enhanced PE in and of itself increases physical activity among youth and should be widely implemented in schools. Two additional approaches—activity breaks and commuting to and from school using active transport—show promise and are attractive because they can be implemented in situations where a full multi-component program or enhanced PE may be out of reach. Because the scientific knowledge of what works is still evolving, it is critical that, as a nation, we continue to evaluate the impact of physical activity programs in schools and ensure that effective programs are translated for a variety of audiences and widely disseminated.

Preschool and Childcare Centers That Serve Young Children Are an Important Setting in Which to Enhance Physical Activity

Millions of American children spend much of their day in structured childcare centers. More than 4.2 million young children (about 60% of children ages 3 to 5 who are not attending kindergarten) are enrolled in center-based preschools in the United States,² and the evidence suggests that well-designed interventions can increase physical activity among these children. Promising interventions include those that increase time children spend outside, provide portable play equipment (e.g., balls and tricycles) on playgrounds and other play spaces, provide staff with training in the delivery of structured physical activity sessions for children and increase the time allocated for such sessions, and integrate physically active teaching and learning activities.

Changes Involving the Built Environment and Multiple Sectors Are Promising

The built environment includes the physical form of communities including urban design (how a city is designed; its physical appearance and arrangement), land use patterns (how land is used for commercial, residential and other activities), and the transportation system (the facilities and services that link one location to another).³ Changes to this setting are important

because they offer the potential to increase activity for *all* youth, not only those who elect to participate in specific programs or activities, which may be affected by socioeconomic factors.

Multiple national, state, and local stakeholders play an important role in promoting physical activity in this setting, including those in transportation, urban planning, and public safety, whose primary mission is not physical activity promotion. What has yet to be tested is the added value of including these sectors in comprehensive community interventions for youth physical activity.

To Advance Efforts to Increase Physical Activity Among Youth, Key Research Gaps Should Be Addressed

During the development of this report, several research needs emerged that could be applied to all of the five settings addressed. Currently, reviews of physical activity in youth have limited long-term or longitudinal follow up. Extending research beyond short-term interventions can help determine the sustainability and long-term benefits of increasing physical activity among youth. Additionally, research including a variety of demographic, geographic, health status, racial and ethnic, and socioeconomic status groups would be beneficial in determining how interventions can best be applied to specific populations. Behavioral theories underlying the interventions that yield the strongest effects in youth need further examination.

Several settings reviewed by the subcommittee, including Community, Family and Home, and Primary Care, had limited evidence about specific interventions strategies, but showed promise as an opportunity to engage youth. These settings should be highlighted as priority areas for research to better understand how interventions can be applied in both specific areas and across multiple settings to increase opportunities for physical activity.

Finally, most policy-relevant research related to youth physical activity is cross-sectional, showing associations but not permitting causal connections between the policies and programs to be drawn. In the future, longitudinal assessments and rigorous evaluation of policies and programs related to youth physical activity are particularly high priorities.

Table 1. Summary of Findings and Next Steps for Research

Setting and Strength of Evidence*	Strategies to Increase Physical Activity Among Youth	Next Steps for Research
School Setting		
Multi-component <i>Sufficient</i>	<ul style="list-style-type: none"> • Provide enhanced physical education (PE) that increases lesson time, is delivered by well-trained specialists, and emphasizes instructional practices that provide substantial moderate-to-vigorous physical activity. • Provide classroom activity breaks. • Develop activity sessions before and/or after school, including active transportation. • Build behavioral skills. • Provide after-school activity space and equipment. 	<ul style="list-style-type: none"> • Evaluate the translation and dissemination of effective interventions, particularly in the multi-component and PE areas, where sufficient evidence indicates that school programs increase physical activity among youth. • Determine the specific strategies that contribute importantly to the success of multi-component interventions. • Determine specific approaches with the greatest effectiveness for increasing activity transportation to school (e.g., walking school bus). • Examine the effectiveness of approaches to increase physical activity during break times already structured into the school day (e.g., recess) versus other planned times, or the optimal combination of both. • Examine intervention effects on overall daily and weekly physical activity levels. • Conduct intervention studies with long-term follow-up measures. • Conduct intervention studies with robust process evaluation protocols, in addition to examining implementation and sustainability. • Compare intervention effects across race, ethnicity, and socioeconomic groups.
Physical Education <i>Sufficient</i>	<ul style="list-style-type: none"> • Develop and implement a well-designed PE curriculum. • Enhance instructional practices to provide substantial moderate-to-vigorous physical activity. • Provide teachers with appropriate training. 	
Active Transportation <i>Suggestive</i>	<ul style="list-style-type: none"> • Involve school personnel in intervention efforts. • Educate and encourage parents to participate with their children in active transportation to school. 	
Activity Breaks <i>Emerging</i>	<ul style="list-style-type: none"> • Add short bouts of physical activity to existing classroom activities. • Encourage activity during recess, lunch, and other break periods. • Promote environmental or systems change approaches, such as providing physical activity and game equipment, teacher training, and organized physical activity during breaks before and after school. 	
School Physical Environment <i>Insufficient</i>	Not applicable	
After School <i>Insufficient</i>	Not applicable	

*Table 2, p. 8, provides details on the criteria used to determine the strength of evidence.

Table 1. Summary of Findings and Next Steps for Research (continued)

Setting and Strength of Evidence*	Strategies to Increase Physical Activity Among Youth	Next Steps for Research
Preschool and Childcare Center Setting		
<i>Suggestive</i>	<ul style="list-style-type: none"> • Provide portable play equipment on playgrounds and other play spaces. • Provide staff with training in the delivery of structured physical activity sessions for children and increase the time allocated for such sessions. • Integrate physically active teaching and learning activities into pre-academic instructional routines. • Increase time that children spend outside. 	<ul style="list-style-type: none"> • Conduct longitudinal, observational studies with rigorous measures. • Examine specific strategies to promote physical activity in the childcare setting. • Conduct policy research to examine the effects of state and institutional policy innovations. • Examine the effect of the center physical environment on child physical activity. • Investigate center-based interventions that involve parents and activities at home. • Compare intervention effects across race, ethnicity, and socioeconomic groups.
Community Setting		
<i>Built Environment Suggestive</i>	<ul style="list-style-type: none"> • Improve the land-use mix to increase the number of walkable and bikeable destinations in neighborhoods. • Increase residential density so that people can use methods other than driving to reach the places they need or want to visit. • Implement traffic-calming measures, such as traffic circles and speedbumps. • Increase access to, density of, and proximity to parks and recreation facilities. • Improve walking and biking infrastructure, such as sidewalks, multi-use trails, and bike lanes. • Increase walkability of communities. • Improve pedestrian safety structures, such as traffic lights. • Increase vegetation, such as trees along streets. • Decrease traffic speed and volume to encourage walking and biking for transportation. • Reduce incivilities and disorders, such as litter and vacant or poorly-maintained lots. 	<ul style="list-style-type: none"> • Conduct studies with longer intervention periods and long-term follow up. • Conduct quasi-experimental evaluation research on the built environment and youth physical activity, taking advantage of "natural experiments" (i.e., environmental changes implemented by policymakers and/or others). • Evaluate the effects of built environment changes on adolescent physical activity. • Assess the effect of neighborhood crime-related safety on youth physical activity. • Develop methods to improve attendance in the programs and interventions under study. • Examine ways to convert summer camp activity into habitual activity. • Examine the role of "location in the community," particularly distance from school or home, on participation and adherence. • Compare intervention effects across race, ethnicity, and socioeconomic groups.
<i>Camps and Youth Organizations Insufficient</i>	Not applicable	

*Table 2, p. 8, provides details on the criteria used to determine the strength of evidence.

Table 1. Summary of Findings and Next Steps for Research (continued)

Setting and Strength of Evidence*	Strategies to Increase Physical Activity Among Youth	Next Steps for Research
Community Setting (continued)		
Other Community Programs <i>Insufficient</i>	Not applicable	
Family and Home Setting		
<i>Insufficient</i>	Not applicable	<ul style="list-style-type: none"> • Conduct observational studies to examine the relevance of family and home-based strategies throughout childhood and adolescence. • Conduct longitudinal, observational studies to delineate which components of family life influence children's physical activity behavior. • Test specific strategies that engage parents and other family members in promoting physical activity in the home setting. • Test specific strategies that enrich the home environment to favor activity over sedentary pursuits. • Compare intervention effects across race, ethnicity, and socioeconomic groups.
Primary Care Setting		
<i>Insufficient</i>	Not applicable	<ul style="list-style-type: none"> • Conduct randomized, controlled studies of the effectiveness of primary care counseling on physical activity behavior. • Identify the optimal intensity and delivery mode of primary care physical activity interventions. • Consider the utility of interventions that combine primary care counseling with referral and integration into community youth-focused programs. • Identify the optimal age range for effective interventions in primary care settings, as well as intervention effects in normal weight as well as overweight or obese youth. • Examine strategies to promote physical activity in different primary care settings, including integrated health care, fee-for-service, and community clinics. • Conduct cost-effectiveness research after effective interventions have been identified. • Compare intervention effects across race, ethnicity, and socioeconomic groups.

*Table 2, p. 8, provides details on the criteria used to determine the strength of evidence.