

Strategies to Prevent Obesity and Other Chronic Diseases

The CDC Guide to Strategies to Increase Physical Activity in the Community



National Center for Chronic Disease Prevention and Health Promotion
Division of Nutrition, Physical Activity, and Obesity



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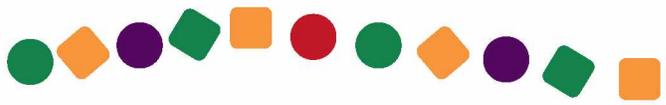
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Strategies to Prevent Obesity and Other Chronic Diseases

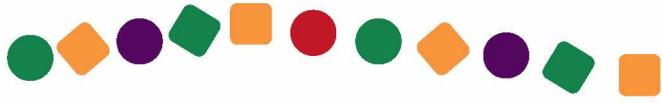
The CDC Guide to Strategies to Increase Physical Activity in the Community

**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION
NATIONAL CENTER FOR CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION
DIVISION OF NUTRITION, PHYSICAL ACTIVITY, AND OBESITY**



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Using This Guide

This document provides guidance for program managers, policy makers, and others on how to select strategies to increase physical activity in the community. It offers the most relevant information on each type of strategy. The discussion of each strategy follows the outline defined here.

Strategy

Describes an environmental change or policy-related activity intended to prevent disease or promote health in a group of people, also referred to in the literature as an *approach*. Criteria for inclusion of a strategy in this document are a rationale supporting the strategy and evidence that the strategy has been effective.

Definition

Briefly describes the strategy.

Rationale

Explains why the particular strategy is important to efforts to increase physical activity in the community.

Evidence of Effectiveness

Draws on peer-reviewed literature and current practice to summarize the evidence of the strategy's effectiveness.

Key Considerations

Includes information that may be important to keep in mind during the planning, implementation, or evaluation phases of a strategy.

Action Steps

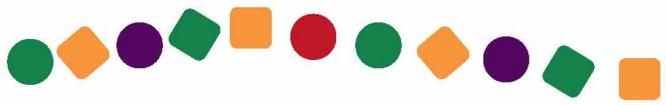
Identifies specific activities for each strategy that public health professionals can take to implement strategies in specific settings, including communities, schools, child care facilities, work sites, and medical care facilities.

Program Examples

Includes examples of programs that use the strategy as a way to increase physical activity in the community. Program examples were selected from interventions described in other publications, such as peer-reviewed journals or program reports, or identified by key informants and through Internet searches.

Resources

Guides the reader to further materials and information that might be useful in planning, implementing, or evaluating the strategy.



Introduction to Physical Activity

Since the publication in 1996 of *Physical Activity and Health: A Report of the Surgeon General*,¹ extensive, additional evidence for the health benefits of physical activity has accumulated. To update the science in this area, a distinguished advisory committee reviewed the new research findings and rated the strength of the evidence for health benefits from physical activity. Results of this review are published in the *2008 Physical Activity Guidelines for Americans*,² which strengthens and extends findings from the original Surgeon General's report.

These guidelines indicate that health benefits of physical activity include prevention of disease and reductions in risk factors associated with a range of diseases and conditions. Physical activity also is one of the elements in recommended treatments for obesity and other chronic conditions. Based on the existing evidence, these guidelines provide recommendations for physical activity for children and adults.

Benefits for Children

According to the *2008 Physical Activity Guidelines for Americans*, strong evidence exists that children and adolescents benefit from physical activity through improved cardiorespiratory and muscular fitness, bone health, cardiovascular and metabolic health biomarkers, and favorable body composition. In addition, moderate evidence exists that physical activity reduces symptoms of depression.

Benefits for Adults

For adults and older adults (aged 65 years or older), the list of benefits is much longer and includes lower risk of early death, diseases of the heart and vascular system, diabetes, and breast and colon cancer. Other benefits include weight loss (when combined with reduced calorie intake), improved cardiorespiratory and muscular fitness,

reduced depression, and prevention of weight gain. For older adults, there is strong evidence for better cognitive function in those who are physically active and moderate evidence for better functional health, reduced abdominal obesity, reduced risk of hip fracture and lung cancer, and better ability to maintain weight loss.

Recommendations for Children

For children and adolescents aged 6–17 years, the *2008 Physical Activity Guidelines for Americans* recommends

- Sixty minutes or more per day of aerobic activity, with most of the activity of moderate or vigorous intensity and with vigorous-intensity physical activity on at least 3 days.
- Muscle strengthening and bone strengthening activity also should be included at least 3 days per week.²

Recommendations for Adults

All adults should avoid inactivity, and adults who participate in any amount of physical activity gain some health benefits. The *2008 Physical Activity Guidelines for Americans* recommends that adults aged 18–64 years need at least

- Two hours and 30 minutes (150 minutes) of moderate-intensity aerobic activity (e.g., brisk walking) every week **or** 1 hour and 15 minutes (75 minutes) of vigorous-intensity aerobic activity (e.g., jogging or running) every week **or** an equivalent mix of moderate- and vigorous-intensity aerobic activity every week.
- Muscle-strengthening activities that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms) on 2 or more days a week.



For additional and more extensive health benefits, these guidelines recommend that adults aged 18–64 years increase their aerobic activity to 300 minutes of moderate-intensity or 150 minutes of vigorous-intensity physical activity or an equivalent mix of both (categorized as “highly active”).²

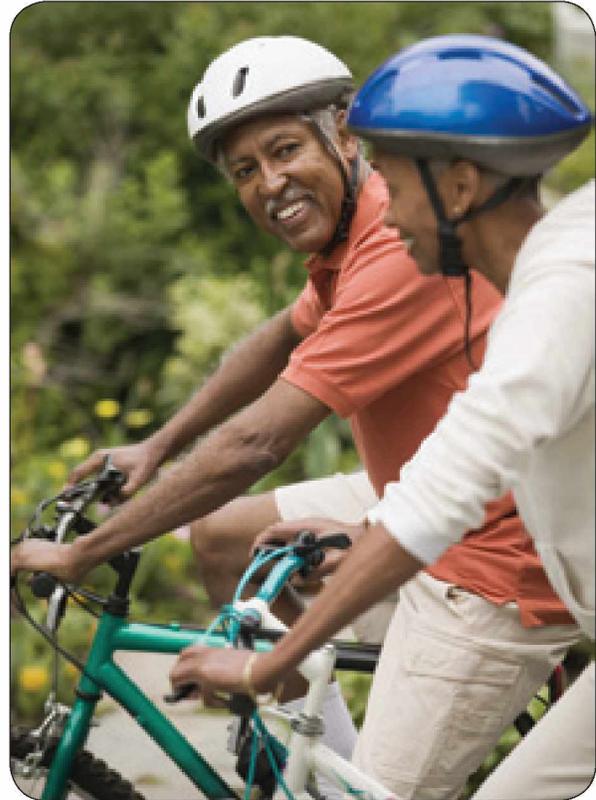
For older adults (aged 65 years or older), the guidelines recommend the same amount of aerobic and muscle-strengthening activities as it recommends for adults younger than 64 years. In addition, older adults should do exercises that maintain or improve balance if they are at risk of falling.

Current Status

Despite the growing body of evidence of the health benefits of physical activity, most U.S. adults and children do not get enough physical activity. In 2007, only about 35% of students in grades 9–12 met recommended levels of physical activity. Twenty-five percent did not participate in 60 minutes or more of physical activity on any day of the previous 7 days, and only 30% attended daily physical education classes.³ In 2008, about 44% of adults met the goal of getting 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic activity per week, and only about 28% got 300 minutes of moderate-intensity or 150 minutes of vigorous-intensity activity per week.⁴

Strategies to Increase Physical Activity in the Community

As the evidence that physical activity has numerous physical, health, and emotional benefits has grown, the body of effective, evidence-based interventions also has grown. Several systematic reviews of this evidence have been conducted,^{5–9} and a textbook on the public



health approach to promoting physical activity has been published.¹⁰ These materials serve as the primary source for the recommendations provided in this publication.

From a public health perspective, some strategies merit a higher priority than others—such as those with the potential for greatest reach, effectiveness, and sustainability. Policy and environment strategies are integrated within the socioecological perspective. Based on these criteria and on expert opinion, the physical activity promotion strategies considered to be the most appropriate for public health agencies and their partners and to have the highest priority for implementation are community-wide campaigns, increased access to places for physical activity combined with informational outreach, and enhanced physical education in schools.

Strategy 1. Community-wide campaigns

Definition

Community-wide campaigns are large-scale, multicomponent campaigns that deliver messages by using media such as television, radio, newspaper columns and inserts, and trailers in movie theaters. They also are characterized by a “brand” message or “tag line” that is used consistently through all means and channels of communication. These campaigns differ from media campaigns in that they also include other on-the-ground components, such as support and self-help groups; physical activity counseling; risk factor screening and education at work sites, schools, and community health fairs; and community events. They also include policy and environmental changes, such as opening school facilities to public use and creating walking trails.

Campaign messages can be directed to large and relatively undifferentiated audiences through diverse media and communication, or they can be tailored to fit the needs of specific populations. These interventions are usually sustained efforts with ongoing high visibility, and they usually involve many sectors and partnerships. Community-wide campaigns should be applicable to most communities in the United States if the campaign is adapted to the intended audiences. They also might be applicable in other settings that could be viewed as communities, such as universities and large work sites.⁵⁻⁷

Rationale

Traditional prevention efforts focus on educating and motivating people to help them increase their physical activity. Community-wide campaigns address multiple levels of influence, including individual, interpersonal, institutional, and community levels. These types of socioecological, multipronged efforts that are designed to promote and eliminate barriers have been found to be more effective than each single component.^{11,12}

Evidence of Effectiveness

The Task Force on Community Preventive Services’ *Guide to Community Preventive Services* (the *Community Guide*) rates the evidence as strong for community-wide campaigns. The recommendation for community-wide campaigns is based on a review of 10 studies that suggest that these campaigns result in a median increase of about 4% in the percentage of people engaging in physical activity and a 16% increase in energy expenditure.⁵⁻⁷

In addition to increasing physical activity, community-wide campaigns were often shown to improve community capacity by developing or strengthening social networks and by improving community members’ sense of cohesion and collective ability to bring about change. This intervention approach is effective with diverse populations (e.g., among different racial/ethnic minority and socioeconomic groups) and in diverse settings (e.g., rural, urban).⁵⁻⁷

Key Considerations

- Although community-wide campaigns have wide reach and potentially greater benefit than less comprehensive interventions, they are also more resource-intensive and require well-trained staff. With large campaigns, it can be difficult to ensure an adequate “dose” or exposure to the intervention for all sectors of the community.



- Community-wide campaigns are not short-term interventions. They need to be sustained for a period of time in order to change the knowledge, attitudes, and behaviors of the intended audiences. Changes in knowledge or attitudes only are not appropriate end goals.
- It is important to conduct formative research to help develop an appropriate theme and effective messaging.
- It is important to have a recognizable brand associated with the campaign.
- A critical element for success is community buy in. Achieving community buy in can require considerable effort.

Program Examples

Wheeling Walks

Wheeling Walks was a comprehensive, community-wide media campaign launched in Wheeling, West Virginia, that used social marketing strategies and advertisements similar to those used by private industry. Wheeling Walks was developed to encourage insufficiently active adults aged 50–65 years living in one West Virginia community to get 30 minutes of

physical activity each day. The program consisted of the following four phases:

- Community involvement.
- Message development.
- Intervention and evaluation.
- Policy and environmental actions.

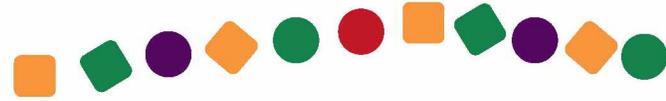
The marketing strategy used print, television, and radio advertisements combined with walking challenges, work-site programs, and press releases. The campaign ran for about 1 year and took advantage of free press from multiple television networks, radio stations, and newspapers. The program resulted in a 14% net increase in self-reported walking among the intended audience.¹³

Wheeling Walks provides a comprehensive report on how to implement a similar campaign in other communities on its Web site at http://www.wheelingwalks.org/WW_TrainingManual/TM_index.asp.

Source: Wheeling Walks, Department of Community Medicine, West Virginia University School of Medicine.

Action Steps

1. Build or become a part of partnerships in your community that include local agencies and organizations that plan and implement initiatives that promote physical activity, such as parks and recreation centers; fitness facilities; and programs in schools, community and senior centers, and hospitals. These partners may be able to offer activities and events as part of the campaign.
2. Talk to key individuals and organizations in the community that can help promote the campaign, including local celebrities, media personalities, and government officials.
3. Identify the intended audiences and conduct the campaign on the basis of your formative research.
4. Develop a program logic model that illustrates your program's theory of action and how community activities conducted by others relate to your program.



B.C. Walks

B.C. Walks was a community-wide campaign conducted by the United Health Services in Broome County, New York, to change behavior by promoting 30 minutes of daily walking among insufficiently active residents aged 40–65 years through paid media, public relations, and public health activities. The campaign included an intense 8-week multimedia blitz coupled with community activities.



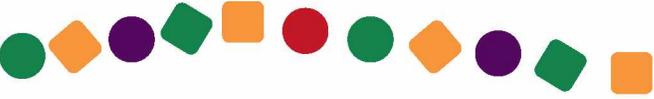
A coalition of local human services agencies was created to promote community engagement and sustainability. A speakers bureau was developed to educate the community about B.C. Walks activities.

B.C. Walks bought 953 thirty-second advertisements during prime-time network television, 1,645 sixty-second radio advertisements, 1,314 thirty-second advertisements on cable television, and 10 quarter-page advertisements in the local daily newspaper. Local doctors and nurse practitioners were given prescription pads with the B.C. Walks logo to prescribe daily physical activity for their patients. Campaign staff worked closely with transportation and land-use officials in the county to expand safe opportunities for walking through development of trails and improvements to sidewalks.

Campaign activities resulted in 28 television news stories, 5 radio news stories, 10 newspaper stories, and 125 television news promotions in addition to the paid media spots. Speakers from the speakers bureau made 42 presentations to a total of 1,492 people. Thirty work-site walking programs, with a total of 1,207 people, were established, and five schools, with about 2,000 students, also established walking programs.

In a follow-up survey, 78% of Broome County respondents reported hearing about the campaign. The percentage of older adults who reported an increase in walking was 34% higher in Broome County than in a control county.

Source: B.C. Walks, Steps to a HealthierNY, New York State Department of Health.



Resources

Social Marketing Resources

Centers for Disease Control and Prevention, Division of Nutrition, Physical Activity, and Obesity

Online training with other resources and background information.

<http://www.cdc.gov/nccdphp/dnpa/socialmarketing/index.htm>

Community-wide Campaigns

Activities and other information about this intervention strategy disseminated by the University of North Carolina Center of Excellence for Training and Research Translation.

<http://www.center-trt.com/index.cfm?fa=opstrategies.pa&page=community>

Wheeling Walks

Information to develop and implement a similar campaign.

<http://www.wheelingwalks.org/index.asp>

Wheeling Walks Training Manual

Step-by-step tool kit for conducting a community-wide campaign.

http://www.wheelingwalks.org/WW_TrainingManual/TM_index.asp

Steps to a HealthierNY

Learn more about B.C. Walks.

<http://www.bcwalks.com>

Let's Move! Campaign

Print materials, Web site posts, videos, programs, and activities to promote this comprehensive initiative, launched by First Lady Michele Obama, in your community.

<http://www.letsmove.gov/resources#>

Strategy 2. Point-of-decision prompts to encourage use of stairs

Definition

For programs that promote physical activity, point-of-decision prompts include signs posted by elevators and escalators to encourage people to choose to use nearby stairs instead. The text on the signs can vary, but generally includes information about the health and weight loss benefits of using the stairs and serves as a reminder that stairs are available for use. Some programs that use point-of-decision prompts include enhancements to the stairwell—such as music, carpet, and art—to make the use of stairs more appealing.^{5–7,10}

Rationale

Point-of-decision prompts have been used in a variety of behavior change programs and have proven effective in prompting desired behaviors. Stairs are required by building codes in multistory buildings and thus provide an additional opportunity for physical activity. These types of programs require few resources, give people an easy way to include physical activity into daily living, create a climate where choices to be active are encouraged, and increase awareness about the benefits of physical activity.

This intervention strategy is appropriate for diverse populations and settings. Studies of stair use have been conducted in shopping malls, airports, office buildings, health care facilities, and universities. In at least one study, there was a greater increase in stair use by people who were overweight than by people who were normal weight.¹⁴ None of the studies reviewed by the *Community Guide* examined the effects of point-of-decision prompts programs on children.^{5–7}

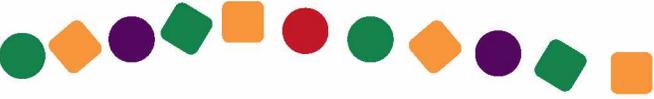
Evidence of Effectiveness

The *Community Guide* concluded that there is strong evidence that point-of-decision prompts are effective in increasing the number of people who choose to use the stairs. The median absolute increase in stair climbing in 11 studies was 2.4 percentage points. The majority of

studies reported low baseline stair use (below 20%). The median relative improvement in observed stair use was 50% (interquartile interval: 5.4%, 90.6%) from baseline.^{5–8,10}

Key Considerations

- Interventions that use enhanced point-of-decision prompts can take considerable time to fully implement, especially if multiple stairwell improvements are made.
- Point-of-decision prompts have been shown to be effective with the placement of signs alone. Therefore, it might not be necessary to add enhancements to the stairwells to increase stairwell use.
- Stairwell enhancements are likely to require additional maintenance. For example, replacement or cleaning of carpeting and repainting of walls might require approval by several sources (e.g., facilities staff, senior management).
- Different messages resonate with different audiences. The type and content of messages can have a positive or negative influence on stair use.
- Point-of-decision prompts should be used as part of a comprehensive or multielement program. As stand-alone efforts, they are not likely to have a substantial influence on physical activity levels.



Program Example

CDC's StairWELL to Better Health Program

The StairWELL to Better Health program was a low-cost intervention implemented in one CDC building in stages over 3½ years. Motivational signs were placed where people have the choice between stair and elevator use. Intervention messages were tested in focus groups to ensure that they were motivating to the audience.

In addition to using point-of-decision prompts, CDC also enhanced the stairwell by adding carpet and rubber treading to each step to maximize safety. The walls were painted bright colors (each floor is a different color), and framed artwork that features nutritious foods, picturesque scenery, and people being active was added to each floor. The intervention also included a contest to choose

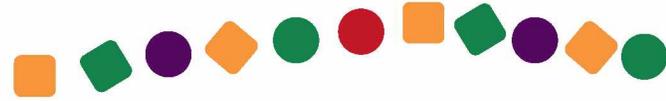
employee artwork to be hung in the stairwell. In addition, music is provided through a digital satellite system that rotates a variety of musical genres, including classical, country, jazz, Latin, oldies, popular contemporary, and urban.

Infrared sensors were used to collect baseline data and to conduct ongoing data collection of stair traffic. Examples of innovations to the program include trivia games in which trivia questions were posted at the bottom of the stairs and answers were provided at different



Action Steps

1. Use the stairwell tool kits listed in the Resources section for sign ideas, tools, and information on how to conduct evaluations.
2. Examine the stairwells to determine condition and accessibility problems—such as poor lighting, poor directional signs, and unsafe conditions—that need to be addressed before implementing an intervention.
3. Discuss your plans with appropriate people in the departments responsible for the intended building, including safety, administrative, and maintenance staff.
4. Determine what kinds of messages will appeal to the people you want to reach. Formative research will be required. Messages can be inspirational, factual, health-related, or humorous. Studies have reported different results depending on the audience and message type.
5. Discuss your plan with stakeholders and decision makers. Emphasize that, although the increase in stairwell use may be modest, even modest improvements can be significant in a large population. Given the relatively low resource requirements, stairwell projects can be a cost-effective way to begin or add another dimension to other interventions.
6. To evaluate the intervention, tracking of stair use should be done before, during, and after the implementation phases. Possible ways to track stairwell use are direct observation, video cameras, and infrared sensors.



intervals on the way up. The CDC StairWELL for Better Health program has been well-received and has been incorporated into the U.S. Department of Health and Human Services' work-site health promotion efforts.

Source: *Promoting Physical Activity: A Guide to Community Action.*¹⁰

Resources

StairWELL to Better Health Tool Kit

Centers for Disease Control and Prevention
Step-by-step guide to planning a stairwell intervention; includes downloadable stairwell signs.

<http://www.cdc.gov/nccdphp/dnpao/hwi/toolkits/stairwell/index.htm>

Let's Go! Maine's StairWELL Initiative Tool Kit

Turn-key program for implementing and evaluating a stairwell intervention.

<http://www.letsgo.org/resources/documents/StairWELLCampaignToolkit2008.pdf?id=greenEmployees&vid=v12>



Strategy 3. Individually adapted health behavior change programs

Definition

As described by the *Community Guide*,⁵⁻⁷ this approach uses strategies that are tailored to an individual's specific interests, preferences, and readiness for change. One strategy is to teach behavioral skills to help participants incorporate physical activity into their daily routines, including building support for new behavioral patterns by creating social support networks or using existing social networks, reinforcing behavior through self-reward and positive self-talk, problem-solving geared to maintenance of the behavior change, and preventing relapse into sedentary behaviors.

This intervention strategy is effective with diverse populations (e.g., among different racial/ethnic minority and socioeconomic groups) and in diverse settings (e.g., communities, work sites, schools, health care settings, health and fitness settings).

Rationale

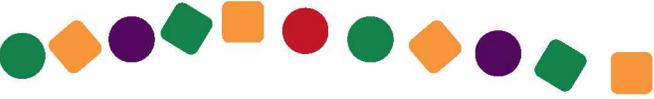
Although individually adapted behavior change programs have traditionally been used in clinical and small group settings, they also have a role in community-level efforts. Increasing physical activity requires focusing on several factors across the socioecologic framework, and individually adapted programs have often been used in community-based physical activity classes in work sites, schools, and homes.¹⁰ These programs can complement and enhance the effects of policy and environmental interventions. When communities, health care organizations, and other key sectors create environments and policies that support individual behavior change and systematize those policies, individual behavior changes are more likely to be sustained.

Incorporating individual physical activity interventions into settings that also focus on using the built environment to increase physical activity also is likely to be successful. Additionally, although some people respond positively to standard physical activity programs, many people benefit from a personalized program that addresses the individual's readiness for change, special needs, or desired outcomes.¹⁵

Evidence of Effectiveness

The *Community Guide* rates the evidence as strong for intervention strategies that are designed to promote individual behavior change. The recommendation for individually adapted behavior change is based on 18 studies in which the median effect size was a 35% increase in time spent in physical activity and a 64% increase in energy expenditure. These intervention strategies also increased other measures of physical activity, such as the percentage of people starting exercise programs and the frequency of physical activity.

Since the original *Community Guide* review, an additional review¹⁰ examined several additional interventions and confirmed the findings of the *Community Guide*. Many of the newer studies used mediated approaches, such as telephone, e-mail, and Web sites, to prompt individual behavior change. Such strategies were found to be effective and can be integrated into mass media and community-wide campaigns. These interventions have been found to be effective with diverse populations and in a variety of settings.¹⁰



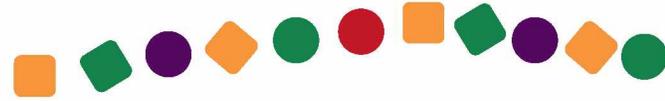
Key Considerations

- If delivered in an organizational setting, support from management is essential.
- Because such programs rely heavily on the choice and motivation of individuals to participate in the program and increase their physical activity level, special efforts might be needed to minimize participant dropout.
- Individualizing programs requires time and the expertise of content experts. In general, the more individualized a program is, the more it costs.
- Individualized programs are on the opposite end of the continuum from public health strategies that are designed to reach whole populations. For public health programs, such interventions should be limited to specific groups or integrated into more comprehensive media or community-wide efforts.



Action Steps

1. Work with a multisector planning group to review how an individually adapted behavior change program will fit into and complement the larger effort to address physical inactivity.
2. Identify and obtain resources that will allow the intervention to address individual differences in interests, preferences, and readiness to change behavior.
3. Review existing interventions to see if they can be adapted to your program. Look for interventions that include theory-based strategies designed to shape behavior and induce behavior change, such as goal setting, behavioral self-monitoring, establishing social supports, self-rewarding, problem solving, and finding ways to prevent relapse.
4. Review the research-tested intervention programs recommended on the *Community Guide* Web site. Determine which of these programs most closely relate to your program goals.
4. If the intervention is to be delivered in a work site or other large organization, determine what programs may already exist to avoid duplication and discover possible program synergies.
5. If the intervention is to be delivered in a work site or other large organization, discuss with and secure the support of upper management.
6. Clearly establish the roles and responsibilities of the multiple stakeholders involved in planning and implementing the intervention.



Program Examples

HealthPLUS

The City of Austin's award-winning work-site wellness program has been serving city employees since 1994. HealthPLUS offers a variety of services and activities that are designed to enhance the three areas of health represented by the wellness pyramid—physical, mental, and emotional. The wellness program includes 10 specific health programs, including HealthCHECK, a blood analysis screening program, and FitCHECK, a comprehensive physical fitness assessment—as well as personal trainers who provide group sessions. In addition to these services, employees get health consultations and supporting materials.

The HealthCHECK program screens about 2,200 employees or 20% of the total workforce every year, while the FitCHECK program provides fitness testing and counseling for about 1,000 employees. These programs are consistently filled to capacity each year.

Source: HealthPLUS, Employee Benefits Division, Human Resources Department, City of Austin.

CHAMPS (Community Healthy Activities Model Program for Seniors)

CHAMPS is included in the *Community Guide* as a research-tested intervention. It is an individually tailored, choice-based, physical activity program that promotes increased long-term physical activity levels in older adults. The program is based on social-cognitive theory.

Program components include assessment of and training in self-efficacy, readiness to change, and motivational skills. Intervention components include meetings, classes, individual planning sessions, staff-initiated telephone calls, monthly workshops, diaries, newsletters, and fitness assessments.

CHAMPS was initially designed for sedentary adults aged 65 years or older who are enrolled in Medicare health maintenance organizations. Self-reported baseline and follow-up physical activity measures indicate an increase in the intervention group of 487 calories expended in moderate-intensity physical activity and an overall increase of 687 calories at any level of physical activity intensity when compared with the control group. Control group participants had no change in weight, while members of the intervention group lost an average of 3 pounds. CHAMPS is considered suitable for community settings.

Source: CHAMPS, Institute for Health & Aging, University of California, San Francisco.

Resources

Healthier Worksite Initiative

Centers for Disease Control and Prevention
Step-by-step tool kits, and other resources to improve employee health.
<http://www.cdc.gov/hwi>

Research-tested Intervention Programs

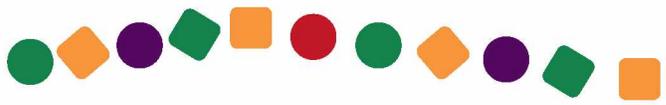
National Cancer Institutes
Examples of individually adapted behavior change interventions recommended by the *Community Guide*.
http://rtips.cancer.gov/rtips/rtips_search.do?topicid=2&cg=30&choice=cguide

Arthritis Program

Centers for Disease Control and Prevention
Information about five physical activities that are appropriate for people with arthritis.
http://www.cdc.gov/arthritis/interventions/physical_activity.htm

HealthPLUS

City of Austin
Learn more about this work-site wellness program.
<http://www.healthtransformation.net/galleries/HCBP/31-TX-HealthPLUSAustin.pdf>



Strategy 4. Enhanced school-based physical education

Definition

These interventions are characterized by key strategies that encourage youth to engage in enjoyable physical activity that is moderate to vigorous intensity. These strategies are implemented within physical education (PE) classes, but also can be applied in different youth-oriented settings, such as community and recreation centers and after-school programs.⁵⁻⁷

Enhanced PE interventions reviewed by the *Community Guide* had at least one of the following components: increased percentage of time during PE class that students are moderately to vigorously active, additional PE classes within the school schedule, or longer PE classes. Reviewed interventions also included changes to PE policies, curricula, or teaching practices.

Rationale

The *2008 Physical Activity Guidelines for Americans* recommend that children and adolescents engage in at least 60 minutes of aerobic physical activity each day. Most students fall short of this goal.² In 2007, only 17.1% of students in grades 9–12 met this recommendation. Although most physical activity among youth occurs away from school, increasing physical activity levels in PE classes is likely to help children and adolescents come closer to meeting the 2008 recommendation, particularly among students who live in communities with few other opportunities for physical activity.¹⁶

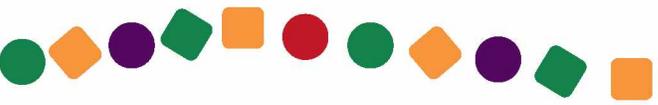
If schools implement enhanced PE, students' flexibility, muscular endurance, physical activity-related knowledge, and overall physical fitness are likely to improve. In addition, evidence is accumulating that adding time to the school day for PE programs does not decrease academic performance and may contribute to improved academic outcomes. Enhanced school-based PE also provides students the opportunity to learn skills such as self-assessment, self-management, and goal setting for physical activity that can lead to a physically active lifestyle.¹⁶

Evidence of Effectiveness

Fourteen studies were included in the initial review of the *Community Guide*. Results included a median increase in time dedicated to PE of about 10% and time spent in moderate to vigorous physical activity during PE of about 50%. This intervention strategy is effective with diverse populations (e.g., among different racial/ethnic minority and socioeconomic groups, boys and girls, elementary and high school students) and in diverse settings (e.g., rural, urban).⁵⁻⁷

Key Considerations

- It is important to have advocates for enhanced PE at every level of the organizational hierarchy. Developing a new or enhancing an existing school health council (SHC) may help with the ongoing development, monitoring, and sustainability of an enhanced school-based PE program. The SHC should be a diverse group that includes physical educators, health educators, food service staff, parents, community members, school administrators, school counselors, nurses, and students. The involvement of an SHC will help strengthen a school's capacity to improve and sustain PE policies, curricula, and instructional

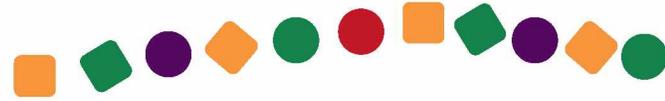


strategies and to coordinate efforts across many components of the coordinated school health program model.

- School PE is not an intervention that is implemented by public health professionals. However, having public health professionals as advocates can help support and promote the short- and long-term health benefits and potential improvements in academic outcomes of enhanced school-based PE.
- Competing demands within schools (e.g., the focus on standardized testing of core subjects) can be a barrier to implementation. It is important for the lead PE teacher or the PE coordinator from the school district to serve as the lead advocate for enhanced PE. Public health professionals can provide PE teachers and coordinators with resources, tools, and strategies to build advocacy and promotion plans for quality physical education.
- Such programs have a wide range of stakeholders. All should be identified, and efforts should be made to include them as advocates from the outset.
- Additional resources (e.g., money, teachers, age-appropriate equipment) may be needed in schools or other youth-oriented settings that do not have the necessary facilities, equipment, or staff.
- Increasing the length or number of PE classes will probably not be enough. In traditional PE classes, students are often inactive for half or more of the classes. Changing the content of the PE curriculum and the way that PE teachers deliver the curriculum is also a critical element of enhanced PE.¹⁶
- Several enhanced PE programs are part of more comprehensive school health promotion programs, and such integrated programs may contribute to improved PE outcomes.¹⁶

Action Steps

1. Review the Web sites of effective programs, such as SPARK (Sports, Play, and Active Recreation for Kids) and CATCH (Child and Adolescent Trial for Cardiovascular Health), for details and guidance on how to plan and implement enhanced PE in schools.
2. Look at the existing PE curriculum to identify strengths and gaps. CDC's Physical Education Curriculum Analysis Tool (PECAT) enables users to analyze and enhance PE curriculum or develop a new curriculum. PECAT is based on national standards.
3. Provide information and determine the level of interest for this type of intervention from stakeholders and those who would be involved in implementation (e.g., PE teachers, principals, other teachers, coaches, parents, students).
4. Secure commitment from everyone who would be involved in implementation. Be sure to have commitment from the school principal or program director.
5. Determine facility, equipment, and staffing needs. Determine what resources may be needed.
6. Offer adequate training and ongoing technical assistance to all staff members who are responsible for program implementation.



Program Examples

CATCH (Coordinated Approach to Child Health)

CATCH is a popular, evidence-based school health program. It includes activities that can be done in and out of the classroom, as well as home and after-school activities and a family component. CATCH is designed to promote physical activity and healthy food choices in children.

CATCH Texas

The El Paso CATCH program is an example of a traditional CATCH program adapted to local culture and resources. CATCH materials were translated into Spanish for use in a low-income community where most children had limited English proficiency. As is common for CATCH programs, stakeholders were engaged early in the process, funding was secured, staff were trained, and external experts were included in program development and implementation. A broad range of stakeholders were included in partnerships designed to institutionalize the program.

Tailoring of the program for the intended school and students included changes in the characters in videos and the curriculum, such as changing “Hearty-Health and Friends” to “CATCH Amigos.” The nutrition curriculum also was tailored to include healthy Mexican dishes and ideas on how to promote fruit and vegetable consumption. Increases in moderate to vigorous physical activity ranged from 52% to 59%, and the trend of increasing obesity prevalence was halted.¹⁰

Source: CATCH Texas and the University of Texas School of Public Health at Houston.

CATCH Monroe County

Monroe County, New York, illustrates how schools can enhance moderate and vigorous physical activity during other physical activity times. The county was awarded a 3-year, \$1.15 million grant

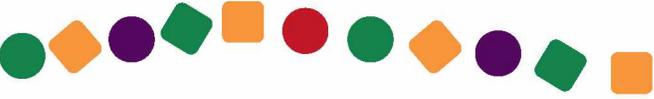
to integrate the CATCH program into 40 YMCA after-school child care programs. About 1,500 children were involved in this initiative.

The YMCA of Greater Rochester integrated the philosophy of the CATCH program into the YMCA’s after-school child care program. Child care staff received training from a certified CATCH program director at the beginning of the school year, as well as booster training throughout the year. Staff were trained to

- Involve children in at least 30 minutes of daily physical activity.
- Involve children in moderate to vigorous physical activity at least 40% of daily physical activity time.
- Provide children with many opportunities to participate in and practice physical activity skills and behaviors that could be carried over into other times of the day and maintained later in life.
- Provide students with a variety of enjoyable physical activities.

Staff members provided CATCH activities for students in grades K–6 for 30 minutes daily. The goal was for children to engage in moderate to vigorous physical activity at least 40% of instruction time. Before the program





was implemented, children were engaged in moderate to vigorous physical activity 38.2% of instruction time.

One year after CATCH implementation, children were engaged in moderate to vigorous physical activity during 61.2% of instruction time. Fifteen months after implementation, children were engaged in moderate to vigorous physical activity during 65.4% of instruction time, and 2 years after implementation, they were involved in moderate to vigorous physical activity during 67% of instruction time.

Source: CATCH Monroe County and YMCA of Greater Rochester.

Resources

Working with Schools to Increase Physical Activity Among Children and Adolescents in Physical Education Classes

Partnership for Prevention

Program implementation information for those working to increase physical activity in schools. Part of the series *The Community Health Promotion Handbook: Action Guides to Improve Community Health*.

<http://www.prevent.org/The-Community-Health-Promotion-Handbook/School-Based-Physical-Education.aspx>

Physical Education Curriculum Analysis Tool (PECAT)

Centers for Disease Control and Prevention

Tool that allows users to analyze written PE curricula in their schools according to national PE standards.

<http://www.cdc.gov/healthyyouth/pecat>

SPARK (Sports, Play, and Active Recreation for Kids)

A set of interventions proven to be effective in promoting physical activity among youth.
<http://www.sparkpe.org>

Active Education: Physical Education, Physical Activity and Academic Performance *Active Living Research*

Summarizes the evidence showing that children who are physically active and fit perform better in the classroom.

http://www.activelivingresearch.org/files/Active_Ed.pdf

Active Living Research

Research summaries, policy briefs, and other information on promoting physical activity.
<http://www.activelivingresearch.org>

YMCA of Greater Rochester

Learn more about this CATCH training program.
<http://www.rochesterymca.org/>

CATCH Texas

Learn more about the culturally appropriate activities that are part of this program.
<http://www.sph.uth.tmc.edu/catch/>

HealthierUS School Challenge

Let's Move! Campaign and U.S. Department of Agriculture

Schools may submit applications for this program, which recognizes schools that have created healthier school environments.
<http://www.fns.usda.gov/tn/healthierus/index.html>

Strategy 5. Social support interventions in community settings

Definition

As defined by the *Community Guide*, social support interventions in community settings focus on building, strengthening, and maintaining social networks that provide supportive relationships for physical activity behavior change. New social networks can be formed or existing networks in a social setting outside the family, such as in the workplace or community, can be used.

Intervention components can include setting up a “buddy” system, making “contracts” with others to complete specified levels of physical activity, or setting up walking or other groups to provide companionship, friendship, and support while being physically active. Participants can be connected with other participants and program staff members to monitor progress and encourage continuation of activities. Some programs or interventions involve formal discussion groups in which barriers and negative perceptions about activities are addressed.⁵⁻⁷

Rationale

Social support interventions can serve as an important precursor to, or component of, other physical activity interventions that focus on environment and access. They are logical adjuncts to many other strategies because they provide ways for participants to identify barriers to physical activity and come up with solutions. They also can provide companionship and support to help group members achieve their goals and remain in the program.¹⁰

Interventions that use social support within community settings can create opportunities for physical activity by reducing or eliminating many of the barriers to physical activity (e.g., safety, motivation). Because physical activity behavior is influenced at multiple levels of the socioecological framework, it is important to focus not just on policy or individual behavior change, but also on the interpersonal level.

Building and strengthening social networks is acknowledged as one of the goals and benefits of many of the newer interventions that use social support.² This intervention strategy is effective with diverse populations (e.g., men, women, adults of different ages, people who are

sedentary, people who are physically active) and in diverse settings (e.g., communities, work sites, universities).

Evidence of Effectiveness

The *Community Guide* rates the evidence as strong for social support in community settings. The recommendation is based on the review of nine studies in which the median effect was a 44% increase in the time spent being physically active and a 20% increase in energy expenditure.⁵⁻⁷

Key Considerations

- Safety, both perceived and actual, is a critical consideration when developing social support interventions that involve group physical activity. Safety can play a role in determining interest in participating and in the probability of dropping out.
- Consider social support activities that can be sustained year-round. In the case of walking groups, identify alternate indoor spaces for walking in inclement weather.



- Reminders and support in the form of telephone calls to and from participants may help sustain involvement and prevent or reduce dropout.
- When using strategies such as buddy systems, these systems should create expectations and provide motivation and social support for the participants. For example, buddies might contract with each other, establish a regular routine for activity and communication, set goals, and determine rewards for meeting their goals.
- As with individually adapted behavior change interventions, social support programs should be developed as part of a larger, more comprehensive physical activity promotion effort.

Program Example

NeighborWalk

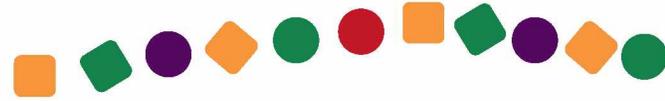
The Boston Public Health Commission created the NeighborWalk program by organizing 56 walking groups in 7 racially diverse neighborhoods known for having a high prevalence of priority diseases and risk factors.

The program provides an opportunity for local residents to join their neighbors in a walk of the community at least once a week for 30 minutes to 1 hour. A walk leader for each neighborhood coordinates the activity by mapping the walking course, promoting the walk, distributing walk logs, and providing incentives to participants. A postwalk survey is completed to get feedback on the walking route, frequency of the walks, changes in physical activity, and recommendations for the future.

Walk groups include participants from community-based organizations, including schools, churches, senior citizen organizations, tenant's organizations, and community health centers. The average walk group consists of 10 people who walk an average of 2.4 miles per walk. In addition to the walks, each group hosts workshops on two different health topics each year. Representatives from the Boston Public Health Commission present on the topics that have been identified as important by the walk participants.

Action Steps

1. Review examples and suggestions for developing social support programs as described in *Promoting Physical Activity: A Guide to Community Action*.¹⁰
2. Contact community members and groups, such as neighborhood residents, community organizations, faith-based organizations, schools, health programs, and pedestrian and trails advocacy groups that might be interested in forming walking groups or other kinds of activities that involve social support.
3. Establish strategies to develop critical program components, such as walking buddies, telephone or e-mail reminders, or a contract with another person to be active at specified times or for specified durations.
4. Plan and create walking group opportunities for your community.



According to a postwalk survey, program participants report an overall increase in their physical activity since joining NeighborWalk, including performing more moderate physical activity and walking more at work, place-to-place, and for leisure.

Source: NeighborWalks, Boston Public Health Commission.



Resources

Sisters Together: Move More, Eat Better

National Institute of Diabetes and Digestive and Kidney Diseases

Designed to encourage black women to maintain a healthy weight by becoming more physically active and eating healthier foods.

<http://win.niddk.nih.gov/sisters/index.htm>

America Walks

Resources for forming walking advocacy groups and information about improving conditions for walking in communities.

<http://www.americawalks.org>

How to Start a Walking Program: A Guide for Local Program Coordinators

California Center for Physical Activity

Tool kit helps communities create neighborhoods where people can walk and bicycle.

<http://www.caactivecommunities.org/resources/walk-kit>

Establishing a Community-Based Walking Group Program to Increase Physical Activity Among Youth and Adults

Program implementation information for those working to establish a community-based walking group program. Part of the series *The Community Health Promotion Handbook: Action Guides to Improve Community Health*.

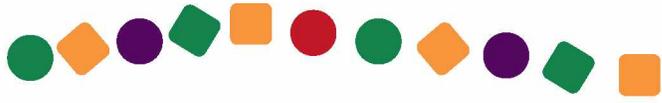
<http://www.prevent.org/The-Community-Health-Promotion-Handbook/Social-Support-for-Physical-Activity.aspx>

NeighborWalk

Boston Public Health Commission

Learn more about this neighborhood walking program in Boston.

<http://www.bphc.org/programs/cib/chronic-disease/heal/neighborwalk/Pages/Home.aspx>



Strategy 6. Creation of or enhanced access to places for physical activity combined with informational outreach activities

Definition

Interventions that create or enhance access to places for physical activity and provide informational outreach activities may involve representatives from work sites, coalitions, government agencies, and communities who are working to change the local environment to create opportunities for physical activity. Many of these interventions are multicomponent and influence behavior at multiple levels. They usually combine both individual and environmental components and are long-term interventions.

Individual components may include health behavior education for participants, training for participants on how to use equipment, risk factor screening and referrals to additional services, health and fitness programs, and support or buddy systems. Environmental components may include the creation of walking trails, building of exercise facilities, or access to existing nearby facilities. This intervention strategy is applicable among diverse populations (e.g., racial/ethnic minority and socioeconomic groups) and diverse settings (e.g., communities, universities, government agencies, work sites).⁵⁻⁷

Rationale

People may have the necessary knowledge, skills, attitudes, and motivation to be physically active, but if they do not have access to the necessary opportunities, they may be restricted or prohibited from being active. Having access to places and opportunities for physical activity and knowing these opportunities exist is critical. Efforts to increase access may not lead to increased use unless community members are involved and aware of the efforts. With community support and involvement, increased access to physical activity opportunities is more likely to result in increased use.

Evidence of Effectiveness

The *Community Guide* rates the evidence for creating or enhancing access to places for physical activity and providing informational outreach as strong. The recommendation for creating or enhancing access to places for physical activity is based on review of 10 studies in which the median effect size suggests that this intervention results in a 25% increase in the proportion of the population who are physically

active at least three times per week. Most of the studies also reported weight loss or a decrease in body fat among participants.⁵⁻⁷

Key Considerations

- Building or enhancing facilities for physical activity can require a great deal of time and resources. Having community support and identifying the necessary expertise also can be challenging.
- Efforts to enhance access also should include informational outreach in the form of information, incentives, and programs designed to build awareness of the new opportunities.
- Activities that provide social support, such as group activities, can further enhance the use of facilities, equipment, or other opportunities for physical activity.
- Access is more than just the presence of a facility. Ease of access and the attractiveness of the destination are also critical factors in their use.



Program Examples

Neighborhood Bike Works

This youth development organization in West Philadelphia serves neighborhood youth aged 8–18 years. Neighborhood Bike Works offers classes on bicycle repair and bicycle safety after school, on weekends, and during the summer. The organization increases access to physical activity by providing bicycles (equipment), as well as various activities and education (informational outreach) that would not otherwise be available to these youth.

Programs offered by Neighborhood Bike Works include the following:

- The Earn-A-Bike program teaches bicycle repair and riding safety in 14 after-school sessions or in 2-week day camp sessions during the summer. Hands-on practical skill training and written lessons include basic bicycle repair and maintenance, environmental awareness, general fitness and

nutrition, safety and effective urban cycling. Students earn bicycles with helmets and locks and learn how to use their bicycles safely and keep them mechanically safe.

- The Realizing the Importance of Diet and Exercise (RIDE) fitness program offers year-round neighborhood rides and access to a bicycle shop for repairs and enhancements.

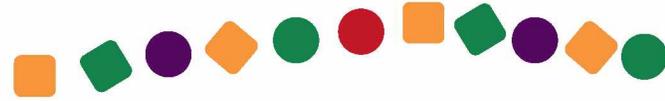
Source: Neighborhood Bike Works.

Health Improvement Program

The Stanford University employee health program was intended to increase physical activity and decrease weight among participants. The program was designed to reach male blue-collar employees in the skilled trades division of the operations and maintenance shops at Stanford University. Social and behavioral strategies were implemented as a way to enhance participation in the exercise program. The intervention was a 16-week exercise course that used a nearby work-site fitness trail.

Action Steps

1. Identify a need or opportunity to increase access to physical activity in your community by increasing access and/or providing additional information about existing resources. For many people, access can be limited because of lack of transportation, the cost to participate, or facilities that have physical barriers.
2. Identify and engage individuals and organizations that might provide resources such as equipment (e.g., bicycles, protective gear, fitness equipment) or facilities (outdoor or indoor spaces) or that could help participants develop the skills or knowledge to take advantage of the opportunities (e.g., bicycle repair, walking, other physical activity techniques or ways to improve safety). In addition to creating or enhancing facilities, places, or other opportunities for physical activity, be sure to include various forms of informational outreach, such as marketing and advertising, program activities, skills training, and incentives.
3. Easy-to-understand messages and information should be developed for the intended audiences. Determine what type of informational outreach activities are most appropriate for the population you are trying to reach.



The fitness trail consisted of 19 different activity stations placed around a 1.5-mile course. The course combined strength activities (reported by the study participants as being a priority) with aerobic activity.

The exercise classes occurred immediately after working hours and were offered to employees at no charge. Employees recorded their exercise sessions and participated in the incentive campaign, which was monthly drawings for inexpensive prizes (some donated by fellow coworkers.) This intervention was successful because the specific needs and interests of the intended population were considered during the development of the program. Participants' feedback also was taken into account when the time, location, and type of exercises were chosen. Most important to the participants was that their supervisors supported the program.¹⁷

Source: Health Improvement Program, Stanford University School of Medicine.

Friends for Fitness Community Coalition

The Friends For Fitness West Hawaii Community Coalition promotes local physical activity in response to requests from physical activity advocates. Coalition members identified a need for community residents to have a safe, level place to be physically active. The island of Kona where the coalition is based is mountainous and covered with lava fields. The terrain and a lack of sidewalks leave few places to walk or jog safely. The coalition looked to the closed Old Kona Airport, which had a small walking path but was overgrown, as a prime area for redevelopment as a park.

Friends for Fitness received a centennial grant from the Rotary Club, which was critical in financing the equipment and materials needed to clear brush and debris from the walking path. The grant money also was used to hire a local

development company to excavate the center of the park, which was full of stones that were difficult to remove. After the excavation, the coalition put down sod and grass and landscaped the area. They planted edible gardens and installed “purple pipes,” which are attached to a nearby treated wastewater system, to irrigate the park. Everything was built by volunteers, who also continue to water the gardens, and the coalition continues to organize monthly clean-up events.

Source: Friends for Fitness Community Coalition and Hawaii Department of Health.

Resources

Facilitating Development of a Community Trail and Promoting Its Use to Increase Physical Activity Among Youth and Adults

Program implementation information for those working to facilitate community trail development and promote its use among youth and adults. Part of the series *The Community Health Promotion Handbook: Action Guides to Improve Community Health*.

<http://www.prevent.org/The-Community-Health-Promotion-Handbook/Places-for-Physical-Activity.aspx>

Neighborhood Bike Works

Learn more about the after-school and summer programs sponsored by this organization.

<http://www.neighborhoodbikeworks.org>

Health Improvement Program

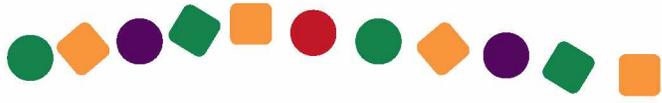
Learn more about Stanford University's employee health program.

<http://hip.stanford.edu/>

Friends for Fitness

Learn more about this coalition funded through the Hawaii Department of Health.

<http://www.friendsforfitness.org>



Strategy 7. Street-scale urban design and land-use policies

Definition

Street-scale urban design and land-use policies and practices support physical activity in small geographic areas, generally limited to a few blocks. These interventions use policies and practices such as improving street lighting, increasing ease and safety of street crossings, introducing or enhancing traffic calming, enhancing the aesthetics of the streetscape, and ensuring sidewalk continuity.⁸

Rationale

Studies have shown that people walk more in neighborhoods that are safe, walkable, and aesthetically pleasing. Improved pedestrian and cycling infrastructure may promote physical activity by making walking and cycling more appealing, easier, and safer.¹⁸ One of the most frequently cited barriers to physical activity is lack of safe areas. Street-scale urban design and land-use policies and practices may increase environmental supports, such as safety, walkability, improved sense of community, decreased isolation, and reduction in crime and stress.⁸

Environmental changes such as improvements in infrastructure have many advantages. One major advantage is that once the changes are made, they often endure for the life of the structure. These changes have a potential influence on most, if not all, of the people living in the community, and sustained promotional efforts are not required.

Evidence of Effectiveness

The *Community Guide* rates the evidence for street-scale urban design and land-use policies and practices as sufficient. The recommendation for street-scale urban design is based on review of six studies in which the median increase in measures of physical activity was 35%. Community design and transportation elements are highly correlated, and a substantial body of new research suggests that their influences on physical activity are also interrelated. For a more detailed discussion of this topic, see Strategy 10.¹⁸

Key Considerations

- Street-scale urban design and land-use policies and practices are costly, can be complicated, and take longer to implement than interventions that do not change or only minimally change the physical environment.
- This intervention requires careful planning and coordination among professionals such as urban planners, architects, engineers, developers, local government officials, transportation and public safety staff, and public health professionals.
- Neighborhood or community support is often essential and can take considerable time and effort to achieve.





Program Examples

Toronto City Cycling Committee

The City of Toronto established a cycling committee that led to an initiative to reallocate motor vehicle lanes to bicycle lanes. During 1993–1998, the City of Toronto developed 40 Km (25 miles) of bicycle lanes. The conversion of motor vehicle lanes to bicycle lanes led to a 23% increase in bicycle traffic (1,230 cyclists per day of weekday traffic volume).

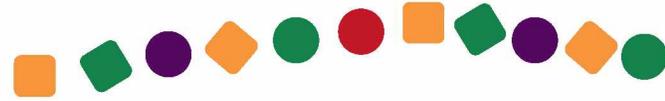
In all cases, bicycle-lane designs were customized to each street to accommodate local circumstances. In all cases, roads were reconfigured to accommodate bicycling lanes.

For example, four-lane roads were converted to two lanes with on-street parking and bicycle lanes. In other areas, roads were narrowed during reconstruction to slow traffic and widen the sidewalks. Key components of this intervention included the establishment of the Toronto City Cycling Committee with full-time staff, a strong official plan in support of cycling, public meetings in neighborhoods where cycling lanes were proposed, and extensive public notification and meetings typically months before final council approval.¹⁹

Source: Toronto City Cycling Committee, City of Toronto.

Action Steps

1. Establish formal collaborative relationships with the appropriate planning, transportation, and development agencies. Be sure to include local bicycle and pedestrian coordinators in annual planning activities.
2. Advocate for or implement a Walking School Bus or other active transport initiative as a way to raise awareness of the need for improvements in the local pedestrian and road network to enhance nonmotorized transport such as walking and bicycling.
3. Identify streets that need changes or enhancements to make walking and being physically active safer and easier.
4. Collaborate with neighborhood residents to gather support for finding strategies for change. With local stakeholders, identify specific locations that can serve as an initial focus of action. Look for “low-hanging fruit” or locations that can be improved with minimal effort and resources. Examples of these improvements include adding crosswalks, making simple changes in road design (e.g., narrowing roads from two to one lane or painting new lines on the road to guide and slow traffic), or implementing other traffic-calming strategies.
5. Collaborate with nonprofit organizations, community groups, architects, urban planners, and neighborhood residents to advocate for and ensure appropriate active living design standards in their communities.
6. Learn more about “complete streets” policies in which streets are designed to be useable by all modes of transportation and groups (e.g., cars, pedestrians, bicycles, handicap devices). Promote these policies to your local and state government officials.



Sunnyside Piazza, Portland

The centerpiece of a Portland, Oregon, neighborhood revitalization effort that began September 2001, Sunnyside Plaza was converted from a neighborhood in disrepair into an attractive community gathering place by using artistic features intended to foster a sense of community.

In the late 1990s, the neighborhood was experiencing deteriorating physical features, crime, and social disorder. To correct these problems, residents began holding monthly meetings and partnered with a local nonprofit group whose mission is to create community gathering places in Portland. Through the help of local landscape designers and architects, the residents presented a modified ordinance that would support the intervention to the Portland city council.

After the ordinance passed, the residents raised money through local fundraising for materials. The residents used workshops, community discussions, design plans, and block parties to devise an artistic approach to solve their neighborhood problems.

Improvements included an enhanced aesthetic streetscape at a major intersection that included a large sunflower street mural, a community kiosk with a solar-powered lamp, an art wall, seating areas adorned with glass mosaic tile, and trellised hanging gardens in front of nearby homes. In addition, sidewalk repairs and improvements that included a canopy over a sidewalk fountain and curb extensions were made.²⁰

Source: Semenza JC. The intersection of urban planning, art, and public health: the Sunnyside Piazza. *American Journal of Public Health*. 2003;93(9):1439-1441.

Resources

Land Use Planning 101 Resources

National Association of County and City Health Officials

Resources and fact sheets for public health practitioners working with land-use design principles.

<http://www.naccho.org/topics/environmental/landuseplanning/toolbox.cfm>

Complete the Streets

Fact sheets, policy elements, and information about streets that are safe and used for multiple forms of transportation.

<http://www.completestreets.org/>

Bicycle & Pedestrian Program

U.S. Department of Transportation, Federal Highway Administration

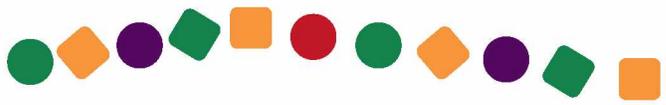
The bicycle and pedestrian policy adopted by the U.S. Department of Transportation.

<http://www.fhwa.dot.gov/environment/bikeped/index.htm>

Toronto City Cycling Committee

Learn more about the initiative to reallocate motor vehicle lanes to bicycle lanes.

<http://www.toronto.ca/cycling/>



Strategy 8. Community-scale urban design and land-use policies

Definition

Community-scale urban design and land-use policies and practices support physical activity in larger geographic areas, generally several square kilometers. These interventions use policies and practices to develop and implement infrastructure projects to improve continuity and connectivity of streets, sidewalks, and bicycle lanes. Zoning regulations and roadway design standards that promote destination walking and co-location of residential, commercial, and school properties (i.e., mixed land-use zoning), as well as transit-oriented development also may be characteristics of these interventions.⁸

Rationale

The physical design of communities can provide permanent, sustainable environments that support physical activity. For example, when people are able to live near and get to destinations such as work, shopping, and entertainment without using automobiles, opportunities for physical activity through active transport are increased. Studies have demonstrated an association between the use of public transportation and higher levels of physical activity.²¹ The process of engaging community residents, city planners, and developers in this intervention approach can help create communities that serve the needs of both citizens and businesses.

Evidence of Effectiveness

The *Community Guide* rates the evidence as sufficient for the effectiveness of community-scale urban design and land-use policies and practices. Twelve studies were included in the review, and they found an overall median effect size of 161% for some aspects of physical activity, such as increases in the number of walkers or bicyclists. As with street-scale urban design interventions, the number of studies that qualified for review under the *Community Guide* criteria at the time of the last review was limited.

Since that time, slightly different inclusion criteria have been used to review a larger number of studies, and these reviews support the value of

community design at the neighborhood, community, and regional level. The conclusions of these reviews were that each level of design has a significant influence on levels of physical activity and quality of life. These reviews include studies from the Transportation Research Board in the United States²² and the National Institute for Health and Clinical Excellence (NICE) in the United Kingdom,⁹ as well as other commissioned reviews.

Key Considerations

- Although community-scale urban design and land-use policies and practices are part of an intervention strategy that can provide significant, sustainable benefits, this approach is costly, requires extensive collaboration, and can take many years to implement.
- The decision to make community design changes is based on many factors. Public health officials can educate decision makers about the importance of considering the health and quality of life of community members.
- It is important to have collaboration between local government officials and community members and to develop relationships and partnerships with groups that benefit from the community being more accessible to pedestrians and bicyclists, such as schools, organizations that advocate for people with disabilities, and street-front or town center business owners.



- Educating the public about the planning and development process can empower community members to have a voice in the growth and development of their environment and lead to policies and practices that allow communities to be designed in a way that facilitates and supports nonmotorized transit.

Program Examples

Promoting Healthy Built Environments

This collaboration between the Seattle & King County Public Health Department and the advocacy organization Feet First has helped build walkable communities in Washington State. A primary focus of the collaborative has been to be active in design reviews (hosted by the Seattle Department of Planning and Development) and to encourage and support community involvement in these reviews. The design review process is an opportunity for the public to comment on upcoming development plans.

Historically, design review meetings were poorly attended by the community, and development plans were passed with little or no community involvement. The collaborative addresses this problem by attending design review meetings and providing input to planners and policy makers about community design policies and practices in an effort to make the Seattle area

more accessible to walkers and bicyclists. The collaborative has succeeded in adding public comment to the design review process and in encouraging community members to attend and provide comments and concerns about proposed development. This kind of community input is an important precursor to the actual development of the policies and practices that result in physical changes to a community.

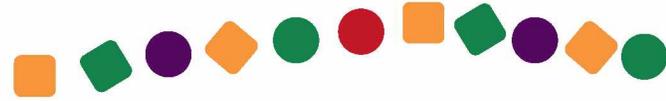
Health Impact Assessment of the Burien Town Center

A health impact assessment is a process by which a policy, program, or project is assessed to determine its potential effects on the health of a population, including potential effects on physical activity levels. Burien is a suburban city located just outside of Seattle that had historically been automobile-dependent. The Burien Town Center now has a bicycle and pedestrian plan, which city officials will assess with a health impact assessment. The resulting information can be used to effectively facilitate nonmotorized transit, such as bicycling and walking, in the town center.

Source: Seattle Pedestrian Advisory Board, Feet First of Seattle, and the Seattle & King County Public Health Department.

Action Steps

1. Plan and create activities such as group walking audits in your community to help educate residents and raise awareness about how community design affects physical activity.
2. Engage local media in educating community members and advocating for communities that support physical activity through community design.
3. Educate and encourage community members to become active advocates and participants in local planning and development meetings.
4. Encourage community members and local decision makers to participate in health impact assessments and other kinds of community assessments.



Resources

Health Impact Assessment

Information on how to use CDC's health impact assessments to evaluate the potential health effects of a project or policy before it is built or implemented.

<http://www.cdc.gov/healthyplaces/hia.htm>

Active Living by Design

Descriptions and information about initiatives to increase physical activity through changes to community design.

<http://www.activelivingbydesign.org/>

Strategies for Enhancing the Built Environment to Support Healthy Eating and Active Living

Outlines a range of organizational practices and public policies being considered to improve the built environment in support of healthy eating and regular physical activity.

http://www.convergencepartnership.org/atf/cf/%7B245A9B44-6DED-4ABD-A392-AE583809E350%7D/CP_Built%20Environment_printed.pdf

Seattle Pedestrian Advisory Board

Learn more about this board, which advises the City of Seattle on pedestrian safety and access.

<http://www.cityofseattle.net/spab/>

Feet First of Seattle

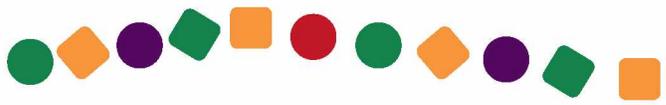
Learn more about this nonprofit group, which encourages walking.

<http://www.feetfirst.info/>

Health Impact Assessment

Information and resources from the Seattle Department of Transportation.

http://www.seattle.gov/transportation/pedestrian_masterplan/pedestrian_toolbox/tools_ehe_hia.htm



Strategy 9. Active transport to school

Definition

Active transport to school interventions are designed to encourage and support youth to engage in active transportation (e.g., walking, bicycling, skating) to school. These interventions take several forms, including KidsWalk, Walk to School, Walking School Bus, and Safe Routes to School. They may involve urban-design elements and practices, land-use policies and practices to improve conditions for active transport, and noninfrastructure activities such as walking programs. This intervention strategy can be implemented at elementary, middle, and high schools.^{23–25}

Rationale

When schools are located in areas with safe sidewalks and pedestrian-friendly street crossings, children are more likely to walk to school.²⁴ Programs that promote active transport to school have the potential to increase physical activity and improve health among a large number of youth on a regular basis. These interventions often use principles employed in urban design and land-use policies and practices at both the street- and community-scale level. Therefore, these interventions have the potential to create sustainable environmental support for physical activity in the long term, not only for students of the schools, but for other community members as well.

Evidence of Effectiveness

Case studies collected and included in the 2008 report of the National Safe Routes to School Task Force²⁴ indicate that these interventions can be effective in increasing physical activity, improving safety, and creating sustainable infrastructure to support physical activity. On the basis of an extensive review of programs across the United States, the task force recommended that the Safe Routes to Schools Program become a permanent feature of future transportation legislation.

Key Considerations

- Implementing a successful and sustainable intervention for active transport to school—particularly if permanent infrastructure changes are to be made—may require the efforts of an array of community members, disciplines, and expertise (e.g., students, parents, teachers, school administrators, public health professionals, urban planners, architects, engineers, developers).
- Physical infrastructure changes designed to make active transport easier and safer may need to be preceded by programs such as the Walking School Bus, which increases awareness of environmental conditions that affect walking and other types of active transport to school.
- Safety—both actual and perceived—can be a significant barrier to active transport programs.





Program Example

Bear Creek Elementary School Safe Routes to School

In Boulder, Colorado, 67% of Bear Creek Elementary School's 360 students live within 2 miles of the school, but only 25% were walking or bicycling to school before the Safe Routes to School (SRTS) program was implemented. Most students were being driven in the family car. However, since federal SRTS funding for all states was approved in 2005, parent involvement, strong school leadership, and shared funding with two other schools have helped encourage 70% of Bear Creek's students to walk or bicycle to school on a daily basis. The school's principal served as a role model for his students by hosting the Cruger Cup, a year-long challenge for students to arrive at school every day without a car.

The primary focus now is sustaining the increased walking that was achieved through the walking program. These efforts are supported by infrastructure improvements that were made

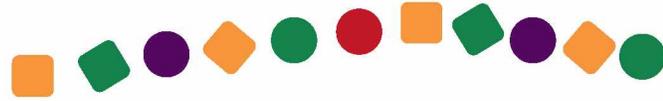
as part of the intervention to make walking to school easier for students. For example, a foot bridge from adjacent Bear Creek Park and surrounding neighborhoods was repaired by the City of Boulder in October 2007. Other infrastructure changes were made by the City of Boulder through its forestry and transportation departments, and Boulder Valley School District maintenance funds were used to open the school's bicycle corral and fence.

In addition, the city's traffic engineer and bicycle/pedestrian planner have played integral roles in addressing safety issues at two critical street crossings near the school. The City of Boulder received \$154,000 in infrastructure funds from the federal SRTS program, through the Colorado Department of Transportation, to retrofit one intersection by summer 2009.

Source: Safe Routes to School Program, Boulder Valley School District.

Action Steps

1. Determine if there are local programs or activities such as Safe Routes to School in your area. Identify stakeholders, organizations, and individuals working with those programs who could provide assistance or collaboration to support your efforts.
2. Collaborate with potential partners, such as pedestrian groups, schools and school districts, and parent-teacher organizations.
3. Keep key partners and stakeholders—including parents, students, school leaders, neighbors and neighborhood associations near schools, local government officials, and environmental groups—informed, involved, and invested in your intervention.
4. Contact your Safe Routes to School state coordinator for guidance on policies and project eligibility requirements in your state.
5. Provide training to local groups that want to implement active transport to school programs.



Resources

Safe Routes to School

National Center for Safe Routes to School

Information about programs that work to reduce traffic congestion, improve health and the environment, and make communities more livable for everyone.

<http://www.saferoutesinfo.org>

Safe Routes to School National Course

One-day course by the Pedestrian and Bicycle Information Center combines safety, health, and transportation issues.

<http://www.saferoutesinfo.org/events-and-training/national-course/>

KidsWalk-to-School

Centers for Disease Control and Prevention

Information and tools for implementing a walk-to-school event.

<http://www.cdc.gov/nccdphp/dnpa/kidswalk/index.htm>

Boulder Valley School District's Safe Routes to School Program

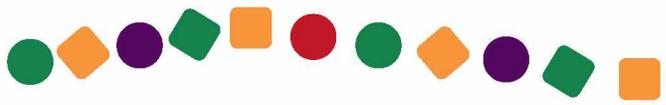
Learn more about this program, which is getting students walking and bicycling to school.

<http://www.bvbsd.org/transportation/toschool/srts/Pages/SRTS%20Mission%20Statement.aspx>

Let's Move! Cities & Towns

Mayors and elected officials can sign up to take action to increase physical activity or address childhood obesity.

<http://www.letsmove.gov/become-lets-move-city-or-town>



Strategy 10. Transportation and travel policies and practices

Definition

Transportation and travel policies and practices can encourage active transport by facilitating walking, bicycling, and public transportation use; increasing the safety of walking and bicycling; reducing car use; and improving air quality. Environmental changes that support these goals and increase physical activity can be achieved by using strategies such as changing roadway design standards; creating or enhancing bicycle lanes; expanding, subsidizing, or otherwise increasing the availability of and access to public transportation; providing bicycle racks on buses; providing incentives to car or van pool; and increasing parking costs.^{10,22}

Rationale

Creating options for travel other than by automobile has the potential to increase physical activity for a large portion of the population by providing opportunities for alternative transport, such as bicycling and walking, and by facilitating even modest increases in physical activity as part of using public transit instead of private automobile. For example, taking public transportation involves at least a limited amount of walking to and from the transit stop to one's destination—walking that would likely not be necessary if travel were by automobile instead.

Disincentives such as increased parking costs also have the potential to encourage and facilitate the use of alternative modes of transportation. These strategies also have the potential to improve air quality, commerce, and aesthetics; increase green space; and decrease stress.¹⁰

Evidence of Effectiveness

The *Community Guide* reviewed the one study that was available at the time the initial review was conducted. This study measured the proportion of university students who walked to school rather than driving when free transit was made available. Six months after the intervention began, 57% more students chose walking, with a sustained effect of 14% reported 1 year later. Subsequently, reviews by NICE⁹ and the Transportation Research Board²² examined a

wider range of studies and found evidence that a variety of transportation policies, as well as infrastructure and community design strategies, can be an effective way to promote both leisure time and transportation-related physical activity.

The NICE review examined 26 studies across six main areas. In each case, the preponderance of evidence was that slight to modest increases in walking, cycling, and outdoor play were associated with these interventions.





Categories of interventions included

- Traffic calming.
- Introduction or expansion of multiuse trails.
- Closing roads or restricting their use by motorized traffic.
- Road use charges (tolls).
- Improved cycling infrastructure.
- Safe Routes to School programs.

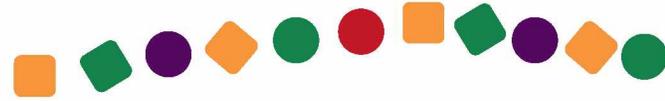
Another review of the literature in this area was conducted by the Active Living Research group.¹⁸ This review summarized research on public transit, greenways and trails, school-related infrastructure and programs, pedestrian and bicycle facilities, and efforts to manage car traffic.

Key research findings related to physical activity included the following:

- Public transit use is linked to higher levels of physical activity and lower rates of obesity.
- Walking or bicycling to school can help children be more active overall.
- Sidewalks and bicycle lanes promote physical activity.
- Multiuse trails are associated with increased walking and bicycling, especially in urban area and among lower-income populations.
- Traffic calming and safety measures protect residents and facilitate walking and bicycling.

Action Steps

1. Convene the appropriate stakeholders, such as state and local bicycle or pedestrian coordinators, transportation department officials, and local government representatives.
2. Share the evidence of health benefits from good community design. Many professionals outside public health are not aware of the potential direct and indirect health benefits of these programs.
3. Work with stakeholders to conduct a health impact assessment of your proposed project to demonstrate the potential health savings for design alternatives.
4. Consider conducting pilot projects that can demonstrate success and garner support from policy makers.
5. Collaborate with local planning agencies in the development of their short- and long-range master plans.
6. Determine which strategies could be implemented in the intended community. Examples could include equipping buses with bicycle racks, subsidizing public transportation, establishing roadway standards that require bicycle lanes, or implementing policies that provide disincentives for nearby parking (e.g., higher parking fees).



Key Considerations

- Transportation policy and infrastructure interventions are often combined with neighborhood and community design interventions. Integrating community designs such as smart growth efforts with transportation initiatives such as complete streets policies and improved transit access could have significant and synergistic community-wide effects on physical activity.
- Many transportation issues are determined locally, but many are under regional or national jurisdictions.
- The range of transportation policy and infrastructure interventions is tremendous, from low-cost restriping of streets for crosswalks and devices to slow traffic to multimillion dollar regional enhancements of public transit systems.
- As with other community infrastructure decisions, a wide range of stakeholders are involved in the decision-making process. Departments of transportation and planning are often the lead agencies. Public health organizations, while a valuable addition, often play a supportive role in these negotiations.

Program Examples

Activate Omaha

This Active Living by Design community partnership helped the city of Omaha, Nebraska, transform from a place known more for cars than for its bicycling opportunities to the home of a new 20-mile bicycle loop. Activate Omaha started a youth bicycle program that lends 20 bicycles to local organizations that work with underserved youth. The partnership also created a bicycle commuter map that is being tested with current Commuter Challenge participants, and Omaha Metro Area Transit equipped 130 of its buses with bicycle racks. As a result of the

visibility and success of this program, Activate Omaha was able to leverage enough funding to create a \$700,000, 20-mile bicycle loop around the city. The project will serve as a major connector to existing bicycle trails and other important destinations in the city.

Source: Activate Omaha.

Partnership for Active Communities

The Partnership for Active Communities in Sacramento, California, supported transportation policies and infrastructure improvements designed to increase physical activity, including programs that promote walking and bicycling to school. The partnership also helped secure more than \$12 million in additional funding for Safe Routes to School programs.

In addition, the partnership conducted more than 150 systematic reviews of local development projects in order to influence land-use decisions by city planners. These reviews recommended improvements to local pedestrian and bicycle infrastructures that were based on the principles of the National Complete Streets Coalition. Complete streets policies are now included in the region's transportation plan, the mobility element of the city's updated general plan, the county's draft circulation plan, and the regional transit master plan.²⁶

Core partners in the Partnership for Active Communities include WalkSacramento, AARP California, Bannon Creek Traffic Tamers, North Natomas Transportation Management Association, Sacramento County Department of Health, and Metropolitan Air Quality Management District office. Twenty additional agencies and groups served as resource or support partners.



Resources

Does the Built Environment Influence Physical Activity? Examining the Evidence

The Transportation Research Board summarizes what is known about the relationships between physical activity, health, transportation, and land use and the strength and magnitude of any causal connections.

<http://144.171.11.107/Main/Public/Blurbs/155343.aspx>

Transportation Essentials Tool Kit

Active Living by Design

Resources to create transportation and land-use systems that support walking, bicycling, public transit, and other more active forms of travel.

<http://www.activelivingbydesign.org/events-resources/essentials/transportation>

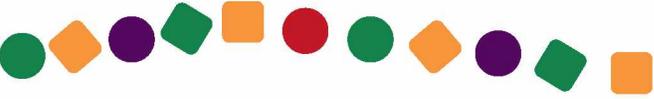
Activate Omaha

Learn more about how this initiative, which worked to create a 20-mile bicycle loop in Omaha, Nebraska.

<http://www.activateomaha.org>

References

1. U.S. Department of Health and Human Services. Physical activity and health: a report of the Surgeon General. Atlanta (GA): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, The President's Council on Physical Fitness and Sports; 1996.
2. U.S. Department of Health and Human Services. 2008 physical activity guidelines for Americans. Washington (DC): U.S. Department of Health and Human Services; 2008.
3. Youth Risk Behavior Surveillance System. 2007 National YRBS Overview. Available at http://www.cdc.gov/HealthyYouth/yrbs/pdf/us_physical_trend_yrbs.pdf.
4. Carlson SA, Fulton JE, Schoenborn CA, Loustalot F. Trend and prevalence estimates based on the 2008 Physical Activity Guidelines for Americans. *AM J Prev Med.* 2010;39(4):305-313.
5. Centers for Disease Control and Prevention. Increasing physical activity: a report on recommendations of the Task Force on Community Preventive Services. *MMWR Recomm Rep.* 2001;50(RR-18):1-14.
6. Task Force on Community Preventive Services. Guide to community preventive services. Promoting physical activity. Available at <http://www.thecommunityguide.org/pa/index.html>.
7. Kahn EB, Ramsey LT, Brownson RC, et al. The effectiveness of interventions to increase physical activity: a systematic review. *Am J Prev Med.* 2002;22(4 Suppl):73-107.
8. Heath GW, Brownson RC, Kruger J, et al. The effectiveness of urban design and land use and transport policies and practices to increase physical activity: a systematic review. *J Phys Act Health.* 2006;3(Suppl 1):S55-76.
9. NICE Public Health Collaborating Centre—Physical Activity. Physical activity and the environment: review one: transport. Leicestershire (UK): National Institute for Health and Clinical Excellence; 2006. Available at <http://www.nice.org.uk/nicemedia/pdf/word/Transport%20evidence%20review.doc>.
10. Brown DR, Heath GW, Martin SL, editors. Promoting physical activity: a guide to community action. 2nd ed. Champaign (IL): Human Kinetics. 2010.
11. Brownson RC, Haire-Joshu D, Luke DA. Shaping the context of health: a review of environmental and policy approaches in the prevention of chronic diseases. *Annu Rev Public Health.* 2006;27:341-370.
12. Sallis JF, Cervero R, Ascher W, Henderson KA, Kraft MK, Kerr J. An ecological approach to creating active living communities. *Annu Rev Public Health.* 2006;27:297-322.
13. Reger-Nash B, Bauman A, Booth-Butterfield S, et al. Wheeling walks: evaluation of a media-based community intervention. *Fam Community Health.* 2005;28(1):64-78.
14. Andersen RE, Franckowiak SC, Snyder J, Bartlett SJ, Fontaine KR. Can inexpensive signs encourage the use of stairs? Results from a community intervention. *Ann Intern Med.* 1998;129(5):363-369.
15. Marcus BH, Emmons KM, Simkin-Silverman LR, et al. Evaluation of motivationally tailored vs. standard self-help physical activity interventions at the workplace. *Am J Health Promot.* 1998;12(4):246-253.
16. Robert Wood Johnson Foundation. Active education: physical education, physical activity and academic performance. *Active Living Research. Research Brief;* 2009. Available at <http://www.activelivingresearch.org/resource/research/summaries>.
17. King AC, Carl F, Birkel L, Haskell WL. Increasing exercise among blue-collar employees: the tailoring of work-site programs to meet specific needs. *Prev Med.* 1988;17(3):357-365.
18. Robert Wood Johnson Foundation. Active transportation: making the link from transportation to physical activity and obesity. *Active Living Research. Research Brief;* 2009. Available at http://www.activelivingresearch.org/files/ALR_Brief_ActiveTransportation.pdf.
19. Macbeth AG. Bicycle lanes in Toronto. *ITE Journal.* 1999;69:38-46.

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20. Semenza JC. The intersection of urban planning, art, and public health: the Sunnyside Piazza. *Am J Public Health*. 2003;93(9):1439-1441.
 21. Lee V, Mikkelsen L, Srikantharajah J, Cohen L. Strategies for enhancing the built environment to support healthy eating and active living. Oakland (CA): Prevention Institute, Healthy Eating Active Living Convergence Partnership; 2008. Available at http://www.convergencepartnership.org/atf/cf/%7B245A9B44-6DED-4ABD-A392-AE583809E350%7D/CP_Built%20Environment_printed.pdf.
 22. Committee on Physical Activity, Health, Transportation, and Land Use; Transportation Research Board, Institute of Medicine of the National Academies. Does the built environment influence physical activity? Examining the evidence. Special report 282. Washington (DC): Transportation Research Board; 2005.
 23. Bogden JF. How schools work & how to work with schools: a primer for professionals who serve children and youth. Alexandria (VA): National Association of State Boards of Education; 2003.
 24. Safe routes to school: a transportation legacy. A national strategy to increase safety and physical activity among American youth. Chapel Hill (NC): National Safe Routes to School Taskforce; 2008.
 25. Garrard J. Active transport: children and young people (an overview of recent evidence). VicHealth; 2009. Available at <http://www.vichealth.vic.gov.au/Publications/Physical-Activity/Active-transport/Active-Transport-Children.aspx>.
 26. Aboelata MJ. The built environment and health: 11 profiles of neighborhood transformation. Prevention Institute; 2004. Available at http://www.preventioninstitute.org/index.php?option=com_jlibrary&view=article&id=114&Itemid=127.
 27. Geraghty AB, Seifert W, Preston T, Holm CV, Duarte TH, Farrar SM. Partnership moves community toward complete streets. *Am J Prev Med*. 2009;37(6 Suppl 2):S420-427.

