Over the past 40 years several pieces of legislation have broadened opportunities for individuals with disabilities (IWD) to engage in school-based physical education (PE), extracurricular sports, and recreational opportunities. However, the literature continues to indicate the existence of several barriers for IWD to participate in these types of programs (Jaarsma, Dijkstra, Geertzen, & Dekker, 2014; Piatt, Bell, Rothwell, & Wells, 2014). In 2010 the U.S. Government Accountability Office (GAO) examined IWD’s participation in PE and extracurricular athletic programs in five different states. The results indi-
Barriers to Inclusion

Despite the increased advocacy for inclusive practices in the United States public school system, the exclusion of IWDs from PE and extracurricular sports remains a concern (Block, Taliaferro, & Moran, 2013). Scholars argue that barriers to IWD's participation are complex and exist at the individual, sociocultural and environmental levels (Shields, Synnot, & Kearns, 2015). At the individual level barriers are frequently identified as physical (e.g., deficits in motor development, low levels of physical fitness, health-related impediments) or psychological (e.g., fear, lack of confidence, reduced motivation; Jaarsma et al., 2014). At the sociocultural level negative stereotypes associated with disabilities, parental overprotection, lack of information about programs and legislation, liability concerns, unsupportive peers, and insufficient teacher preparation act as major hindrances for the integration of IWDs in sports and PE (Taliaferro, Hammond, & Wyant, 2015). At the environmental level, lack of opportunities, inadequate accessibility to programs and facilities, restricted budgets, limited resources (e.g., equipment, support personnel), and lack of administrative support are often described as barriers to participation (Dieringer & Judge, 2015; Jaarsma et al., 2014; Piatt et al., 2014). Although some of those barriers might act in isolation, they tend to be interrelated. Thus, when a certain barrier is addressed, others might be removed as an effect. For example, when budget restriction is addressed, adequate equipment can be purchased and support personnel can be hired and/or trained. Likewise, when accurate information about the inclusion of IWDs in sports and PE is disseminated to parents, they might become less overprotective of their children.

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Issues Related to Teachers and Coaches

In concert with the aforementioned barriers, researchers have explained that teachers’ and coaches’ lack of adequate preparation and confidence, as well as negative attitudes toward inclusion, remain critical impediments to the enhancement of inclusive practices in schools (Kozub & Lienert, 2003; Vaz et al., 2015). In a response to the GAO report of 2010, the U.S. Department of Education Office for Civil Rights (USDEOCR, 2013) clarified that schools must offer physical activity opportunities — including PE, competitive sports, and recreational activities — to IWDs to the same extent that they offer them to students without disabilities. To this end, the USDEOCR (2013) indicated that teacher and coach training is a priority for the enhancement of program opportunities. Unfortunately, the literature indicates that teachers and coaches continue to feel unprepared to include IWDs in PE and other school-based sports programs. This unpreparedness has been commonly associated with (1) lack of knowledge (e.g., understanding of disabilities’ characteristics, special education legislation, individualized education programs [IEP]), (2) lack of skills (e.g., ability to manage IWD’s behaviors, make instructional modifications, and assess student learning), and (3) attitudes toward inclusion (Jin, Yun, & Wegis, 2013; Taliaferro et al., 2015).

Knowledge and Skills. Most undergraduate PETE programs devote only 25% of their course hours to adapted physical education/physical activity (APE/PA; Ayers & Housner, 2008), which typically consist of a single three-credit course (Jin et al., 2013; Piletic & Davis, 2010). According to Piletic and Davis (2010), these courses tend to focus on disability characteristics, instruction and motivation strategies, motor development, and task modifications. While these are certainly relevant topics, less time is devoted to similarly important content such as legislation, history, assessment, IEPs, behavior management, curriculum design, and disability-specific content to address students’ individual needs. Although the content commonly addressed by teacher education programs do reflect some components of the Adapted Physical Education National Standards (Kelly, 2006), the extent to which students can interact with them in meaningful ways through a stand-alone three-credit course is questionable.

Generally, APE/PA course instructors make the decisions regarding which content to include in their courses. Depending on the scope of such decisions, students might end up with superficial knowledge (or even lack of knowledge) of many critical issues associated with the delivery of effective adapted services to IWDs. The adequacy of this one course in APE/PA has been a concern, particularly when the content covered in the course is not applied in a service-learning setting (Folsom-Meek, Nearing, Grotelueschen, & Krampf, 1999; Rizzo & Davis, 1991; Rizzo & Kirkendall, 1995). Furthermore, it appears that APE/PA courses in teacher education programs tend to be delivered in isolation from other courses, resulting in fragmented experiences for many students (Jin et al., 2013). This is problematic because a lack of application of knowledge can have a negative impact on a teacher’s confidence to include IWDs in sports and PE (Hodge, Davis, Woodard, & Sherrill, 2002).

While undergraduate programs approach the knowledge component through coursework, it is not as clear if, when or how preservice teachers and coaches are taught the skills necessary to design and implement inclusive PE and sport experiences. In other words, the focus of PETE programs is often on the “what” of disability rather on the “how to” include someone with a disability in movement experiences. According to Piletic and Davis (2010), undergraduate APE/PA courses need to devote more time to the development of skills related to behavior management and assessment, which are necessary for quality inclusion. Although practicum experiences seem to be the ideal setting for prospective teachers and coaches to develop these skills, research has indicated that practicum experiences in APE/PA courses are often limited to providing students with exposure to IWDs rather than fostering the development of teaching or coaching skills (Piletic & Davis, 2010).

Attitudes. Teachers’ and coaches’ attitudes play a critical role in their approaches to inclusive practices in sport and PE programs (DePauw, 1986; Kozub & Lienert, 2003). An extensive line of research in this area continues to build on earlier work by Rizzo and colleagues, who found that attitudinal variables and feelings toward inclusion were influenced by factors such as the type and severity of a student’s disability (Rizzo & Vispoel, 1991). For example, teachers were found to hold more favorable attitudes toward teaching students with mild disabilities than those with severe disabilities (Kowalski & Rizzo, 1996; Rizzo & Kirkendall, 1995), and toward students with learning disabilities than those with physical disabilities (Rizzo, 1984). Additionally, physical educators’ perceived competence has been found to be strongly related to, and even a predictor of, favorable attitudes toward the inclusion of IWDs across all disability conditions (Kowalski & Rizzo, 1996; Rizzo & Kirkendall, 1995; Rizzo & Wright, 1988; Rizzo & Vispoel, 1991).

Scholars continue to report similar findings related to how teachers perceive and approach the inclusion of IWDs in sport and PE, including factors such as teacher/coach gender (Jobe, Rust, & Brissie, 1996), years of experience (MacFarlane & Woolfson, 2013), nature and severity of the disability (Monsen, Ewing, & Kwoka, 2014), training (Sharma & Sokal, 2015), and previous experiences with IWDs (Varcoe & Boyle, 2014). Specifically, research investigating influences on teachers’ attitudes and beliefs toward inclusion in PE further supports that (1) female teachers were more favorable to inclusion than males (e.g., Folsom-Meek et al., 1999; Hodge & Jansma, 2000; Hutzler, Zach, & Gafni, 2005); (2) teachers with more years of teaching practice held more positive attitudes; (3) teachers tended to hold more favorable beliefs toward including students with mild disabilities than severe disabilities (e.g., Hodge & Jansma, 2000; Conatser, Block, & Gansneder, 2002); (4) teachers were more favorable toward including IWDs at the elementary level than at the secondary level (Rizzo, 1984); (5) the quality and amount of previous training were related to more positive attitudes (e.g., Hodge et al., 2002; Hutzler et al., 2005); and (6) prior experience with IWDs also facilitated the development of a positive attitude toward inclusion (e.g., Hardin, 2005; Hodge & Elliott, 2013). Likewise, Hodge et al. (2009) examined teacher beliefs about inclusion in PE across various countries. The authors also found that the nature and severity of students’ disability, compound with professional training, readiness to teach, and challenges associated with the teaching environment, influenced teachers’ attitudes toward inclusion.

Considerations for Teacher and Coach Preparation Programs

Inclusion has been defined as “an approach that supports the placement with all students whatever their abilities or disabilities in class with their peers; in receipt of proper supports and accommodations” (Hodge et al., 2009, p. 401). Physical education teach-
ers and athletic coaches are the individuals who have the greatest responsibility for promoting and ensuring inclusion in school and community-based sport and physical activity opportunities; therefore, comprehensive and appropriate training related to inclusion should be provided in undergraduate programs. Given the complexity of this task, it is important that undergraduate curricula address the content associated with adequate inclusion in sport and physical education, allowing for teachers and coaches to become skillful in delivering quality adapted services to their students. The following sections present considerations for how to intentionally and systematically provide undergraduate students with the necessary knowledge and experience within undergraduate PETE and coaching education programs through APE/PA course design.

Focus on Standards-based Content. In designing undergraduate APE/PA courses, consideration should be given to the use and incorporation of standards-based content, with the integration of the Adapted Physical Education National Standards (APENS; Kelly, 2006) and the National Standards for Initial Physical Education Teacher Education (SHAPE America – Society of Health and Physical Educators, 2017). The APENS standards (Kelly, 2006) aim to provide guidance related to the content knowledge and competencies needed to instruct individuals with disabilities in PE. These 15 standards include knowledge of human development, motor behavior, exercise science, measurement and evaluation, history and philosophy, unique attributes of learners, curriculum theory and development, assessment, ethics and instructional design, planning, and implementation (Kelly, 2006).

Physical education teacher education programs are generally guided by the National Standards for Initial PETE, which relate to (1) discipline-specific content and foundational knowledge, (2) skillfulness and health-related fitness, (3) planning and implementation, (4) instructional delivery and management, (5) assessment of student learning, and (6) professional responsibility. This set of standards was published in 2017 and are a revised version of the 10 standards that had been used to guide PETE programs since 1995. While the 2003 and earlier standards included a specific standard regarding diversity and the inclusion of IWDs, the current version embeds the inclusion of students with diverse needs across standards.

The National Standards for Sport Coaches (SHAPE America, n.d.) are aimed at guiding decisions on the knowledge, skills, responsibilities and training necessary for coaches. These 40 standards represent eight domains: (1) philosophy and ethics, (2) safety and injury prevention, (3) physical conditioning, (4) growth and development, (5) teaching and communication, (6) sport skills and tactics, (7) organization and administration, and (8) evaluation. Again, while there is no specific domain related to the inclusion of athletes with disabilities, related standards and benchmarks are reflected throughout various domains, focused on developmentally appropriate activities; cognitive, motor, emotional and social development; athlete potential; communication; maximizing meaningful participation; assessment of player ability; and establishing individualized goals.

These sets of standards should be considered and used in combination to help guide PETE and coaching education programs to address working with IWDs in PE and sport settings. The alignment of the APENS and National PETE and coaching standards, as described in Table 1, reflects that content related to APENS standards can be infused across teacher and coach education curricula.

Infuse and Strand APE/PA Content throughout the Program. One of the problems associated with stand-alone APE/PA courses is the disconnect between their content and the remaining courses in the curriculum. Typically, the content delivered through APE/PA courses is seldom connected to other curricular components, resulting in significant gaps between the theory and the actual practice of inclusion in PE and sports. Alternatively, APE/PA content should be infused throughout the PETE curriculum or approached as a curricular strand (Davis, 2011; DePauw & Goc Karp, 1994; Rizzo, Broadhead, & Kowalski, 1997). DePauw and Goc Karp (1994) explained that content related to APE/PA,
disabilities and IWDs should be infused throughout the PETE curriculum. Further, the authors proposed three levels at which infusion can occur: the additive level (such as guest lectures on disability sport, assignments), inclusion level (two or more lectures on disability topics, practicum experiences that incorporate reflection, and lectures on specific disability sport topics followed by class assignments), and infusion level (every activity in a methods class could include individuals with disabilities, presentations and discussions of sports events for IWDs could be incorporated into methods courses, etc.).

Table 1.
Alignment of the APENS and National PETE and Coaching Standards

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<th>APENS Standards</th>
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Similarly, Bulger, Mohr, Carson and Wiegand (2001) discussed the notion of curricular strands as “those critical themes or perspectives that are typically introduced in the foundational semesters of the undergraduate curriculum and systematically revised in a wide variety of instructional contexts” (p. 404). In the case of APE/PA the goal is to incorporate and reinforce APE/PA content throughout the curriculum and to address the inclusion of IWDs in sports and physical activities in multiple courses. It is important to note that the stranding or infusion of APE/PA content in the curriculum should be an intentional, planned and systematic practice with the goal of bridging the gap between students’ coursework and their future professional responsibilities toward IWDs. Such tasks require awareness, commitment and shared responsibility from faculty in order to ensure coherence among the courses in which APE/PA content is stranded through or infused within.

Offering an introductory APE/PA course early in the curriculum and incorporating APE/PA content in other courses might be one solution for programs that allocate only three credit hours for APE/PA. In this case the knowledge, skills and dispositions related to the inclusion of IWDs in sports and PE are addressed in and related to other curricular components. For example, in a pedagogical content knowledge class students can learn how to use classroom management concepts and strategies to deal with the behaviors that are characteristic of certain disabilities. Similarly, in those types of courses, students can learn how to modify tasks and use differentiated instructional strategies in order to include individuals with specific disabilities in PE or other sports/physical activity programs. In fitness education classes students can learn how to identify modifications to physical fitness tests for IWDs, while in curriculum classes students can learn how to adapt specific curricular models (e.g., sport education, fitness education, teaching games for understanding) to meet the needs of IWDs.

One strategy that might facilitate the infusion of APE/PA as a curricular strand is the appointment of a faculty member to lead the process. Ideally, this faculty member should be an expert in the area of APE/PA. This leader would be responsible for coordinating the integration of APE/PA content in the different courses in order to ensure cohesion among faculty members. In this process the leader and other faculty members collaborate to identify the APE/PA competencies that should be addressed in each course and devise steps to better accomplish this task (Bulger et al., 2001).

A second strategy to consider is for the program faculty to undertake a curricular mapping exercise. Curricular mapping might be a suggestion for programs to determine where content is best introduced, where it is best reinforced, and where it can be stranded or infused. A third consideration is that the stranding or infusion of curricular material also requires continuous evaluation. According to Bulger et al. (2001), “The effectiveness of the infusion approach should be evaluated in terms of the students’ achievement of the designated course competencies” (p. 408). Lastly, it is important to consider that infusion and stranding are a “two-way street.” While the main purpose of stranding and infusion of APE/PA content may be to include and reinforce APE/PA content into courses outside of APE/PA-specific ones, content knowledge from other classes can be infused into APE/PA courses also. Content should not be taught in isolation in the APE/PA course; rather, content such as classroom management can be taught elsewhere and then infused into the APE/PA course.

Scaffold and Apply in Service Learning. The use of practicum experiences to supplement coursework in APE/PA has been well supported in the literature. Researchers have found that guided practicum experiences teaching IWDs can positively influence the attitudes of preservice physical educators (Folsom-Meek et al., 1999; Hodge, Tannehill, & Kluge, 2003; Taliaferro et al., 2015). For example, physical educators who experienced a practicum or service-learning placement in addition to or in combination with an APE/PA course had more positive attitudes and confidence levels toward including IWD than those who only had coursework (Folsom-Meek et al., 1999; Rizzo & Davis, 1991). Folsom-Meek...
et al. (1999) reported that while a single course on APE had no effect on the attitudes of preservice teachers toward teaching individuals with disabilities, an APE/PA practicum did increase preservice teachers’ positive attitudes. Practicum experiences are important in preservice teacher development as the hands-on direct learning can help students switch their feelings from nervousness and fear to acceptance (Roper & Santiago, 2014).

Since APE/PA practicum and service-learning experiences can greatly affect future teachers’ and coaches’ dispositions toward IWDs (Standal & Rugseth, 2014), the design of these experiences should receive considerable attention. While not always feasible due to contextual issues, ideally these practicum experiences should occur multiple times throughout the undergraduate curriculum and scaffold or build on one another (Hodge & Faison-Hodge, 2010; Perlman & Piletic, 2012; Sato, Hodge, Casebolt, & Samalot-Rivera, 2015). Students’ responsibilities related to the delivery of APE/PA services should progressively increase as they gain more knowledge about inclusion and teaching methods (Hodge & Faison-Hodge, 2010).

For example, in the first practicum experience students might have responsibilities such as observation, assisting with instruction, or working with IWDs in one-on-one or small-group situations within highly structured experiences. Responsibilities in subsequent practicum experiences could then progress to co-teaching/coaching; planning, designing, modifying and adapting instructional episodes (Hodge et al., 2013); independent teaching/coaching; instructing larger numbers of IWDs; and working in more realistic settings such as in existing community or school-based programs. Such practicum experiences should also coincide with and be closely related to coursework in APE/PA, special education, and pedagogical content knowledge so that there is a direct opportunity for application and reinforcement of course material (Perlman & Piletic, 2012; Rust & Sinelnikov, 2010; Sato et al., 2015).

A second consideration for practicum experiences is to incorporate discussion and reflection episodes throughout the program to promote positive attitudes and confidence toward working with IWDs (Hodge & Faison-Hodge, 2010; Hodge et al., 2003). Reflective journals and discussions should be shared in supportive atmospheres, where teacher candidates have a chance to express their concerns and work collaboratively to design strategies to overcome them. Lastly, when designing practicum experiences, the instructor should consider establishing a variety of meaningful experiences to meet the needs of preservice teachers and coaches who have many different interests and career aspirations. Opportunities for practicum experiences in APE/PA should ideally be made available in a variety of settings and contexts (i.e., on campus, off campus, inclusive, self-contained). The opportunities should also be designed to occur over extended periods of time (Roper & Santiago, 2014) and should take place in realistic settings (Rust & Sinelnikov, 2010). Finally, effective practicum experiences should allow for interactions with individuals with a variety of disabilities and across age ranges.

**Conclusion and Future Research**

This article has presented barriers that teachers and coaches may face when trying to include IWDs in their curriculum and sport: lack of exposure, lack of experience, and lack of resources. Providing these tools and experiences in quality PETE programs is a key strategy to help address these challenges. The APENS and National PETE and coaching standards offer a guide for evidence-based practices and strategies for the instruction of IWDs in physical education and coaching education courses. By instructing future teachers and coaches in these standards and considering their alignment, programs can build an early foundation for a comprehensive knowledge of how to incorporate IWDs in physical education and sport. Infusing APE/PA into PETE curricula through guest lectures, demonstrations and simulations, as well as providing practicum experiences facilitated by professionals trained in APE/PA, will help future teachers and coaches become comfortable with instruction delivery and providing modifications to IWD, helping to break down the barriers that exist in the minds of young teachers and coaches.

Future research can help support this alignment by examining the best methods for infusing and standing APE/PA content into undergraduate curricula, including delivery models and placement of practicum experiences. By embedding content for IWDs in physical education instruction at the university level, future teachers and coaches will be better prepared to provide more inclusive environments for all.

**References**


