

## Society of Behavioral Medicine position statement: elementary school-based physical activity supports academic achievement

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### Abstract

The Society of Behavioral Medicine (SBM) urges elementary schools to provide children with ample opportunities to engage in physical activity during school hours. In addition to promoting overall child health, physical activity also supports academic achievement. In addition to improving their aerobic fitness, regular physical activity improves cognitive function, influences the brain, and improves mood in children. Better aerobic fitness and physical activity are associated with increased grade point averages and standardized test scores. Despite the documented relationship between physical activity, fitness, and academic achievement, few schools have implemented physical activity as a tool to improve academic performance. SBM recommends that elementary schools provide children with the recommended 60min of moderate-to-vigorous physical activity during school hours. Further, SBM urges schools to work with the local school districts and state education departments to mandate minimum physical activity time for elementary school physical education.

### Keywords

Physical activity, Academic achievement, School-based, Health policy

### Introduction

The health benefits of physical activity for elementary school-aged children are well documented and include increased fitness, reduced body fat, and reduced risk for cardiovascular disease [1, 2]. Regular physical activity improves cognitive function, induces brain changes, and improves mood in children, in addition to improving their aerobic fitness [3–8]. Greater aerobic fitness and physical activity are associated cross sectionally with increased grade point averages and standardized test scores [9–11]. There is some evidence that increasing physical activity can improve student grade point averages and standardized test scores [12–15]. Children who attend schools requiring

### Implications

**Practice:** Schools should implement regular classroom physical activity breaks, physically active classroom lessons, increased physical activity in physical education classes, and teacher-led active recess.

**Policy:** SBM proposes that schools provide children with opportunities to obtain the recommended 60min of moderate-to-vigorous physical activity during school hours. Elementary schools are encouraged to work with the school districts or state education departments to mandate and reward minimum physical activity time during school and in physical education classes.

**Research:** Research is needed to evaluate *what kinds* of programs are effective for school-aged children to produce meaningful improvements in academic achievement outcomes.

The Society of Behavioral Medicine supports physical activity promotion among all age groups but focuses this position statement specifically on elementary schoolchildren, given the preponderance of the evidence in this group and differing physical activity recommendations across the lifespan.

longer durations of daily physical activity perform better academically than children at schools with lower requirements [13]. Despite the documented relationship between physical activity, fitness, and academic achievement, nearly half of school administrators reported cutting substantial time from physical education and recess following the passage of the No Child Left Behind Act of 2001. Among schools cutting time for physical education, allotted time dropped by 40-min per week on average [16].

Various mechanisms which may explain the relation between physical activity and academic achievement have been suggested [17]. Physical

activity improves cardiorespiratory fitness and mood and results in brain changes [4]. Regular physical activity improves executive function, and acute bouts improve attention and time on task [3, 18].

Several studies have demonstrated the feasibility and efficacy of school-based physical activity interventions to improve student academic achievement [12, 18–20]. Overall, successful interventions have included at least one of the following components: (1) brief acute bouts of physical activity, such as teacher-led classroom activity breaks [12, 18, 20]; (2) incorporating physical activity into the curriculum [12, 20]; and (3) increasing structured physical activity during recess and/or physical education classes [19]. Research shows that short bouts of physical activity improve performance on cognitive or academic tasks done immediately following the bout [21, 22]. A review of studies incorporating physically active lessons tied to the curriculum found that teachers who use these types of programs find them to be feasible and acceptable in the classroom setting [20]. Further, there is no support that increasing physical activity negatively impacts academic outcomes, even when classroom time is reduced [13, 19].

#### Key Findings

\*In 2011, a randomized-controlled trial showed greater benefits over 13 weeks on cognitive function and mathematics achievement with more time spent in vigorous physical activity (20–40 min per day) [3].

\*In 2009, researchers found that children attending schools implementing daily 10-min physically active lessons demonstrated substantially greater gains in math and spelling and overall achievement than children in comparison schools receiving no intervention over the same time period [12].

\*Studies suggest that classroom on-task behavior during academic instruction improves by 8–10 % following 10-min physical activity breaks, with potentially greater improvements, between 20 and 30 %, among the least on-task students [30, 31].

#### The problem

Despite the well-documented benefits, many elementary schools provide minimal time for physical activity. In results from three nationwide studies of large, representative samples found that only 4 % of elementary schools provide daily physical education [23] and less than half of US schools offer recess [24]. Pressure to improve standardized test scores may cause schools to decrease or eliminate physical education classes and recess to focus on academic instruction. Additionally, many schools withhold physical education classes from students who require remedial learning. This strategy may be counterproductive for children for whom prolonged sitting impairs focus and attention. Thus, reduction in daily physical activity to invest more time in the classroom could actually *impede* academic achievement [25, 26].

#### School-based physical activity: a key opportunity

Schools are uniquely positioned to help children engage in higher levels of daily physical activity. The Physical Activity Guidelines Advisory Committee of the U.S. Department of Health and Human services recommends that school-aged children engage in at least 60 min of moderate-to-vigorous physical activity daily [1]. Such levels can reduce excess weight gain and health risk [1]. Research demonstrates that fewer than half of school-aged children currently meet these guidelines [1, 27]. Creating elementary school environments that encourage and allow for physical activity time is especially critical, given that physical activity levels sharply decline as children age [27], and only 9 % of adolescents spend 60 min in daily physical activity [27]. State- and district-level policies mandating physical activity in schools have shown some promise in increasing children's activity levels [28]. However, most existing policies do not specify required minutes of activity per day, and many existing policies are not well monitored for adherence [28].

#### Summary and recommendations

Children should engage in at least 60 min of daily physical activity, including vigorous activity that elicits faster breathing and heart rate, to ensure physical fitness and improved general health. While the specific amount of daily physical activity necessary to support academic achievement has yet to be determined, given the positive relation and the unique capacity of schools to improve children's health [28, 29], SBM recommends that elementary schools provide the recommended 60 min of moderate-to-vigorous physical activity during school hours. Activities can include the following:

- Classroom physical activity breaks
- Academic curriculum incorporating physical activity
- Physical education classes
- Active recess

Schools can work with the school districts or state education departments to mandate and/or reward minimum physical activity time for elementary school physical education. Schools would benefit from policies specifically stating a 60 min/day requirement, in addition to improved monitoring of the implementation of these guidelines.

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**Adherence to ethical standards:** All procedures were conducted in accordance with ethical standards.

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