

Instant Recess®: A Practical Tool for Increasing Physical Activity During the School Day

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Abstract

Background: An increased prevalence of overweight/obesity among children has led to school district level policies to increase physical activity (PA) among elementary school students. Interventions are needed that increase activity levels without sacrificing time spent in academics.

Objectives: We evaluated a policy implementation intervention for to increase in-school PA in elementary schools in Forsyth County, North Carolina, in a randomized study with a delayed intervention control group.

Methods: The study included third- through fifth-grade classrooms in eight elementary schools. *Instant Recess*® was used to introduce 10-minute PA breaks in classrooms on schedules determined by teachers. Direct observation was used to measure activity levels, other student behaviors, and teacher behaviors related to PA in the classrooms.

Results: Twenty-eight visits to schools were made during the spring and fall semesters of 2009. At baseline 11% to 44% of intervention and control schools were engaged in classroom-based PA. PA increased from baseline to spring follow-up in

intervention schools and was maintained the following fall. Control schools decreased PA from baseline to spring and increased PA once they began the intervention. Students in classrooms engaged in *Instant Recess* exhibited statistically significant increases in light (51%) and moderate-intensity (16%) PA and increases in time spent in on-task behavior (11%). Control schools experienced similar benefits after they began implementing *Instant Recess*.

Conclusions: *Instant Recess* is useful for increasing PA and improving behavior among elementary school children. Additional research may be needed to understand how to create policies supporting classroom activity breaks and how to assess policy adherence.

Keywords

School, children, physical activity, policy, classroom, teachers, anthropology, sociology and social phenomena, childhood obesity, exercise, physical education

Despite the mental and physical health and developmental benefits associated with physical activity (PA), most youth engage in inadequate amounts.^{1,2} There is growing recognition that integrating brief bouts of PA into daily routine both to deliver moderate to vigorous PA and to interrupt prolonged periods of sedentariness, is an effective strategy for improving PA adherence and health.³

Schools are prime targets for interventions to increase PA among children because 95% are enrolled, attendance enforcement ensures high levels of exposure, and the organizational infrastructure permits institutionalization, for example,

through regular teacher in-service training and modification of curricula.⁴ Active school environments, including activity-focused physical education, have been strongly recommended as an effective, evidence-based method of improving fitness and mitigating weight gain. School-based interventions to increase PA among children are typically implemented in physical education classes.⁵⁻⁷ Unfortunately, overcrowded classes in poorly equipped facilities, often taught by untrained teachers, also compromises the quality of physical education, with little active participation of at least moderate intensity (e.g., 5 to 7 minutes in a typical 30-minute physical educa-

tion class).⁸ There is also recent evidence that the economic downturn has further compromised current physical education enhancement efforts.⁹

Recently, some school systems have adopted ambitious policies necessitating classroom approaches to augment the modest increases in time spent in PA that have been achieved through improved physical education classes and recess. Some states have begun to mandate minimum amounts of PA to augment physical education.¹⁰ In North Carolina, a regulatory policy adopted in 2006 by the State Department of Education mandates that schools provide a minimum of 30 minutes of daily PA for children in Kindergarten through eighth grades, over and above physical education requirements (Healthy Active Children Policy [HSP-S-000]). Unfortunately, for teachers and students who experience pressures related to and are evaluated on test scores and academic achievement, unfunded mandates without additional resources or training and guidance on how to adhere to the mandates can be frustrating. Providing school staff with tools to assist with policy adherence may be useful. We conducted evaluation research in a sample of elementary schools to assess the changes in classroom PA in schools subject to HSP-S-000 after a tool to promote classroom PA was provided.

METHODS

Defining the Target Community and Establishing the Partnership

In September 2008, one of the authors (TY) visited Forsyth County, North Carolina, to discuss possibilities for incorporating activity breaks into public school and after school settings, worksites, and sporting events. We (TY and MW) presented the *Instant Recess*[®] concept to representatives from after-school programs and to the Forsyth County School Health Alliance and the School Health Advisory Council (School Health Advisory Council)* for Winston-Salem/Forsyth County Schools (WS/FCS). Resistance to this concept was

anticipated and presenters expected that this would be the first of several visits to discuss the rationale for and the feasibility of implementing activity breaks. Instead, the concept was enthusiastically embraced, so much so that the organizations quickly began planning when to begin developing and implementing policies incorporating *Instant Recess* into school practice. The Active Living Research program, funded by The Robert Wood Johnson Foundation, had a call for proposals to support “opportunistic, time-sensitive studies on emerging or anticipated changes in PA-related policies or environments.” Given the pending changes to WS/FCS policies to enforce HSP-S-000 and to provide teachers and staff with a tool for doing so, we saw an opportunity to partner with WS/FCS to evaluate a tool for implementing the policy change.

Partnership Activities

The project was a partnership between a local school system (WS/FCS), a private research firm (Gramercy Research Group [GRG]), a university (University of California, Los Angeles [UCLA]), and a national organization (Professional Athletes Council [PAC]). WS/FCS supports a full-time position for a Program Specialist for Physical Education and Health who is responsible for health and wellness activities for all students in schools within the school district (~52,000 students in 42 elementary schools, 16 middle schools, 11 high schools, and 11 special schools). The program specialist took the lead on identifying schools that represented the diversity of the district, and key school staff members to participate in the project, recruiting eight elementary schools to participate. To facilitate participation in teacher training, she secured approval for the training as a continuing education opportunity for teachers.

UCLA provided the training outline and existing *Instant Recess* content on compact disc (CD), free of charge, for use in the project (\$54.75 per CD; total in-kind donation \$21,900). UCLA also provided additional funding for the project, through a subcontract to its Centers for Disease Control

* The School Health Alliance is a collaborative effort of Wake Forest Baptist Medical Center, Forsyth Memorial Hospital, Winston-Salem / Forsyth County Schools (WS/FCS), local health and human service agencies, parents, and educators. Its mission is to improve the ability of students to learn by improving the health and safety of Forsyth County's school-age children and adolescents and by coordinating and targeting the efforts and resources of all types of community health care providers. As of January, 2004, the School Health Alliance also serves as the School Health Advisory Council for WS/FCS, providing guidance on policy issues that affect students' health, in accordance with North Carolina statutes.

and Prevention (CDC) Racial and Ethnic Approaches to Community Health across the U.S. (REACH US). PAC waived its \$1,000 *Instant Recess* licensing fee to reduce project costs. At the end of the project, PAC co-founder, NFL player Allen Rossum visited Winston-Salem to participate in a community-wide childhood obesity awareness event.

GRG wrote both grants that provided funding to support the implementation and evaluation for this project, Active Living Research along with UCLA, and the UCLA REACH US Legacy Project subcontract. GRG conducted the teacher training workshops and provided copies of *Instant Recess* materials on CD for teachers and staff members at the eight elementary schools involved in the application (~400 copies). Each school sent eight representatives to participate in a 3-hour training workshop, held on a Saturday at the YWCA of Winston-Salem (space donated at no charge; school representatives each received a \$100 honorarium, made possible through grant funds). GRG also conducted 20- to 60-minute trainings at each elementary school with staff who did not attend the off-site training to provide a brief overview of the project and materials and to encourage school staff to participate.

Evaluation Design

During the Spring 2009 and Fall 2009 academic semesters, we evaluated eight schools representative of the district in demographic composition and socioeconomic status. Schools were randomly assigned to immediate ($N = 4$) or delayed intervention control ($N = 4$) groups. Teachers at intervention schools began implementation in Spring 2009; controls began implementation in Fall 2009. One control school dropped out after the Spring 2009 semester and was replaced by a school that was a control only (no intervention). We conducted four observational assessments of PA and behavior of teachers and students in classrooms during the beginning and final weeks of academic instruction in both semesters.

An authorized Institutional Review Board (Copernicus Group IRB) approved all research activities. Because no identifying data were collected for any students, informed consent from parents and assent from students was not required. However, per recommendations from the school system, we obtained passive consent (children received “opt out” letters that required parents to provide written notification if they did not want their children included in the evaluation).

Intervention

The intervention was to provide teachers with a tool and technical assistance with using *Instant Recess*, designed by one of the researchers (TY) in conjunction with the PAC, to promote PA breaks in the classroom. The *Instant Recess* break concept is to provide opportunities for individuals to participate in 10-minute bouts of PA, in line with the recommendation for U.S. youth and adults, anywhere, anytime, in any type of attire. The breaks consist of a series of basic aerobic dance, calisthenics, and sports movements. Moves are moderate intensity, low-impact, and are performed in 10-minute bouts set to music. The 10-minute time interval reflects the minimum duration of PA required to count toward the CDC’s 30-minute minimum daily recommendation.⁴ Although these exercises can be performed individually, social interaction in groups is a necessary ingredient to maximize organizational return on investment. *Instant Recess* materials are available via CD or, for some routines, DVD format. The materials are “plug and play” and only require users to have access to a means for playing CDs or DVDs. The instructions for moves are called out during the routine and participants are asked to follow along. A guide is also available with pictures of how to perform the moves for each routine. Additional information about *Instant Recess* can be found elsewhere.¹¹ *Instant Recess* materials can be accessed online (available from: <http://www.toniyanecy.com> or <http://www.gramercyresearch.com>).

Eight staff members from each school participated in a half-day training workshop. Representatives included at least one teacher from each grade, representing Kindergarten through fifth grades, and at least one school administrator/key decision maker. The workshop provided an overview of childhood obesity, including national and local statistics, an overview of *Instant Recess* with opportunities for teachers to practice the routines, and a planning period during which teachers and staff from each school developed a school-specific strategy for incorporating *Instant Recess*, including identifying at least one time during the school day when the entire school would participate in *Instant Recess*. School administrators and staff who attended the *Instant Recess* training were also encouraged to ask individual teachers to implement *Instant Recess* throughout the school day as desired. Teachers trained at the workshop were expected to serve as liaisons between the school

and the evaluation team and as key resources for other staff and teachers during the implementation and evaluation period. At the end of the workshop, the program specialist and one of the authors (MW) randomized schools and instructed school staff on how to access *Instant Recess* content. All teachers and staff in schools assigned to the immediate intervention received copies of a CD with five *Instant Recess* routines and a paper copy of a guide demonstrating how to perform each move. Each school also received a copy of the *Instant Recess* routines available on DVD to be used in the centralized audiovisual system at each school for school-wide *Instant Recess* breaks.

Assessments

Pre-intervention and post-intervention data were collected at the classroom level to determine the impact of the PA policy and *Instant Recess*. Data were collected from a representative sample of students in grades three through five to minimize disruptions within each school and to remain within the constraints of funding provided for this project. For each of the 4 assessments (beginning and end of Spring 2009 semester and beginning and end of Fall 2009 semester), we randomly selected three classrooms from each grade at each school (approximately nine classrooms per school); neither teachers nor students were followed longitudinally.

Data were collected by trained observers using a modified version of the System for Observing Instructional Fitness Time (SOFIT),⁹ which provided data on PA, lesson context, and student and teacher behavior. Two data collectors were assigned to each classroom, and each data collector randomly selected four students to observe (approximately eight students per classroom; 72 students per school). The students represented the composition of the classroom in terms of gender, race/ethnicity, and weight status. Direct observation occurred in 20-second intervals for 32 minutes in each classroom. After each 20-second interval, the data collector recorded the student's activity level (unobservable; sitting/lying down; light PA/standing; moderate PA/brisk walking; vigorous PA/running), whether the student was on-task or off-task (motor/movement; noise; passive/other), and the lesson context (classroom management; knowledge/lecture; fitness drills/skills; game play/free play). Each student was observed for an interval lasting 2 minutes and 20 seconds. After every 2 minutes and 20 seconds, teachers were observed for one 20-second

interval. For teachers, data collectors recorded the teacher's activity level and the teacher's level of engagement with the class (unengaged; classroom management; knowledge lecture; observation; actively engaged). After observing the teacher for one 20-second interval, data collectors moved to the second student selected for observation. This process continued, student observation for an interval of 2 minutes and 20 seconds followed by one 20-second interval teacher observation until all four students had been observed once. The entire sequence was then repeated twice more. Data collectors observed students and the behavior of the teacher in 20-second increments for a total of 96 observations per observer (21 observations/student $\times$ 4 students and 12 observations of the teacher).

Data collectors also qualitatively recorded the *Instant Recess* routine observed and their impressions of student engagement, whether students followed instructions, and perceived level of student and teacher enthusiasm. The goal was to capture typical classroom behavior during pretest

Table 1. Characteristics of Sample of Elementary Schools ($N = 7$) in the Winston-Salem, NC School District

Characteristic	School District		Evaluation Sample	
	<i>N</i>	%	<i>N</i>	%
Enrollment				
Enrolled	24,983	100	4,599	100.0
Attendance (Jan–May)				95.5
Disciplinary Referrals				18.5
Demographics				
Male				51.2
Hispanic	5,457	21.8	1,460	29.5
Black	7,014	28.1	1,552	31.4
White	10,666	42.7	1,610	32.6
	Mean	<i>SD</i>	Mean	<i>SD</i>
Test Scores				
Reading			54.7	25.6
Math			72.9	17.8
Science			46.0	29.6
Weight Status 4th Grade				
Underweight	2.8		7.2	10.1
Healthy	53.2		49.4	18.4
Overweight	18.4		22.6	16.0
Obese	25.5		20.8	12.8

data collection and to observe behavior in classrooms that performed *Instant Recess* during posttest evaluation. Schools participated in their assigned activities (i.e., *Instant Recess* or usual activities) for approximately 8 weeks in each semester. Timing depended on school calendars and participation was sometimes shortened to avoid interfering with end-of-grade testing, field trips, and end-of-year parties. Seven schools completed pre–post evaluations (Table 1). At the end of each 8-week period, teachers from schools assigned to participate in *Instant Recess* submitted a log to the study staff that indicated the number of times each day the teacher used *Instant Recess*. Teachers who submitted logs received a \$5 gift card.

Using the SOFIT data, we ascertained the degree of policy implementation by the proportions of classrooms per school that had any time spent with a lesson context that included “fitness drills or skills” or “game and free play.” *Instant Recess* was coded as fitness drills or skills and other PA breaks were coded as the best fit among the categories. For student PA levels, we computed the total minutes of activity per observation period for moderate and vigorous PA (MVPA) and light, moderate, and vigorous PA (LMVPA). We also computed the percent of time spent in on-task behavior and the percent of teacher intervals spent in classroom management.

Statistical Analysis

We computed descriptive statistics for the percentages of classrooms per school in which PA was observed during each visit. We computed by intervention and time the median minutes that we observed students engaging in MVPA, LMVPA, and on task behaviors, and minutes that teachers spent in classroom management. We also computed percent change from baseline to intervention visits. We tested the differences between group at baseline and between baseline and later visits using Wilcoxon rank-sum exact tests. Finally, we computed the mean minutes spent in LMVPA by intervention and time. Because of the small sample sizes, we computed median minutes for the main results of the intervention and chose to use means for the more descriptive graphical analyses for ease of understanding by readers. The analyses were conducted using Excel 2007 (Microsoft, Inc., Redmond, WA) and SAS 9.1 (SAS, Inc., Cary, NC).

RESULTS

Characteristics of schools participating in the evaluation study and the school district are included in Table 1. The evaluation sample had more Hispanic and Black students, a smaller percentage of White students, a higher percentage of

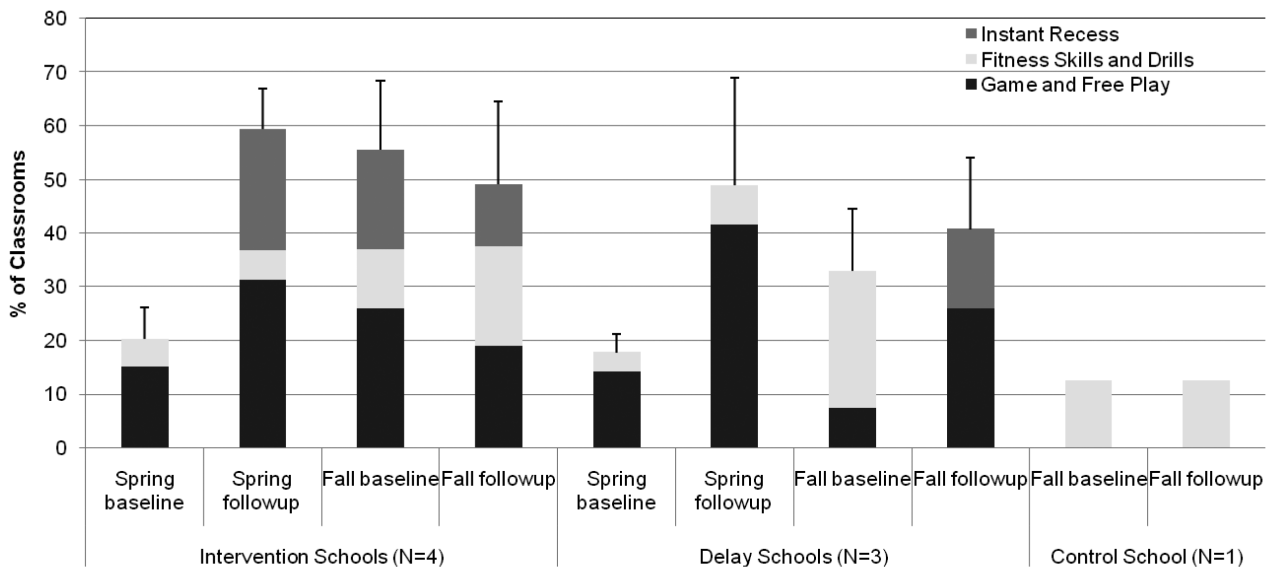


Figure 1. Percent of Classrooms Per School That Were Observed Engaging in Physical Activity, by Intervention Group and Time

Bar = standard error of total %.

overweight students, and a lower percentage of obese students compared with the entire school district. Twenty-eight visits to schools were made during the spring and fall semesters of 2009, with observation of 8.8 classrooms per school per visit. Teacher logs indicated a range of none to six PA breaks per day implemented.

Between 11% and 44% of classrooms in intervention schools and 11% to 22% of classrooms in control schools were observed engaging in game/free play and fitness skills/drills at baseline (Figure 1). Although our goal was to conduct modified SOFIT observations in classrooms during times when *Instant Recess* was scheduled, we were not always successful. During follow-up visits in intervention schools, we observed PA in two to seven classrooms per school, although not all PA was *Instant Recess*. Slightly more than half of the activity from fitness skills and drills included *Instant Recess*. We also observed classroom-based PA in control schools at follow-up visits, which was coded as game/free play and fitness skills/drills, although these were not *Instant Recess* breaks. For analysis purposes, we attempted to distinguish *Instant Recess* breaks from other types of classroom PA.

Figure 1 shows significant increases in PA between baseline and spring follow-up in intervention schools, and suggests that these increases were maintained through fall follow-up. Interestingly, control schools also increased classroom PA between baseline and spring follow-up, although the PA was not attributed to *Instant Recess*. Control schools experienced a significant decrease between spring and fall follow-up, and experienced only a slight and nonsignificant increase in PA

between the beginning and end of the fall semester. Control schools were instructed to begin implementing *Instant Recess* in the fall semester and received training from study staff on implementation. There was a noticeable increase in use of *Instant Recess* between fall follow-up visits.

Although *Instant Recess* was designed as a moderate-intensity activity, some students were active at lower (i.e., light) intensity levels during *Instant Recess*; consequently, we computed changes in both MVPA and LMVPA for all classrooms (Table 2). Median MVPA levels in intervention schools increased by 16% and LMVPA levels increased 51% per measurement period ($p = .038$). The time spent in on-task behavior improved 11% ($p = .038$). Control schools did not experience significant increases in PA intensity until the final follow-up visit, after they began implementing *Instant Recess*: MVPA increased by 844% and LMVPA increased by 49% above baseline levels. There were no significant differences between the intervention groups in the student or teacher behavior measures at baseline.

To assist in explaining the results of the policy and *Instant Recess* interventions, Figure 2 shows the mean minutes observed in LMVPA for each group during each observation period. The intervention schools increased time spent in LMVPA to approximately 6 minutes per session with the *Instant Recess* intervention, with a slight decrease during the final follow-up. As expected, classrooms in which *Instant Recess* was observed had approximately 8 to 10 minutes of PA. The sole absolute control school had the lowest PA levels and this did not change during the study.

Table 2. Minutes of Student and Teacher Behavior at the School Level Over a 32-Minute Observation Period

	Intervention Schools ($n = 4$)				Delay Schools ($n = 3$)					
	Baseline		Visits 2–4		Baseline		Visits 2–3		Visit 4	
	Median	Range	Median	Range	Median	Range	Median	Range	Median	Range
MVPA	0.69	0.04–1.50	0.81	0.08–2.96	0.03	0.00–0.33	0.34	0.12–1.55	0.31	0.19–0.80
LMVPA	4.23 ^a	2.31–5.87	6.40 ^b	3.15–9.52	2.83 ^c	1.44–3.13	4.28 ^d	2.50–9.95	4.22	2.67–4.78
On Task	22.5 ^e	21.4–25.3	25.0 ^f	23.2–26.0	24.0	20.5–25.3	23.3	19.1–26.0	24.9	24.3–26.1
Classroom Management	8.43	4.7–13.7	10.7	6.4–18.6	12.4 ^g	11.9–13.5	11.7	3.3–16.0	5.54 ^h	4.91–6.35

LMVPA = light-, moderate-, and vigorous-intensity physical activity; MVPA = moderate- to vigorous-intensity physical activity.

Behaviors were observed using the System for Observing Instructional Fitness Time (SOFIT).

Rank-sum differences within pairs (a,b), (c,d), (e,f), and (g,h), $p \leq .05$. Other comparisons not indicated between groups at baseline and baseline versus later visits show no significant differences.

DISCUSSION

This study showed that use of *Instant Recess* increased classroom PA and improved on-task behavior in students. These findings are consistent with previous studies of the positive impact of classroom PA breaks on outcomes of interest.^{12–18} *Instant Recess* offers a simple tool that can be used to increase PA in group settings. *Instant Recess* can be adapted for use in any setting where a CD or DVD player/screen are available. The breaks have been medically designed for sedentary, overweight or less fit youth and adults in ordinary street wear. Unlike other similar models, *Instant Recess* provides a continuous, rather than intermittent, 10-minute bout of MVPA to count toward the minimum CDC recommendation for daily PA. *Instant Recess* is particularly targeted to largely unmotivated captive audiences (rather than willing volunteers) within environments with resource and space constraints (e.g., classrooms). Studies suggest that people experience immediate benefits in terms of improved meeting dynamics, productivity, feelings of well-being, self-

confidence, skill development, and positive reinforcement that motivates them to be more active on other occasions and in other settings.³

Although the rates of observed use of *Instant Recess* in the current study were lower than expected, PA was fairly common in the classrooms of both intervention and control schools. There are several factors that may account for this. First, the reactivity of the teachers was a significant factor in this natural experiment. School administrators and teachers became enthusiastic about the new *Instant Recess* policy for increased PA. Although the importance of the randomized design was explained during the training session, independent actions by the teachers in the delayed intervention control schools may have interfered with the evaluation. Teachers in the delayed intervention control schools may have interpreted the delayed condition to mean they could not use *Instant Recess* and they may have perceived use of other opportunities for PA in the classroom as still keeping in line with the study design. In addition, much of the increase in PA was observed at

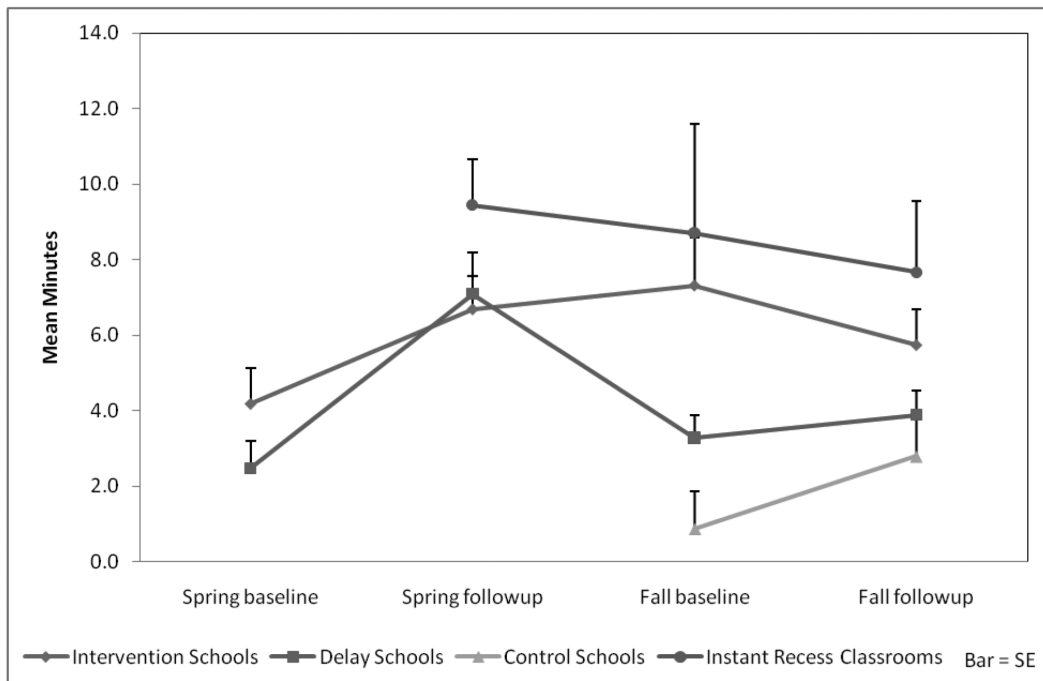


Figure 2. Mean Minutes of Light-, Moderate-, and Vigorous Physical Activity in Classrooms by Group and Intervention

Intervention Schools = the 4 schools assigned to implement *Instant Recess* immediately (Spring)

Delay Schools = the 3 schools assigned to delay implementation of *Instant Recess* until Fall. Note: 4 schools were originally assigned to the delay group; however, only 3 schools completed the pre-post intervention and were included in analyses

Control Schools = the 1 school added to the study during Fall data collection to replace the delay school that did not complete the program

Instant Recess Classrooms = classrooms in which *Instant Recess* was being performed during data collection

the end of the spring semester, near the end of the school year. Many teachers used games, free play, and picnics to reward students for successfully completing the school year, which involved increases in PA that were not attributed to *Instant Recess*. Second, the observation period was only 32 minutes out of the school day. It is possible that teachers used *Instant Recess* more often than observed. We were limited by study resource constraints and in the amount of time during the day schools were willing to allow observers in classrooms. This meant that, during data collection, we sometimes observed classrooms that did not do an *Instant Recess* break because we were not observing the classroom during their planned *Instant Recess* time. Teachers were encouraged to use *Instant Recess* as a tool when they saw fit, and most schools did not have a designated, school-wide *Instant Recess* time. Third, students in some classrooms were bored with frequent repetition of the five *Instant Recess* routines because they were used so often, so teachers may have used other sources for PA in the classroom (e.g., playing popular music and having “dance parties”). Teachers taking initiative in this way complied with the policy and expressed their own enthusiasm and creativity, while keep the children engaged in PA throughout the semester. A lesson learned was the need for a variety of content, as well as possible contests encouraging schools to create their own versions of *Instant Recess* breaks to address the demand for new material. It would be worthwhile to explore ways to vary the PA incorporated so that children could engage in MVPA several times a day without becoming bored or losing interest.

We did not measure MVPA throughout the school day, although this was part of the initial plan, owing to funding delays beyond our control. Accelerometers would be able to measure the daily totals. This is of interest in the school district to evaluate compliance with the HSP-S-000 policy of accrual of at least 30 minutes per day of MVPA outside physical education classes. Pre-post data during the spring semester showed an increase in observed fitness skills (*Instant Recess*), games, or free play, with a greater increase in intervention schools (Figure 1). Participation declined in the fall semester, but remained higher in intervention schools. We observed only a small increase in PA in intervention compared with control schools, which was somewhat troubling. However, the fact that our random sample did not always include observations

of classrooms during planned *Instant Recess* breaks may have diluted the observed impact. Among classrooms where we observed *Instant Recess* we noted a significant increase in PA compared with classrooms not doing *Instant Recess* (Figure 2). This difference was observed at all follow-up time points.

Although many teachers expressed enthusiasm for *Instant Recess*, some were reluctant to participate themselves. Enthusiasm for participation was influenced by teacher’s perceptions of student willingness to participate and by the teacher’s own willingness to participate (possibly influenced by not wanting to sacrifice teaching time, being uncomfortable leading a break because of their personal low fitness levels, or, in one case, not believing *Instant Recess* was vigorous enough to make a difference). We observed a direct correlation between minutes of classroom time spent in *Instant Recess* and perceptions of mixed enthusiasm ($p = .0008$) or high levels of enjoyment ($p < .0001$). Continued encouragement from school administration along with fun routines that appeal to students may influence teacher and student enthusiasm, thereby increasing participation. However, it is encouraging that *Instant Recess* materials provided on CD and DVD allowed teachers to play the routine for students without necessarily having to participate themselves, which is a benefit over other models that only work if the teacher is willing to participate.

This study has several limitations. First, the SOFIT instrument was designed for use in physical education classes in which the data are normally distributed. In contrast, we found that MVPA and LMVPA were not normally distributed in the classroom context. However, we could identify no more appropriate validated instrument for directly observing PA in elementary school classrooms. Second, the follow-up observations in each semester were conducted during the next-to-last week of the semester. In the spring, several classrooms were engaged in end-of-year activities rather than the main curricula. It may be better to make the follow-up observations during weeks with typical schedules. Third, the student and teacher feedback was unprompted and therefore subject to selection bias of teachers who wanted to give feedback. The inclusion of standard questions for feedback would improve the reliability of these data. Fourth, the sample size was small given the school level of analysis, so we could not adequately explore the differences between groups in the quantitative measures or subgroup analyses by grade or school character-

istics. However, we presented a few overall statistics anyway to tease out the main effects of the intervention and the two sources of PA in classrooms.

CONCLUSION

Lessons learned from the field suggest the usefulness of PA breaks including *Instant Recess* for increasing PA par-

ticipation among elementary school children. Improvements in data collection methods will likely solidify these findings. PA assessment methods created for physical education classes require modification or redesign for use in academic classrooms. These pilot data suggest that activity breaks are a promising method for increasing PA, a critical step toward improving the nation's health and longevity.

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