



Ten Years of TAKE 10!®: Integrating physical activity with academic concepts in elementary school classrooms

Debra L. Kibbe^{a,*}, Jacqueline Hackett^b, Melissa Hurley^b, Allen McFarland^b, Kathryn Godburn Schubert^b, Amy Schultz^b, Suzanne Harris^a

^a ILSI Research Foundation, 1156 15th Street NW, 2nd Floor, Washington DC 20005, USA

^b Trachtenberg School of Public Policy and Public Administration, The George Washington University, 805 21st St, NW, Suite 601, Washington DC 20052, USA

ARTICLE INFO

Available online 31 January 2011

Keywords:

Physical activity
Movement
Elementary
School
Children
Learning
Academic achievement

ABSTRACT

Objective. Current literature supports the link between physical activity (PA) or fitness and a child's ability to achieve academically; however, little structured activity time is incorporated into elementary school classrooms. This paper explores the impact of a classroom-based PA program, TAKE 10!, and health–academic integration through existing state and federal policy and programming.

Methods. Evidence from journal articles, published abstracts, and reports were examined to summarize the impact of TAKE 10! on student health and other outcomes. This paper reviews 10 years of TAKE 10! studies and makes recommendations for future research.

Results. Teachers are willing and able to implement classroom-based PA integrated with grade-specific lessons (4.2 days/wk). Children participating in the TAKE 10! program experience higher PA levels (13%>), reduced time-off-task (20.5%), and improved reading, math, spelling and composite scores ($p < 0.01$). Furthermore, students achieved moderate energy expenditure levels (6.16 to 6.42 METs) and studies suggest that BMI may be positively impacted (decreases in BMI z score over 2 years [$P < 0.01$]).

Conclusion. TAKE 10! demonstrates that integrating movement with academics in elementary school classrooms is feasible, helps students focus on learning, and enables them to realize improved PA levels while also helping schools achieve wellness policies.

© 2011 Published by Elsevier Inc.

Introduction

According to the Centers for Disease Control and Prevention (CDC), approximately 4% of 6- to 11-year-olds in the United States were obese in the early 1970s. The most recent CDC data (2007–2008) indicate that 19.6% of children aged 6 to 11 years are obese (Ogden and Carroll, 2010). Today's children are also spending record amounts of time sitting or sedentary, particularly related to school activities (Sturm, 2005). Although at least 60 min per day of moderate-to-vigorous physical activity (MVPA) is recommended, few children are achieving this recommendation (Nader et al., 2008). This fact is demonstrated by the 2009 Youth Risk Behavior Survey data, which indicate that only 18.4% of 9th to 12th graders were physically active for at least 60 min per day on all 7 days of the prior week (CDC, 2010a). Butte et al. (2007) notes that this decreased physical activity

(PA) may play an important role in the increase in childhood obesity as a sedentary lifestyle upsets the energy balance—the balance between calories eaten and calories expended—that substantially determines body weight.

The elementary school setting provides an ideal environment to improve the PA levels of children. Schools can reach a large volume of children with offerings that include unstructured recess, physical education (PE), and PA in the classroom as well as before and after school. The current literature supports the link between PA or fitness that enhances a child's ability to achieve academically; however, little structured activity time is incorporated into elementary school classrooms. Historically, experiential learning was noted by Confucius around 450 BC in the now famous quote “Tell me, and I will forget. Show me, and I may remember. Involve me, and I will understand.” In recent history, Dr. David Kolb's work detailed the existence of different learning styles and notes those learners who are doers favor active experimentation and participation in learning (Kolb, 1984).

A recent review of PA and academic achievement reported that “eight of the nine studies found positive associations between classroom-based physical activity and indicators of cognitive skills and attitudes, academic behavior, and academic achievement; none of the studies found negative associations” (CDC, 2010a, p. 6). Results from the

* Corresponding author. Fax: +1 202 659 3617.

E-mail addresses: dkibbe@ilsi.org (D.L. Kibbe), jacqhackett@gmail.com (J. Hackett), mhurley3@gwmail.gwu.edu (M. Hurley), allen.mcfarland@gmail.com (A. McFarland), kschubert@dc-crd.com (K.G. Schubert), schultz.ar@gmail.com (A. Schultz), sharris@ilsi.org (S. Harris).

2006 CDC School Health Policies and Programs Study, conducted every six years, showed that no more than 16% of school districts required regular physical activity breaks, excluding recess and PE, during the elementary school day, and these statistics decrease as students progress through the upper grades. However, 76% of states now have PA guidelines based on the National Standards for Physical Education (Kann et al., 2007). Belansky et al. (2009) studied how the development and implementation of a local wellness policy, required by the Child Nutrition Act of 2004, impacted the health of rural elementary school students in Colorado. The study showed that schools did not increase time for PA after policy implementation. Interviews conducted with school principals and district personnel confirmed that schools that were focused on academic achievement standards mandated by the No Child Left Behind Act, were not well informed of the local wellness policy, and lacked resources for implementation and accountability (Hackett et al., unpublished data, 2010).

At present, schools seem to be placing greater emphasis on nutrition policies, rather than PA programs and policies, to address the obesity issue. For example, University of Minnesota researchers found a statistically significant correlation between states adopting food service and nutrition policies when childhood obesity rates are high, but no such correlation for physical activity and education and weight assessment policies. These results emphasize that states are lagging in implementing PA and body mass index (BMI) control programs (Nanney et al., 2010). Hooker and Buchner (2009) argue that more attention must be focused on academic programs that train public health researchers and practitioners to develop models that effectively promote PA and “strategically implement evidence-based intervention strategies at the informational, behavioral and social, and environmental and policy levels” (p. 295). Although the availability of evidence-based programs for use in the classroom is noted in the literature, research is lacking on if and how states have thus far effectively implemented PA policies and what factors may predict successful implementation at the state level.

Since 1996, the Physical Activity and Nutrition (PAN) Program of the International Life Sciences Institute (ILSI) Research Foundation, a nonprofit organization, has been working on practical solutions to promote PA and impact obesity-related behaviors in children. One of PAN's priorities is to partner with schools and universities to conduct “system-fit” obesity prevention interventions that can be sustained in various settings. The TAKE 10!® program is one such system-fit intervention that PAN has worked to implement, evaluate, and refine since 1999 (Peregrin, 2001). TAKE 10! (www.take10.net) is designed to reduce sedentary behavior during the elementary school day and to increase structured minutes of PA in the classroom. This curriculum tool is designed to get students moving without sacrificing time dedicated to academic learning. TAKE 10! engages students in PA while reinforcing specific learning objectives in math, reading, language arts, science, social studies, and general health.

The idea for the program was generated in May 1999, at a conference titled Childhood Obesity: Partnerships for Research and Prevention (Trowbridge and Kibbe, 2002). A school expert panel—consisting of experts in health and PE, curriculum design, recess and PA, and school nutrition—noted that short bouts of PA have health benefits (U.S. Department of Health and Human Services, 1996). Thus, it was agreed by conference participants that, due to the decline in the quality and quantity of PE time, a research priority was an intervention that integrated PA with academics in the classroom. Working with education and health experts, the first version of TAKE 10! was created in fall 1999 to promote structured, 10-minute activities in the elementary classroom. With continual feedback from experts, TAKE 10! has been revised and disseminated in the United States and around the globe since 2002.

Methods

Three electronic databases (ScienceDirect, Medline®, EBSCO) were searched between March and September 2010 to identify literature published

about TAKE 10!. In addition to the program name, search terms included: physical activity, movement, exercise, classroom, elementary, school, or children (aged 5–11 years). The search revealed 19 journal articles, published abstracts, final reports, and unpublished studies that included the TAKE 10! program or variations on TAKE 10!. From 2000 to 2007, a variety of studies were identified that explored specific issues related to TAKE 10! format, content, implementation, and impact. Between 2007 and 2010, several larger projects were conducted by universities that incorporated TAKE 10!. This article provides an overview of the various studies over 10 years of TAKE 10! programming and evaluation, as well as summarizing policy and program implications. An overview of the studies presented in this TAKE 10! summary is provided in Table 1.

Results

TAKE 10! materials

Imagine third-grade students learning multiplication tables by doing Invisible Jump Rope. Picture a classroom of second graders doing Contraction Action—singing and performing two-part muscle contraction movements to better understand how two words become a contracted word. These examples hint at what happens in a TAKE 10! classroom when movement and learning are integrated. The first version of the program consisted of colorful activity cards, worksheets, and stickers presented in two grade ranges: from kindergarten to second grade, and from third to fifth grade. The OrganWise Guys (The OrganWise Guys Inc., Duluth, GA), a group of fun and colorful characters based on organs of the body (Lombardo, 2008), were featured on the materials. Teachers quickly indicated that this version was not viable due, in part, to academic standards that should be addressed in each grade (Kohl et al., 2001). The materials were thus revised into grade-specific content for kindergarten through fifth-grade classrooms. The second version presented the materials in a seasonal theme: spring, winter, and fall. Teacher advisers and a teacher focus group commenting on this format revealed that teachers preferred materials be divided by academic content area: language arts, math, science, social studies, and general health. Furthermore, methods for tracking activities were brainstormed and teachers suggested colorful posters on which stickers could be attached to document TAKE 10! use.

In 2006, TAKE 10! program research expanded to China (Liu et al., 2007, 2008). The OrganWise Guys characters and their alliterative names did not translate well into Chinese and were not culturally relevant to students. At that point, the PAN program surveyed third- and fourth-grade children and teachers in two U.S. states to obtain input on the design of and names for a new set of characters. This feedback resulted in the development of the TAKE 10! Crew, a group of five diverse children (Jordan, Junji, Minda, Raven, and Reina) who are now featured in the materials. Each kit contains approximately 35 activity cards with clearly defined physical activities and learning objectives, 50 worksheets designed to reinforce learning objectives presented in the activity cards, three tracking posters, stickers to track activities and reward students, teacher resources to enhance implementation, student health knowledge assessments to measure knowledge mastery (topics: general health, PA, and nutrition), and a teacher implementation questionnaire. New materials on energy balance and nutrition, as well as a subset of Spanish-language materials, will be completed in 2010 and evaluated in the 2011–2012 school year. It is clear that engaging teachers in the provision of feedback on format, content, ease of use, and classroom applicability of this type of resource can result in a product that will be attractive, user-friendly, and sustainable.

Teacher acceptance and implementation

Early concerns related to the acceptance and ease of implementation of TAKE 10! by classroom teachers. One small quasi-experimental study of 22 teachers reported use of TAKE 10! 4.3 ±

Download English Version:

<https://daneshyari.com/en/article/3101077>

Download Persian Version:

<https://daneshyari.com/article/3101077>

[Daneshyari.com](https://daneshyari.com)