

Strategies for Classroom Physical Activity

This document recommends 10 strategies, organized under three categories, that schools can use to improve classroom physical activity (see Figure on page 11). These strategies are grounded in evidence-based approaches to classroom physical activity. Although most of the evidence and expert opinion for these strategies came from elementary schools, many are applicable to middle and high schools and before-school and after-school extended day programs.

Some strategies are small changes in practices that can be made at the classroom level with relative ease. Others are broader, longer-term goals that may require administrative or budgetary commitment. Individual school districts, schools, and teachers should determine which strategies are most feasible and appropriate according to the needs of the school and classroom, school level, and available resources.

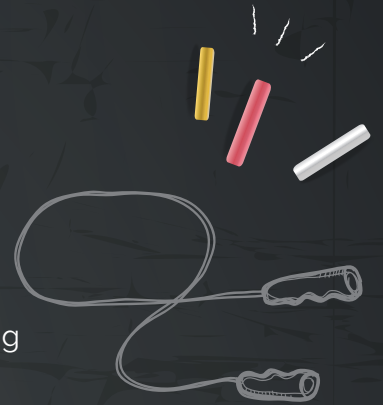


STRATEGIES FOR Classroom Physical Activity in Schools



Build Buy-in and Provide Training for Classroom Physical Activity

1. Identify who to engage and how to involve them in planning for classroom physical activity.
2. Identify what classroom physical activity policies and practices currently exist.
3. Provide professional development or in-service training on classroom physical activity.



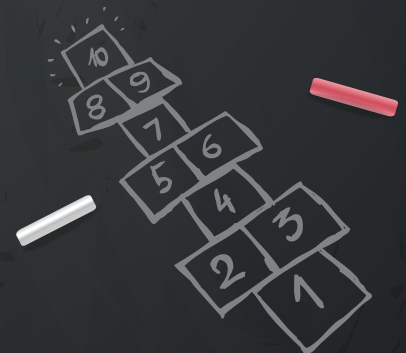
Create Classroom Environments Supportive of Physical Activity

4. Identify approaches to incorporate classroom physical activity.
5. Identify opportunities and appropriate times to conduct classroom physical activity.
6. Identify materials, technology, and resources to promote classroom physical activity.
7. Identify ways to create and use classroom space for classroom physical activity.
8. Ensure that classroom physical activity is appropriate and safe for all students by setting and communicating safety and behavioral expectations.



Collect and Share Information About Classroom Physical Activity Experiences

9. Collect information on classroom physical activity.
10. Share successes, challenges, and lessons learned from classroom physical activity.



STRATEGIES FOR CLASSROOM PHYSICAL ACTIVITY IN SCHOOLS

Category 1



Build Buy-in and Provide Training for Classroom Physical Activity

1. Identify who to engage and how to involve them in planning for classroom physical activity.
2. Identify what classroom physical activity policies and practices currently exist.
3. Provide professional development or in-service training on classroom physical activity.



1. Identify who to engage and how to involve them in planning for classroom physical activity.

Leveraging existing relationships and creating new ones can increase the use of classroom physical activity.^{10,14,50} Some school administrators and teachers may be willing to serve as physical activity champions and role models to show the benefits and ease of implementing classroom physical activity and to help build buy-in among other administrators and teachers. Other groups that may be available to support these efforts include school wellness committees or teams that are already working to address classroom physical activity as part of their Comprehensive School Physical Activity Program plan.^{10,12}

With appropriate support and training, physical education teachers can serve as a resource to promote best practices and techniques for classroom physical activity.¹⁰ Schools may also have a physical activity champion known as the physical activity leader (often, but not necessarily, the physical education teacher) who can lead the development of a Comprehensive School Physical Activity Program plan that includes classroom physical activity.¹⁰

Evidence has shown that teacher and student buy-in is essential for the success of classroom physical activity.⁵¹ Challenges that prevent teachers from implementing classroom physical activity include teaching philosophies and priorities that do not include physical activity, space constraints, and limited time for physical activities.

Engage These Groups

- School administrators
- Physical education teachers
- Physical activity champions and leaders
- Instructional coaches
- Classroom teachers
- Students
- Parents
- Community members and organizations
- Colleges and universities

The best way to overcome these challenges is to work with teachers to identify solutions and with school administrators to ensure direct support and encouragement.⁴⁹ Students, especially those in upper elementary school grades and in middle and high school, can be asked to serve as student champions and design, select, and lead classroom physical activities. Assessing teacher and student interest might be the first step to identifying existing champions, cultivating new champions, and ultimately implementing classroom physical activity.



Parents and community members can support these efforts by communicating with administrators and teachers about the benefits of classroom physical activity, advocating for and volunteering to help with activities, and sharing specific ideas with teachers.⁵² Creating partnerships with universities and community organizations, like local nonprofits that work with children and adolescents, can expand support and potentially provide resources for classroom physical activity.

2. Identify what classroom physical activity policies and practices currently exist.

Policies that address classroom physical activity may already exist at state, district, and school levels. State policies that require students to engage in a certain amount of physical activity every day are effective at promoting regular activity.⁵³ All districts that participate in school meals programs (such as the National School Lunch Program) are required to have local wellness policies that include physical activity goals and to make these policies publicly available.

School staff can review local school wellness policies and relevant district policies to see if they have requirements for school-based physical activity overall or classroom physical activity specifically. Examples include policies that require regular classroom physical activity or that require schools to report the number of daily minutes of activity.⁵⁴ If such policies exist, schools can consider ways to use these policies to make the case for initiating, strengthening, and expanding classroom physical activity practices.⁵⁵

If no policies exist at state, district, or school levels, schools may be able to identify specific classroom physical activity practices that can be replicated or expanded. They can also use CDC's [School Health Index](#) to assess and strengthen their policies and practices related to physical education and physical activity.^{56,57} Assessment results can be used to create an action plan to include physical activity in the school's mission and integrate classroom physical activity into existing or new school policies and practices to help make it part of the school culture.



3. Provide professional development or in-service training on classroom physical activity.



Through professional development opportunities, teachers, instructional coaches, school and district leadership, and other physical activity champions can build their skills and confidence; ensure that activities are conducted in a safe, positive, and inclusive manner; and learn by practicing physical activities.⁵¹ Relevant topics for training include:

- The connection between classroom physical activity and academic achievement.
- Practical ideas for how to promote and plan for classroom physical activity.
- How to connect classroom lessons for other subjects (such as math or science) to physical activity.
- How to use physical activity to manage the classroom (to calm or energize students) and to meet other classroom goals.
- Physical activities that include all students, regardless of ability.

Students taught by teachers who have received training on classroom physical activity have higher levels of physical activity per week than those taught by teachers without this training.⁵³ One way to promote classroom physical activity is to add physical activities to staff meetings and other types of professional development opportunities to show the benefits of these practices and how easily they can be incorporated. Physical education teachers can also be asked to lead professional development for other teachers to give them examples and strategies for classroom physical activity. In addition, schools can identify district-level staff with expertise or recruit help from universities or state agencies of education or health to provide professional development or resources.^{58,59}

Professional development will help make classroom physical activity more sustainable.^{12,60} It will also give teachers access to support groups or mentors, planning support, resources (handouts, instruction books, videos, and websites), and e-mail reminders about how to implement physical activities.^{14,51,61,62}



STRATEGIES FOR CLASSROOM PHYSICAL ACTIVITY IN SCHOOLS

Category 2



Create Classroom Environments Supportive of Physical Activity

4. Identify approaches to incorporate classroom physical activity.
5. Identify opportunities and appropriate times for classroom physical activity.
6. Identify materials, technology, and resources to promote classroom physical activity.
7. Identify ways to create and use classroom space for classroom physical activity.
8. Ensure that classroom physical activity is appropriate and safe for all students by setting and communicating safety and behavioral expectations.



4. Identify approaches to incorporate classroom physical activity.

Classroom physical activity can promote classroom management and increase student engagement in the learning process, while helping students get more minutes of physical activity.^{14,18,51} The two primary approaches for classroom physical activity are:

- **Physical activity integrated into planned academic instruction.** Physical activity during academic instruction can be added to a teacher's lesson planning process to ensure that activities reinforce the desired content and academic standards and help limit the amount of time students are sedentary.^{37,63} Teachers can identify physical activities that fit their teaching style and include them in their lesson plans.^{63,64}
- **Physical activity outside of planned academic instruction.** Physical activity outside of planned academic instruction is not necessarily tied to the lesson being taught. It can be spontaneously added to limit sedentary time or when the teacher sees a drop in student energy, attentiveness, or retention.²⁶ These physical activities can also be preplanned so teachers can quickly and easily incorporate them during class.

Both of these approaches have been shown to increase levels of physical activity throughout the school day and improve different aspects of the learning environment and academic achievement.^{18,19} Other ways to increase physical activity in the classroom include:⁶⁵

- Encouraging physical activity as students move between activities or classrooms.
- Using physical activity as a reward or incentive for appropriate classroom behavior.
- Adding physical activity at the beginning of the school day—for example, schoolwide exercise during morning announcements.
- Identifying ways to turn sedentary activities, such as waiting in line, into time for physical activity.

5. Identify opportunities and appropriate times for classroom physical activity.



The best way to identify opportunities and appropriate times for classroom physical activity is for teachers to intentionally plan for it by adding physical activity into daily lessons and creating prompts.^{61,66} Ideally, classroom physical activities should be:

- Supportive of positive classroom management and integrated throughout class time.¹⁹
- Simple and easy to organize, requiring little preparation.⁵¹
- Doable anywhere, anytime, and in any clothing worn by teachers and students.⁶⁷

Teachers also can determine appropriate times for classroom physical activity by assessing which approaches work best for them and how their students respond at different times during the school day. Classroom physical activity is often an effective way to help students relax and calm down before a test or after lunch.⁶⁸

6. Identify materials, technology, and resources to promote classroom physical activity.

Physical activity can be added to the classroom with little or no materials or equipment. For activities that do require materials or equipment, these items are usually available in the classroom or from the school's physical education program.⁶⁹ Some schools might be able to add equipment or furniture that promotes movement—such as balance balls, learning mats, standing desks, or bicycle chairs—to their classrooms.^{70,71} If only a few such items are available in each classroom, a rotation schedule will be needed.

Music can also be used to energize and motivate students and as a signal to start and stop activities. Increasingly, digital platforms such as YouTube provide videos that teachers can use for classroom physical activity.⁷² In addition, many resources—such as tool kits, guides, manuals, and programs—are available to provide ideas on how to add physical activity to the classroom. Teachers can identify the resources they feel comfortable using and then ask students to choose activities they would enjoy.⁶³ Once teachers identify the activities they want to use, they will need to make sure they have the necessary materials and technology.



7. Identify ways to create and use classroom space for physical activity.

Every classroom has a unique size, physical structure, and furniture composition, and some creative rearrangement of items in the room may be possible to increase physical activity.⁷³ Classroom space has been identified as one of the main challenges for teachers who want to add classroom physical activity because of logistics and safety concerns for students.^{14,18,61} However, a thoughtfully considered physical arrangement can safely enable the inclusion of physical activity.⁷⁴ In addition, most physical activities can be done at or next to a student's desk.^{37,69} Teachers can determine the types of activities that are most appropriate for their students and the physical space in their classroom.

Teachers can shift seating arrangements and designate an open space as an "activity area" to make the best use of their classroom for physical activity.

Teachers can also look for ways to use outdoor space to add physical activity—for example, by discussing academic content with a student or small group of students while walking outdoors.⁷³ In addition, some schools have dedicated rooms where students can rotate through active learning stations to help them be more engaged in the learning process. It is important for teachers to plan ahead on how best to use their classroom for a given physical activity, especially when they are first starting to use classroom physical activity or adding a new activity.

8. Ensure that classroom physical activity is appropriate and safe for all students by setting and communicating safety and behavioral expectations.

Setting safety and behavioral expectations for classroom physical activity is essential to creating a safe and positive learning environment for all students.¹² Many schools communicate behavioral expectations for students through the school's code of conduct, and expectations for classroom physical activity could be included in this document. Teachers can also individually set expectations for students. These expectations could include participating in the classroom physical activity to the best of their ability; being respectful of different levels of abilities; being aware of their proximity to other students and objects in the classroom; and helping others if needed. Physical education teachers can help identify activities that are developmentally appropriate and safe to use in a limited space and provide guidance on variations and modifications to make physical activities inclusive of all students.^{73,75}



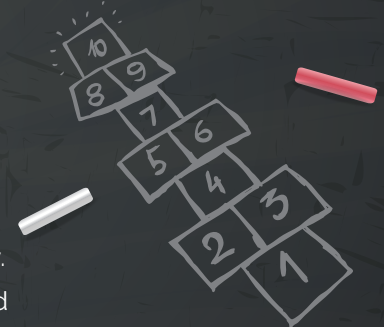
STRATEGIES FOR CLASSROOM PHYSICAL ACTIVITY IN SCHOOLS

Category 3



Collect and Share Information About Classroom Physical Activity Experiences

9. Collect information on classroom physical activity.
10. Share successes, challenges, and lessons learned from classroom physical activity.



9. Collect information on classroom physical activity.

Teachers, administrators, and physical activity champions can collect information on classroom physical activity efforts, and teachers can track the types of physical activities they use in their classroom.^{76,77} This information can include preparation time, ease of implementation, whether students enjoyed the activity, and length of the activity. Students also can track their activities in a day planner.

Teachers can assess the effect of physical activities on student behavior, such as whether students are focused, having fun learning, and exhibiting fewer off-task behaviors (like fidgeting, excessive talking, or gazing off).^{18,42} They also can assess the effect these activities have on students' learning and academic performance (such as their grades and test scores).⁷⁸ If resources allow, teachers can work with universities or other organizations to use pedometers or other wearable devices to measure student physical activity levels in the classroom.

Teachers can also anecdotally assess the overall learning environment—for example, by observing how the use of physical activity is helping them manage their classroom and how well students are interacting with each other and engaging in the lessons being taught.^{51,61} For students with an individualized education program or a 504 plan, schools can collect information about how classroom physical activity is supporting their progress in meeting identified education goals.

10. Share successes, challenges, and lessons learned from classroom physical activity.

The information collected can be used to identify and share successes, challenges, and lessons learned from classroom physical activity.¹⁰ Dissemination of these findings can guide best practices for both sustainability and improvement. It will also help with future planning and guide professional development needs. Furthermore, celebrating and sharing classroom physical activity successes and their positive effects on students' health and learning may promote and expand buy-in among teachers and administrators. Teachers can use professional learning communities and grade-level team meetings to share their experiences with each other. Successes, challenges, and lessons learned also could be shared during staff meetings, in newsletters, on a school's website, and through e-mail.



Take Action

CDC and Springboard to Active Schools have developed additional resources to help schools put the *Strategies for Classroom Physical Activity in Schools* into practice, including:

- *Integrate Classroom Physical Activity in Schools: A Guide for Putting Strategies into Practice* provides key questions and activities, along with practical templates that teachers and other champions can use to help them adopt, promote, enhance, or sustain the strategies in this document.
- *Online Platform: Integrate Classroom Physical Activity in Schools* is an online platform that provides a comprehensive look at the strategies identified in *Strategies for Classroom Physical Activity in Schools*. It includes key questions and activities, templates and tools, stories from the field that show how the strategies are being used in different states, and resources aligned with each of the recommended strategies.
- *Data Brief: Integrate Classroom Physical Activity in Schools* defines classroom physical activity, provides a snapshot of current classroom physical activity practices in the United States, and highlights ways to improve classroom physical activity through national guidance and practical strategies and resources.
- *Integrate Classroom Physical Activity: Getting Student Active During School* is a PowerPoint presentation that explains the benefits and importance of classroom physical activity and identifies resources available for schools to use to promote and plan classroom physical activity.

Conclusion

The strategies in this document provide a comprehensive approach that school districts, schools, teachers, and other physical activity champions can consider as they promote and implement classroom physical activity for their students. Making classroom physical activity part of every student's day can contribute to their overall health, development, and academic achievement.



References

1. National Physical Activity Plan Alliance. *The 2018 United States Report Card on Physical Activity for Children and Youth*. Columbia, SC: National Physical Activity Plan Alliance; 2018.
2. Physical Activity Guidelines Advisory Committee. *2018 Physical Activity Guidelines Advisory Committee Scientific Report*. Washington, DC: US Dept of Health and Human Services; 2018.
3. US Department of Health and Human Services. *Physical Activity Guidelines for Americans, 2nd edition*. Washington, DC: US Department of Health and Human Services; 2018.
4. US Department of Education. Institute of Education Sciences, National Center for Education Statistics. Fast Facts website. <https://nces.ed.gov/fastfacts/display.asp?id=65>. Accessed August 31, 2018.
5. Carson RL, Castelli DM, Pulling Kuhn AC, et al. Impact of trained champions of comprehensive school physical activity programs on school physical activity offerings, youth physical activity and sedentary behaviors. *Prev Med*. 2014;69:S12–S19.
6. Nettlefold L, McKay HA, Warburton DE, McGuire KA, Bredin SS, Naylor PJ. The challenge of low physical activity during the school day: at recess, lunch and in physical education. *Br J Sports Med*. 2011;45(10):813–819.
7. Weaver RG, Crimarco A, Brusseau TA, Webster CA, Burns RD, Hannon JC. Accelerometry-derived physical activity of first through third grade children during the segmented school day. *J Sch Health*. 2016;86(10):726–733.
8. Yli-Piipari S, Kulmala JS, Jaakkola T, Hakonen H, Fish JC, Tammelin T. Objectively measured school day physical activity among elementary students in the United States and Finland. *J Phys Act Health*. 2016;13(4):440–446.
9. ASCD, Centers for Disease Control and Prevention. *Whole School, Whole Child, Whole Community: A Collaborative Approach to Learning and Health*. Alexandria, VA: ASCD; 2014.
10. Centers for Disease Control and Prevention. *Comprehensive School Physical Activity Programs: A Guide for Schools*. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2013.
11. Institute of Medicine. *Educating the Student Body: Taking Physical Activity and Physical Education to School*. Washington, DC: National Academies Press; 2013.
12. Centers for Disease Control and Prevention. School health guidelines to promote healthy eating and physical activity. *MMWR Morb Mortal Wkly Rep*. 2011;60(RR-5):1.
13. Webster CA, Russ L, Vazou S, Goh TL, Erwin H. Integrating movement in academic classrooms: understanding, applying and advancing the knowledge base. *Obes Rev*. 2015;16(8):691–701.
14. Baker EA, Elliott M, Barnidge E, et al. Implementing and evaluating environmental and policy interventions for promoting physical activity in rural schools. *J Sch Health*. 2017;87(7):538–545.
15. Donnelly JE, Lambourne K. Classroom-based physical activity, cognition, and academic achievement. *Prev Med*. 2011;52(suppl 1):S36–S42.
16. Erwin H, Fedewa A, Beighle A, Ahn S. A quantitative review of physical activity, health, and learning outcomes associated with classroom-based physical activity interventions. *J Appl Sch Psychol*. 2012;28(1):14–36.
17. Mahar MT. Impact of short bouts of physical activity on attention-to-task in elementary school children. *Prev Med*. 2011;52:S60–S64.
18. Martin R, Murtagh EM. Effect of active lessons on physical activity, academic, and health outcomes: a systematic review. *Res Q Exerc Sport*. 2017;88(2):149–168.
19. Watson A, Timperio A, Brown H, Best K, Hesketh KD. Effect of classroom-based physical activity interventions on academic and physical activity outcomes: a systematic review and meta-analysis. *Int J Behav Nutr Phys Act*. 2017;14(1):114.
20. Rasberry CN, Lee SM, Robin L, et al. The association between school-based physical activity, including physical education, and academic performance: a systematic review of the literature. *Prev Med*. 2011;52(suppl 1):S10–S20.
21. Kibbe DL, Hackett J, Hurley M, et al. Ten years of TAKE 10!®: integrating physical activity with academic concepts in elementary school classrooms. *Prev Med*. 2011;52(suppl 1):S43–S50.
22. Calvert HG, Mahar MT, Flay B, Turner L. Classroom-based physical activity: minimizing disparities in school-day physical activity among elementary school students. *J Phys Act Health*. 2018;15(3):161–168.

23. Barr-Anderson DJ, AuYoung M, Whitt-Glover MC, Glenn BA, Yancey AK. Integration of short bouts of physical activity into organizational routine a systematic review of the literature. *Am J Prev Med.* 2011;40(1):76–93.
24. Norris E, Shelton N, Dunsmuir S, Duke-Williams O, Stamatakis E. Physically active lessons as physical activity and educational interventions: a systematic review of methods and results. *Prev Med.* 2015;72:116–125.
25. Reed JA, Maslow AL, Long S, Hughey M. Examining the impact of 45 minutes of daily physical education on cognitive ability, fitness performance, and body composition of African American youth. *J Phys Act Health.* 2013;10(2):185–197.
26. Kuczala MS, Lengel T. *Ready, Set, Go!: The Kinesthetic Classroom 2.0.* Thousand Oaks, CA: Corwin; 2018.
27. Mullender-Wijnsma MJ, Hartman E, de Greeff JW, Bosker RJ, Doolaard S, Visscher C. Improving academic performance of school-age children by physical activity in the classroom: 1-year program evaluation. *J Sch Health.* 2015;85(6):365–371.
28. Drummy C, Murtagh EM, McKee DP, Breslin G, Davison GW, Murphy MH. The effect of a classroom activity break on physical activity levels and adiposity in primary school children. *J Paediatr Child Health.* 2016;52(7):745–749.
29. Bassett DR, Fitzhugh EC, Heath GW, et al. Estimated energy expenditures for school-based policies and active living. *Am J Prev Med.* 2013;44(2):108–113.
30. Cornelius C, Fedewa AL, Ahn S. The effect of physical activity on children with ADHD: a quantitative review of the literature. *J Appl Sch Psychol.* 2017;33(2):136–170.
31. Katz D, Cushman D, Reynolds J, et al. Putting physical activity where it fits in the school day: preliminary results of the ABC (activity bursts in the classroom) for fitness program. *Prev Chronic Dis.* 2010;7(4):A82. https://www.cdc.gov/pcd/issues/2010/jul/09_0176.htm. Accessed September 24, 2018.
32. Hillman CH, Pontifex MB, Raine LB, Castelli DM, Hall EE, Kramer AF. The effect of acute treadmill walking on cognitive control and academic achievement in preadolescent children. *Neuroscience.* 2009;159(3):1044–1045.
33. Hillman CH, Buck SM, Themanson JR, Pontifex MB, Castelli DM. Aerobic fitness and cognitive development: event-related brain potential and task performance indices of executive control in preadolescent children. *Dev Psychol.* 2009;45(1):114–129.
34. Lister D, Ansalone G. Utilizing modality theory to achieve academic success. *Educational Research Quarterly.* 2006;30(2):20–30.
35. Lengel T, Kuczala MS, eds. *The Kinesthetic Classroom: Teaching and Learning through Movement.* Thousand Oaks, CA: Corwin; 2010.
36. Martin R, Murtagh EM. Teachers' and students' perspectives of participating in the 'Active Classrooms' movement integration programme. *Teach Teach Educ.* 2017;63:218–230.
37. Reed JA. *Activating the Modern Classroom.* Charlotte, NC: Information Age Publishing; 2017.
38. Centers for Disease Control and Prevention. *School Connectedness: Strategies for Increasing Protective Factors Among Youth.* Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2009.
39. Thapa A, Cohen J, Guffey S, Higgins-D'Alessandro A. A review of school climate research. *Rev Educ Res.* 2013;83(3):357–385.
40. Beisser SR, Peters RE, Thacker VM. Balancing passion and priorities: an investigation of health and wellness practices of secondary school principals. *NASSP Bulletin.* 2014;98(3):237–255.
41. Michael SL, Merlo C, Basch C, Wentzel K, Wechsler H. Critical connections: health and academics. *J Sch Health.* 2015;85(11):740–758.
42. Ma JK, Mare LL, Gurd BJ. Classroom-based high-intensity interval activity improves off-task behaviour in primary school students. *Appl Physio Nutr Metab.* 2014;39(12):1332–1337.
43. Centers for Disease Control and Prevention. *School Health Profiles 2016: Characteristics of Health Programs Among Secondary Schools.* Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2017.
44. Centers for Disease Control and Prevention. *Results from the School Health Policies and Practices Study 2014.* Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2015.
45. Centers for Disease Control and Prevention. *Results from the School Health Policies and Practices Study 2016.* Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2017.

46. SHAPE America—Society of Health and Physical Educators. *Shape of the Nation: Status of Physical Education in the USA*. Reston, VA: SHAPE America—Society of Health and Physical Educators; 2016.
47. Turner L, Chaloupka FJ. Reach and implementation of physical activity breaks and active lessons in elementary school classrooms. *Health Educ Behav*. 2017;44(3):370–375.
48. National Association of State Boards of Education. *Fit, Healthy, and Ready to Learn: A School Health Policy Guide*. Washington, DC: National Association of State Boards of Education; 2012.
49. Webster AC, Zarrett N, Cook BS, Egan C, Nesbitt D, Weaver R. Movement integration in elementary classrooms: teacher preparations and implications for program planning. *Eval Program Plann*. 2017;61:134–143.
50. Webster CA, Beets MW, Weaver RG, Vazou S, Russ L. Rethinking recommendations for implementing Comprehensive School Physical Activity Programs: a partnership model. *Quest*. 2015;67(2):185–202.
51. McMullen J, Kulinna P, Cothran D. Chapter 5 physical activity opportunities during the school day: classroom teachers' perceptions of using activity breaks in the classroom. *J Teach Phys Educ*. 2014;33(4):511–527.
52. Centers for Disease Control and Prevention. *Parent Engagement: Strategies for Involving Parents in School Health*. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2012.
53. Ward D. *School Policies on Physical Education and Physical Activity. A Research Synthesis*. Princeton, NJ: Active Living Research; 2011.
54. Public Health Law Center. *Promoting Health in Minnesota Schools: The Active Classroom*. St. Paul, MN: Public Health Law Center; 2013.
55. Webster CA, Caputi P, Perreault M, Doan R, Weaver G, Douthett P. Elementary classroom teachers' adoption of physical activity promotion in the context of a statewide policy: an innovation diffusion and socio-ecologic perspective. *J Teach Phys Educ*. 2013;32(4):419–440.
56. Centers for Disease Control and Prevention. *School Health Index: A Self-Assessment and Planning Guide*. Elementary school version. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2017.
57. Centers for Disease Control and Prevention. *School Health Index: A Self-Assessment and Planning Guide*. Middle school/ high school version. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2017.
58. Webster CA, Monsma E, Erwin H. The role of biographical characteristics in preservice classroom teachers' physical activity promotion attitudes. *J Teach Phys Educ*. 2010;29(4):358–377.
59. Michael RD, Webster CA, Egan CA, et al. Viability of university service learning to support movement integration in elementary classrooms: perspectives of teachers, university students, and course instructors. *Teach Teach Educ*. 2018;72:122–132.
60. McKenzie TL, Sallis JF, Kolody B, Faucette FN. Long-term effects of a physical education curriculum and staff development program: SPARK. *Res Q Exerc Sport*. 1997;68(4):280–291.
61. Carlson JA, Engelberg JK, Cain KL, et al. Contextual factors related to implementation of classroom physical activity breaks. *Transl Behav Med*. 2017;7(3):581–592.
62. Webster CA, Weaver RG, Egan CA, Brain A, Vazou S. Two-year process evaluation of a pilot program to increase elementary children's physical activity during school. *Eval Program Plann*. 2018;67:200–206.
63. Watson A, Timperio A, Brown H, Hesketh KD. A primary school active break programme (ACTI-BREAK): study protocol for a pilot cluster randomised controlled trial. *Trials*. 2017;18:433.
64. Webster CA, Buchan H, Perreault M, Doan R, Douthett P, Weaver R. An exploratory study of elementary classroom teachers' physical activity promotion from a social learning perspective. *J Teach Phys Educ*. 2015;34(3):474–495.
65. Russ LB, Webster CA, Beets MW, et al. Development of the System for Observing Student Movement in Academic Routines and Transitions (SOSMART). *Health Educ Behav*. 2017;44(2):304–315.
66. Goh TL, Hannon JC, Webster CA, Podlog L. Classroom teachers' experiences implementing a movement integration program: barriers, facilitators, and continuance. *Teach Teach Educ*. 2017;66:88–95.
67. Whitt-Glover MC, Ham SA, Yancey AK. Instant Recess®: a practical tool for increasing physical activity during the school day. *Prog Community Health Partnersh*. 2011;5(3):289–297.
68. Action for Healthy Kids. Brain Breaks, Instant Recess and Energizers website. <http://www.actionforhealthykids.org/tools-for-schools/1252-brain-breaks-instant-recess-and-energizers>. Accessed August 31, 2018.

69. Kuczala M. *Training in Motion: How to Use Movement to Create Engaging and Effective Learning*. Nashville, TN: AMACOM; 2015.
70. Fedewa AL, Abel M, Erwin HE. The effects of using stationary bicycle desks in classrooms on adolescents' physical activity. *Journal of Occupational Therapy, Schools & Early Intervention*. 2017;10(1):78–89.
71. Mingos KE, Chao AM, Irwin ML, et al. Classroom standing desks and sedentary behavior: a systematic review. *Pediatrics*. 2016;137(2):e20153087.
72. Alliance for a Healthier Generation. Secondary Classroom Physical Activities website. https://www.healthiergeneration.org/_asset/590hh0/10-1819_SecondaryClassroomPA.pdf. Accessed August 31, 2018.
73. Ontario Ministry of Education. *Daily Physical Activity in Schools: Grades 1 to 3*. Toronto, Ontario: Ontario Ministry of Education; 2005.
74. Brittin J, Sorensen D, Trowbridge M, et al. Physical activity design guidelines for school architecture. *PLoS One*. 2015;10(7):e0132597.
75. Action for Healthy Kids. Including All Children website. <http://www.actionforhealthykids.org/what-we-do/programs/game-on/about-game-on/850-children-disabilities>. Accessed August 31, 2018.
76. Dunn LL, Venturana JA, Walsh RJ, Nonas CA. An observational evaluation of move-to-improve, a classroom-based physical activity program, New York City schools, 2010. *Prev Chronic Dis*. 2012;9:E146. doi: 10.5888/pcd9.120072.
77. Holt E, Bartee T, Heelan K. Evaluation of a policy to integrate physical activity into the school day. *J Phys Act Health*. 2013;10(4):480–487.
78. Erwin H, Fedewa A, Ahn S. Student academic performance outcomes of a classroom physical activity intervention: a pilot study. *International Electronic Journal of Elementary Education*. 2012;4(3):473–487.

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