

Research highlight

# What do teachers see? Perceptions of school-time physical activity programs on student behavior

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## 1. Background

In the United States, children are not meeting daily recommendations for 60 min of moderate-to-vigorous activity.<sup>1</sup> Because children spend a large portion of their days in school, it has been further recommended that children accumulate 30 min of their physical activity (PA) during school hours.<sup>2</sup> Our previous research has demonstrated with objective measures that only 8%–9% of elementary school children meet this goal, with an average accumulation of 18 min/day.<sup>3,4</sup> This finding is of concern given the numerous benefits that PA has not only on health outcomes,<sup>5–8</sup> but also on academic achievement.<sup>9</sup> For example, there is heightened awareness that children benefit from PA throughout the school day in terms of attention to task, memory, behavior, and, ultimately, academic performance.<sup>10</sup> School administrators acknowledge this link, but still face barriers to incorporating PA for schoolchildren, including limited time and resources for physical education (PE) and recess.

Given the positive associations between PA and academic achievement, as well as limited time and resources available for scheduled PE, schools are looking for innovative approaches to integrate PA throughout the school day. The randomized, controlled Fueling Learning through Exercise (FLEX) Study was designed to be a real-world experiment on the implementation of 2 innovative school-based PA programs that would complement traditional PE and recess in lower income elementary schools.<sup>4,11–13</sup> Although the FLEX Study's primary outcomes were to assess objective measures of changes in PA and their link to standardized test scores over 2 academic years, the reality of getting schools to implement these programs relied heavily on buy-in from the teachers,<sup>14</sup> where such factors as the day-to-day benefits of improved student attention and classroom behaviors following PA programming are highly desirable. Unfortunately, these measures are much more difficult to collect objectively and systematically.<sup>15</sup>

Given that implementation of PA programming during the school day often relies heavily on teacher and staff support,<sup>14,16</sup> we sought to understand teachers' perceptions of how these 2 different PA programs impacted student behavior. For many teachers, improved classroom behaviors would justify the “cost” (time) and “benefit” (students' improved attention to studies) and thus their willingness to continue to implement programming. Understanding teachers' perceptions of the costs vs. the benefits of implementing these programs is critical for their long-term sustainability and broader dissemination if they are to ultimately have a positive impact on children's health and academic achievement.

## 2. Evaluation of FLEX teachers' perceptions of student behaviors

The FLEX Study included 18 schools from lower income school districts across Massachusetts. Schools were randomized to either control ( $n = 5$ ) or one of 2 PA programs—the 100 Mile Club ( $n = 7$ ), a walking/running program, typically led by a PE teacher or administrator, in which children work to accrue 100 miles over the course of the school year, or Choosing Healthy and Active Lifestyles for Kids (CHALK)/Just Move ( $n = 6$ ), in which teachers led in-classroom PA breaks.<sup>11</sup> Participants enrolled at baseline included 979 students in 3rd and 4th grades; 60% were non-white. The programs were implemented over 2 school years. We conducted an on-site substudy of FLEX classroom teachers during Year 2 of the interventions ( $n = 6$  from 100 Mile Club schools and  $n = 8$  from CHALK/Just Move schools). Teachers were asked to evaluate their students' behavior and attention in the 15 min after the students had participated in either the 100 Mile Club or CHALK/Just Move sessions compared with days when these sessions were not offered. Survey items, drawn from a validated instrument,<sup>17</sup> were grouped into those reflecting positive behaviors (8 items) and those reflecting problem behaviors (10 items) (Fig. 1). Teachers were asked to report, on an 8-point Likert scale from *none* to *all of the students*, the proportion of students in their classroom who demonstrated the behaviors.

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Positive behaviors	Problem behaviors
<ul style="list-style-type: none"> <li>• Follow directions within a reasonable time period</li> <li>• Pay attention in class</li> <li>• Cooperate with peers, are able to work with others</li> <li>• Work independently</li> <li>• Follow established classroom rules, expectations, and guidelines</li> <li>• Demonstrate good listening skills, listen to others</li> <li>• Have a positive, cheerful attitude</li> <li>• Have good social skills, good peer relationships, get along well with others</li> </ul>	<ul style="list-style-type: none"> <li>• Are defiant or noncompliant</li> <li>• Argue, are rude or disrespectful to teacher or other adults</li> <li>• Are moody</li> <li>• Are stubborn, sullen, or irritable</li> <li>• Complain excessively</li> <li>• Call out answers or interrupt the teacher during lesson</li> <li>• Have excessive movement or are out of seat often</li> <li>• Are off task or inattentive during class time</li> <li>• Demonstrate impulsivity, act before thinking or before directions are given</li> <li>• Are unable to change activities or make transitions smoothly</li> </ul>

Fig. 1. Measures of teacher-reported classroom behaviors following Fueling Learning through Exercise (FLEX) Study Physical Activity programming.

### 3. Perceptions of behaviors in 100 Mile Club and CHALK/Just Move

Teachers (mean age, 36.0 and 41.5 years; mean years of teaching experience, 5.3 and 10.8; for the 100 Mile Club and Chalk/Just Move interventions, respectively) self-reported being engaged in moderate exercise 1–2 times per week. Overall, teachers in the 100 Mile Club schools reported more favorably on classroom behaviors in terms of both assets/strengths and problem behaviors compared with CHALK/Just Move teachers. More teachers in 100 Mile Club schools, compared with the CHALK/Just Move teachers, reported that most or all of the class were able to work with others (83% vs. 46%), followed classroom rules (83% vs. 53%), had a positive attitude (100% vs. 60%), and got along well with others (100% vs. 56%). Furthermore, a higher percentage of teachers in 100 Mile Club schools, compared with those in CHALK/Just Move schools, reported that no more than 1 or 2 students engaged in problem behaviors, including calling out answers or interrupting the teacher during the lesson (100% vs. 53%) and being off task or inattentive (67% vs. 53%).

### 4. Conclusion and perspective

Differences in reported student behavior after implementing these 2 very different FLEX PA programs in schools are noteworthy, with teachers in the 100 Mile Club schools reporting better behaviors. It may be important to consider that classroom teachers in this particular sample did not lead the 100 Mile Club sessions; instead, the sessions were led by another teacher/champion, which for schools in this evaluation occurred before school. Even though in-classroom PA breaks are relatively easy to implement and can occur at any point during the day, a higher burden is placed on the teachers to initiate, lead, and conclude the PA breaks, potentially requiring more time spent in transition and engendering perceived stress. For students, there may also be a less clear shift from the break back to focused learning activities, which may have benefited the perceived behavior of students by teachers among the 100 Mile Club schools.

The mechanisms that determine student behavior in a classroom setting remain difficult to ascertain. Ultimately, what is

going to sell nontraditional PA programs outside of recess and PE is how well the teachers can implement and/or support those programs. Although teachers clearly care about cognitive health, academic achievement, and whole student health, they need to deal on a day-to-day basis with student behavior and attentiveness in the classroom. Increasing the perception that PA in the classroom is beneficial for behavior and readiness to learn is critical to securing buy-in from teachers and administrators. For school-based PA programs to be successful and sustainable as well as to promote students' physical and academic potential, multiple opportunities for increasing student PA need to be supported by administrators, staff, and teachers. Clear strategies, support, and encouragement need to be offered, especially to teachers who choose to implement PA classroom breaks so that these breaks are beneficial in not only promoting PA, but also enhancing the academic success of students.

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### Authors' contributions

JMS and CMW contributed equally to this manuscript. Both authors have read and approved the final version of

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### Competing interests

Both authors declare that they have no competing interests.

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