

The Comprehensive School Physical Activity Program: An Invited Review

Abstract: *Physical inactivity is a global challenge that necessitates early intervention during childhood. Schools are positioned to make a significant impact on children's current and future physical activity behavior, but numerous barriers hinder the implementation and sustainability of school-based physical activity opportunities. The purpose of this invited article is to provide an overview of the comprehensive school physical activity program (CSPAP) as a concept, framework, and promising approach to institutionalizing physical activity within the school environment. Despite the availability of numerous published reviews on the topic, a broad, up-to-date panorama of the CSPAP literature that encompasses and consolidates historical, conceptual, empirical, and practical perspectives is currently lacking. Contained within this article is an explanation of the public health context that undergirds the CSPAP concept, a historical perspective of the concept's origins and evolution, examples of CSPAP research, recommendations for advancing the knowledge base, and evidence-informed frameworks and principles for professional practice.*



Keywords: children; youth; physical education; physical activity

The Comprehensive School Physical Activity Program

Physical activity benefits people of all ages and is an important factor in the prevention of non-communicable diseases.¹ United States public health guidelines state that school-aged children

participation in physical activity is considered a problem of pandemic proportions.⁵

Addressing the problem of physical inactivity must begin with early intervention during childhood.⁶ From a behavioral perspective, physical activity may be habit-forming, as some evidence suggests it may “track” from early to later

 This article provides an overview that considers the conceptual evolution of CSPAP, up-to-date CSPAP research, future directions, and frameworks and principals to inform program implementation. 

(5–17 years) should do at least 60 minutes of mostly moderate-to-vigorous physical activity each day.² Yet, most children fall short of meeting these guidelines.^{3,4} The problem of widespread physical inactivity extends into adulthood and has been identified as the fourth leading risk factor for premature death worldwide.⁵ Consequently, lack of

stages of life.^{7,8} Other research indicates that levels of physical activity decline from adolescence to adulthood.⁹ Overall, it is important to ensure children establish a habitual pattern of health-enhancing physically active behavior that will sustain itself in the future.⁶ Striving to achieve this goal is the pursuit of those who work to promote children's

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physical activity. Such promotion entails any well-intentioned strategy enacted to support, optimize, or increase children's physical activity participation.

Accordingly, the manifestations of children's physical activity promotion vary considerably in their nature and scope and span nearly every sector of society (e.g., education; healthcare; business and industry; and transportation, land use, and community design).¹⁰

One of the most important settings to promote children's participation in physical activity is the school environment.⁶ As school is compulsory, the school system reaches virtually every child. Schools provide children with formal education and give many children access to other services and resources like afterschool activities and facilities for sport and recreation outside of school hours. Children and their families spend much of their time engaged with school-based programs and events, such that the school serves as a central hub in most communities. Ideally, children's school years are a time of learning and development under the continuous care and tutelage of certified teachers, combined with a nurturing family and peer group. School thus constitutes the largest natural "intervention" through which opportunities for physical activity can be provided. The Institute of Medicine recommends that children accrue half (30 minutes) of their total daily physical activity during school and the other half before and after school.⁶

Yet, promoting physical activity through schools does not come without challenges. Schools often face pressure to produce academic results and are held accountable for ensuring students achieve educational standards in a select number of subjects (e.g., reading and math). In this context, school leaders have scaled back time allocated to subjects and programs for which there is little to no accountability for student performance.¹¹ This has resulted in cuts to physical education and recess time. Paradoxically, a robust research literature demonstrates that physical activity leverages children's learning in high

stakes subjects (e.g., math).¹² By removing opportunities for children to be physically active during school, school leaders may inadvertently be suppressing children's academic potential and limiting schools in their efforts to produce competitive test scores.

This invited article focuses on the comprehensive school physical activity program (CSPAP) as an innovation designed to institutionalize physical activity into the school system. Although a CSPAP is far from being the only approach conceived to address the need for increased physical activity and other health behaviors through schools, it is considered the national framework for school physical education and physical activity in the United States.¹³ A CSPAP has emerged as the leading national example of a "whole-of-school" approach to physical activity promotion,¹⁴ consistent with the Institute of Medicine's recommendations.⁶ Thus, special attention to CSPAPs among their various companion approaches is merited.

The aim of this article is to provide an overview of CSPAPs as a topic in the literature, including its historical and conceptual basis, empirical momentum, and translational potential for people working in allied professions with a stake in children's health and quality of life. While a number of previous reviews on or related to the topic have been published¹⁵⁻²² (for brevity, only examples are provided as opposed to an exhaustive list), these generally have focused more narrowly on certain aspects of a CSPAP, included only intervention studies, or were published several years ago and do not incorporate the most recent literature in what is a rapidly growing field of scholarship. Additionally, an edited textbook on CSPAPs that was published in 2020 provides extensive coverage of the topic,¹⁴ but that resource is better suited for a deep dive into the various facets of the knowledge base. In the current article, I apply a wide-angle lens to holistically capture and consolidate informative perspectives on the CSPAP concept including its history, current status, and application to research and

practice. Specifically, this article contains an examination of the origins and evolution of the CSPAP concept, examples of CSPAP research, recommendations for advancing the knowledge base, and a summary of several frameworks and principles to guide practitioners in their work related to CSPAPs. As I was invited to write this article based on my experience and contributions as a CSPAP researcher and author, I took the liberty to selectively cull literature that I feel represents prominent facets and foci within the expanding corpus of work on the topic. I acknowledge that my perspective is biased and may not necessarily be shared by others who study CSPAPs.

Origins and Evolution of the CSPAP Concept

The concept of a CSPAP originated in the United States in a position statement from the National Association for Sport and Physical Education (NASPE, now the Society of Health and Physical Educators [SHAPE] America) in 2008.²³ A CSPAP was envisioned as a program that included 4 components: quality physical education, school-based physical activity opportunities, school employee wellness and involvement, and family and community involvement. These components were viewed as interconnected with potential for cross-component synergy, similar to numerous other multicomponent conceptualizations and initiatives related to school health promotion that span decades within the fields of public health and education. Some prominent examples include the Coordinated School Health approach^{24,25}; the World Health Organization's Health Promoting Schools framework^{26,27}; and most recently, the Whole School, Whole Community, Whole Child model.²⁸ NASPE recommended that all PK-12 schools implement a CSPAP.

Since its inception, the CSPAP concept has evolved through numerous iterations. Shifts in thinking about a CSPAP are best reflected in graphical representations used to depict what a CSPAP is and what its function should be.²⁹ Notable changes

to the original CSPAP concept include the addition of a fifth component (physical activity before and after school) with modifications to the other components (the term “quality” was removed from the physical education component; school-based physical activity opportunities was simplified to physical activity during school; school employee wellness and involvement was reduced to staff involvement; and for the family and community component, “involvement” was replaced with engagement). Illustrations of a CSPAP provided by the Centers for Disease Control and Prevention (CDC)³⁰ and SHAPE America³¹ exemplify these renderings.

The change from family and community involvement to family and community engagement is minor and inconsequential, but other above-mentioned alterations to the concept of a CSPAP are substantial and warrant closer examination. Adding the physical activity before and after school component and changing “school-based physical activity opportunities” to physical activity during school have afforded more flexibility in the thinking around what kinds of contexts and opportunities are relevant for promoting children’s physical activity. For instance, not all before and after school physical activity programming is “school-based” (i.e., provided at school campuses). In many cases, children can participate in off-campus physical activity programs through partnerships between schools and community organizations. Active transportation programs, which promote walking, cycling, and other modes of active travel to and from school, are another example of school-facilitated physical activity opportunities that occur off campus.

Another conceptual change that requires careful consideration is the removal of the term “quality” from the physical education component. There are differing views of what constitutes quality or effectiveness in physical education,³² so the deletion of the quality descriptor may have been an attempt to avoid confusion. However, excluding the emphasis on quality undermines the

distinct characteristics of physical education within a CSPAP. Although in the U.S. there are no federal laws mandating requirements for physical education, no national physical education curriculum, and considerable variation in physical education policies and programs across the country,³³ the profession’s national organization (SHAPE America) endorses a standards-based approach to content delivery and specifies 5 standards that all students should be able to achieve through school programming.³⁴ These standards encompass knowledge (e.g., understanding physical fitness concepts and the value of participating in physical activity) and skills (e.g., being able to competently and confidently participate in a variety of physical activities) that physical educators believe children need to lead a physically active lifestyle. Physical education is the only CSPAP component directly tied to these learning outcomes for children, and physical education teachers are uniquely qualified to design and deliver appropriate learning experiences aligned with the national standards.

Changing “school employee wellness and involvement” to staff involvement deserves further consideration, as well. While descriptions of this CSPAP component have mostly remained consistent despite the modification to its name, there has been a dearth of research on school employee wellness.³⁵ Personal well-being is an important factor in job satisfaction and retention of teachers³⁶ and may influence teaching quality.³⁷ Moreover, when teachers are more physically active, they are also more likely to promote physical activity with their students.³⁸⁻⁴⁰ Returning employee wellness to the component’s name may help to invigorate inquiry related to this important aspect of a CSPAP.

Recent discourse about CSPAPs further underscores the need to consider further rebranding of the concept.²⁹ Numerous graphics of a CSPAP and a great deal of the research that references a CSPAP focus on the extent to which one or more of the components can be used to

increase the number of minutes children participate in physical activity. While this outcome aligns with the public health guideline for children to be physically active for at least 60 minutes each day, it ignores the educational goals of a CSPAP that are grounded in quality physical education (i.e., achievement of physical education content standards). Strictly focusing on children’s accrual of physical activity minutes also neglects the possible contributions of a CSPAP to children’s learning and development in a wider range of health- and academic-related outcomes (e.g., social-emotional learning and performance on standardized tests in math and reading) that have been shown to benefit from physical activity engagement. Understanding the full potential of a CSPAP will necessitate a more inclusive research agenda that encompasses investigations into how all CSPAP components might strengthen and enhance the development of the “whole child.”²⁹

Another conceptual detail that has come under scrutiny is the consistent portrayal of a CSPAP as a five-component “model.”²⁹ Based on the available case evidence to date, it appears that different schools employ different implementation approaches and place different degrees of emphasis on each CSPAP component.^{41,42} There is no reason to believe at this point that a one-size-fits-all CSPAP model exists which schools should seek to replicate or reproduce. The CDC has adopted the phrasing “CSPAP framework” in its work to promote the use of CSPAPs nationally,¹³ and this terminology allows for more flexible interpretations of the concept’s application within diverse school contexts. However, in any version of a CSPAP, quality physical education should uniformly serve as the cornerstone of program implementation. Across the lifespan of the CSPAP concept, physical education has been viewed as the foundational component that anchors schoolwide efforts to promote physical activity. Physical education focuses on curriculum and instruction designed to develop children’s and adolescents’

knowledge and skills for physical activity participation. Arguably, a school that offers multiple physical activity opportunities but provides limited to no physical education will have little impact on developmental trajectories of physical activity behavior that are underpinned by motor competence.^{43,44} Yet, little attention has been given to the cross-component synergies that physical education may evoke. This stands as perhaps the most important gap in the extant literature, as successfully implementing and sustaining a CSPAP, as well as optimizing its value, likely depends on creating mutually reinforcing connections between program components.

Examples of CSPAP Research

As previously mentioned, several reviews (e.g., systematic reviews, narrative reviews, and book chapters) of CSPAP research have been published. The purpose of this section of the article is not to provide a comprehensive review of the related literature, but rather to highlight some of the major strands of inquiry specific to different components of the framework and to briefly revisit the findings of systematic reviews that have examined CSPAP-aligned interventions. I give particular attention to the most up-to-date advances in the field, although, where appropriate, I also include more dated literature to provide a backdrop for these advances.

Physical Education

Historically, physical education research has largely involved the pursuit of conditions that best support children's learning and development toward desired outcomes. The outcomes of interest have often been driven by the content standards that SHAPE America defines for the profession. Although the standards have been updated twice since their debut in 1995, they have consistently focused on several key areas of children's development spanning physical, cognitive, and affective learning domains.^{45,46} Children are expected to be

able to competently perform a variety of movement skills, understand physical activity-related concepts and principles, demonstrate health-enhancing levels of physical fitness and physical activity, exhibit personal and social responsibility, and recognize the multifaceted value of physical activity participation. SHAPE America asserts that the overarching goal of school physical education is to prepare children for a physically active lifestyle.

The available evidence indicates that less than half of children in the U.S. are meeting the standards.⁴⁷ Although further research is needed, it is well established that several factors hamper physical education from realizing its full potential. One of the biggest challenges in physical education is the limited time allocated to it as part of the school curriculum. SHAPE America recommends weekly physical education doses of 150 minutes and 225 minutes at the elementary and secondary school levels, respectively. However, only Oregon and the District of Columbia provide physical education programming that meets these recommendations, and most states do not set any minimum time requirement for physical education.³³ In many states, exemptions from physical education are allowed or students are permitted to substitute other activities (e.g., marching band and Junior ROTC) for physical education,³³ even though such activities are not equivalent in scope or design to physical education programming.

Another challenge for physical education is lack of funding. Only 15 states have additional funding (e.g., competitive grant awards) for physical education.³³ This issue is tied to other barriers to quality programming, such as inadequate facilities and equipment for physical education classes.⁴⁸ Additionally, school principals tend to have limited knowledge about physical education,⁴⁹ and at the secondary school level, higher priority is often placed on interscholastic sports and the role of physical education teachers as sports coaches.⁵⁰ Physical education teachers have reported experiencing a teacher-coach role conflict, which can contribute to a

culture of ambivalence regarding the provision of quality physical education programs.⁵¹ A further challenge is the lack of accountability for effective teaching in physical education.¹¹ Whereas test scores in other school subjects like math and reading are used to evaluate school performance, student achievement in physical education is seldom monitored. Overall, physical education has maintained a marginalized status in schools.⁵²

Notwithstanding the many challenges to providing quality physical education programming, an evidence base exists to inform best practices in physical education teaching. Some of the major emphases of physical education research include teacher effectiveness, different curricular approaches, teacher and student cognition, and classroom ecology (i.e., the social dynamics of the teaching-learning process).⁵³⁻⁵⁵ This work has practical value in that it highlights the importance of a wide range of variables that can be manipulated to increase students' learning. For example, studies have focused on instructional behaviors of effective teachers (e.g., presenting learning tasks to students, providing feedback, managing the learning environment); thought processes behind experienced and expert teaching (e.g., planning lessons, making interactive decisions while teaching, engaging in reflection); and pedagogical strategies to support student motivation and engagement (e.g., supporting learners' autonomy, emphasizing the value of learning tasks for students). The practical significance of this research is demonstrated by SHAPE America's use of the evidence as the basis for many of the national standards for teacher candidates seeking initial licensure in physical education.⁵⁶ More recent research in the field has continued to advance these lines of inquiry as well as address other important questions about physical education. For instance, there has been increased attention to context, learners' individual differences, and the social and emotional benefits of different approaches to physical education teaching.^{57,58}

Alongside their efforts to build the evidence base for supporting children's learning, physical education researchers have also sought to understand potential links between physical education and children's physical activity participation.⁵⁹ Research along these lines is largely based on an interest in the role of physical education in public health, specifically in terms of the processes which directly or indirectly serve to increase children's physical activity participation. One strand of physical education research that focuses on children's physical activity consists of studies that examine the number of minutes children spend being physically active during physical education lessons. While recommendations state that at least 50% of physical education lessons should be spent in moderate-to-vigorous physical activity, studies show that this benchmark may often be elusive under "naturally occurring" conditions.^{18,19} Intervention research indicates it is possible to increase the amount of time children spend in physical activity during physical education lessons,⁶⁰ but there are numerous factors (e.g., policy, school facilities, teacher competencies, and student motivation) that require attention to maximize the contribution of physical education class time to children's daily physical activity participation.

Some physical education research investigates the potential of physical education lessons to increase children's participation in physical activity at other times before, during, or after school. The questions steering studies within this strand either have to do with whether being more physically active during physical education lessons leads to an increase in physical activity outside of physical education lessons or whether various instructional techniques used in physical education promote an increase in physical activity in non-physical education contexts. To date, there is limited evidence that spending more time in physical activity during physical education lessons increases the children's total daily physical activity.⁶¹ One reason for this may be that being more physically active in one context has

compensatory effects in which children compensate for the increase in physical activity by spending less time being physically active in other contexts,⁶² thus underscoring the need for using multiple components of a CSPAP to help ensure children are physically active for at least 60 minutes each day. In terms of instructional techniques, studies using motivational perspectives have shown that children are more physically active outside of physical education (e.g., during their leisure time) when their physical education teachers enact certain behaviors during class, such as supporting learners' autonomy (e.g., offering choices) and perceptions of competence (e.g., teaching for skill mastery).^{63,64}

A third strand of research aimed at understanding the role of physical education in promoting physical activity adopts a developmental perspective of the dynamic relationships between children's motor competence, physical fitness, self-perceptions, and other variables that are theorized to predict trajectories of physically active behavior from throughout childhood.⁴⁴ Mounting evidence supports the idea that, during early childhood, learning fundamental motor skills that underpin participation in a variety of physical activities leads to higher levels of physical activity participation in later childhood.⁴³ Further, the strength of associations between motor competence, physical fitness, and physical activity are proposed to increase over time.⁴⁴ These perspectives have important implications for physical education programs, which are uniquely positioned in the school environment to provide instruction in motor skills.

Other Physical Activity Opportunities

Beyond physical education, the CSPAP framework organizes additional opportunities for children to be physically active into 2 components: (a) physical activity during school and (b) physical activity before and after school. Physical activity during school comprises opportunities during scheduled recess, class periods, lunch,

and special events (e.g., assemblies and field days). Recess has traditionally served as a break time in the school day for children in elementary and middle schools. However, like physical education, recess programming has declined during the current era of high stakes testing because of the misguided belief that taking away physical activity to increase time spent in academic learning will improve academic outcomes.⁶⁵ Recess benefits children in a multitude of ways.⁶⁶ In many cases, recess is held outdoors in school playgrounds or in other spaces that facilitate physical activity and support children's physical development. While school staff supervise recess, children typically organize and play their own games with little to no direction from adults. These unstructured play opportunities allow children to take increased responsibility for their actions and practice social and emotional competencies that are essential to success in school and life. Overall, interventions to increase children's physical activity during recess have been effective through various strategies such as providing portable/loose play equipment, marking/zoning the play space, and increasing the involvement of recess supervisors.^{21,67}

Due to reductions in physical education and recess, physical activity during class periods offers a way to recoup some of the lost physical activity time in the school day. The incorporation of physical activity during classroom time can involve various approaches such as teaching an academic lesson in which students have opportunities to be physically active or taking a brief physical activity break during a class period.⁶⁸ Numerous terms are used in the literature to describe such approaches, such as classroom-based physical activity, physically active lessons, activity breaks, or brain breaks. Webster et al⁶⁹ employ "movement integration" to capture the range of possibilities for physical activity promotion during classroom time. This term embodies several key attitudes toward the use of classroom time to increase children's physical activity. First, given the priority for classroom time is to

focus on children's academic learning, the goal should be to integrate, rather than add, physical activity as part of class period routines. Second, some classroom teachers may think about "physical activity" in terms of vigorous activities better suited for physical education or recess but perceive "movement" as more feasible and appropriate for the classroom setting. Third, as some school contexts may have limited space available for physical activity during classroom time, it is important to encourage any movement opportunities that aid in reducing sedentary behavior. Movement integration has become a widely pursued area of focus in research on children's physical activity promotion. Intervention studies have consistently demonstrated that movement integration can increase the amount of time children spend being physically active during class periods, improve children's ability to stay on task during academic learning, and increase children's achievement on numerous measures of academic performance.²² Though not as commonly explored, social and emotional outcomes also appear to be enhanced through movement opportunities provided during classroom time.⁷⁰⁻⁷³

Physical activity opportunities built into lunchtime or as part of special events have received less attention in CSPAP-related research. Studies examining lunchtime physical activity often conceptually overlap in focus with recess (e.g., lunchtime recess). However, lunchtime can be used to offer children "drop-in" programming in which certain school facilities (e.g., a gymnasium) remain open to students while the facilities are not being used for instruction or other purposes.⁷⁴ Such opportunities might also be provided during other periods of the school day when children are not in class and facilities would otherwise be unused. Special events present supplemental physical activity opportunities for children but, as they occur less frequently, their overall contribution to a CSPAP has received relatively little interest from researchers.

The before and after school component of a CSPAP covers a broad swath of contexts and programming to provide children with physical activity opportunities. One of the areas of focus is active transportation to and from school. Active modes of travel have declined over the last several decades, and a small number of interventions have attempted to increase active travel.⁷⁵ Unfortunately, there were limitations in the assessments of these interventions, and overall, their impact on active transportation was shown to be weak. As might be expected, correlates of active travel include proximity to school, household income, car ownership, and ethnic background.⁷⁶ Some programs show promise for further development and evaluation. One example is Walking School Busses, which involve adult volunteers chaperoning children to/from school via walkable routes.⁷⁷

Much of the research on before and after school physical activity promotion examines afterschool programs, either on or off school campuses.⁷⁸ Afterschool programs range in scope and focus. Some examples are interscholastic sports, intramural sports, physical activity clubs, and afterschool care programs that provide academic enrichment. Interscholastic sports in the U.S. are typically designed to accommodate secondary school students who have a requisite level of skill to participate. As such, these opportunities tend to be exclusionary for many children in schools and are therefore given less emphasis in CSPAP recommendations. Some afterschool programming also excludes participants based on financial cost. Program evaluations have shown that although policies exist which specify the number of minutes children should spend being physically active in afterschool programs, children's activity levels in these settings fall short of meeting policy guidelines.⁷⁹ Successful large-scale intervention approaches have included competency-based training for afterschool program staff that focuses on maximizing program schedules and staff behaviors to increase children's physical activity opportunities.⁸⁰

The Implementation Support System

The final 2 components of the CSPAP framework are staff involvement and family and community engagement. These components comprise the implementation support system for a CSPAP.²⁹ They should be designed to assist physical education teachers in building the sociocultural and physical infrastructure needed to implement and sustain the program. Important sociocultural considerations are human resources and cultural norms within a school environment. Getting support from school leadership, classroom teachers, parents, and community partners diffuses program implementation and fosters a systemic approach to promoting children's physical activity. The intent of such an approach is to normalize physical activity promotion so that it becomes firmly embedded into the school's cultural milieu. Physical factors that should be considered to support a CSPAP are the facilities and equipment available at the school and at any partner organizations (e.g., indoor and outdoor space for physical activity, different-sized equipment for younger and older children), as well as the built environment of the surrounding community (e.g., sidewalks, bicycle lanes, and parks).

There has been more CSPAP research on staff involvement than on family and community engagement.³⁵ A great deal of the research on staff involvement investigates the potential of classroom teachers to support program implementation by using movement integration. Classroom teachers typically believe physical activity benefits children but also perceive barriers to using classroom time for physical activity promotion.⁸¹ The most frequently cited barrier is lack of time.⁸¹ In the current era of high stakes testing, classroom teachers serve on the front line in efforts to support children's math and reading achievement. Additionally, classroom teachers are often asked to perform many other duties at school, such as supervising children during lunch and

recess, serving on committees, and monitoring children before and after school. Other barriers classroom teachers commonly perceive related to movement integration are limited classroom space, lack of resources, lack of administrator support, and insufficient professional development. From a social-ecological perspective, these barriers exist at the institutional (i.e., school) level of influence.⁸¹

Individual-level factors also play a role in classroom teachers' use of MI. In line with diffusion of innovations theory,⁸² when classroom teachers believe that MI is compatible with their current teaching philosophy and skills, is simple to implement, and will produce positive results that are observable to people of significance in their work (e.g., administrators and parents), they are more likely to report using MI on a more frequent basis.⁸³ Social learning perspectives^{84,85} provide another useful lens for explaining why some classroom teachers use MI more than others. Personal physical activity behavior, physical self-perceptions, perceived competence in one's own ability to use MI, and childhood experiences in school physical education were significant predictors of classroom teachers' self-reported MI.³⁹

Social-ecological, diffusion of innovations, and social learning perspectives have also informed research examining the involvement of physical education teachers and school principals in CSPAPs. Research with a national sample of physical education teachers found that teachers working at schools that had adopted a CSPAP perceived it to be simpler to implement than teachers working at schools that had not adopted one.⁸⁶ However, the teachers at adopter schools also felt program implementation was less trialable (i.e., able to be implemented in small steps or on an experimental basis), which could suggest these teachers recognized the importance of support from others (e.g., other teachers, building administrators, and parents) in the school environment even at early stages in the implementation process. In another study with the same

sample of teachers, CSPAP-related training, CSPAP knowledge, and perceived school-level support for a CSPAP were important factors in the extent to which participants were classified as innovative in their educational practice and whether they worked at adopter schools.⁸⁷ A social-ecological perspective was used to investigate the CSPAP involvement of a national sample of principals.⁸⁸ Results showed that intrapersonal factors (i.e., beliefs about the outcomes of a CSPAP) directly predicted the principals' CSPAP involvement, while interpersonal (i.e., parents and teachers support of the program) and environmental factors (i.e., support from the school, the community, and public policy) were predictors of intrapersonal factors.

Family and community engagement remains an under-investigated component of the CSPAP framework. While the component has commonly been included in multicomponent physical activity interventions through schools, the overall effectiveness of these interventions on children's total daily physical activity was weak.⁸⁹ Little research has sought to conceptualize the nature and scope of family or community engagement in a CSPAP or to identify their correlates. With respect to families, recent research examined parents' perceptions of CSPAPs. Survey responses from a national sample of parents showed that participants felt schools should equally prioritize children's physical development alongside academic and social and emotional development.⁹⁰ A follow-up study using the same survey data indicated that parents' CSPAP engagement falls into 2 categories: advocacy (e.g., communicating with school administrators) and involvement (e.g., volunteering for school physical activity events/initiatives).⁹¹ Further, parents' attitudes about before and after school physical activity programming predicted both types of CSPAP engagement (i.e., advocacy and involvement).

Community engagement spans multiple contexts with links to schools, such as neighborhoods, recreational spaces (e.g.,

parks, fitness centers), universities, healthcare organizations, businesses, and local government. Some research has demonstrated that school–university partnerships can help to generate both school-level and community-level support for implementing CSPAP initiatives and increase children's physical activity.⁹²⁻⁹⁴ There is also evidence from research on the built environment that focuses on the utility of prioritizing active transportation opportunities to/from school through the optimization of land use (e.g., proximity of schools to homes and grid-like layout of streets) and traffic patterns (e.g., presence of sidewalks/bicycle lanes, crosswalks).⁹⁵ However, little is known about the most effective ways to engage different kinds of communities (e.g., low income vs high income and rural vs urban) in CSPAPs, though there is emerging research in this area of investigation.^{96,97} A notable gap is the lack of evidence about how to work collaboratively with local governments to effect policy change and increase accountability for CSPAP implementation.

Multicomponent Interventions

There have been 2 systematic reviews of multicomponent interventions aligned with the CSPAP framework. In the first review, which was published in 2015, the researchers conducted a meta-analysis of 14 interventions and found that the overall effect on the total daily physical activity of school-aged youth was minimal.⁹⁸ However, the researchers also found that interventions that targeted more CSPAP components were more effective than interventions that targeted fewer components. No studies targeting all 5 CSPAP components were identified in the literature search. The second systematic review was published in 2021 and included 32 intervention studies.⁹⁹ A meta-analysis was not performed but details about certain intervention characteristics (i.e., the number and type of CSPAP components included) and measured outcomes are provided. All but 2 interventions included physical education. Only one study included all 5 CSPAP components. For most studies

(95%), measured outcomes focused on aspects of health (e.g., physical activity and physical fitness), whereas the remaining studies included measurements of academic performance (e.g., on-task behavior and reading comprehension). Studies measuring minutes of physical activity participation were more prevalent than studies measuring other potential outcomes of implementing a CSPAP.

Recommendations for Advancing the Knowledge Base

Anecdotally, one of the biggest obstacles to implementing CSPAPs at scale is that there is division among physical educators with respect to the relevance or importance of a CSPAP to their professional work.^{29,100} Some physical educators seem to believe a CSPAP's only purpose is to increase the number of minutes children spend being physically active and that the program has little or nothing to do with standards-based physical education.²⁹ Research is needed to address this possible issue. For example, studies should investigate the potential of each non-physical education component of a CSPAP to support learning outcomes in physical education.²⁹ Is it feasible to design and implement physical activity experiences during recess/lunchtime, classroom time, or programs held before or after school that align with a school's physical education curriculum and accelerate children's ability to achieve physical education standards? Building an evidence base that demonstrates how a CSPAP can leverage the educational goals of physical education may increase the level of buy-in from physical educators.

Another area of research that needs increased attention is the focus on school leaders' CSPAP involvement.³⁵ The support of principals and other school administrators is essential to the success of school-based initiatives.⁸⁸ While research on the role of classroom teachers and physical education teachers is important to understanding “bottom

up” approaches to CSPAP implementation that rely on the volitional support of school staff who directly interact with children, it is equally important to understand “top down” approaches that capitalize on the decision-making power of higher-level entities in the school system, which can lead to increased accountability for CSPAP implementation.

The lack of research on family and community engagement constitutes a critical gap in the CSPAP literature. Innovations in developing the conceptual landscape and research methodology for this CSPAP component are needed. For instance, some of the challenges in conducting research on family engagement include access to children's home environments and using objective measures to assess and evaluate physical activity promotion at home. Future research should seek to address such challenges.

Also needed is increased attention to secondary school settings. Currently, much of the emphasis in CSPAP-related research and recommendations is on elementary school settings, particularly with respect to the involvement of classroom teachers in CSPAPs. There are more classroom teachers than other school staff at both the elementary and secondary school levels. As the day-to-day routines, work contexts, and perspectives of secondary classroom teachers are likely to be different from those of elementary classroom teachers, it is important to know what it takes to optimally involve secondary classroom teachers in CSPAP implementation.

Further, there is a need to build the case evidence for CSPAPs. Few case studies of CSPAPs exist in the literature. Identifying and studying instances in which schools implemented CSPAPs will help to answer key questions about contextual nuances (e.g., funding requirements and staffing needs) that should be considered when planning and delivering new physical activity opportunities for children. Investigating existing CSPAPs will also help to illustrate what such programs look like in practice. The concept of a CSPAP is

still more abstract than concrete. Descriptions of multicomponent interventions aligned with the CSPAP framework often include limited information about program details. An important goal of future research is to generate a clearer portrait of what makes CSPAPs possible, what different components entail, and how the components connect to support program goals. In particular, researchers should strive to document cases in which quality physical education forms the program's foundation and extends into other CSPAP components to ensure youth have multiple opportunities to apply and improve their physical literacy before, during, and after school.

A final area of consideration for future research is an increased focus on how to sustain CSPAPs once they are implemented. Early intervention work in the field offers some useful insights, but as mentioned earlier, there is a paucity of research on how to galvanize synergistic and system-wide physical activity promotion. The evidence on sustainability must become a priority for researchers if successful implementation efforts are to translate into routine practice.¹⁰¹

Evidence-Informed Frameworks and Principles for Professional Practice

CSPAP research has produced evidence-informed frameworks and principles that can be used in preservice teacher education programming, continuing professional development for teachers and school leaders, and staff who work in out-of-school time programs that include physical activity opportunities. These frameworks illustrate capacity-building strategies for program implementation and sustainability. Using a social-ecological perspective, Carson et al¹⁰² focus on key levers for program implementation within schools. These levers exist at the micro level (the CSPAP components), the meso level (CSPAP facilitators including knowledge, skills, dispositions, resources,

and safety), the exo level (CSPAP program leaders including a program champion, the school administration, and a CSPAP committee), and the macro level (the CSPAP culture including relevant policies and normative behaviors and beliefs). Building on this perspective, Webster et al¹⁰⁰ extended the focus to additional levers that derive from partnerships between schools and other organizations, particularly universities. These levers include communities of practice, community-based participatory research, and university service-learning. Combined, these 2 frameworks identify internal and external capacity-building factors that should be considered in efforts to implement and sustain a CSPAP.

Another framework was also recently developed in response to the COVID-19 pandemic.¹⁰³ This framework identifies the factors that should be considered when implementing a CSPAP when school programming is being delivered online. The physical education and family and community engagement components of a CSPAP are emphasized. For example, successful implementation would depend on having high-quality online physical education resources, family education and support for online physical education, affordable programs and resources for community-based physical activity, and parent logistical support for physical education and physical activity. Additional considerations are given to school-level factors (e.g., supportive administration and strong ties to families and the community), student-level factors (e.g., physical activity-related abilities and skills for using online learning technologies), and the digital divide (e.g., internet access and technology options for different devices).

Beets et al¹⁰⁴ offer a different perspective on promoting children's physical activity that focuses on the physical activity opportunities, themselves, as opposed to the levers which support such opportunities. Through this perspective, physical activity opportunities can be expanded, extended, or enhanced to increase children's physical activity participation.

Expanding involves adding new opportunities for children to be physically active, *extending* entails lengthening the time allocated to existing opportunities, and *enhancing* requires improving the quality of existing opportunities to maximize physical activity participation. For instance, adding a new recess period during the school day would be an example of expanding physical activity opportunities, increasing the length of existing physical education lessons would be an example of extending opportunities, and increasing the amount of time children spend being active during regularly scheduled portions of an afterschool program would be an example of enhancing opportunities. Notably, these approaches to increasing physical activity primarily align with the goal of a CSPAP to help youth accumulate at least 60 minutes of physical activity each day.

In the context of movement integration, "MI Wheelhouse" is a framework that organizes different physical activity promotion strategies along a learning progression.¹⁰⁵ The framework takes into account the different needs of classroom teachers who have more or less experience with movement integration. Teachers with less experience are more likely to adopt simpler strategies, such as using existing transition time to increase children's physical activity or showing an exercise/dance video that children can follow, whereas teachers with more experience may feel more comfortable teaching a lesson in math or reading in which students can be physically active while learning. The further along the progression that teachers are in their learning about movement integration, the more knowledge, time, and support they need for successful implementation. Teaching academic content through physical activity that connects with the physical education curriculum is conceptualized as the highest level of movement integration. Thus, this framework aligns with both behavioral (i.e., daily physical activity participation) and educational goals (i.e., achievement of academic standards in physical

education and other subject areas) of a CSPAP.

Aside from conceptual and theoretical frameworks to guide implementation, the LET US Play principles¹⁰⁶ were developed during pilot work that was used to inform a state-level intervention in South Carolina afterschool programs. "LET US" stands for lines (avoid having children stand in lines), elimination (do not play games where children are eliminated), team size (assign children to smaller teams or groups), uninvolved staff (actively supervise children and role model being physically active), and space and other resources (maximize use of available space, equipment, rules, and people). These principles have been shown to increase the amount of time children spend being physically active in afterschool programs and during games such as those played in physical education.^{80,107} Similar to the approaches of expanding, extending, and enhancing opportunities for physical activity, the LET US Play principles mainly focus on increasing the amount of time youth spend engaging in physical activity each day.

Conclusion

The purpose of this article was to provide an overview that holistically considers the history and conceptual evolution of the CSPAP concept, up-to-date CSPAP research, future directions for CSPAP research, and available frameworks and principles to inform program implementation. The idea of a CSPAP is still young and pliable. Though there is mounting research to demonstrate that schools can serve as a nucleus for promoting physical activity and related outcomes in children and adolescents, the evidence has yet to move beyond proof of concept. Areas for further research that were highlighted include increasing attention to how CSPAPs can support physical education programs, what possibilities exist through family and community engagement, what CSPAP implementation entails in secondary school settings, what unique

characteristics and factors shape the success of CSPAPs in different contexts and cases, and how to support program sustainability. Applied perspectives drawn upon to inform professional practice encompassed frameworks and principles that give consideration to internal (within-school) and external levers (outside-of-school) to increase CSPAP implementation; factors involved in the online delivery of physical education and physical activity opportunities; ways to optimize physical activity experiences through expanding, extending, and enhancing; a progression of strategies to integrate movement during regular classroom time; and methods of organizing physical activity experiences to maximize the amount of time participants spend being physically active.

According to national surveys, the prevalence of CSPAP implementation in the U.S. is low.^{108,109} However, these results are based on survey definitions that consider a CSPAP only in terms of a program that includes all 5 components. There is still a great deal to learn about the processes involved with successful program implementation in diverse school contexts. The concept of a CSPAP has gained traction in national organizations representing physical education, public health, and medicine, yet the science specific to CSPAPs is still in its nascent stages and its translation potential remains largely untested. What is clear at this stage is that increasing children's daily physical activity and establishing the foundation for physical activity participation across the lifespan require substantial work and ambitious allies. System-wide approaches that recruit all possible resources to create lasting conditions for children's physical activity promotion must continue to be vigorously pursued.

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