



Mandatory Daily Physical Activity Programs for Grade 10 to 12 Students in British Columbia, Canada

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Abstract

Objective: This investigation examined 10th through 12th grade high school students' physical activity behaviour patterns as they relate specifically to the Daily Physical Activity (DPA) requirements mandated by the British Columbia Ministry of Education in 2008.

Methods: Compliance, as well as non-compliance, to the DPA program was measured through the use of a questionnaire-based survey of 86 10th to 12th grade students which focused not only on adherence to the guidelines, but also on: issues of non-compliance; how to positively influence physical activity; suggestions for improving the DPA program; support systems in place for those who might be struggling with meeting DPA requirements; and what happens (e.g., consequences to students' grades, etc.) when DPA requirements are not met.

Results: Results of the study suggest that, for the most part, students are meeting the DPA requirement of 150 min per week. In addition, 89% of respondents believed that school-based programs were adequate. However 7% of survey participants suggested that schools should offer a wider variety of activities, and 3% suggested that home and community-based opportunities for DPA were less than sufficient. More than half of students confirm their parents do not support or encourage physical activity, and 25% of respondents stated that teachers do not urge them to exercise or participate in sports. In both cases, males were encouraged less, with 29% of parents and 71% of teachers promoting physical activity as opposed to 55% and 80% respectively. Lastly, approximately 80% of survey respondents noted the value of exercising with a friend.

Conclusions: Although the quality of Physical Education is often under attack, schools are also capable of providing opportunities for increased physical activity in numerous settings outside of regularly scheduled gym class and they are the most logical environment for promoting physical activity. Consequently, the Daily Physical Activity program implemented in schools across British Columbia has the potential to drastically influence the health of students throughout the province. Although this study only provided a tiny snapshot of physical activity patterns, results indicate that, for the most part, students are meeting DPA requirements, and the program has been generally well received.

Keywords: Young people; Daily physical activity promotion; Physical education and policy; Physical activity interventions; Mandated physical activity

Introduction

In response to increasing levels of obesity amongst Canadian children, the (British Columbia) B.C. Ministry of Education mandated physical activity requirements for students in all grades as of September 2008. This, in large part, was due to the key role of physical activity in reducing obesity levels amongst school-aged children [1]. The benefits of an active, healthy lifestyle are well documented. Students who are active on a daily basis are less likely to be obese, and also do better in school than their inactive counterparts [2]. Furthermore, active, healthy students are not only happier and learn better, they develop positive habits which can contribute to longer, healthier lives [3]. In addition, the risks of an inactive lifestyle are equally well known. One in every four children in B.C. (British Columbia) between the ages of two and 17 is overweight or obese [4]. Moreover, three out of five school-aged children in Canada are not

active enough for optimal growth and development [5]. With substantive evidence to corroborate the fact that physical activity is essential to the healthy development of children and youth, the recently mandated Daily Physical Activity (DPA) program confirmed the government's commitment to increasing the health and wellness of young British Columbians. Daily Physical Activity is defined as endurance, strength and/or flexibility activities done on a daily basis.

In Kindergarten, schools will offer 15 min of Daily Physical Activity for half-day Kindergarten, and 30 min of Daily Physical Activity for full-day Kindergarten, as part of students' educational program. For Grades 1-7, schools will offer 30 min of Daily Physical Activity as part of students' educational program. Schools will have the flexibility to provide 30 min of Daily Physical Activity as part of students' educational program or students must document and report 150 min per week of physical activity at a moderate to vigorous intensity for Grades 8-9. Schools will determine which requirement (i.e. 30 min daily or 150 min weekly) is completed by Grade 8 and 9 students. Students in Grades 10-12 must document and report a minimum of 150 min per week of physical activity, at a moderate to vigorous

intensity. The Daily Physical Activity requirement is separate from and additional to regular school-based class.

Strategies for administering physical activity programs in addition to school Physical Education (P.E.) have been implemented on an international level [6-9]. Several school-based Daily Physical Activity programs, in addition to regularly scheduled school PE, have been implemented in Canada as well. These include Alberta's Daily Physical Activity strategy which commenced in 2005, Ontario's Daily Physical Activity program introduced in 2006, and British Columbia's Daily Physical Activity initiative in 2008. While Alberta's DPA initiative is aimed at students in grades 1-9, Ontario's is for those in grades 1-8, and B.C.'s program targets all students from kindergarten to grade 12 [10].

Although these types of programs are to be commended there has been no structured investigation of the quality of Daily Physical Activity strategies within British Columbia. To date, no one has attempted to formally acquire and extract meaningfulness from data on the degree to which B.C.'s Daily Physical Activity initiatives are effective. Since Daily Physical Activity requirements for school-aged children in British Columbia have been mandated in 2008, an investigation of the multiple factors which potentially contribute to compliance of this program is still in its infancy. Consequently, both the quantity and quality of information available on adherence as well as strategies for enhancing adherence is currently very limited. Furthermore, as the frequency and duration of physical activity amongst school-aged children is lowest during their senior years, this study aims to evaluate the effectiveness of the B.C. Ministry of Education's Daily Physical Activity program by examining how well students in grades 10-12 are adhering to the recently mandated physical activity guidelines [11]. The low physical activity levels are due, at least in part, to the fact that 10th grade is the final grade level which physical education is mandatory and must be obtained to meet the minimum requirements for receiving a high school graduation diploma [4]. Moreover, this investigation is concerned not only with physical activity levels, but also non-compliance of the daily physical activity program by students. One of the goals is to gain deeper insight into why grade 10-12 students might not be adhering to the program, as well as what might be done to positively influence behaviour and enhance compliance. How much support is provided for those students who might be struggling with the physical activity requirements? In addition, what happens (e.g., consequences to students' grades, etc.) when daily physical activity requirements are not met?

Methods

Data were collected, analyzed, and interpreted for the purpose of gaining insight into student's attitudes toward the current Daily Physical Activity program through participants' eyes and voices. As people are usually much more willing to adopt recommendations from projects for which they provide personal input, it is of utmost importance to hear from those who would be directly impacted by any modifications to the existing program [12]. This assisted in amassing rich, thick, detailed information and descriptions which minimized prejudice, partiality and subjective bias [13]. Moreover, students should have an opportunity to structure the type of Daily Physical Activity programs they participate in [14]. This would enhance the likelihood of successful buy-in to any resulting changes [4]. Although it was beyond the scope of this study to investigate all factors which could potentially contribute to students' physical activity patterns, it was anticipated that a deeper understanding of their physical activity

behaviour would provide critical insight into potentially viable interventions which could conceivably assist in the development and delivery of successful Daily Physical Activity programs. To date, there are limited quality data in this area.

The study utilized a standardized questionnaire-based survey methodology [15]. According to Shephard, questionnaires are the most feasible method of assessing habitual physical activity patterns [16]. Simple, clear, unambiguous language was used and individual questions were peer-reviewed by specialists to ensure validity. In addition, questionnaires were carefully scrutinized for items that could have potentially resulted in participant bias. Furthermore, all participants received identical questions in the same format and responses were documented in a consistent manner to increase reliability [17]. Students from grades 10 to 12 were surveyed with a 22 item questionnaire, and the instrument consisted of entirely open-ended questions which asked participants to formulate their own answers. Approximately 2.5 cm of space was provided at the end of each question to encourage longer, richer, more detailed responses with respect to students' Daily Physical Activity patterns, as well as various factors that might be sabotaging their adherence [18]. Providing additional space for respondent comments also helps diminish the problem of overestimating responses while providing additional clarifying information [19]. Obtaining data of this nature may ultimately assist in structuring Daily Physical Activity programs, which will hopefully help children make regular physical activity part of their lifestyle [20].

Schools were contacted by the principle investigator, and participants were recruited directly by the school principal using purposive sampling with the goal of maximizing information. In-depth standardized questionnaires were administered during the Spring of 2016 to 86 (29 male and 57 female) 10th to 12th grade students from one urban high school located in the Fraser Valley region of British Columbia, Canada. There were sixty-two 10th grade respondents (22 male and 40 female), fourteen 11th grade students (4 male, 10 female), and ten 12th grade participants (3 male, 7 female). Student questionnaires (which required approximately 20 min to complete) were administered by teachers during class time, and the teacher invigilating did not walk around the room looking over students' shoulders or reading students' responses. Furthermore, teachers did not assist students in any form during the administration of the questionnaire; including aiding in the interpretation of a word, phrase, sentence, or question. In addition to describing their physical activity levels, students were also allowed to express their own feelings about specific items at the end of each question.

Data analysis

Questionnaires consisted of 22 items. While all questions focused on physical activity behaviour patterns (e.g., what type of physical activity students currently engage in, how often, time of day and for how long), 11 questions emphasised students' reasons for non-compliance to the DPA program, as well as what might be done to positively influence behaviour and enhance compliance. Furthermore, five of the 22 questions examined support systems in place for students who might be struggling with DPA requirements, and one question specifically asked what happened (e.g., consequences to students' grades, etc.) when Daily Physical Activity requirements are not met.

The initial stage of data analysis involved categorizing responses to questionnaires according to: Daily Physical Activity patterns within a school-based, as well as non-school-based environment; strategies for

improving the Daily Physical Activity program to positively influence behaviour and enhance compliance; non-compliance of the Daily Physical Activity program; support systems for students who might be struggling with physical activity requirements; what happens (e.g., consequences to students' grades, etc.) when Daily Physical Activity requirements are not met. Following the sub-division of questionnaire items, a subsequent phase entailed analyzing data for recurrent responses amongst participants' as well as patterns and themes. Themes emerged not only from participants' responses, but also from descriptions at the bottom of each question which provided unifying concepts related to students' physical activity behaviour patterns [21]. Moreover, a cross-analysis was employed to locate common themes across participants.

Results

Eighty-six (29 male and 57 female) 10th to 12th grade students participated in this survey, and responses were sub-divided according to the categories described in the data analysis section of this paper. Interestingly, students completed an average of 426 min of physical activity per week. Although 85% of students meet the minimum requirements of 150 min set by the British Columbia Ministry of Education, 15% of the students (4 male and 9 female) did not. This translated to a mean time of 219 min in endurance, 167 min on strength and 60 min performing flexibility related exercises per week respectively. In addition, 84% of the survey participants confirmed that the most common time for completing physical activity requirements was after school.

With respect to the provision of opportunities for DPA, 72% students believed that school-based programs were adequate; whereas 98% of respondents suggested that home and community-based opportunities were sufficient. Regarding the quality of school DPA, 28% of the students recommended that there be a greater range of sports and activities. Regarding the provision of support for those who might be experiencing difficulty with physical activity requirements, 51% of the students confirmed that their parents never encourage exercise or participation in sports, while 25% of respondents stated teachers do not urge them to be more physically active. In addition, 100% of the participants agreed that recording Daily Physical Activity appears to have minimal or no effect on students' behavior patterns. 10% reported using a journal, calendar or log book, 25% used an online recording system, and 65% noted that they did not record their Daily Physical Activity (DPA) relying on memory to recount their activity patterns. While the use of a formal recording system was not a factor in motivating students to complete Daily Physical Activity, exercising with friends significantly influenced DPA as 71% of respondents noted the beneficial effect of exercising with colleagues.

When asked about some of the main barriers to being more physically active, the most common theme (71%) amongst students was lack of time. Other relatively common responses included: laziness or lack of initiative (16%); lack of support (8%); lack of accessibility (cost, transportation, and facilities available) (5%). Regarding consequences when Daily Physical Activity requirements are not met, only one respondent commented that it would impact graduation. Two respondents commented that they would have to retake the class, while six additional students noted that it would impact their grade. Only one student included negative outcomes on their health. 43% of students commented that there were no consequences, i.e., their lack of physical activity being reflected on student records or transcripts) for not meeting the DPA.

Discussion

The study aimed to analyze physical activity behaviour patterns amongst 10th through 12th grade high school students specifically as they relate to the mandatory Daily Physical Activity requirements in British Columbia. A total of 86 students participated in this survey, and results indicate that students, for the most part (85% of respondents), more than satisfy the British Columbia Ministry of Education's requirement of 150 min per week. In a Daily Physical Activity Planning and Resource Guide (Kindergarten to Grade 12) published through the Healthy Families BC initiative, the Ministry of Education suggests the following school-based options in their section on implementing DPA for grades 10 to 12: "provincial courses such as PE 10-12; school sports teams; school clubs that include physical activity (e.g., martial arts or outdoor pursuits); independent or organized activity during lunch time or spare blocks; circuits (indoor or outdoor) set up for student use; supervised gym time available before and after school for "free-play" activity such as three-on-three basketball, badminton, running laps, weight training, Pilates, floor exercises etc." While the adequacy of school-based opportunities for DPA was reflected in 72% of students' responses, 28% of survey participants suggested that schools should offer a wider variety of activities. Perhaps there could be greater opportunities to partake in intramural sport programs, and for those who are less inclined to do sports, schools might encourage students to create their own activity club such as walking, jogging, stretch and strength, yoga. In addition, only 2% of survey participants noted that home and community-based options were less than sufficient. In this regard, students might pursue some form of active transportation (e.g., walking, cycling, skateboarding) to and from school, work, or other community activities. Schools could also promote creative, fun community-based activities such as: hiking or cycling; cross country skiing; mowing the lawn; walking the dog; swimming, skating, tennis, tai chi or other community recreation activities; kayaking or canoeing; stretching or working out while watching television; trying out Wii fitness; shoveling snow, chopping wood or raking leaves; playing on a community team or participating in informal games and activities with friends or family (e.g., basketball, Frisbee, hockey, soccer). Participating in physical activities with friends or family could be an effective strategy to enhance compliance amongst those students who are struggling with meeting DPA requirements, as approximately 71% of survey respondents noted the value of exercising with a companion. Lastly, some part-time jobs commonly done by students, such as delivering newspapers or stocking shelves also include a relatively large amount of physical activity.

Unfortunately, more than half (51%) of students confirm their parents do not support or encourage physical activity, and 25% of respondents stated that teachers do not urge them to exercise or participate in sports. This truly is regretful as the DPA Planning and Resource Guide provides detailed guidelines for teachers as well as administrators on promoting a healthy school culture. Perhaps administrators must be more adamant in directing teachers to encourage DPA amongst students. One of the suggestions includes modeling physical activity by partaking in students' DPA school-based options. Warren illustrates how this could be implemented [22]. The author describes a school environment conducive to supporting active and healthy living in a project aimed at engaging teachers and students in daily PA [22]. This particular school formed Wellbeing Strategic Teams and developed a structured toolkit to support teachers in not only providing, but participating in daily physical activity. Suggesting that BC teachers actively participate in students' DPA school-based

options could conceivably become a mandated responsibility of boards of education, as well as school authorities, and not simply a guideline.

Limitations

Given the unusually high incidence of decline by schools approached to participate in the study, a greater number of students were not included in the sample. The issue of schools refusing to participate requires some further probing and clarification. It is my belief that the unusually high rate of rejection could have been partly attributed to the recent unwelcome initiatives of the current political leadership on the education system in British Columbia. The province has been under the direction of a government which has implemented drastic cuts to education over the past few years, and instigated a province-wide work-to-rule situation at the time of data collection. As a result, teachers, principals, and school board officials have been generally less willing to become involved in projects which are extraneous to the existing school program. Hence the adverse conditions under which the educational system is currently operating have made it only that much more difficult to obtain the type of commitment and cooperation required by schools in conducting research. The survey participants were predominantly female (66%) and an unusually high number from the 10th grade (72%). Had work-to-rule not been a factor during the time of data collection, perhaps a greater number of schools would have potentially participated and results would have been from a more evenly distributed (Grades 10th, 11th, 12th, as well as male and female) sample.

Conclusion

Research confirms that school-based physical education courses alone are no longer enough to counteract the increasing prevalence of inactive lifestyles, and Health Canada recommends children and youth achieve 90 min of physical activity a day to ensure optimal growth [9]. Moreover, a review of relevant scholarly literature clearly demonstrates a need for the provision of physical activity opportunities above and beyond what is presently offered through regular school programs [23]. Indeed, there is much evidence to support that increasing physical activity in addition to curriculum-based physical education is a key factor in combating the current adolescent obesity epidemic [24,25]. Although school-based P.E. has received extensive criticism, the fact that the vast majority of young people attend school corroborates the reality of schools being the most logical environment for promoting physical activity [26,27]. As Siedentop confirms, physical activity in schools is “still the only process that has the potential for educating and socializing all children and youth towards lifespan activity involvement [28]. While the particular quality of curriculum-based P.E. remains under attack, schools are also capable of providing opportunities for increased physical activity in numerous settings outside of regularly scheduled gym class [23]. Consequently, the Daily Physical Activity program implemented in schools across British Columbia has the potential to drastically influence the health of students throughout the province. Although this study only provided a snapshot of physical activity patterns, results indicate that, for the most part, students are meeting DPA requirements, and the program has been generally well received.

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