LITERATURE REVIEW

Policy Options to Support Physical Activity in Schools

François Lagarde, MA, Claire M.A. LeBlanc, MD, FRCPC

ABSTRACT

Rates of child and youth obesity and associated chronic diseases are rising worldwide, in part as a result of inadequate physical activity (PA) levels. Environmental change is needed in multiple settings to encourage the adoption of healthy lifestyle behaviours at an early age. Schools are an ideal setting in which to incorporate a variety of interventions in order to improve student PA levels and healthy eating environments. This paper reviews effective and promising policies for increasing PA levels in the school setting and introduces other untested interventions that could become the basis of future well-designed studies. Policies outlined in this review should be considered by a range of stakeholders and be carefully monitored and evaluated. These policies should include daily, quality, safe physical education and physical activity; extracurricular physical activity; training of physical activity leaders; active transportation to and from school; adequate facilities; and community outreach. Successful school initiatives and stakeholders should also be recognized formally for their contribution.

Key words: Policies; physical activity; school

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hysical activity (PA) has been demonstrated to be an effective way to improve health and prevent the leading causes of death, disease and disability. One of the reported determinants of childhood obesity and associated chronic diseases is a lack of adequate PA.

Indeed, over 50% of Canadian children are not active enough for optimal growth, and 90% do not achieve 90 minutes of moderate-to-vigorous PA per day. The 2007-2009 Canadian Health Measures Survey demonstrates inadequate PA levels, revealing that youth have a greater mean body mass index, waist circumference and skinfold measurement as well as lower levels of fitness than they did in 1981. Many factors may underlie lower PA levels, including greater access to sedentary ways to enjoy leisure time (television, video games), lower rates of active transportation, which may be partially due to urban design, perceived unsafe environments for outdoor play and pressures on schools to place a greater emphasis on academic achievement at the expense of physical education. In 2000, a school health study looked at a nationally representative sample of private and public schools and found that only 8% of US elementary schools, 6.4% of middle schools and 5.8% of high schools with existing physical education (PE) requirements provided daily PE classes for all grades for the entire year. Internationally, physical education appears to have lost much ground over recent years. Quantified, this loss amounts to 15%-20% of weekly time allocation, resulting from cost reductions or space making for more academic or new school subjects. In many countries, there is a clear discrepancy between curricular demands and actual practice. Unsatisfactory infrastructure, lack of equipment, inadequate financial resources, poor attainment of the goals set, low qualification of teachers, over-sized classes and other problems exist.

Some benefits of PA during childhood include weight reduction and improvements in lipid profiles, insulin sensitivity, self-esteem and self-concept. Several studies suggest that PA does not compromise academic performance and can, instead, have a positive impact on it and on cognitive functioning.

Like other healthy behaviours, PA should be initiated during early childhood. This needs to be fostered by social and political policies. Schools are one of the most critical settings for promoting physical activity among children and youth, since schools reach a high proportion of the pediatric age group in both high- and low-income countries. However, appropriate policies are necessary to provide children and youth the necessary opportunities to adopt regular physical activity.

This article aims to guide policy-makers at the national and sub-national levels in the development and implementation of interventions that promote physical activity in the school setting. It includes studies published in a recent review of the appropriate literature up to 2005.

For the purposes of this document, policy can be defined as a formal statement or procedure within institutions (notably government) that defines priorities and the parameters for action in response to health needs, available resources and other political pressures. Additionally, physical activity is defined as any bodily movement produced by skeletal muscles causing energy expenditure. At school, PA includes participating in physical education, recreation and dance programs, school athletics and active play during recess; walking or cycling to and from school; and extracurricular opportunities that offer physical activities during leisure time (e.g., intramurals, interschool sports, clubs). Physical educa-

Author Affiliations
1. Social Marketing Consultant and Adjunct Professor, Department of Health Administration, Faculty of Medicine, University of Montreal, Montreal, QC
2. Associate Professor, Department of Pediatrics, Faculty of Medicine, University of Alberta, Edmonton, AB
Correspondence and reprint requests: François Lagarde, 5 Oriole St., Kirkland, QC H9H 4S2, Tel.: 514-694-7129, E-mail: flagarde@videotron.ca
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tion programs “offer the best opportunity to provide physical activity to all children and to teach them the skills and knowledge needed to establish and sustain an active lifestyle.”19 The school setting also provides the opportunity to introduce programs and an environment aimed at reducing sedentary behaviour.15,20

METHODS

A recent review of the scientific literature to 2005 revealed a number of effective school-based interventions that improved student PA levels, fitness scores and obesity measures.15 Some of these interventions have already been used as a basis to improve school health policy. A subsequent standard review of the literature using data sources from MEDLINE, Pubmed, HealthSTAR, CINAHL, Eric, SCOPUS and PsychInfo was performed to identify additional school-based PA research, reviews, interventions, programs and policy recommendations published from 2005 to 2007. All articles with the following search terms were included: school, physical activity, policy, practice, obesity, fitness, school health, physical education, sport, gym. These two reviews formed the basis of the evidence for school-based policies in this paper. This information is captured in two tables based on effective or promising evidence or lack of evidence to support the proposed policy (see Results).


RESULTS

Summary of literature search

Effective and Promising Policies

In order to capture the existing scientific basis for various school PA policies, a table of evidence has been created (Table 1). In this table, the policies listed are either Effective, whereby the interventions “were tested in one or more well-designed, controlled, prospective studies and found to affect physical activity behaviour” or Promising, whereby the rationale behind the policy was supported in one or more well-designed prospective or cross-sectional studies.26

Untested Policies

Untested policies and their rationales are those that have not been rigorously tested in prospective or cross-sectional studies. Many of them come from various guides and incorporate ideas from stakeholders who have a good working knowledge of school infrastructure. These ideas often show great promise in a small-scale setting and could become the basis for future well-designed studies. Integrated in Table 2 are untested recommendations.26

Knowledge gaps

Multifaceted school-based programs that focus on increasing PA are an integral part of the creation of healthy school communities. While the current literature identifies many school-based interventions that benefit children and youth, the WHO has identified other strategies requiring further study.68 These include the development of methods to promote physical activity for children with disabilities in schools. More ethnic- and gender-specific tactics that adequately involve the adolescent population during and outside of school hours in rural and urban settings are needed. Given the rising rates of overweight in preschoolers worldwide, daycare and school-community PA programs addressing this age group should be developed. It is first essential to determine the recommended

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Table 1. Effective and Promising Policies for Physical Activity in Schools

<table>
<thead>
<tr>
<th>Policy Area</th>
<th>Policy Option</th>
<th>Evidence</th>
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<tbody>
<tr>
<td>Daily, quality, safe physical education</td>
<td>Raise the quantity of physical education in schools, aiming for daily physical education throughout the school year.</td>
<td>Effective10-12</td>
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<td></td>
<td>Provide a variety and choice of physical activities that meet specific needs for all children and youth (recognizing age, development, disability and gender).</td>
<td>Effective12-14</td>
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<td></td>
<td>Ensure that students are physically active for a large percentage of physical education class time.</td>
<td>Effective15-17</td>
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<td></td>
<td>Determine the minimum level of qualifications that physical education teachers and physical activity leaders should have.</td>
<td>Effective18-20</td>
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<tr>
<td>Daily, quality, safe physical activity</td>
<td>Integrate physical activity into other curricula and provide appropriate training of educators, as well as support for implementation.</td>
<td>Effective12,19-41, Promising42-44</td>
</tr>
<tr>
<td></td>
<td>Integrate the physical, psychological and social health benefits of physical activity, as well as actual learning methods in various school curricula beyond the physical education class.</td>
<td>Effective17,45-47, Promising48-50</td>
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<td>Extracurricular physical activity</td>
<td>Provide a variety of physical activity opportunities, such as sports, non-competitive recreation, active recess (preferably outdoors) and active play through intramural and interscholastic activities that meet the needs, interests and abilities of all students and that do not substitute for physical education.</td>
<td>Effective11,32,49-51, Promising43-45</td>
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<td>Training</td>
<td>Provide physical education teachers and physical activity leaders, as well as all other teachers and school staff, with adequate, regular and appropriate training to establish quality and safe physical education and physical activity programs.</td>
<td>Effective12,18</td>
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<td>Active transportation to and from school</td>
<td>Ensure that there is safe walking and cycling to school.</td>
<td>Promising52-54</td>
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<td>Facilities</td>
<td>Provide funding to ensure that adequate facilities and equipment are available for physical activity, including bike racks.</td>
<td>Effective12,55-57, Promising58-60</td>
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<td>Community outreach</td>
<td>Establish partnerships with municipalities and children/youth organizations to optimize use of school and community facilities such that community members access schools after hours and students have community-based physical activity opportunities (recreation centres, playgrounds and parks) during school hours.</td>
<td>Effective12,59-61, Promising62-63</td>
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The successful adoption, implementation and monitoring of the interventions outlined in this article will require the involvement and cooperation of numerous stakeholders: governments, school personnel, students, parents, health professionals, non-governmental organizations, the planning community, private sector, media and the academic community. Their respective and complementary responsibilities should cover the following roles: advocacy, intersectoral collaboration to build the capacity of health and education systems to work together, as well as program and policy development, implementation and evaluation.

The WHO encourages Member States to create policy that adequately addresses school health. This should include the promotion of PA before, after and during school hours for students, teachers and others working in this setting. Jurisdictions engaged in the further development of policies supporting PA in schools are strongly encouraged to establish a monitoring and evaluation framework. As part of the Global Strategy on Diet, Physical Activity and Health, the WHO has developed such a framework.

**CONCLUSION**

The current chronic diseases associated with obesity present all nations with unprecedented public health challenges that have been underestimated and inadequately addressed by decision-makers worldwide. The rising rates of childhood obesity and associated co-morbidities will significantly accentuate this burden of ill health unless sufficient strategies are adopted in a timely manner.

An important strategy to reversing these trends is to return to a more physically active society. Environmental modifications encouraging PA should be implemented early in childhood to support positive lifelong habits. This article outlines a wide range of interventions incorporated into the school setting that are effective in increasing student physical activity levels, health and well-being. Broad-based, multifaceted programs are urgently needed to achieve such outcomes. An effective school PA framework will require an implementation plan early in the process with dedicated resources as well as a validated evaluation strategy. Given the
challenges, the input from an extensive range of stakeholders at the national and subnational levels will be essential to achieve these goals.

REFERENCES


53. Rosenberg DE, Sallis JF, Conway TL, Cain KL, McKenzie TL. Active transportation to school over 2 years in relation to weight status and physical activity. *Obesity (Silver Spring)* 2006;14(10):1771-76.


