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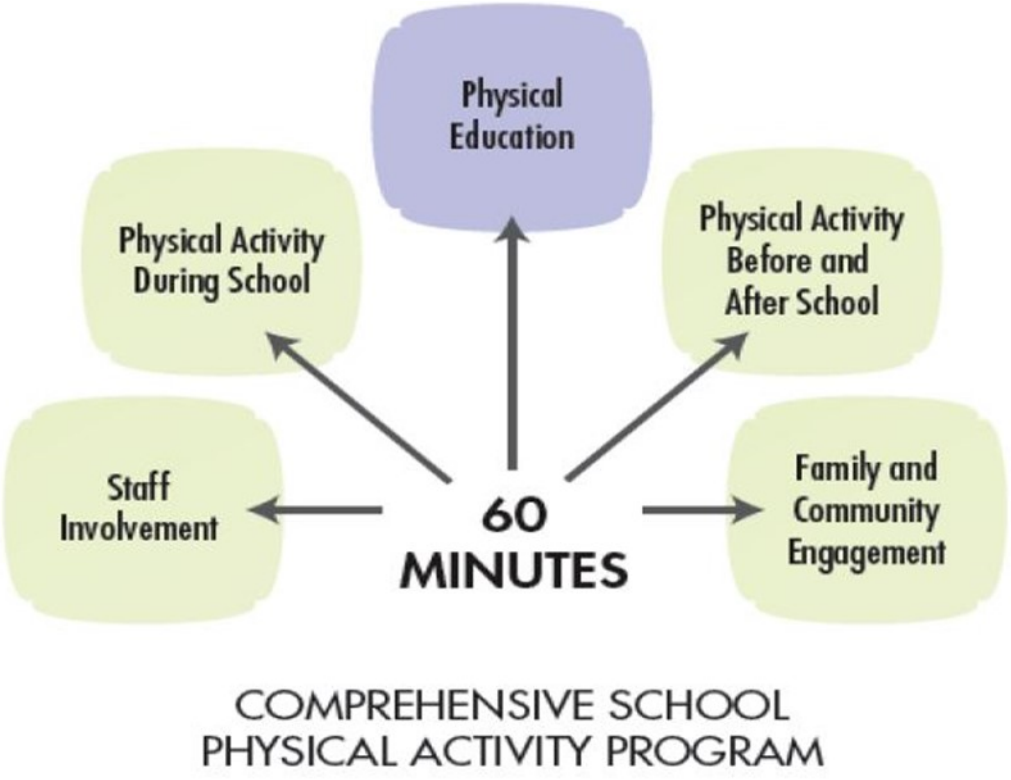
Comprehensive School Physical Activity Program Components and their Effects on Physical Activity Promotion

Over the past thirty years, obesity levels among American and Canadian youth have risen from 5.6% and 5% respectively to 17.5% and 13% (Carroll, Navaneelan, Bryan, Ogden, & Centers for Disease Control, 2015). Obese children are at risk of becoming obese adults with the potential of suffering from a variety of health consequences such as elevated blood pressure and cholesterol, psychological stress, and abnormal glucose tolerance (Carroll *et al.*, 2015). Physical activity is an important element to increase the health and well-being of school-aged children. Scientific evidence suggests that healthier students are often better learners and physical activity can in fact improve academic success, therefore, it is recommended that children receive a minimum of 60 minutes of moderate to vigorous physical activity daily in order to achieve health related benefits (Elliot, Erwin, Hall, & Castelli, 2013). While physical education may still be the best opportunity for youth to learn the skills and knowledge to develop positive physical activity habits, unfortunately, an increase in physical education time often requires increases in funded legislation (Elliot *et al.*, 2013). Aside from funding, priority for instructional time is often granted towards academic courses, decreasing the amount of time available for physical education and physical activity at school (Ennis, 2006). The Centers for Disease Control and Prevention and SHAPE America have suggested that schools implement Comprehensive School Physical Activity Programming as a solution to the lack of childhood physical activity (Brusseau & Hannon, 2015). A Comprehensive School Physical Activity Program is a systematic, multi-dimensional approach by which schools maximize opportunities for students to become more physically active in order to allow children to meet the recommended daily sixty minutes of physical activity requirements while developing the knowledge, skills and confidence to enjoy physical activity throughout their lifetime (Brusseau & Hannon, 2015). Comprehensive School Physical Activity Programs consist of five major components (see Figure 1 p. 34); quality physical education, physical activity before and after school, physical activity during school, staff involvement, and family and community engagement (Erwin, Beighle, Carson, & Castelli, 2013). Throughout this article, an in-depth analysis will be examined on each of the five components of a Comprehensive School Physical Activity Program, as well as requirements and recommendations to successfully implement different components in order to ensure establishment and longevity of a program and avoid potential roadblocks.

Components of a Comprehensive School Physical Activity Program

Brusseau and Hannon (2015) believe there are two main goals for a Comprehensive School Physical Activity Program (CSPAP); the first is to provide a variety of school based physical activities in order to enable students to participate in 60 minutes of physical activity each day. The second goal is to provide coordination among the Comprehensive School Physical Activity Programming components to maximize understanding, practice, and application of the knowledge and skills learned in physical education in order for all students to become

Figure 1 - Components of a Comprehensive School Physical Activity Program (Brusseau & Hannon, 2015)



physically educated and well equipped for a lifetime of physical activity participation. As stated in the second goal, coordination of each of the components of the CSPAP is integral in order for children to meet the daily requirements of physical activity.

Quality Physical Education

The first of the five components is quality physical education. Quality physical education within a CSPAP should provide students with adequate opportunities to learn through meaningful content and appropriate instruction (Erwin *et al.,* 2013). Physical education teachers hold the responsibility for providing students with the knowledge, skills, and confidence needed to engage in physically active lifestyles (Elliot et al., 2013). Quality physical education should also be guided by national physical education and physical activity standards through a developmentally appropriate, student-centered approach. The focus of quality physical education should be physical activity and health, with children being active for at least 50% of class time (Brusseau & Hannon, 2015).

Physical Activity Before and After School

The second component of a CSPAP is physical activity opportunities before and after school. Before and after school physical activity opportunities are "promising venues for increasing students' overall physical activities levels" (Elliot *et al.,* 2013, p. 11). Physical activity before and after school allows students to work towards recommended daily physical activity requirements while practicing what they have learned in physical education with the hopes to identify activities they enjoy and may potentially engage in long term (Brusseau & Hannon, 2015). Physical activity before and after school may include intramural activities that encompass numerous physical activities including sports, individual activities, and classes or lessons such as dance. Physical activity before and after school may also include physical activity clubs with a recreational focus within a non-competitive atmosphere. Finally physical activity before and after school may be additionally offered through interscholastic sports, youth sports within the community, as well as before and after school programming (Elliott *et al.,* 2013).

Physical Activity during School

Along with quality physical education, students need additional physical activity opportunities throughout the school day to help meet recommendations of sixty minutes of daily physical activity (Elliot *et al.,* 2013). The third component of a CSPAP is physical activity during the school day. The Centers for Disease Control and Prevention classifies physical activity during

the school day into two categories; classroom physical activity and recess or drop-ins (Erwin *et al.,* 2013). Classroom physical activity is characterized as a physical activity break that may be led by a generalist teacher and is typically conducted within the teaching space or classroom, and tied to academic content (Erwin *et al.,* 2013). There are two goals to these activities, which include taking a break from academic rigor to reset students' attention to learning tasks following movements, and to teach academic content through movement (Erwin *et al.,* 2013). Recess consists of a scheduled period allocated for students to have a break from academics and allows students to be social and active with their peers. In elementary schools recess should be provided daily for a minimum of twenty minutes in an unstructured, free play environment allowing students the opportunity to be creative and imaginative at their own pace in a safe play space (Erwin *et al.,* 2013). Recess can also be offered at the secondary level in the form of various physical activity options known as drop in activities, providing students and faculty opportunities to engage in exciting and interesting movements (Erwin *et al.,* 2013).

Staff Involvement

Staff play a crucial role towards the success of a CSPAP within a school (Brusseau & Hannon, 2015). Elliot stated, "Staff involvement in a comprehensive school physical activity program includes both programs incorporated by school staff to increase the physical activity levels of students, and programs incorporated to increase the physical activity levels of school staff members" (Elliot *et al.,* 2013, p. 12). Besides assisting in planning and supervision of a CSPAP, it is recommended that staff members of their given schools also participate in physical activities as well. It is believed that focusing on the staff's health is just as important as students' health within a CSPAP (Erwin *et al.,* 2013). Staff involvement within a CSPAP can also include staff members providing opportunities for staff and students to be active in such activities as intramurals and physical activity clubs. Staff members may also show support by acting as physically active role models for students (Elliot *et al.,* 2013).

Family and Community Engagement

The final component of a CSPAP is family and community engagement. Cipriani, Richardson, and Roberts (2012) explained that daily family routines help establish norms, influence behavioral patterns and help shape more 'typical' lifestyles for children. They continue by explaining what children learn at home often transfers to other aspects of life. Cipriani *et al.* (2012) also mention when children observe the lifestyles and behaviors of those in their communities, they begin to familiarize with such lifestyles, therefore the community may be as equally influential on a child as their family may be. One could argue that, for physical educators, seeking ways to get families and communities involved in children's physical activity lifestyle in crucial towards regular physical participation of youth. "Family and community involvement means including family and community members in school activities related to physical education and physical activity. That entails making connections between the school and community to create and support physical activity opportunities" (Cipriani *et al.,* 2012, p. 20). Erwin *et al.* (2013) stated that community partners can serve as a valuable resource to physical activity promotion in youth, explaining that partners can range from an individual person to large organizations, universities, corporations, health departments, foundations, faith-based groups, and parks and recreation. Establishing such partnerships may provide a number of resources, including expertise, funding, volunteers, facilities and trainings that may support of possibly extend current school physical activity programs.

Successfully Implementing a Comprehensive School Physical Activity Program

While a CSPAP consists of many valuable components to increase positive physical activity behaviors for youth, successful implementation of the components in crucial in order to guarantee establishment and longevity of a CSPAP. Establishing a CSPAP may require one to find ways to meet complex needs and barriers that may exist for the school in which the program serves. A CSPAP must reflect the social, emotional, and cultural needs of its students, their families, and communities in order to engage physical activity participation (Brusseau & Hannon, 2015). The Centers for Disease Control and Prevention suggested that in order

to increase physical activity opportunities in schools, they need to be coordinated, well planned, executed, and evaluated throughout the school and reach beyond the school and into the community in which it serves. (Brusseau & Hannon, 2015). The following sections provide suggestions and strategies to strategically and successfully implement a CSPAP within a school in order to avoid potential roadblocks many of the components may present.

The Role of Quality Physical Education

At the heart of a CSPAP is quality physical education, as it is the primary setting for establishing students with the knowledge, skills and positive attitudes to become regular, skillful participants in physical activity (Chen, Hypnar, Mason, & Zalmout, 2014). The core feature of quality physical education consists of both meaningful content and appropriate instruction taught by a qualified, trained physical education specialist (Chen *et al.,* 2014). Currently, only 30% of school districts in the United States required licensed or credentialed Physical Education teachers while only 14% of school districts required ongoing training for physical education teachers (Centers for Disease Control and Prevention, 2014).

Quality physical education can be measured through four essential dimensions; task design, task presentation, management, and instructional response (Chen *et al.,* 2014). Chen *et al.* (2014) conducted a study investigating what role quality physical education provides towards increasing the amount of time kids spent physically active. Nine elementary physical education teachers as well as fourth and fifth grade students from nine different schools were examined over a two year period to measure what effect quality physical education had on students' physical activity levels. The physical activity behaviors of the students were assessed using a daily physical activity log under the supervision of a teacher to track their amount of participation in daily physical activity. To assess the quality of instructional practices, the teachers were observed over 63 lessons throughout the two-year period coded with the 'Assessing Quality Teaching Rubric'. The rubric served as a tool designed as an observational rubric to assess the teachers' quality instructional practices, which consisted of the four dimensions previously listed. The results of the study indicated that quality physical education significantly contributed to the students' daily increase in physical activity minutes in school (see Figure 2 below). It also revealed that the four essential teacher dimensions were significant contributors to students' daily physical activity levels outside of school (see Figure 3, p. 37).

This study implies, "that the significant contribution of the high-level of quality instruction practices to students' daily PA behaviors might be associated with the notion that the key features of quality physical education teaching helped students gain knowledge, skills, and dispositions needed to participate in sports, games, dances, and physical activities" (Chen *et al,* 2014, p. 603). It is evident

Figure 2 - Mean Daily Physical Activity Minutes in Schools of the Two Years by Gender (Chen *et al.*, 2014)

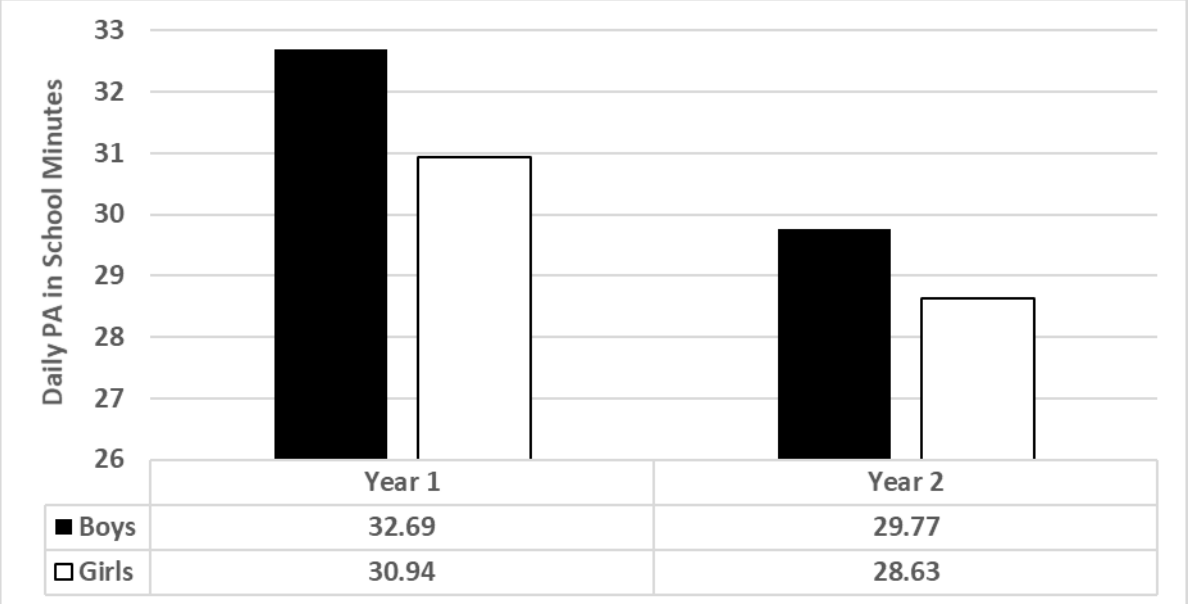
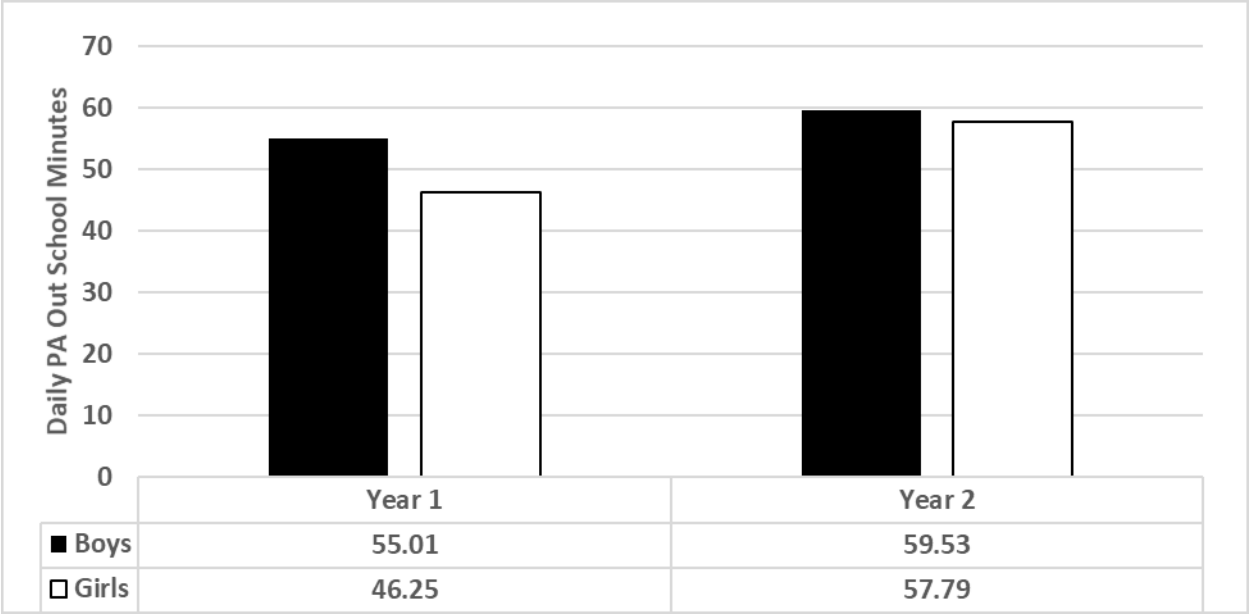


Figure 3 - Mean Daily Physical Activity Minutes Outside of School of the Two Years by Gender (Chen *et al.*, 2014)



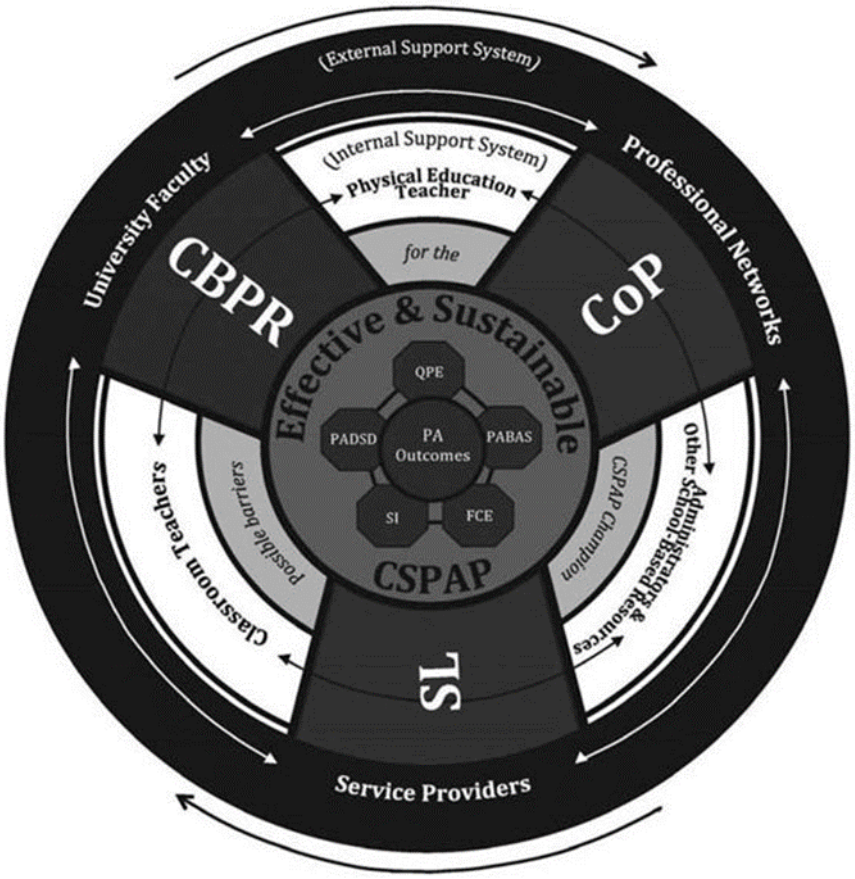
that simply having a physical education program within a CSPAP cannot guarantee increased physical activity behaviors; instead, it must be a program of high quality, delivered with meaningful and appropriate task design, task presentation, management, and instructional responses.

Delegating Responsibilities within a Comprehensive School Physical Activity Program

It is recommended that implementation of a CSPAP is highlighted by the need to identify a leader within the school community who can motivate, activate, and coordinate others to assume various physical activity promotion roles (Wester, Beets, Weaver, Vazou, & Russ, 2015). Throughout the implementation of Comprehensive School Physical Activity Programs, physical education teachers and physical education programs have typically been delegated the responsibility to lead a CSPAP. While physical education teachers are usually the logical individual to be a physical activity leader of such a program, it is largely unknown whether placing the expectations on a physical education teacher will actually create the most effective and sustainable way to increase daily physical activity in today's youth (Webster *et al.*, 2015). Webster *et al.* (2015) explained that there are many expectations a CSPAP leader must meet to properly perform their duties. These include building a recommended competency base through extensive professional preparation, increasing external accountability for the preparation and implementation of the program, building evidence that preparation does in fact lead to effective and sustainable change, and reducing the possible reluctance of physical education teachers to implement such programming. Webster *et al.* (2015) suggested that, in order to create sustainability of a CSPAP, partnerships must be created through three strategies; community based participatory research (CBPR), communities of practice (CoP), and service learning (SL) (see Figure 4, p. 38).

Community based participatory research acts as a possible solution to helping CSPAP leaders and other school community members overcome implementation barriers by the formation of strong partnerships between potential change agents with school communities and researchers from local colleges and universities (Webster *et al.*, 2015). By forming these partnerships, localized knowledge and perspectives can be bridged to empirical knowledge and expertise. CBPR begins with a specific research topic that holds importance to the community with the aim of combining knowledge with action and achieving social change to promote health incomes (Webster *et al.*, 2015). Webster et al. (2015) also explained that previous research has found that CBPR can be an effective strategy for increasing physical activity during afterschool programs.

Figure 4 - Conceptual Model for Achieving an Effective and Sustainable CSPAP Through Partnerships (Webster *et al.*, 2015)



Communities of practice are defined as "a group of people who share a common concern, a set of problems, or interest in a topic and who come together to fulfill both individual and group goals" (Webster *et al.*, 2015, p. 193). A CoP may be beneficial in the context of building and sustaining a CSPAP for physical education teachers since they often work in isolation from other teachers in their school. A CoP has the ability to increase physical education teachers' level of interaction with other teachers and administrators to build interest, provide support, and monitor other aspects of program implementation. In addition, a CoP may also connect physical education teachers from other schools to share ideas and strategies for successful implementation of a CoP (Webster *et al.*, 2015).

Bringle and Clayton stated, "service learning involves the integration of academic material, relevant community-based service activities, and critical reflection in a reciprocal partnership that engages students, faculty/staff, and community members to achieve academic, civic, and personal learning objectives as well as to achieve public purposes" (Webster *et al.*, 2015, p. 195). Service learning has the ability to bring additional support externally to schools that can increase the capacity of their internal resources, while at the same time alleviate the pressure and workloads placed on school professionals such as physical education teachers who may be overworked or under-resourced (Webster *et al.*, 2015). Schools that are in close proximity to post-secondary institutions should be able to rely, in part, on service learning based physical activity promotion to increase physical activity engagement among school communities. This may include having preservice physical education teachers offer extracurricular physical activity programs at schools or preservice classroom teachers to academic classrooms to provide various methods of physical activity breaks (Webster *et al.*, 2015).

Similarly, hiring a physical activity leader may promote successful implementation of a CSPAP. Brusseau, Hannon, and Burns (2016) conducted a study to examine what effect comprehensive physical activity programs within schools had on school day physical activity and health related fitness for children in low income families. 1460 school-aged children from three low-income elementary schools participated in a twelve-week

intervention of a CSPAP within their respective schools. Importantly noted, the schools hired a physical activity leader who had the responsibility of working with personnel from each school in order to improve physical activity infrastructure and promote physical activity during the school day. In addition, physical education classes were taught one day per week for fifty minutes by a separate physical education professional. The focus of the CSPAP was to provide training and assistance to improve the quality of physical education, recess, physical activity before and after school, as well as classroom based physical activity opportunities (see Figure 5 below). In addition to improving physical education classes, physical activity opportunities were offered throughout the school day and were integrated into classroom lessons and classroom activity breaks. Following the twelve-week intervention, results indicated that students were more physically active throughout the school day and experienced many health-related benefits due to their increase in physical activity levels.

As increased attention has been given towards CSPAPs as a feasible path toward more active schools, the conceptualization of long term outcomes should be prioritized (Webster et al., 2015). In order for successful implementation of a CSPAP, one must consider delegating responsibilities among a number of stakeholders and/or physical activity leaders to guarantee a greater chance of success and continuity of a program. One would agree that the responsibility of implementing a CSPAP cannot lie solely on one individual; specifically the physical education teacher. Finally, Webster *et al.* (2015) stated internal and external variables should be examined to identify modifiable pieces for the promotion of physical activity.

Providing Professional Development for Teachers to Promote Physical Activity in Youth

As previously stated, it is important that within a CSPAP, students are physically active throughout the school day outside of physical education class to promote healthy physical activity behaviors (Elliot *et al.,* 2013), meaning that classroom teachers may also play an important role in promoting and engaging students in physical activity. An intervention strategy towards working with schools to increase physical activity and healthy living for

Figure 5 - Physical Activity Programming Contrasts Before and During the CSPAP Intervention (Brusseau *et al.*, 2016)

	Before CSPAP	**During CSPAP**
Recess	No Structured activities with limited equipment led by paraprofessional	Structured and semi-structured activities; increased access to equipment; led by school PAL
Physical Education	Traditional; teacher-centered; large group activity with waiting; frequent breaks in activity	Dynamic Physical Education for Elementary School Children curriculum; student-centered; decreased management and waiting; minimal breaks in activity
Classroom	Occasional activity breaks by a few teachers	Frequent (1-3 per day) 10-min activity breaks/energizers; Take 10!
Before/after school	No before school programming; academic-based after school program	Before/after school drop in program with games and sports; led by school PAL

students may be accomplished by implementing ongoing, embedded comprehensive professional development with both physical education teachers and classroom teachers focusing on helping teachers change behaviors (Kulinna, 2012). Kulinna's (2012) study had the intent to determine if students' physical activity levels and Body Mass Index (BMI) were maintained or improved over a year long, professional development program involving both classroom and physical education teachers teaching healthy and active content. The participants of this study included 320 indigenous youth from all grade levels. Thirty-one teachers from ten schools taught the students in either the intervention group or the controlled group. The teachers in the intervention group had received roughly 35 hours of professional development focused on physical activity and healthy living. Throughout the year, the intervention students were given physical activity breaks during regular classroom instruction with support from physical education teachers as well as being taught multiple lessons related to healthy living and physical activity. Classroom teachers were provided with a variety of resources to promote physical activity during physical activity breaks. In addition, during physical education class, students were taught lessons based on the 'Dynamic Physical Education Curriculum Model'. The control group participated in physical education class but received no teaching or intervention of physical activity and healthy living from their classroom teachers. Results showed there were favorable changes in the students from the intervention group in regards to physical activity patterns as a result of a year-long teacher change intervention compared to the students of the control group. Students of the intervention group also participated more regularly in physical activity compared to the students of the control group. Of particular significance in the results was that teachers were able to see students' physical activity increasing, which may have persuaded them to integrate more physical activity into their programs the following school year.

Kulinna (2012) explained that the results of this study are quite significant because of the fact that school-based interventions are both logical and cost effective methods of changing children's health behaviors, but unfortunately, most educators often know little about how to implement or assess such programs. One would agree that within a CSPAP, providing adequate professional development for both physical education teachers and classroom teachers would increase the opportunity for students to be physically active during the school day both in physical education class and in the classroom. In conclusion, increasing comprehensive professional development towards physical activity and healthy living for teachers results in positive physical activity behaviors for students to live active and healthy lives strengthening staff involvement and increasing physical activity during school in a CSPAP.

Conclusion

With the increase in obesity levels of today's youth, it is imperative that children become more physically active (Carroll *et al.,* 2015). In order to make children achieve 60 minutes of daily physical activity (Elliot *et al.,* 2013), one would argue that strategic planning and programming for physical activity must be implemented. Comprehensive School Physical Activity Programs have the ability to assist physical education teachers in making youth more physically active and improve academic performance through quality physical education, physical activity before and after school, physical activity during school, staff involvement, and family and community engagement (Erwin et al., 2013). In order to guarantee establishment and longevity of a CSPAP, one must consider strategic and thorough implementation and attention to each component of a CSPAP such as the importance of quality physical education, the delegation of responsibilities within a program, and investing in professional development for the teachers responsible for increasing positive physical activity behaviors of students.

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