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## Conceptual Physical Education: A Secondary Innovation

Charles B. Corbin<sup>a</sup>, Pamela H. Kulinna<sup>b</sup>, and Hyeonho Yu<sup>b</sup>

<sup>a</sup>College of Health Solutions, Arizona State University-Downtown Campus, Phoenix, Arizona; <sup>b</sup>Mary Lou Fulton Teachers College, Arizona State University-Polytechnic Campus, Mesa, Arizona

### ABSTRACT

Over the last 40 years, the Conceptual Physical Education (CPE) movement has played an important role in the evolution of secondary school physical education (PE). In this article, we trace the history of CPE as well as fitness education (FE) programs that share common objectives with CPE. CPE at the college/university level is almost universal and has been shown to be a longstanding innovation. The information provided here suggests that CPE/FE programs at the secondary level are also an innovation, rather than a passing fad. Among the topics explored include factors precipitating the innovation, the stages of implementation, the current status of the innovation, factors leading to success, barriers to be overcome in program implementation, and suggestions for the future. Finally, evidence is provided to show that CPE, when conducted with fidelity, can be effective in promoting the overarching objective of quality PE programs—promoting lifelong physical activity.

### KEYWORDS

Conceptual physical education; fitness education; physical activity promotion

## Introduction

Conceptual physical education (CPE) typically refers to an approach to teaching basic physical education (PE) that uses a textbook and classroom instruction sessions in addition to more traditional activity sessions (Corbin & Cardinal, 2008). These programs are designed to help students effectively adopt health-enhancing physical activity (PA) for a lifetime. The focus is on learning concepts, principles, and self-management skills that provide the basis for becoming well-informed consumers capable of making good decisions in the future. In the pages that follow, the 50-year history of CPE programs is described, including a discussion of the factors that led to the development of secondary school CPE programs. This historical review provides a basis for the discussion of how CPE, and related fitness education (FE) programs, can be implemented in today's secondary school PE curriculum to help students meet all of PE's content standards as well as helping them achieve the overarching goals of physical literacy (PL).

CPE was introduced in American colleges and universities midway through the twentieth century. It was implemented primarily as an alternative method of teaching college basic instruction PE classes (Corbin & Cardinal, 2008). Initially CPE was not well received, but by the beginning of the twenty-first century it had become an effective innovation that was almost universally implemented as a requirement or elective option in American colleges and universities (Cardinal, Sorensen, & Cardinal, 2012; Corbin & Cardinal, 2008; Hensley, 2000; Kulinna, Warfield, Jonaitis, Dean, & Corbin, 2009; Lumpkin & Jenkins, 1993). CPE programs at the college level are now

**CONTACT** Charles B. Corbin  [chuck.corbin@asu.edu](mailto:chuck.corbin@asu.edu)

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taught in departments with names other than PE. A variety of course titles are used including, but not limited to, Fitness for Life, Personal Fitness, and Concepts of Fitness and Wellness.

In the 1970s and 1980s, CPE programs were implemented in high schools, typically including classroom sessions two days a week and activity sessions three days a week for one semester, classroom sessions one day a week and activity sessions four days a week for one year, or modifications based on types of schedules (e.g., block plans, accelerated block plans). Over time, CPE programs at the high school level have often been referred to as FE programs. In 2012, a project team from the Society of Health and Physical Educators (SHAPE America)<sup>1</sup> was charged with creating an Instructional Framework for FE. In its report, the team defined FE as “a subcomponent of the total PE program, focusing on helping students acquire knowledge and higher-order understanding of health-related physical fitness (the product), as well as habits of PA and other healthy lifestyles (the process) that lead to good health-related physical fitness (PF), health and wellness” (SHAPE America, 2012, p. 1).

CPE as defined earlier, fits the definition of a FE program, but FE programs are not limited to those that use a textbook and have classroom sessions. In this article, the authors focus on programs that fit the CPE definition, but we also include coverage of FE programs that do not meet the CPE definition (e.g., use a text and/or classroom sessions).

## **Factors precipitating the secondary school CPE innovation**

There were a variety of reasons for the CPE innovation at the high school level, many of them the same as those that precipitated the college CPE movement (see Corbin & Cardinal, 2008 for more information). Some of the primary reasons for the high school CPE movement are described in this section.

### ***The success of the college CPE movement***

Those promoting high school CPE took advantage of the success of the college CPE innovation (Corbin & Cardinal, 2008). Over time, considerable evidence accumulated showing that the multiple benefits of college CPE included improved knowledge, attitudes, and lifestyle behaviors (Corbin & Cardinal, 2008). Advocates noted that not all high school students go to college and non-college-bound students deserve to participate in CPE programs that are effective in promoting these benefits.

### ***PE criticism in popular culture***

Among the early critics of PE was James Bryant Conant, a Harvard University president, who challenged the rigor of PE programs in his book *The American High School Today* (1959). Other critics such as George Leonard, the author of *The Ultimate Athlete* (Leonard, 1974), declared that high school PE programs predominantly focused on “unenjoyable regimented calisthenics” and on team sports rather than activities that are most popular among adults. Leonard suggested that the “next few years promise to be a period of unprecedented ferment and excitement in a field that has resisted substantial change for a long, long time” (cited by Corbin, 1978, p. 43). George Sheehan, author and popular fitness guru, suggested that we were in the midst of a PF and exercise “bandwagon” (see Corbin, 1984). He lamented, however, that unfortunately it was “passing PE by”.

Finally, a prominent national poll (Research & Forecasts, 1983) indicated that the most popular activities among Americans were “fitness related” activities such as walking, jogging, cycling, and swimming. However, schools focused more on team sports popular as spectator sports, but that are not among the activities most commonly performed later in life. The preceding criticisms of PE helped create a demand for CPE that focused on helping each individual to plan a personal program of PA for use throughout life.

### ***Evolving body of knowledge***

The Big Ten Body of Knowledge project of the 1950s was a primary reason for the development of the “science of physical education” (see Zeigler & McCristal, 1967). The body of knowledge movement was one of several reasons for the rise of CPE at the college level (Corbin & Cardinal, 2008) and was also an important reason for the CPE movement in high schools. As early as 1969 the American Alliance for Health, Physical Education, and Recreation (AAHPER) produced materials describing the body of knowledge for physical educators (AAHPER, 1969). Other early coverage included AAHPER’s *Basic Stuff* project that provided content information on a variety of topics (Kneer, 1981) and a National Association for Sport and Physical Education (NASPE) volume edited by Seefeldt, *Physical Activity and Well-Being* (Seefeldt, 1986).

### ***Aerobics popularity***

In 1968, Kenneth Cooper published the best-selling book *Aerobics* (Cooper, 1968). Cooper, a medical doctor and officer in the Air Force, developed a research-based system for assessing cardiorespiratory endurance (aerobic fitness) and outlined a point system for achieving cardiorespiratory endurance (Cooper, 1968). The term “Aerobics” became a household name in the United States and ultimately worldwide. His book led to other popular forms of aerobic exercise including aerobic dance (see Sorensen, 1981). In 1970, Cooper started the Cooper Institute in Dallas (Cooper, 2018). *Fitnessgram*® was created at the Institute and was the first computer-based method of reporting youth fitness test results to parents (Plowman et al., 2006). Cooper’s *Aerobics*, the Cooper Institute, and *Fitnessgram*® were instrumental in promoting the fitness movement in the second half of the twentieth century (for more information see Cooper, 2018; Plowman et al., 2006; Zhu, 2018).

### ***The health-related fitness testing movement***

One of the focuses of the CPE movement was health-related PF. The early college CPE texts (Corbin, Dowell, Tolson, & Landiss, 1968; Johnson, Updyke, Stolberg, & Schaefer, 1966) defined the components of health-related fitness and contrasted them with the components of skill-related fitness that characterized the early PF testing movement of the 1950s and 1960s. It was not until 1980, however, that the first health-related fitness test for youth was introduced (AAHPERD, 1980). It did not replace the existing Youth Fitness Test that had been used since the late 1950s (see Plowman et al., 2006). Both tests continued to be available.

The existence of two tests led to confusion among professionals as they made decisions about what test battery to use in schools. This provoked several years of debate and negotiation among various organizations involved with fitness testing (AAHPERD, President’s Council, Cooper Institute). In spite of the fact that it took many years, the health-related fitness testing model prevailed, and *Fitnessgram*® became the national

health-related fitness test battery for all three organizations (Presidential Youth Fitness Program, 2018). For more comprehensive coverage of the health-related fitness testing movement, the reader is referred to Plowman et al. (2006).

High school CPE programs were implemented during the same periods during which the health-related fitness testing movement was gaining traction. The Cooper Institute's Fitnessgram® and AAHPERD's *Physical Best*, after it became a FE program, were companion programs with Human Kinetics' *Fitness for Life* high school CPE program. All of these programs shared the HELP Philosophy (Health for Everyone for Lifetime in a Personal way) that originated with *Fitness for Life* (see later section).

### **Public Health movement in physical education**

The same scientific evidence that fueled the health-related PF movement provided a stimulus to the "Public Health" movement in PE. The link between good health (e.g., reduced risk of early death, reduced risk of chronic disease, enhanced quality of life) and each of the health-related components of PF that led to the success of the health-related fitness testing movement also provided a rationale for including PE in the curriculum to benefit public health.

In 1981, shortly after the publication of the first health related fitness test was introduced Pate and Corbin (1981) outlined the role that school PE could play as part of the school health program. In 1985 AAHPERD commissioned Vern Seefeldt to prepare *Physical Activity and Well-Being*, to document the health benefits of PE and PA (Seefeldt, 1986). The same year, the first national health-related fitness surveys (Ross & Gilbert, 1985; Ross & Pate, 1987) were conducted. Evidence from these reports helped make the case for PA as a method of promoting public health. In 1987 Pate and colleagues noted that professional preparation and continuing education of PE teachers must focus on health-oriented PE and provide teachers with the skills needed to implement these programs. The health-oriented approach to PE placed a much greater emphasis on moderate to vigorous physical activity (MVPA), higher order cognitive objectives, and health-related fitness testing than had the traditional sports skills-oriented programs (Corbin, 1987; Pate & Corbin, 1981; Pate, Corbin, Simons-Morton, & Ross, 1987). The idea put forth the notion that PE needed to go beyond teacher-directed programs and move toward programs that encouraged problem solving, decision making, and the achievement of higher order objectives.

Also in 1987, Simons-Morton, O'Hara, Simons-Morton, and Parcer (1987) offered additional support for a public health approach to PE. Their position in favor of a public health approach was supported by others (Corbin, 1987; Cureton, 1987; Sallis, 1987), in part because of the rise in overweight and obesity of youth in the United States. Sallis and McKenzie added considerable evidentiary support for the public health model in 1991 (Sallis & McKenzie, 1991). Support for a public health model was generated simultaneously with the health-related fitness testing movement and provided support for the implementation of CPE programs in secondary schools.

### **Support from professional associations and the medical/education professionals**

The need for modifications in programs as consumers changed was a rallying call of those interested in implementing high school CPE programs (Corbin, 1978). An article in *The Physician and Sports Medicine* (Corbin & Laurie, 1978) brought attention of the medical

community to CPE and helped build interest in implementation at the high school level. In 1983 the American Academy of Physical Education issued a position statement recommending that schools and colleges include programs to produce informed consumers capable of solving their own exercise, fitness, and PA problems and endorsed the teaching of CPE classes (AAPE, 1983).

After implementing a CPE course for Florida high school students, the Commissioner of Education for the State of Florida indicated that people “should not need to pay health spas or other organizations to teach them how to become fit; they should have learned it in schools” (cited by Corbin, 1986, p. 16). In 1983, while at the University of Iowa College of Medicine, Jeff Boone earned a Secretary’s Award for Innovations in Health Promotion and Practice for his article entitled “A New Curriculum for Fitness Education” (Boone, 1983). Boone suggested that “The benefits of FE can be immense. The staggering cost of medical care today mandates preventive interventions receive the highest priority during the formative years of growth and development” (Boone, 1983, p. 515). “In most school systems, students are not provided with the information necessary to make intelligent decisions regarding their PF. However, if this curriculum for FE is added to PE courses, students who are becoming young adults will be able to engage appropriately in a program of health exercise with specific guidelines and directions” (Boone, 1983, p. 515).

### ***Title IX***

Title IX of the Education Amendments Act of 1972, and the women’s movement that led to its passage, influenced the CPE innovation at the college level (Corbin & Cardinal, 2008). In the late 1960s and through much of the 1970s, separate men’s and women’s departments were merged. At both the college level and the high school level, co-ed classes were more frequently offered and CPE provided a good way to implement them.

### ***Loss of programs***

There were practical considerations that also contributed to the CPE rationale. Graduation requirements for PE at the high school level were rolled back gradually toward the end of the twentieth century. PE at the high school level was (and is) most prevalent at the ninth grade level. The percentage of ninth grade students reporting PE attendance dropped from 75.8% in 1991 to 64.3% in 2013 (NPAPA, 2016). During the 1990s the percentage of high school students reporting daily PE attendance and the average number of days per week of PE attendance both decreased significantly (NPAPA, 2016). CPE classes, for reasons previously discussed, provided an alternative to traditional sports-based PE and answered the criticism of PE critics. CPE programs were often used to prevent program loss. CPE also provided an opportunity to easily establish co-ed classes at a time when program changes were being implemented associated with Title IX.

### **Stages of the secondary CPE innovation**

The college CPE innovation took time to implement and so did the inclusion of CPE programs at the secondary school level. But over time, it became a sustainable innovation as more and more schools introduced programs. The following is a summary of the secondary school CPE movement as it progressed from an idea to an innovation.

### **Pre-innovation programs**

The first “fitness” text for teens (at least as known to these authors) was titled *Fitness for the Modern Teenager* (Wessel, 1963). Later, Charles Bucher authored a textbook called *Physical Education for Life* (Bucher, 1969). Much of the text was devoted to information about sports including rules, strategy, and basic sports skills. These books, published at about the same time as many of the early college CPE texts, had only limited success and went out of publication prior to the trend toward CPE.

### **The innovators**

Corbin and Cardinal (2008) suggest that innovations begin with the innovators, a group of motivated people seeking new approaches for PE. Among the innovators for high school CPE were those who adopted the *Fitness for Life* program (Corbin & Lindsey, 1979) in the late 70s and early 80s. This program included a student text, a teacher’s edition with embedded lesson plans, and resource materials (e.g., worksheets, quizzes, tests, overhead transparencies). As CPE became more popular, early innovators gained access to additional resources. Among these were *Personal Fitness for You* (Stokes, Moore, & Schultz, 1986), *Personal Fitness: Looking Good/Feeling Good*, (Williams, Johnson, Harageones, & Smith, 1986), and *Foundations of Personal Fitness* (Rainey & Murray, 1997). All of the books had extensive resources available for teachers. The development of text and teacher resource materials not only provided the materials necessary for high school CPE implementation, but also aided teachers in gaining the content knowledge for teaching a CPE class.

Audio-visual resources were important to the success of early programs because they offered support to teachers implementing programs new to them. Among the early resources were blackline masters that could be made into transparencies for use with an overhead projector (before availability of computer-based slides) and color slides with accompanying audio tapes (Laurie & Corbin, 1981). Later, videotape programs (before DVDs) became available to help teachers to help them present CPE content (Laurie & Corbin, 1993).

The innovators were not all from the United States. In the early 1980s, teachers in the United Kingdom implemented CPE programs (e.g., Fox & Whitehead, 1983) and in Canada (Carre, Corbin, & Lindsey, 1981) with programs in New Brunswick and British Columbia being among the first.

### **The early adopters**

A second wave of adopters (the early adopters) followed the lead of the innovators by developing similar programs. The implementation of CPE in Florida is significant because the Florida program was state-wide and served as a model for other states. In 1983 the Florida legislature passed a law establishing minimum graduation requirements for high school graduation (Johnson & Harageones, 1994). Prior to that time, the requirements of graduation in Florida were established by each of the different county school districts (Harageones, 1987). PE was typically required by the local school districts, but when plans for the new state law was initially proposed, PE was not included as a required course. In



1981, the keynote speaker at the Florida AHPERD made a case for implementing CPE at the high school level (Corbin, 1981) and later became a consultant for the state. The state Director of Health and Physical Education, Manny Harageones, and representatives from the Florida AHPERD, in collaboration with consultants successfully lobbied for a basic PE course “that would contribute to the state and national interest of having physically fit citizens” (Harageones, 1987, p. 53). The law that was passed in 1983 included a one semester (half-credit) “Personal Fitness” (CPE) class as one of the many statewide graduation requirements.

The process that led to the inclusion of the Personal Fitness class in Florida took considerable time. Student objectives and a plan for the course were developed (Johnson & Harageones, 1994) and were used to justify the new class. A task force appointed by the Florida Department of Education was formed to provide assistance for schools adding the new class. The proposal was accepted by the State of Florida and the plan for the new personal fitness class was approved (Harageones, 1987). The class was fully implemented in the fall of 1986. Prior to the 1986 school year, a teacher trainer workshop was held. Representatives from each school district attended. They were provided with a copy of implementation materials provided by the state, as well as a copy of *Fitness for Life* (2nd ed.). The taskforce, including consultants, provided training to “teacher trainers” who were to train other teachers in their local county districts to implement the Personal Fitness class. By the mid 1990s reports indicated that there was strong teacher support for the class (Johnson & Harageones, 1994).

Clearly the schools of Florida were among the early adopters. The implementation process in Florida, as described above, was beneficial to other states as it demonstrated how CPE could be beneficial in protecting PE requirements and provided information useful in program implementation. Texas, Georgia, and South Carolina were among the other states implementing CPE classes (see status section for more information).

### ***The later adopters***

A true innovation occurs when a significant proportion of the population (in this case secondary school PE) adopt the innovation. There has been movement toward a majority due to the efforts of the innovators and early adopters. Over time more states (and districts within the states) implemented CPE mandates. Many large urban and suburban school districts implemented programs (e.g., Ann Arundel County and Baltimore County schools in Maryland, Columbus, OH, Lincoln, NE). The state of Utah, and several other states, now offer online CPE courses for high school students (see later section).

As the secondary school CPE innovation moved forward, schools outside the United States began to implement programs. In addition to the programs in Canada and the UK, mentioned earlier, the Department of Defense Dependent Schools (DODDS) implemented programs in the 1980s under the direction of Dr. Ed Watson. Teacher training for DODDS were taught on military bases and other government installations worldwide. In Brazil, under the direction of Jose Guilmar, the YMCA College in Sorocaba instigated the implementation of high school CPE programs in 1985. Later Marcus Nahas of the University of Santa Catarina oversaw the implementation of programs in Brazil and



conducted research studies related to the programs (Corbin & Nahas, 1992; Nahas & Corbin, 1992). In Australia, CPE was proposed in sessions at an ACHPERD national conference in 1996 (Cuddihy & Corbin, 1996). In 2009, a Korean version of *Fitness for Life* (Corbin & Lindsey, 2009) was published for use in high school CPE programs. These are, no doubt, only some of the CPE programs implemented internationally. Clearly, the innovation is not exclusive to the United States.

### **CPE online**

The authors of a recent report from SHAPE America provide information about the prevalence of online PE and offer an overview of the limited evidence for online program effectiveness (SHAPE America, 2018). They suggest that “there is evidence of online PE in all 50 states (SHAPE America, 2018, p. 3). It is clear that over the past two decades, online K-12 instruction has become popular and CPE/FE classes using various names are the most common offerings. Physical educators have been reluctant to embrace the inclusion of PE classes online for a variety of reasons (e.g., lack of PA, lack of background in computer technology). However, as online classes became more popular there was increasing pressure for PE to offer online courses and CPE classes were the most likely candidate. Currently there are multiple accredited online high schools offering PE courses and CPE classes are among the most common. It is difficult to determine exactly how many students currently take these classes but the number is substantial. Those who offer or plan to offer online CPE/FE classes should consult the SHAPE America (2018) online PE guidelines. Additional research to assess the effectiveness of online PE and online CPE is warranted.

### **CPE and fitness education**

CPE was defined earlier as a class in which students use a textbook and attend both classroom and activity sessions designed to teach concepts and principles that underlie healthy lifestyles with an emphasis on regular PA (and accompanying PF). High school CPE programs were among the first to be classified as FE. For this reason, much of the previous discussion has focused on CPE programs. Over the past few decades, as CPE expanded, other types of FE programs emerged. Some of these FE programs are described here.

### **Early FE programs**

The evolution of FE, including CPE, was an extension of the health-fitness movement described earlier. The publication of the first health-related fitness test (AHPERD, 1980) was a marker for the beginning of many of the non-CPE FE programs. These included school based programs promoting lifelong PA and PF. The early health-related fitness proponents were adamant in their insistence that health-related fitness testing programs must be accompanied by educational programs that helped students learn the “why, what and how” of PA and PF (Corbin, 1978). For example, when performing fitness tests, why do I (the student) take the tests, what do the results mean, and how do I use the information to prepare a plan for improvement? CPE programs were one option, but

other programs that did not include a text or classroom sessions were also developed simultaneously with CPE.

In the mid 1980s, two National Children and Youth Fitness Surveys (NCYFS) were conducted. The studies were the first to use health-related fitness items and the results of the studies were published as a special feature in *Journal of Physical Education, Recreation and Dance (JOPERD)* (Ross & Gilbert, 1985; Ross & Pate, 1987). The publications reporting the results of the studies were accompanied by additional *JOPERD* articles suggesting the need for school-based programs that focus on health related fitness and lifelong PA (Ross, Dotson, Gilbert, & Katz, 1985; Ross, Pate, Corbin, Delpy, & Gold, 1985).

The Fitnessgram® report card that was begun in 1977 on a regional basis went national in the mid-1980s (Plowman et al., 2006). It provided a tool for FE allowing students, teachers, and parents to use the report card to help students identify personal needs and help in program planning. In 1988 Fitnessgram® expanded to become a national health-related fitness test as well as a reporting system for health-related fitness test results (see Plowman et al., 2006).

In 1987 a book of strategies for improving fitness, another companion to Fitnessgram® was published (Corbin & Pangrazi, 1987) and in 1994 a second edition was published (Corbin & Pangrazi, 1994). In the early 1990s, the Cooper Institute and AAHPERD introduced several FE programs including *It's Your Move in 1994* (see Plowman et al., 2006) and *You Stay Active* (Meredith, Corbin, Crouch, & Cain, 1995). In 1994, Pate and Hohn provided another FE program guide. Their edited book, *Health and Fitness Through Physical Education* (Pate & Hohn, 1994) provided articles from leading health-related fitness advocates to help teachers institute FE programs that complement health-related fitness testing.

### ***Physical Best as an FE program***

In the late 1990s *Physical Best*, AAHPERD's 1980s health-related fitness test battery was dropped and *Physical Best* became NASPE and AAHPERD's FE program. In 1999 the first *Physical Best* program guides were published both for elementary (NASPE, 1999a) and middle and high school (NASPE, 1999b) FE programs. Since that time, *Physical Best* program coordinators have conducted extensive leadership training programs at state, regional, and national meetings often jointly with Fitnessgram® and *Fitness for Life* program coordinators.

### ***Science of Healthful Living (SHL)***

SHL is a middle-school theory-based curriculum that was implemented and studied with National Institute of Health (NIH) funding (Ennis, 2015). The curriculum is considered to be concepts-based and includes print and online worksheets, but uses these resources rather than a text. Conceptual information is covered during activity sessions rather than in a classroom.

### ***Activitygram and Presidential Active Lifestyle Award (PALA)***

The public health and health-related fitness movements initially emphasized the importance of good fitness to health. Over time, however, there was a shift toward PA

promotion since PA is the principal process by which health-related fitness is achieved. Activitygram (see Plowman et al., 2006) was introduced by the Cooper Institute and reflected the shift in emphasis toward PA promotion. Just as Fitnessgram® was a battery for assessing health-related fitness, Activitygram was an instrument for assessing PA.

In the last two decades of the twentieth century national fitness awards based on normative standards came under criticism, especially when awarded based on performance of a skill-related fitness test battery (Corbin, Lovejoy, Steingard, & Emerson, 1990). In the early 2000s, AAHPERD and the President's Council on Physical Fitness and Sports (now the President's Council on Sports, Fitness and Nutrition) partnered to offer a new PA award, the Presidential Active Lifestyle Award (PALA) (see Plowman et al., 2006). Like Activitygram, the PALA encouraged PA participation. Both programs provided new tools for those implementing FE programs.

### ***Comprehensive school physical activity programs (CSPAP)***

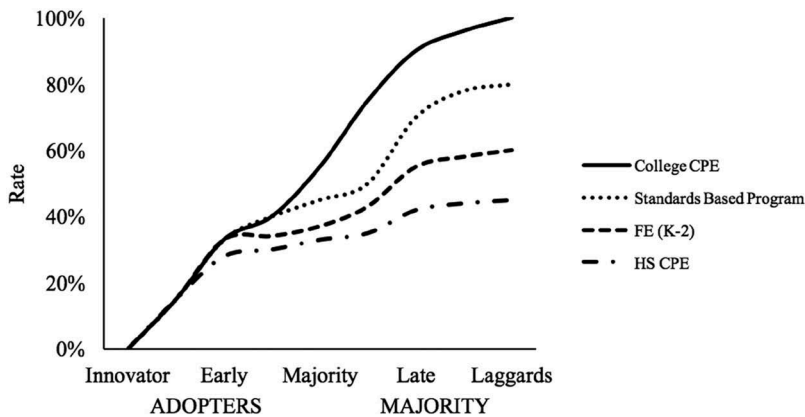
Comprehensive school physical activity programs (CSPAP) have become popular in recent years and have been promoted by the Centers for Disease Control and Prevention (CDC), SHAPE America, and other professional and governmental organizations. These programs include five components: activity before and after school, quality PE, activity during school (e. g., exercise breaks in the classroom, lunchtime programming), activity for staff, and family and community engagement in PA and PA promotion (CDC, 2018). CSPAP programs are designed to get youth active, but also have a lifelong PA promotion component. Accordingly, they can be viewed as FE programs or complementary to FE.

### **The current status of the secondary CPE innovation and fitness education**

Jahn and colleagues investigated the state requirements for High School CPE in 2010 (Jahn, Kulinna, & Corbin, 2010). Authors surveyed 32 state level PE coordinators in the United States. Of the 32, 30 were housed in education, one in the health area, and one participant specified "other" as her/his affiliation at the state level. State-level PE coordinators reported that 11 states had a CPE course at the high school level. Seven of those states also had a state-mandated CPE curricular model or authorized local control to select such curricula. State coordinators indicated varied assessment plans that took place at state, district, and high school levels. While some states mandate fitness testing, no states indicated that they mandated assessments specifically for CPE. State personnel indicated that they provided PE teachers support for CPE through the following methods presented in descending order: (a) inservice sessions, (b) training documents, (c) texts and web-based resources/other, (d) funding, and (e) assessment materials.

### ***CPE, FE and the innovation curve***

Corbin and Cardinal (2008) used an innovation curve to describe the trajectory of the college CPE innovation that has reached saturation (see solid line in Figure 1). Over the past 50 years, CPE has become fully implemented as the great majority of colleges and universities now offer a CPE class (Corbin & Cardinal, 2008). For a variety of reasons, including local



**Figure 1.** Secondary innovation curve: Implementation rate over time. Adapted from Corbin and Cardinal (2008).

control of curriculum and lack of curriculum reporting, the extent of implementation of high school CPE and FE programs is less easily determined than in higher education. Based on the findings of Jahn et al. (2010), and anecdotal information, the extent of the CPE innovation is illustrated with the dot-dash line (lower line) in Figure 1. The lower line represents an estimate of current CPE high school implementation. It is significant, but does not yet reach a majority. As indicated in a previously, online CPE has become a significant phenomenon contributing to the estimated implementation for CPE illustrated in Figure 1.

The second line (dashes) in Figure 1 represents an estimate of the prevalence of schools that have implemented either FE programs such as those described in the previous section or CPE programs. The figure estimates implementation levels at the high school level. The third line in Figure 1 depicts the estimate of CPE, FE implementation plus the implementation of programs that strive to meet state and national PE standards, and FE framework benchmarks.

## Evidence of effectiveness

### College

As depicted in the upper (solid) line of Figure 1, the college CPE innovation is fully mature. As CPE became more common place at colleges and universities, researchers began to study its effectiveness. Numerous studies have shown the positive outcomes from college/university CPE programs on students' attitudes, PA behaviors, and combines healthy behavior, knowledge, and attitudes (see Corbin & Cardinal, 2008).

Sparling (2003, p. 583) discusses the need for all college students to have a CPE course "Physical Education should be a requirement because all college students need to know how to be physically active – intellectually and experientially – and why physical activity is important to their overall well-being." It is also well established that PA patterns decline steadily during the teenage and college years and even more dramatically after the college years (e.g., Raustrop & Froberg, 2018). Similarly, Cullen, Koehly, Anderson et al. (1999) note a 52.5% drop in PA associated with the transition

out of high school. Certainly, CPE is not the only factor affecting PA behaviors later in life, however, including CPE in high school programs offers benefits similar to those offered to college students. As shown in the sections that follow, CPE does contribute to active lifestyles later in life.

### **High school: Project Active Teen (PAT)**

Project Active Teen (PAT), which began in 1991, was one of the first studies of a high school CPE program. In this project, effectiveness of a yearlong CPE program in promoting high school students' PA behaviors was investigated. Participants were students in the southwestern United States at a large (i.e., 1500 students) suburban high school enrolled in a CPE class that used the *Fitness for Life* program. They took the CPE program during their freshman year in 1991–1992. Students were followed as juniors and seniors at the school. Several statistical differences between CPE and traditional PE groups were found. Students who had the CPE class as freshmen reported being more physically active as well as less likely to be inactive during their junior and senior years at the school as compared to comparison students with traditional PE at another school (Dale, Corbin, & Cuddihy, 1998).

In a second study, researchers followed this same group of students who had the CPE program in their high school Freshman year 12–18 months after they graduated from high school. Similar to the results of the first PAT study, CPE students reported being more physically active and less likely to be inactive than the students in the comparison group who took traditional PE. The CPE students (both male and female at 4–10% inactive) were also significantly less likely to be inactive than a similar national comparison group (21% for both males and females) (Dale & Corbin, 2000).

In a third study, Kulinna, Corbin, and Yu (2018) followed the same participants 24 years after they had completed the CPE course (or 20 years after graduating from high school) to determine the long-term impact of the CPE course. For the third study, it was not possible to compare the CPE course students with the comparison group; however, the participants were again compared to a similar sample of participants on a national survey. This process involved comparing the proportion of CPE program participants meeting national standards for types of activity to the proportion of the national sample of 35 to 44-year old adults (CDC, 2017). Data collection took place at the same time for the third PAT study and the national study.

Like the two previous studies, the third study showed CPE students' MVPA levels (male 86% and female 68%) were significantly higher than the national sample age-equivalent peers (male 52% and female 50%). Their strength exercise levels (male 45% and female 32%) were higher than the national sample (male 34% and female 24%) but not significantly higher. The former CPE students were also less likely to be inactive (male 0% and female 5%) than the national sample (male 25% and female 27%) (Kulinna et al., 2018). Note: the sample size for males was small, but none of the male participants was classified as inactive.

Over the 24 years of the study, all of the significant differences (12 of 50) favored the CPE groups over traditional PE and national comparison groups. “Twenty years after high school graduation, former CPE students were less likely to be inactive and more likely to be moderately active than when in high school and were less likely to be inactive and more

likely to be moderately active than national sample age-equivalent peers” (Kulinna et al., 2018, p. 1).

It is also worthy of note that 24 years after PAT participants completed their CPE class, “56% of respondents indicated that they remembered content from the class, 50% indicated that they still use the information, 47% indicated that they found the class useful after graduation, and 92% indicated that they currently consider themselves to be well informed about PF and PA” (Kulinna et al., 2018, p. 3). The findings of the PAT longitudinal studies “suggest that CPE can be a vital part of a total quality PE program that promotes lifelong physical activity and complements quality traditional PE programs” (Kulinna et al., 2018, p. 5).

Wallhead and Buckworth (2004) acknowledge the effectiveness of PAT in increasing student reported out-of-school PA. They point to the theoretical underpinnings of social cognitive theories, the healthy behavior knowledge focus, and self-management components as important factors in program effectiveness.

### **Other high school CPE and knowledge studies**

Children and youth in the United States and elsewhere show low levels of healthy behavior knowledge and many misconceptions of important concepts both at the elementary level (e.g., Brusseau, Kulinna, & Cothran, 2011; Hopple & Graham, 1995; Kulinna, 2004) as well as at the secondary level (Desmond, Price, Lock, Smith, & Stewart, 1990; Keating, Harrison, Dauenhauer, Chen, & Guan, 2009; Placek et al., 2001; Thompson & Hannon, 2012; Williams, Phelps, Laurson, Thomas, & Brown, 2013). This highlights the need for programs designed to enhance student knowledge concerning health-related fitness and PA. Rider, Imwold, and Johnson (1986) found that students in Florida’s personal fitness course significantly improved their health related fitness knowledge, fitness, and attitudes toward PA and PF. This pilot study had a limited sample size (60) and no control group, and for these reasons, the results should be interpreted with caution.

### **The “PE Effect” and CPE**

The “PE Effect” refers to the impact of PE programs on PA outside of school (Green, 2014). As described earlier, the PAT studies provide evidence of PA benefits after the school years. At the middle school level, Wells et al. (2014) found that students exposed to CPE lessons on cardiovascular fitness and health increased their moderate to vigorous physical activity and knowledge about health-related fitness. Wang and Chen (*in press*) also studied middle school youth exposed to a CPE program. They found that CPE students had better fitness knowledge, autonomous motivation toward PA, and higher levels of out-of-school PA than students in a control condition. Further, research by Wang and Chen (2019) identified pathways to the PE Effect. They concluded that teaching knowledge in an autonomous-supportive environment (e.g., CPE) provides pathways to out-of-school PA.

### **Factors helpful to CPE implementation**

As noted in the previous section, CPE can be effective in promoting long-term PA. There are several factors that are helpful to implementing CPE programs (e.g., as reported in the PAT project and other studies). Some of these are discussed here.

## **Planning**

The first published reports (Dale & Corbin, 2000; Dale et al., 1998) of the PAT project describe the planning that went into the CPE class that was studied in the project. The project was planned jointly by a committee of university representatives and teachers at the PAT high school. The committee prepared lesson plan notebooks that were approved by the teachers and weekly in-service meetings were conducted to aid teachers in implementing the CPE class. The early preparation and availability of teacher resources helped teachers unfamiliar with the new program.

## **Commitment to a program philosophy**

Fundamental to the implementation of existing CPE/FE programs is a program philosophy. The HELP philosophy, as previously described, has served as the basic philosophy for the *Fitness for Life*, Fitnessgram®, and *Physical Best* programs and was used as the basis for the PAT study. Helping students to become familiar with this philosophy may have contributed to consistent program messages and shared beliefs about what is important in all of the programs that use the HELP philosophy. In turn, the consistent message and shared belief may have contributed to program effectiveness.

## **Administrative and teacher support**

PAT, a CPE program implementation, illustrates the importance of administrative and teacher support. The proposal for the class was approved by the school board and the school administration. All of the teachers committed to the project. This commitment was, no doubt, a factor in PAT program success and gaining the support of students and parents.

A study of teacher and professor ratings of objectives for the Texas CPE course (Wiling & Corbin, 2002), indicated that 70% of both teachers and professors valued CPE objectives as either very important or important. Johnson and Harageones reported similar teacher “buy in” in Florida (Johnson & Harageones, 1994). These results suggest that over time teachers accept CPE programs and become committed to their objectives.

## **Fidelity of implementation**

Program fidelity is important in any PE program, and information from the PAT project support the need for fidelity in the implementation of CPE programs. Data for PAT were collected during the first and second years that the CPE class was taught. As reported by Dale and Corbin (2000), the CPE program was more effective during the first year than during the second. During the first year, weekly in-service meetings were held and a committee representative attended classes for all teachers to ensure that CPE lesson plans were being implemented as planned. The PE Department Head did follow up. The Department Head oversight continued in the second year, but the other fidelity oversight did not. In retrospect, the PAT researchers recommended continued in-service and oversight because of teacher turnover and the need to maintain fidelity to the program. For



any program to be effective, fidelity is important. Teacher commitment may wain with lack of training and oversight.

### ***Student “buy in”***

Any new program is likely to meet resistance (see next section), and interviews with teachers at the PAT high school indicated that there was student resistance to the use of a textbook and having homework assignments, including maintaining a portfolio of worksheets. There was also some resistance to classroom sessions especially among the more physically skilled students. On the other hand, teacher interviews indicated that many students appreciated the HELP philosophy and the individualized approach of CPE. One teacher described conversations with students who commented outside of class about the various health benefits of activity learned in the CPE class.

### ***Repeatability***

The CPE class in the PAT project resulted in long term PA adherence and reduced inactivity later in life. For similar results to occur, special efforts such as those described above for the PAT project would be important.

### ***Access to resources***

The early innovators used college materials to implement CPE programs in high schools. Over time, resources for use in secondary programs became available (see earlier section). However, limited budgets sometimes make it difficult for secondary school PE departments to acquire the necessary materials to conduct quality CPE programs. For this reason, it is important to use information such as the evidence of effectiveness described in this article to lobby administration for resources. In addition, exploring library and IT resources for use in programs can be effective. The PAT program, with support from administration, was able to purchase texts and other resources necessary to make the program successful.

### ***Commitment to PE content standards and FE benchmarks***

In recent years, the term PL has gained increasing acceptance in the U.S., in Canada and in Europe (Corbin, 2016). In an early document, producing a “physically educated person” was described as the principal goal of PE programs (NASPE, 1992). The latest standards (SHAPE America, 2014) refers to the “physically literate” person rather than a “physically educated” person for one who has achieved the five principal PE learning content standards. There are many definitions of PL in addition to the one favored by SHAPE America. In a recent commentary on PL one commonality in definitions was noted, “the overarching focus on lifetime PA is common to all” (Corbin, 2016, p. 19). CPE and FE programs also claim this overarching goal and are typically aligned with state and national PE content standards and FE benchmarks.

It is worthy of note that modern CPE programs have been expanded to include content (e.g., concepts, principles, and self-management skills) that address all of the five PE

content standards. The central focus remains on standards related to PA and PF (Standard 3), but content related to the other four standards is also addressed. For example, for Standard 1 (motor skill and movement competency) students study biomechanical and skill learning principles, guidelines for learning skills, techniques for analyzing skills, and getting performance feedback; for Standard 2 (knowledge of concepts, principles, strategies, and tactics of movement) students learn the meaning of the terms strategy and tactics and learn guidelines for developing strategies and tactics in PE and in PA later in life; for Standard 4 (responsible personal and social behavior), students study leadership skills, teamwork, and guidelines for social interactions in PA; and, for Standard 5 (valuing of PA for health, enjoyment, challenge, self-expression, and/or social interaction), students study attitudes about PA (both negative and positive), the health and wellness benefits of PA including enjoyment, challenge, and self-expression. Classroom and PA sessions are devoted to all five standards and student portfolios include worksheets related to each standard. Correlations for matching CPE (e.g., *Fitness for Life*, Corbin and Le Masurier, 2014) lessons to all five content standards are available at [www.fitnessforlife.org](http://www.fitnessforlife.org).

By the beginning of the twenty-first century, FE was an established part of a quality PE program. In recognition of this fact, NASPE appointed a Fitness Education Project taskforce to create a comprehensive instructional framework for FE in PE. The taskforce published the framework that contained grade-level benchmarks for learning in FE programs (SHAPE America, 2012). The framework complements the SHAPE America content standards described in the previous paragraph. CPE and FE programs, as described in the article, are typically aligned with state and national standards as well as FE benchmarks. While some schools may not implement formal FE programs, most do make attempts to base their programs on national and state PE content standards and benchmarks suggesting that FE programming is included.

Making a commitment to PE content standards, FE benchmarks, and the goals of achieving PL are important to the success of CPE/FE programs. While national standards were not available when the CPE innovation began, the objectives of early CPE programs were consistent with current standards and benchmarks. Indeed, FE benchmarks were no doubt influenced by the objectives and content of early CPE programs.

## **Barriers to success**

In the preceding section, some of the factors that led to CPE program success were discussed. The first two authors of this article have had considerable experience conducting teacher workshops designed to help them implement CPE programs. Some of the barriers to success, based on our experience, include barriers for students and barriers for teachers. Some of these barriers are discussed in the paragraphs that follow.

### ***Student resistance (and acceptance)***

As described earlier, CPE programs initially met with resistance from some students for reasons previously discussed. Over time most students, like most teachers “bought into” the CPE approach. However, much depends on teacher acceptance. If teachers communicate the value of CPE, student acceptance is more likely to follow.

### ***The physical activity question***

As the authors have conducted workshops, perhaps one of the most significant concerns we hear relates to the “PA question.” “How can we justify having students in a classroom when so many students fail to meet national physical activity guidelines?” Here is our response. An overarching goal of PE programs is to promote lifelong PA. To be sure, taking time from PA to be in a classroom reduces PA on those days. However, CPE is not meant to be all of PE, rather it is one part of PE conducted for a limited time period with a limited number of classroom days. The time spent in CPE yields more PA later in high school and later in life, more than compensating for the time lost in PA while the student is in the classroom. If, in CPE, we can teach students self-management and consumer skills that will help them to be active for a lifetime, the limited classroom time in CPE seems well worth it. The research supports this idea.

### ***Teacher resistance and adherence to traditional sports-based models***

As noted earlier, PE during the second half of the twentieth century was criticized for its emphasis on team sports over lifetime activities (Research & Forecasts, 1983). A Gallup Poll during this time showed that 63% of American adults indicated that they did not use the activities they learned in PE (Corbin, 1978). Simons-Mortons, Eitel, and Small (1999) expressed similar concerns indicating that the five most frequently taught activities in both middle and high schools were team sports in spite of the fact that team sports were not among the most popular activities performed after the school years. The implication is that secondary PE teachers often taught what they knew best (often based on their sport coaching expertise) rather than activities that could be used throughout life. The adherence to the team sports model for secondary school PE was (and remains), no doubt, a barrier to CPE and FE programs and other PE programs as well.

### ***Teacher resistance and additional workload***

In the early years, one of the barriers to CPE was the added workload. Teachers typically had multiple classes during the day. The addition of homework that had to be graded, quizzes and tests that had to be administered, and extra planning that was necessary for a new program were obstacles to teacher acceptance. As CPE programs became more common, teachers were less likely to perceive the extra workload as a barrier, but for those who typically did little preparation (let the kids play), it continued to be a barrier.

### ***Teacher resistance and role overload***

Early research indicated that PE teachers who also coach athletic teams often experience role overload (Locke & Massengale, 1978; Sage, 1987). Specifically, coaches who also teach often feel overloaded because the coaching role is prioritized because of greater perceived expectations and benefits associated with it. This can lead to stress related to the dual roles and the time commitments for both. For this reason, teachers who also coach may perceive the demands of CPE as adding to the overload (see additional workload above). A recent review (Konukman et al., 2010) supports the early research. The authors indicate that modern PE

programs, that emphasize integration of health and fitness concepts, increase the responsibilities of PE teachers, thus leading to increased role overload.

### **Lack of content knowledge**

Ward and colleagues (Ward, Li, Kim, & Lee, 2012) distinguish between common content knowledge (CCK) and specialized content knowledge (SCK). CCK is as it relates to CPE is knowledge about PA and PF. SCK is *knowing how to teach* (Ward et al., 2012). When CPE was first introduced, teachers often lacked a background in the sciences. Now, several decades after the first implementation of CPE, most teachers possess CCK acquired from science-based classes such as exercise physiology, biomechanics, sport and exercise psychology, and motor learning and development. The form of CCK acquired in these classes, from our experience, does not always equate to the type of CCK commonly taught in CPE classes (practical knowledge for use in daily life). Castelli and Williams (2007), for example, have shown that many PE teachers lack CCK related to health-related fitness.

Ward et al. (2012) suggest that both CCK and SCK are necessary for effective teaching. They also note that PETE programs frequently focus on CCK rather than SCK. We concur. For CPE programs to be successful teachers need, in our view, science-based CCK, practical CCK, and SCK related to CPE content. While some schools have implemented physical education teacher education (PETE) classes designed to prepare teachers for CPE/FE, many have not. Research findings indicate that over time teachers accept CPE objectives as important (Johnson & Harageones, 1994; Wilking & Corbin, 2002), but acceptance is best when teachers feel well prepared. Lack of preparation is, in our opinion, a barrier to successful implementation of programs.

### **Moving to the future: CPE and physical education teacher education programs (PETE)**

Because CPE/FE programs have become a widespread innovation in secondary PE over the past 40 years, they deserved consideration in PETE programs. Some colleges and universities now include classes designed to prepare future PE teachers to incorporate CPE and FE programs (e.g., Arizona State University, Appalachian State University, The Ohio State University). Advocates have offered presentations at national meetings to outline ideas for implementing courses in PETE programs (Corbin, Kulinna, Reeves, & Sibley et al., 2015; Sibley, Corbin, LeMasurier, & Brusseau, 2018). Possible topics for coverage in a PETE class are listed in Table 1 and provide a basis for planning classes to prepare teachers for the successful implementation of CPE/FE programs.

### **CPE and compatibility with other program components**

As described earlier, CPE programs use a text and offer both classroom and activity sessions to meet stated objectives. Also, as noted earlier, CPE programs are designed to help students plan for active living and other healthy lifestyles while in school and after the school years. As such, CPE can provide a foundation for other PE classes that follow. FE programs may not use a textbook or offer classroom sessions, but typically share the

**Table 1.** Possible contents for a CPE/FE class in PETE programs.

- 
- Program Philosophy and History of CPE/FE (e.g., HELP Philosophy)
  - PE Content Standards, FE Benchmarks, and Physical Literacy Overview
  - Theoretical Foundations (e.g., self-determination theory, transtheoretical model)
  - Teacher Values Orientation and CPE Compatibility (see Zhu & Chen, 2018)
  - Overview of CPE/FE Content Knowledge (e.g., common content, specialized content)
  - Preparing Local Program Objectives
  - Preparing Lesson Plans and Adapting Commercial Lesson Plans for Local Use
  - Methods of Presenting Classroom Content (e.g., use of AV, classroom discussions)
  - Methods of Presenting CPE/FE Activity Session Content
  - Overview of Available HS Programs (e.g., *Fitness for Life, Physical Best*)
  - Overview of Available MS Programs (e.g., *Fitness for Life Middle School, SHL*)
  - Overview of Available Resources (e.g., textbooks, AV, worksheets)
  - Overview of Student and Program Evaluation (e.g., tests, portfolios, projects, workbooks)
  - Factors Leading to Success (see earlier section)
  - Overcoming Obstacles (see earlier section)
  - Integrating CPE/FE with Other PE Programs (e.g., Sport Education, Traditional PE)
  - Integrating CPE/FE with Health Education (e.g., HOPE)
  - Integrating CPE/FE with Whole-of School Programs (e.g., CSPAP, PYFP)
  - Using the Web and e-books in CPE
  - Online CPE: Pros and Cons, Guidelines for Implementation (SHAPE America, 2018)
  - Evidence of Effectiveness (see earlier section)
  - Advocacy and Techniques for Gaining Program Support
  - Teaching Sample CPE/FE Lessons
- 

same goals as CPE programs. Accordingly, CPE/FE programs have not been presented as programs that compete with other innovative high school programs and should not be viewed as such. Rather CPE/FE programs can be viewed as providing foundation information for students to use in other parts of a quality PE program. As Siedentop, Hastie, and van der Mars (in press) describe, secondary PE programs can have dual curricular themes. For example, students can learn important fitness concepts during sport education “seasons” as they learn how to play different sports and acquire sports skills. CPE/FE can also provide a foundation for sport experiences and, in turn, participation in sport can help bring to life the learning of CPE/FE concepts.

## Discussion

The CPE innovation at the college and university level has become commonplace, although many of the current programs are elective rather than required. At the high school level, as illustrated in Figure 1, the CPE innovation is not as robust as at the college/university level. This is, at least in part, because of differences in steps necessary for program adoption at the college vs. high school level and the vast differences in requirements for high school program change from state to state, district to district, and school to

school. In some cases, programs have been instituted state-wide as in Florida and several other states. In many cases school districts adopt CPE programs and in others decisions are made at the school level. In spite of obstacles and noted barriers, the CPE innovation has been sustained for more than 40-years. And, in many cases, the adoption of CPE has been used successfully to prevent high school program loss.

There are compelling reasons for implementing CPE and FE programs, including support from the scientific and medical communities and widespread support of the public health movement in PE. With that being said, it is important to note that CPE/FE programs, were never intended to be a substitute for traditional programs, but rather were intended to complement them and to provide a foundation for the total quality PE program. The fact that so many programs have been instituted effectively, and the evidence of program effectiveness, suggests that CPE programs can play a significant role in helping students to reach the overarching goal of PE and PL programs. When implemented with fidelity, CPE and companion FE programs have, and can in the future, play a significant role in promoting lifelong PA and play an important role in providing quality PE for secondary school students. PETE classes to prepare future PE teachers in CPE/FE are recommended.

## Note

1. In the article designations for various organizations were those used at the time of the citation. We acknowledge here that NASPE, AAHPER, and AAHPERD as cited in this article no longer exist. All of these organizations are now under the umbrella of the Society of Health and Physical Educators (SHAPE America). For brevity, initials for PE, PA, physical fitness (PF), FE, and CPE and some other terms are used.

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