Youth advocacy for obesity prevention: the next wave of social change for health

Rachel A Millstein, MHS,¹ James F Sallis, PhD²

¹SDSU/UCSD Joint Doctoral Program in Clinical Psychology, 3900 Fifth Avenue, Suite 310, San Diego, CA 92103, USA

²Department of Psychology, San Diego State University, 3900 Fifth Avenue, Suite 310, San Diego, CA 92103, USA

Correspondence to: R Millstein
rmillste@ucsd.edu

Cite this as: *TBM* 2011;1:497–505
doi: 10.1007/s13142-011-0060-0

ABSTRACT

Recommended obesity prevention interventions target multiple levels. Effective advocacy is needed to influence factors at individual, social, environmental, and policy levels. This paper describes the rationale for engaging youth in obesity prevention advocacy efforts targeting environment and policy changes to improve nutrition and physical activity. Advocacy involves education, skill development, and behavior and attitude changes, with the goal of persuading others or taking action. Youth advocacy has been successfully used in substance use prevention, but it is relatively new in obesity prevention. A model is presented to guide intervention and evaluation in youth advocacy for obesity prevention. With youth advocacy as a central construct, the model outlines inputs and outcomes of advocacy at individual, social environment, built environment, and policy levels. The model can be used and refined in youth advocacy evaluation projects. By involving youth in their communities, advocacy can produce ownership, engagement, and future involvement yielding sustainable changes.

Keywords

Advocacy, Ecological models, Nutrition, Physical activity, Policy, Environment

“Knowing is not enough, we must apply.
Willing is not enough, we must do.”

-Johann von Goethe

OBESITY PREVENTION: PAST AND FUTURE

Obesity is a leading global health and economic issue, and knowledge about obesity-related problems is widely appreciated. The prevalence of obesity among adults and youth has increased dramatically over the past three decades in the USA [45, 46] and is rising worldwide [21]. The reasons for the increase are not precisely known, but the consensus is that changes in the food environment (e.g., greater availability of cheaper food) and physical activity environments (e.g., mechanized transportation, sedentary entertain-

Implications

Research: Researchers will be able to use and adapt the model presented, to guide intervention and evaluation in youth advocacy for obesity prevention.

Practice: Practitioners can use the background, model, and implications to inform their advocacy work with youth.

Policy: Policymakers need to better communicate with obesity prevention advocates to help create environments and policies that make healthy eating and active living more accessible to youth.

ment options) play major roles [33, 63, 73]. The scope of the obesity problem is large enough that it requires new and broader-scale strategies in addition to those that have been implemented thus far.

National and international health authorities recommend multi-level obesity prevention strategies that include individual, social, environmental, and policy changes targeting numerous sectors of society [16, 31–33, 44, 48, 63, 73]. As Klein and Dietz (2010) [30] emphasize, “...there is a need for sustained community innovations to improve nutrition and increase physical activity in medical, child care, school, and community settings. Coordinated, comprehensive, and complementary efforts at multiple levels are likely to be required” (p. 391). The extent to which such changes have been achieved is unclear, and given the complexity of modifying environmental and policy factors, improved intervention approaches are needed.

The present paper aims to outline the rationale for developing youth advocacy as a potentially powerful tool to influence changes in nutrition and physical activity environments and policies, with expected co-occurring benefits for youth well being. A conceptual model is proposed that describes the inputs, outputs, and advocacy processes that may act together to bring about multi-level changes necessary to achieve obesity prevention.

ADVOCACY: WHAT IT IS AND HOW IT WORKS

Advocacy for nutrition and physical activity environment and policy changes is a promising, though under-studied and under-evaluated, intervention approach [62]. Advocacy refers to the process by which individuals or groups increase support for, recommend, influence, or promote a private, local, state, or federal decision or policy [11, 37, 72]. Advocacy has the potential to involve many segments of the population and is, at its core, a grassroots- and community-based set of actions. Advocacy is a multi-level, multi-stage intervention that integrates diverse constituents and stakeholders who can influence obesity and other public health issues [13, 74]. Advocacy typically involves political systems, the media, communities, and organizations [13, 62]. In health promotion, advocacy can be seen as “facilitational”: it can provide skills and knowledge to people and communities in need, through mediation, confrontation, and capacity building [11].

The success of advocacy depends in part on individual attributes of advocates such as perceived incentive value, outcome expectancies, self-efficacy, perceived policy control, leadership competence, and sense of community [70]. The skills and behaviors at the core of advocacy include increased network communication, negotiation, public education, media contact, public participation, and vocalizing one’s beliefs [70, 72]. In the political, health, and social justice fields, advocacy is commonly used to bring about changes at multiple levels of influence, such as organizational and governmental [3, 15, 28, 74]. Successful advocacy also requires people and groups to gain control and authority over their environments and to enact changes through active participation and collaboration [14, 76].

ADVOCACY, SOCIAL CHANGES, AND HEALTH

Klein and Dietz [30] suggest that it will take a social movement, like tobacco control, to bring about the next phase of obesity prevention, the phase in which it becomes a grassroots social norm. The American Academy of Pediatrics (AAP), Centers for Disease Control and Prevention (CDC), World Health Organization (WHO), and Institute of Medicine (IOM) also recognize the need for advocacy and collaboration across sectors to combat obesity [16, 48, 73].

There are parallels between obesity prevention’s direction and the tobacco control movement’s successes in creating a social paradigm shift [9, 30, 39, 62, 74]. Policy changes, as seen in the tobacco, alcohol, and drug control histories, tend to follow when a social health condition has an established research and science background and social stigma [39]. In comparison to tobacco use, which is driven by a single industry, obesity is recognized to have multiple and complex contributors, including several large industries (food, real estate, automobiles, entertainment), government agencies (agriculture,

transportation, education, commerce), and institutions (families, schools, health care), as well as multiple contributing behaviors (eating, physical activity, sedentary behaviors) [7, 54]. The successful tobacco control history benefitted from a common opposition source (the tobacco industry) and a clearly identifiable source problem (tobacco use), which obesity does not share to the same extent. Nevertheless, the social changes surrounding tobacco use that began in the 1960s provide a strong model of what needs to happen to quell the chronic disease threats from obesity [9, 18].

RATIONALE FOR YOUTH ADVOCACY

Community-level changes may be most effective when they include residents and constituents of all ages and backgrounds. Why is promoting advocacy with youth in particular, a promising strategy for obesity control? First, youth are deeply affected by obesity and its long-term health, psychological, and social consequences [16]. Second, advocacy involving youth has the potential to maximize change and impact: Decision-makers may be less cynical about their motives and less prone to reject their requests. For instance, “...there is a greater political tolerance for legal interventions on their [youth’s] behalf—this is a clear lesson from the history of tobacco control” [39] (p. 2607). Third, not only can youth advocacy benefit society, but the benefits are bidirectional. Engagement in advocacy can improve a variety of developmentally relevant psychosocial processes including self-esteem, self-efficacy, and feelings of empowerment [14, 68]. Fourth, young people tend to possess enthusiasm and optimism that can be harnessed to promote community-based changes. Winkleby et al. [70] showed that youth who became involved with an advocacy program were able to enact changes in their school and community environments. Fifth, risk of obesity is highest among low-income groups and communities of color [41, 47], so efforts to reduce health disparities could benefit from emphasizing youth advocacy as an additional tool. Youth from high-risk communities are likely to experience more social and psychological benefits from youth advocacy, especially if their families or communities have historically been under-empowered to be vocal about their needs. Evidence suggests that low-income and disadvantaged youth have lower levels of self-confidence, engagement, and other indicators of empowerment [3]. Thus, youth from disadvantaged communities may have the most to gain from youth advocacy. Finally, youth naturally form groups, which can be convenient for training and can generate more powerful advocacy.

There are several examples in the literature of youth advocacy programs for tobacco and substance abuse control [23, 24, 51, 66, 69-71]. However, the evidence base about effectiveness of such methods is inconclusive, with generally positive effects on

mediators like confidence for advocacy, but mixed results regarding substance use [2]. Even the definitions and approaches to advocacy and empowerment often differ across studies [2]. One advocacy program trained at-risk high school students to reduce substance use and increase community advocacy/policy-level substance control measures [66, 70]. While this program did not reduce substance use, the teens did increase their advocacy skills and engage in more advocacy practices following the intervention, which led to policy changes in schools and retail shops [70]. A similar advocacy and education intervention produced a reduction in regular smoking among high school students and increased advocacy behaviors [71].

Another set of studies from the American Legacy Foundation's Statewide Youth Movement Against Tobacco Use examined the conceptual and practical factors involved in successful youth advocacy and empowerment programs. The conceptual framework for youth empowerment included predisposing youth characteristics, collective participation, group structure, adult and institutional involvement, and group climate. Outcomes were conceptualized at the individual, group, and community levels [25]. A related study found that elements of individual

participation were associated with youth's feelings of empowerment, counter-industry, and interpersonal confidence, perceived sociopolitical control, participatory competence, knowledge of resources, assertiveness, and advocacy behavior [23, 24].

EXPANDING YOUTH ADVOCACY TO OBESITY PREVENTION

Obesity prevention has a more challenging set of targets for change compared with tobacco control, so a greater burden is placed on advocacy in the obesity context. Given the lack of empirical evidence on the effectiveness for youth advocacy for obesity prevention, a conceptual model specific to advocacy for obesity prevention is needed to guide the development, evaluation, implementation, and dissemination of youth advocacy efforts.

CONCEPTUALIZING YOUTH ADVOCACY

Elements of youth advocacy

Figure 1 presents a model for understanding the multiple and overlapping influences on youth advocacy and the health behaviors related to childhood obesity prevention (e.g., nutrition and physical

Fig 1 | A multi-level conceptual model of inputs, processes, and outcomes of youth advocacy for obesity prevention. NPA: Nutrition and Physical Activity

activity). Though the model focuses on the processes and factors involved with youth advocacy, much of its content can be generalized to advocacy with other age groups.

Model structure

The boxes in the model represent levels of presumed influence or outcome, ranging from individual to policy levels. The boxes at the top are inputs, which can be mediators and moderators of advocacy actions and elements of advocacy training. At the center are characteristics of advocacy programs and behaviors. The boxes at the bottom are the desired outcomes of advocacy efforts at the multiple levels. The structure of the model is such that both inputs and outcomes are conceptualized in multiple levels. The levels of the model overlap to indicate that each domain, while separate in many ways, also interacts with other levels to produce changes. For example, individual self-efficacy for advocacy behavior can interact with group norms about advocacy. Low self-efficacy for advocacy may be a product of or a contributor to group norms that do not support advocacy. Therefore, introducing an advocacy intervention may increase self-efficacy for advocacy and contribute to a cross-level effect on social norms that support advocacy as a realistic alternative. In another example, neighborhood SES may interact with legislative representation and power. Lower SES neighborhoods often have less connection with their representatives, less power within legislative bodies, and less neighborhood pride to be vocal. An advocacy intervention that includes interactions with government officials could set the stage for advocacy for non-health improvements, such as economic development in the community. The present model draws on models from tobacco youth advocacy and empowerment [24, 25], policy and environmental change for obesity prevention [58], overall youth empowerment [14], physical activity policy [61, 62], and ecological models of health behavior/active living [7, 53]. Advocacy can be a central, unifying, and energizing process that channels the various levels of inputs into the corresponding output goals.

The skills and goals that combine to form the advocacy core, or “engine,” include the factors described in Table 1 (also see [37] and [62] for advocacy summaries). This core refers to process of training and implementing advocacy behaviors. The training can be applied to changing both advocacy behaviors and nutrition and physical activity behaviors so the youth can speak from experience and derive multiple benefits. The education and skills development elements refer to the advocacy training program. The education goals encompass a range of topics and provide the necessary background and context for building successful advocacy behaviors. Advocates need to have or develop a variety of skills

to be effective in both changing their health behaviors and in being effective advocates. Those listed in Table 1 are often considered to be core skills for successful advocates [23, 37, 70]. Skill development should build self-efficacy to engage in the core advocacy behaviors. The behavior and informed public participation/broad engagement elements refer to the implementation of advocacy projects. The important communication, assessment, and presentation behaviors listed in Table 1 may be influenced by behavioral models such as the Social Cognitive Theory [4] and the Transtheoretical Model [49], but other models could also be applied. As research on youth advocacy develops, the component behaviors could be studied more in depth. This would require developing measures of advocacy target behaviors, such as preparing presentations and communicating with decision makers, as well as new behavior-specific psychosocial mediators based on these familiar behavior change theories. A more distal goal is for youth to participate in groups and programs beyond the initial advocacy training. By developing advocacy skills, they will be able to join forces with other groups and policy makers to have a broader effect and signal that the advocacy behavior is being sustained.

The following sections describe the key elements of each of the levels of influence and outcomes. The main distinction between influences and outcomes is usually timing. The pre-training elements provide the context for training and may modify the content of training and how it is received by the youth. The purpose of the training is to empower youth to use the available resources to change the selected outcomes. In the sections below, the influence and outcome aspects of each element are described together.

Individual level

Most of the individual factors refer to psychological processes of change that apply to both advocacy and nutrition and physical activity behaviors, so advocacy outcomes can include healthier children who are also effective advocates. Some of these individual attributes are expected to change through the training and process of advocacy (e.g., feelings of empowerment and self-efficacy), and others are immutable in the short-term (e.g., metabolic phenotype and SES). The skills and perceived barriers that youth bring to an advocacy project will inherently influence the training process and are likely to change in important ways following an advocacy intervention [23, 25].

Given the breadth and complexity of the individual level inputs and outcomes, only selected examples are discussed. Feelings of self-efficacy and empowerment are expected to be central in the advocacy process, both as inputs and outcomes [14, 23-25, 77]. Empowerment includes feelings of leadership, mastery, sense of competence, desire/

Table 1 | Summary of the advocacy core of the conceptual framework for youth advocacy

Advocacy	Skill or goal
Education	Knowledge of nutrition and physical activity benefits and recommendations
	Knowledge of resources
	Empowerment
	Political structure and opposition
	Legislative processes
	Program development
	Understanding of specific policy goals
Skills development	Role of media in advocacy
	Self-efficacy to perform skills
	Goal setting
	Leadership
	Communication
	Networking
	Assertiveness
	Peer education
	Mediation/negotiation
	Team-building
	Understanding budgets
	Program/strategy evaluation
	Media contact strategies
Behaviors	Peer communication/education
	Speaking with decision-makers
	Contacting media
	Circulating/signing petitions
	Holding/attending press conferences
	Attending and presenting at meetings
	Conducting participatory research
Informed public participation and broad engagement	Conducting environmental assessments
	Participating in advocacy actions with other groups or to achieve other outcomes.

Most of these processes and skills can be applied to both advocacy behaviors and the nutrition and physical activity target behaviors

willingness to take action, and perceived control [77]. The attitudes of interest include a sense of community and civic duty [34], perceived policy control, perceived incentive value [70], confidence in oneself and in the group, and intentions or motivation for involvement [25]. Other factors related to nutrition, physical activity, and advocacy behaviors include outcome expectancies, stage of change, enjoyment, and knowledge of resources [24, 49]. For most of these elements, there is additional complexity, included in important interactions with demographics, SES, personality, and family structure.

Social level

The social level of influence incorporates the individual in the context of multiple groups. Family, peer, and school groups shape baseline social environments. The advocacy training group is also a social context, designed to improve youths' ability to participate in and change group interactions. Group norms are widely acknowledged to influence

behaviors and attitudes [67]. Therefore, group norms and expectations are expected to play an important role in advocacy and health behavior change processes in the present model. In fact, the Task Force on Community Preventive Services [27] found strong evidence for community-wide informational campaigns and social support interventions as effective for increasing physical activity. The community SES factors that surround people's lives cannot be underestimated when considering people's opportunities, motivations, and resources to engage in advocacy and health behaviors [7]. Thus, social level factors can also be important mediators of advocacy outcomes.

For most of the social elements in the model, such as social support, social capital, and group norms, there are several levels of influence, including peer, family, and neighborhood. Youth group characteristics include group structure and climate, group cohesion, collective efficacy, group resiliency, sense of purpose, levels of and opportunities for responsibility, commitment to the group, length of time the group has been in existence, outcome expectancy, and decision-making processes (for definitions, see

[20, 23, 25]). The adult group leader characteristics can influence group success, including personality, intensity of their participation, funding and support climate, and level of experience [20, 25].

Built environment level

The built environment level encompasses neighborhood characteristics and broader contexts of organizations, communities, states, and countries [56]. There is a strong and growing literature about the influence of the built environment on obesity and health [7, 27, 55]. Considering the strong built environment recommendations from authoritative groups [32, 33, 48, 73], the model highlights features in this level that are primary targets for advocacy actions.

Several built environment features have been identified for promoting physical activity and nutrition behaviors [54]. For instance, neighborhood walkability includes elements such as residential density, street connectivity, and mixed land use [52]. Other features of activity-friendly neighborhoods include positive aesthetics, transit opportunities, and proximity to parks [55]. High walkable neighborhoods are associated with increased walking and physical activity among residents [52, 57]. For youth especially, Safe Routes to School programs have been recommended for increasing active transportation and can be enhanced by safe walking infrastructure [6]. Proximity and condition of recreation facilities such as parks and trails are also associated with increased physical activity [26], particularly among youth [17].

In terms of nutrition environments, local food resources can impact people's eating habits. For instance, the presence of supermarkets in neighborhoods tends to be associated with lower BMI and higher intake of fruits and vegetables, while the presence of fast food restaurants is associated with poorer dietary quality [42, 54]. The cost of healthy versus less-healthy foods in neighborhoods is also related to weight status [65]. From the food advertising literature, it is clear that the promotional environment, including media messages, sign salience, location, and size, can have strong impacts on attitudes and behaviors [64]. In the school environment, physical education classes, supervision, recreation facilities on school grounds, school lunch quality, and vending machines have been targeted for changes to improve nutrition and physical activity outcomes [50].

Policy level

Policy and regulatory factors that influence advocacy and health behaviors (and/or obesity) are powerful and diverse. Laws and policies constrain or incentivize many of the daily choices that can contribute to obesity [40]. Laws "refer to formal legal structures established at the local, state, or

federal levels of government" [29], and policies are broader "statements of intent" that may exist at a formal or informal level [33, 60]. Policies guide the rules and structure for organizations, from government to community groups to families [29, 35]. While it is commonly agreed among health organizations that policy changes are necessary for obesity prevention, policies do not always follow from evidence in public health or prevention [10, 35].

Policy inputs involve the baseline conditions, such as levels of government, representation, and the political climate/opposition forces [40]. The policy level can be thought of as having two large sub-levels: legislative and organizational. The legislative level includes federal, state, and local government representation, whereas the organizational level involves smaller groups like workplaces, corporations, schools, and community groups [35, 60]. Important indicators include strength of policy, specificity of policy, policy adoption, policy implementation, and policy sustainability [5, 10, 38].

Within the legislative level, policy targets proposed for combating obesity through nutrition change are improving school lunch quality, increasing taxation of minimally nutritious foods, (e.g., sugar-sweetened beverages), subsidizing fruits and vegetables, promoting nutrition information in restaurants, and limiting food advertising toward children [27, 39, 43, 48]. On the physical activity side, policy targets include improving school physical education, funding for youth recreation programs, physical activity infrastructure in communities (e.g., parks, trails, sidewalks), support for pedestrian- and bicycle-friendly transit options, and improving public safety in neighborhoods [8, 27, 32, 39, 48]. At the organizational policy level, advocacy can impact programs to increase physical activity and improve nutrition behaviors, alter food and physical activity environments, and change incentives for the organization's members.

CHALLENGES TO YOUTH ADVOCACY

Challenges inherent in the youth advocacy process include that advocacy efforts can be slow and ineffective if done without sufficient financial and social support [19]. Several questions arise, such as: How will these projects be funded? Who will be sustainable and enthusiastic advocacy organizers or trainers? Influential and open-minded adults will certainly play an important role in organizing these efforts and effectively channeling the group energy. Some of these co-participants might include adult group leaders, teachers, school administrators, PTA members, after-school club leaders, and coaches, to name a few. How will youth advocates be recruited, and in which settings are youth advocacy programs most likely to be sustained? Based on preliminary observations and evaluations, some suggestions have emerged from ongoing work (eYEAH!) [1]. Incentivizing youth and adults in the group can

enhance ongoing participation. Other helpful components include peer support and involvement, adding culturally relevant and attractive activities, and reducing personal barriers by increasing awareness, self-efficacy, and empowerment. Advocacy efforts will be more likely to thrive if programs share experiences with each other and grow from collaboration. What are the best ways to coordinate across groups for citywide to nation-wide effects? Research is needed to help answer these questions. Will these advocacy programs focus extra attention on, and possibly increase stigma of, overweight and obese youth? Advocacy training should explicitly teach youth to avoid stigmatizing their overweight peers and ensure that youth of all sizes are welcomed to become advocates for healthier communities.

For obesity prevention efforts, process evaluation is particularly critical [12, 36, 58], given the lag between interventions and changes in health outcomes. However, as Linnan and Steckler [36] note, “The lack of a systematic approach to guiding process evaluation efforts causes another serious gap in current knowledge about process evaluation” (p. 9). Not surprisingly, best practices for evaluating youth advocacy for obesity prevention are not yet established. Evaluations of youth advocacy need to include not only process measures (context, reach, dose delivered, dose received, fidelity, implementation, and recruitment) [36], but also measures of changes in individuals, social factors, built environments, and policies.

The goal of advocacy evaluation is to determine what elements of the intervention work, for whom, under what conditions, and at what levels of influence [36]. Analysis of advocacy activities is inherently difficult, due to the wide variety of inputs and outcomes [36]. The model presented herein can guide evaluation efforts and assist in selecting indicators of process and outcome. While it is not realistic for investigators to study all factors in the model, the factors can be seen as flexible options for intervention and evaluation targets.

CONCLUSIONS AND NEXT STEPS

Youth advocacy for obesity prevention is a promising avenue for future action and research. It can potentially contribute to changes in physical activity and nutrition environments and policies that can impact youth obesity on a permanent basis. Advocacy will likely best be used as one of many tools in the fight against obesity. Participation in advocacy groups can bring the co-benefits mentioned earlier (e.g., confidence, mastery, leadership, new career choices), which adds to the rationale for promoting advocacy programs. Now is the time to encourage youth to become advocates. The knowledge base on individual, social, and neighborhood environments is solid and growing, and there is strong consensus that policy changes are necessary elements of a

comprehensive strategy to combat youth obesity. We encourage groups to advocate for evidence-based strategies and to select priorities tailored to their specific community’s needs.

There are several youth advocacy initiatives for obesity prevention emerging across the USA (San Diego County Childhood Obesity Initiative’s Youth Engagement and Action for Health (YEAH!) www.ourcommunityourkids.org; www.WereFedUp.com;) [59, 75], and some of these are being evaluated (www.activelivingresearch.org: Topic 5, e-YEAH!) [1]. Conducting process and outcome evaluations of youth advocacy for obesity prevention can generate evidence to add or delete elements at each level of influence and more specifically define the critical advocacy training elements and behaviors.

It is time that decision-makers begin to act on the evidence for obesity prevention, which necessitates increased policy research, inter-sectoral communication and translation, collaborative media use, and citizen participation [10, 22, 35, 38]. There are questions about how widespread and effective youth obesity prevention advocacy will become. This and other important questions will depend on organizational support for training, funding, and sources of effective leaders. Expanding upon tobacco prevention’s successes and harnessing the energy and conviction of youth, advocacy has the potential to contribute to reversing the epidemic of youth obesity.

Acknowledgments: Jennifer Kreslake, Neville Owen, Christine Edwards, Leslie Linton, Susan Woodruff, and Jordan Carlson are duly acknowledged.

1. Active Living Research: e-YEAH! and Topic 5 projects. Available at <http://www.activelivingresearch.org/>. Accessibility verified 11 April 2011.
2. Altman, D. G., & Feighery, E. C. (2004). Future directions for youth empowerment: Commentary on application of youth empowerment theory to tobacco control. *Health Ed & Behav*, 31, 641–647.
3. Balsano, A. B. (2005). Youth civic engagement in the United States: Understanding and addressing the impact of social impediments on positive youth and community development. *Applied Devel Sci*, 9, 188–201.
4. Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psych Rev*, 84, 191–215.
5. Birkland, T. A. (2010). *An Introduction to the Policy Process: Theories, Concepts, and Models of Policy Making* (2nd ed.). Armonk, NY: M.E. Sharpe.
6. Boarnet, M. G., Anderson, C. L., Day, K., McMillan, T., & Alfonso, M. (2005). Evaluation of the California Safe Routes to School legislation: Urban form changes and children’s active transportation to school. *American Journal of Preventive Medicine*, 28 (2 Suppl 2), 134–140.
7. Booth, S. L., Sallis, J. F., Ritenbaugh, C., et al. (2001). Environmental and societal factors affect food choice and physical activity: Rationale, influences, and leverage points. *Nutrition Reviews*, 59, S21–S36.
8. Brown, D. R., Heath, G. W., & Martin, S. L. (Eds.). (2010). *Promoting Physical Activity: A Guide for Community Action* (2nd ed.). Champaign, IL: Human Kinetics.
9. Brownell, K. D., & Warner, K. E. (2009). The perils of ignoring history: Big Tobacco played dirty and millions died. How similar is Big Food? *The Milbank Quarterly*, 87, 259–294.
10. Brownson, R. C., Royer, C., Ewing, R., & McBride, T. D. (2006). Researchers and policymakers: Travelers in parallel universes. *American Journal of Preventive Medicine*, 30, 164–172.
11. Carlisle, S. (2000). Health promotion, advocacy and health inequalities: A conceptual framework. *Health Promo Intl*, 15, 369–376.

12. Centers For Disease Control And Prevention (CDC). (1999). Framework for program evaluation in public health. *MMWR*, 48, 1–58.
13. Chapman, S. (2004). Advocacy for public health: A primer. *J Epi Comm Health*, 58, 361–365.
14. Chinman, M. J., & Linney, J. A. (1998). Toward a model of adolescent empowerment: Theoretical and empirical evidence. *J Primary Prev*, 18, 393–413.
15. Dalrymple, J. (2005). Constructions of child and youth advocacy: Emerging issues in advocacy practice. *Children & Society*, 19, 3–15.
16. Davis, M. M., Gance-Cleveland, B., Hassink, S., Johnson, R., Paradis, G., & Resnicow, K. (2007). Recommendations for prevention of childhood obesity. *Pediatrics*, 120(Suppl 4), S229–S253.
17. Davison, K. K., & Lawson, C. T. (2006). Do attributes in the physical environment influence children's physical activity? A review of the literature. *Int J Behav Nutr Phys Activ*, 3, 19.
18. Daynard, R. A. (2003). Commentary: Lessons from tobacco control for the obesity control movement. *J Pub Health Policy*, 24, 291–295.
19. Economos, C. D., Brownson, R. C., DeAngelis, M. A., et al. (2009). What lessons have been learned from other attempts to guide social change? *Nutrition Reviews*, 59, S40–S56.
20. Evans, W. D., Ulasevich, A., & Blahut, S. (2004). Adult and group influences on participation in youth empowerment programs. *Health Ed & Behav*, 31, 564–576.
21. Finucane, M. M., Stevens, G. A., Cowan, M. J., et al. (2011). National, regional, and global trends in body mass index since 1980: Systematic analysis of health examination surveys and epidemiological studies with 960 country-years and 9.1 million participants. *Lancet*, 377, 557–567.
22. Glasgow, R. E., Lichtenstein, E., & Marcus, A. C. (2003). Why don't we see more translation of health promotion research to practice? Rethinking the efficacy-to-effectiveness transition. *Am J Pub Health*, 93, 1261–1267.
23. Holden, D. J., Crankshaw, E., Nimsch, C., Hinnant, L. W., & Hund, L. (2004). Quantifying the impact of participation in local tobacco control groups on the psychological empowerment of involved youth. *Health Ed & Behav*, 31, 615–628.
24. Holden, D. J., Evans, W. D., Hinnant, L. W., & Messeri, P. (2005). Modeling psychological empowerment among youth involved in local tobacco control efforts. *Health Ed & Behav*, 32, 264–278.
25. Holden, D. J., Messeri, P., Evans, W. D., Crankshaw, E., & Ben-Davies, M. (2004). Conceptualizing youth empowerment within tobacco control. *Health Ed & Behav*, 31, 548–563.
26. Kaczynski, A. T., & Henderson, K. A. (2007). Environmental correlates of physical activity: A review of evidence about parks and recreation. *Leisure Sci*, 29, 315–354.
27. Kettel Khan, L., Sobush, K., Keener, D., et al. (2009). Recommended community strategies and measurements to prevent obesity in the United States. *MMWR*, 58, 1–26.
28. Kim, S., Crutchfield, C., Williams, C., & Hepler, N. (1998). Toward a new paradigm in substance abuse and other problem behavior prevention for youth: Youth development and empowerment approach. *J Drug Ed*, 28, 1–17.
29. King, A. C., Jeffery, R. W., Fridinger, F., et al. (1995). Environmental and policy approaches to cardiovascular disease prevention through physical activity: Issues and opportunities. *Health Ed & Behav*, 22, 499–511.
30. Klein, J. D., & Dietz, W. (2010). Childhood obesity: The new tobacco. *Health Affairs*, 29, 388–392.
31. Koplan, J. P., & Dietz, W. H. (1999). Caloric imbalance and public health policy. *JAMA*, 282, 1579–1581.
32. Koplan, J. P., Liverman, C. T., & Kraak, V. I. (2005). *Preventing Childhood Obesity: Health in the Balance*. Washington, DC: National Academies Press.
33. Kumanyika, S. K., Obarzanek, E., Stettler, N., et al. (2008). Population-based prevention of obesity: The need for comprehensive promotion of healthful eating, physical activity, and energy balance: A scientific statement from American Heart Association Council on Epidemiology and Prevention, Interdisciplinary Committee for Prevention (Formerly the Expert Panel on Population and Prevention Science). *Circulation*, 118, 428–464.
34. Lakin, R., & Mahoney, A. (2006). Empowering youth to change their world: Identifying key components of a community service program to promote positive development. *J School Psych*, 44, 513–531.
35. Lawrence, M., & Swinburn, B. (2010). The role of policy in preventing childhood obesity. In E. Waters, B. Swinburn, J. Seidell, & R. Uauy (Eds.), *Preventing Childhood Obesity: Evidence, Policy, and Practice* (pp. 203–211). Oxford, UK: Wiley-Blackwell.
36. Linnan, L., & Steckler, A. (2002). Process evaluation for public health interventions and research: An overview. In *Process Evaluation for Public Health Interventions and Research* (pp. 1–24). San Francisco: Wiley.
37. Martin, J. (2010). The role of advocacy. In E. Waters, B. Swinburn, J. Seidell, & R. Uauy (Eds.), *Preventing Childhood Obesity: Evidence, Policy, and Practice* (pp. 192–200). Oxford, UK: John Wiley and Sons.
38. McGinnis, J. M., Williams-Russo, P., & Knickman, J. R. (2002). The case for more active policy attention to health promotion. *Health Affairs*, 21, 78–93.
39. Mello, M. M., Studdert, D. M., & Brennan, T. A. (2006). Obesity—the new frontier of public health law. *NEJM*, 354, 2601–2610.
40. Mermin, S. E., & Graff, S. K. (2009). A legal primer for the obesity prevention movement. *Am J Pub Health*, 99, 1799–1805.
41. Miech, R. A., Kumanyika, S. K., Stettler, N., Link, B. G., Phelan, J. C., & Chang, V. W. (2006). Trends in the association of poverty with overweight among US adolescents, 1971–2004. *JAMA*, 295, 2385–2393.
42. Morland, K., Diez Roux, A. V., & Wing, S. (2006). Supermarkets, other food stores, and obesity: The Atherosclerosis Risk In Communities study. *Am J Prev Med*, 30, 333–339.
43. Nestle, M., & Jacobson, M. F. (2000). Halting the obesity epidemic: A public health policy approach. *Pub Health Reports*, 115, 12–24.
44. Office of the Surgeon General (2001). The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity. Rockville, MD: U.S. Department of Health and Human Services. Available at <http://www.surgeongeneral.gov/topics/obesity/>. Accessibility verified 10, April 2011.
45. Ogden, C. L. (2002). Prevalence and trends in overweight among US children and adolescents, 1999–2000. *JAMA*, 288, 1728–1732.
46. Ogden, C. L., Carroll, M. D., Curtin, L. R., Lamb, M. M., & Flegal, K. M. (2010). Prevalence of high body mass index in US children and adolescents, 2007–2008. *JAMA*, 303, 242–249.
47. Ogden, C., Carroll, M. Prevalence of obesity among children and adolescents: United States, trends 1963–1965 through 2007–2008. Data provided by Center for Disease Control/National Center for Health Statistics. Available at http://www.cdc.gov/nchs/data/hestat/obesity_child_07_08/obesity_child_07_08.htm/. Accessibility verified 16 March 2011.
48. Parker, L., Burns, A. C., & Sanchez, E. (2009). *Local Government Actions to Prevent Childhood Obesity*. Washington, DC: National Academies Press.
49. Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking: Toward an integrative model of change. *J Cons and Clin Psych*, 51, 390–395.
50. Prosser, L., Visscher, T. L. S., Doak, C., & Moreno, L. A. (2010). Obesity prevention in primary school settings: Evidence from intervention studies. In E. Waters, B. A. Swinburn, J. C. Seidell, & R. Uauy (Eds.), *Preventing Childhood Obesity: Evidence, Policy, and Practice* (pp. 88–93). Oxford, UK: Wiley-Blackwell.
51. Ribisl, K. M., Steckler, A., Linnan, L., et al. (2004). The North Carolina Youth Empowerment Study (NCYES): A participatory research study examining the impact of youth empowerment for tobacco use prevention. *Health Ed & Behav*, 31, 597–614.
52. Saelens, B. E., & Handy, S. L. (2008). Built environment correlates of walking: A review. *Medicine and Science in Sports and Exercise*, 40(7 Suppl), S550–S566.
53. Sallis, J. F., Cervero, R. B., Ascher, W., Henderson, K. A., Kraft, K. A., & Kerr, J. (2006). An ecological approach to creating active living communities. *Ann Rev Pub Health*, 27, 297–322.
54. Sallis, J. F., & Glanz, K. (2009). Physical activity and food environments: Solutions to the obesity epidemic. *The Milbank Quarterly*, 87, 123–154.
55. Sallis, J. F., Millstein, R. A., & Carlson, J. A. (2011). Physical activity: Keeping active. In A. L. Dannenberg, H. Frumkin, & R. Jackson (Eds.), *Making Healthy Places: A Built Environment for Health, Well-Being and Sustainability* (pp. 33–49). Washington, DC: Island.
56. Sallis, J. F., Owen, N., & Fisher, E. B. (2008). Ecological models of health behavior. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health Behavior and Health Education: Theory, Research, and Practice* (4th ed., pp. 465–486). San Francisco: Jossey-Bass.
57. Sallis, J. F., Saelens, B. E., Frank, L. D., et al. (2009). Neighborhood built environment and income: Examining multiple health outcomes. *Social Science & Medicine*, 68, 1285–93.
58. Samuels & Associates. Healthy Eating Active Communities: Phase 1 evaluation findings 2005–2008. Available at http://www.healthyeatingactivecommunities.org/evaluation_findings.php. Accessibility verified 30 October 2010.
59. San Diego County Childhood Obesity Initiative. Our Community Our Kids: Youth Engagement and Action for Health! Project (YEAH!). Available at <http://www.ourcommunityourkids.org/>. Accessibility verified 11 February 2010.
60. Schmid, T. L., Pratt, M., & Howze, E. (1995). Policy as intervention: Environmental and policy approaches to the prevention of cardiovascular disease. *Am J Pub Health*, 85, 1207–1211.

61. Schmid, T. L., Pratt, M., & Witmer, L. (2006). A framework for physical activity policy research. *J Phys Activ and Health*, 3(Suppl 1), S20–S29.
62. Shilton, T. (2006). Advocacy for physical activity-from evidence to influence. *Promotion & Education*, 13, 118–126.
63. Spear, B. A., Barlow, S. E., Ervin, C., et al. (2007). Recommendations for treatment of child and adolescent overweight and obesity. *Pediatrics*, 120(Suppl. 4), S254–S288.
64. Story, M., & French, S. (2004). Food advertising and marketing directed at children and adolescents in the US. *Int J Behav Nutr Phys Activ*, 1, 3.
65. Sturm, R., & Datar, A. (2005). Body mass index in elementary school children, metropolitan area food prices and food outlet density. *Pub Health*, 119, 1059–1068.
66. Tencati, E. (2002). Teens as advocates for substance use prevention: Strategies for implementation. *Health Promo Practice*, 3, 18–29.
67. Terry, D. J., & Hogg, M. A. (1996). Group norms and the attitude-behavior relationship: A role for group identification. *Personal and Soc Psych Bull*, 22, 776–793.
68. Wallerstein, N., & Sanchez-Merki, V. (1994). Freirian praxis in health education: Research results from an adolescent prevention program. *Health Ed Res*, 9, 105–118.
69. Wilson, N., Minkler, M., Dasho, S., Wallerstein, N., & Martin, A. C. (2008). Getting to social action: The Youth Empowerment Strategies (YES!) project. *Health Promo Practice*, 9, 395–403.
70. Winkleby, M. A., Feighery, E. C., Altman, D. A., Kole, S., & Tencati, E. (2001). Engaging ethnically diverse teens in a substance use prevention advocacy program. *Am J Health Promo*, 15, 433–436.
71. Winkleby, M. A., Feighery, E., Dunn, M., Kole, S., Ahn, D., & Killen, J. D. (2004). Effects of an advocacy intervention to reduce smoking among teenagers. *Archives of Pediatrics & Adolescent Med*, 158, 269–275.
72. World Health Organization (WHO). (1995). *Advocacy Strategies for Health and Development: Development Communication in Action*. Geneva: World Health Organization.
73. World Health Organization (WHO) (2004). *Global Strategy on Diet, Physical Activity and Health*. Geneva: World Health Organization. Available at <http://www.who.int/dietphysicalactivity/en/>. Accessibility verified 15 September 2010.
74. Yach, D., McKee, M., Lopez, A. D., & Novotny, T. (2005). Improving diet and physical activity: 12 lessons from controlling tobacco smoking. *BMJ*, 330, 898–900.
75. Youth Activism Against Obesity: We're Fed Up - It Takes Guts to Fight Obesity. Available at <http://www.werefedup.com/>. Accessibility verified 7 January 2010d.
76. Zimmerman, M. A. (1990). Taking aim on empowerment research: On the distinction between individual and psychological conceptions. *Am J Commun Psych*, 18, 169–177.
77. Zimmerman, M. A., & Rappaport, J. (1988). Citizen participation, perceived control, and psychological empowerment. *Am J Comm Psych*, 16, 725–750.