Physical Education in Early Childhood

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Abstract

This article examines the incidence and quality of physical activity instruction during early childhood. Although the positive effect of physical activity on the cognitive, social, and physical development of young children is generally acknowledged, there is little emphasis nationally on ensuring appropriate physical educational experiences within the early childhood curriculum. Though limited in scope, extant research suggests that young children learn more via developmentally appropriate instruction than through random physical activity. The National Association for Sport and Physical Education has created guidelines for appropriate practices in schools and community settings. The creation and integration of quality physical activity into early childhood settings faces challenges. Yet, the increase in obesity and other diseases associated with a sedentary lifestyle makes such initiatives a moral imperative. Young children need specific and systematic opportunities to learn fundamental physical skills that will contribute to a lifetime of physical activity. It cannot be left to chance.

An internal urge to achieve competency in rudimentary physical skills and capitalize on the body’s capacity for movement is common to all young children. Though children use movement to express feelings, manipulate objects, and learn about their world, they also delight in physical accomplishment and enjoy movement for its own sake. Therefore, physical activity is an important component of everyday life and occurs in many forms during the early childhood years.

The purpose of this article is to describe what is currently known about the deliberate provision of opportunities for physical activity during the earliest stages of a child’s life. This is based on research concerning physical education (in the formal
sense of a curriculum) as well as inquiry related to other adult-planned occasions devised to encourage the spontaneous expression of children’s drive to move.

There are severe limitations on what can be reported about such undertakings with young children. First, although the science of motor development has done much to describe developmental processes related to motor skills and abilities, much less is known about pedagogy specific to young children in the psychomotor domain. A second limitation is imposed by the nature of social institutions designed to serve young children. Day-care programs and various formats for preschool education are now ubiquitous within American culture; however, there is very little consistency from program to program. In consequence, reviews of research on topics such as preschool physical education or large-motor play activities in day-care settings yield almost no information that is sufficiently generalizable to offer much social or scientific utility.

Nevertheless, in recent years the topics of physical activity (generally) and physical education (specifically) in early childhood have acquired a salience not previously assigned. The source of that shift, of course, has been a growing concern about public health. Although preschoolers themselves may not evidence immediate health risks (such as obesity and heart disease and their many concomitant illnesses), recent research has uncovered activity-related precursors to those health risks in young children.

Accordingly, the purpose of having children participate in physical activity and school-based physical education has increasingly come to be defined in terms of their subsequent exercise habits as adults. It is postulated that if vigorous physical activity helps the body to resist chronic diseases and ensures a higher quality of life through the maintenance of functional abilities, and if attitudes related to lifestyles are formed early in the developmental process, then the goal of guiding children toward becoming physically active for a lifetime has the force of a moral imperative.

Despite recent interest in and concern about physical activity in early childhood, given the limitations noted above, it is inevitable that what follows in this article is somewhat shorter on research evidence than we might wish. What we can accomplish, however, is a careful description of the dimensions of the problem, followed by an examination of current assertions about the goals, content, and methods of physical education in early childhood. The appropriate place to begin, then, is with a brief explication of the benefits of physical activity and how those outcomes relate to the demands of a growing public health problem.

Benefits of Physical Activity and Physical Education for Young Children

The National Association for the Education of Young Children defines early childhood as birth through 8 years of age (Bredekamp & Copple, 1997). For that age group, it is generally postulated that physical activity serves three primary purposes: (a) stimulating physiological development, (b) creating functional motor abilities, and (c) organizing the brain for subsequent cognitive processing in all three domains of learning (physical, social-emotional, cognitive).

Physiological Development

A lack of physical activity may result in incomplete physiological development. Physical activity in early childhood stimulates growth by supporting normal bone and muscle development. Further, combining the lack of sufficient physical activity with high caloric intake (an increasingly common phenomenon among children) leads to obesity. According to the National Health and Nutrition Examination Survey (more commonly referred to as NHANES), for children ages 2–5 years, the prevalence of overweight increased from 5.0% (in the
1976–1980 survey) to 13.9% (in the 2003–2004 survey) (Ogden et al., 2006). This accumulated excess weight prior to adolescence contributes to weight problems as an adult.

Functional Motor Abilities

Children learn progressively, in stages, as the nervous and skeletal systems mature to a point that allows for motor learning at a given level of movement complexity. Further, mastery of fundamental skills (e.g., throwing, catching, hopping, skipping, bending, twisting) is a result of practice requiring both cognitive and physical effort. Therefore, movement patterns during early childhood appear unique but gradually mature into more adult-like forms with sufficient experience, practice, and physiological development.

Contribution to the Three Domains of Learning

During early childhood, children learn primarily through movement and physical manipulation of objects (Piaget, 1964). This helps them not only to develop physical skills but assists in social and emotional development as well. Physical play enhances interrelationships among children, promoting early cooperation and communication skills (Sawyer, 2001). Play is an important part of early childhood physical activity. It is essential to development because it contributes to the cognitive, physical, social, and emotional well-being of children and youth.

Despite the benefits derived from play, time for free play has been markedly reduced for children by factors such as a hurried lifestyle and changes in family structure. The American Academy of Pediatrics warns that increased attention to academics and enrichment activities also comes at the expense of recess or free child-centered play (Ginsberg, 2007). All of these shifts increase the importance of promoting physical education as a contributor to physically active play and fundamental skill mastery.

Research

Though there is little research examining the incidence of physical education in early childhood, the extant research suggests that such programming is well worth the effort. Kelly, Dagger, and Walkley (1989) found that preschoolers’ physical abilities substantially improved after a modest intervention. Trained raters evaluated videotapes of 47 children (27 female and 20 male), ages 3 to 5 years, from two preschool programs. Children in one preschool received physical education instruction (50 minutes, twice a week for 12 weeks) in six basic skills: underhand ball roll, two-handed catch, instep kick, overhand throw, horizontal jump, and sidearm strike. Children at the other preschool received daily recess but no physical education. The children who received physical education improved in all the skills, whereas the recess group showed no change. Research related to underserved and disadvantaged children (Goodway & Branta, 2003) has extended this research. Systematic (12 weeks, twice a week for 45 minutes), progressive, and developmentally appropriate instruction was offered to 31 preschool children in an urban compensatory preschool program. Twenty-eight similar children served as a control group and received no special instruction. The motor-skill intervention focused on fundamental motor-skill development: hopping and galloping, ball bouncing, kicking, and catching and throwing. The object-control and locomotor subscales of the Test of Gross Motor Development showed substantial improvement from pre- to posttest in the intervention group but not in the control group.

Although instruction is important, it must be developmentally appropriate. Young children approach learning in a unique way (Sanders & Graham, 1992; Stork & Sanders, 2000) that must be accommodated if they are to experience positive outcomes. They still learn primarily through play, relying heavily on imitation and experimentation.
They are also very concrete, such that they need to be actively involved with equipment, as opposed to following complex instructions or attempting to visualize correct technique. Specific pedagogical methods for young children include the SKILL program (Successful Kinesthetic Instruction for Lifelong Learning) (Goodway & Savage, 2001) and Project SKIP (Successful Kinesthetic Instruction for Preschoolers) (Goodway & Robinson, 2006). Within these initiatives, a “mastery climate” prevails, under which tasks are differentiated for individual needs and children are provided choices that put them in control of their own learning. The result is improved abilities and increased feelings of self-competence.

Implications for Practice

The beneficial outcomes of physical activity in the domain of physiological and motoric development, as well as the contributions to cognitive, social, and emotional growth, have obvious implications for practice in school and child-care settings. Childhood educators have long understood that physical development is important and have encouraged daily physical activity for children under their care. Yet, although informal and random opportunities for physical activity (recess, before- and after-school games, and occasional classroom-based physical activities) do indeed contribute to physical development, they are far from sufficient as the basis for meeting all of the young child’s needs.

Learning is integrative—a fact most evident when support experiences are systematic—and persistent throughout all aspects of the child’s environment. Traditional education settings tend to treat the three domains of learning—physical, cognitive, and social-emotional—as separate entities; however, the domains are intrinsically interwoven such that facilitation of one enhances the others. That is why carefully planned instruction (physical education) is both desirable and potentially of great consequence for nurturing children’s development.

Locales for Physical Education

Children engage in spontaneous physical activity throughout the day in all of the places they inhabit (e.g., homes, backyards, playgrounds, parks, and sidewalks). It is in two locations, however, that they are most likely to encounter activities that are organized by adults: (1) schools and child-care settings, and (2) other community-based programs designed to provide opportunities for physical play and exercise.

Schools

Because they sometimes have resident teachers certified in physical education (or, at least, access to itinerant visiting specialists), it might appear that preschool children in public schools would be more likely to receive some form of planned physical education program. Not all states, however, require that elementary school physical education be taught by a specialist, and, in any case, it generally is left to individual schools to determine whether or not to extend the services of specialists to the preschool level. Even at kindergarten, only 39% of elementary schools in the United States require physical education (Robert Wood Johnson Foundation, 2003).

Preschool and Childcare

Forty-nine percent of children in the United States are enrolled in some type of preschool (Annie Casey Foundation, 2003). Preschool has become shorthand for any pre-K, Head Start, child care, day care, or nursery school involving 3- and 4-year-olds (Barnett & Yarosz, 2004). There are both public and private providers, and there is little consistency in the form that childcare assumes, whether it be oriented primarily toward play (recreation), cognitive and social development (education), or simply maintenance (babysitting).

Unlike school, preschool is not mandated in most states. The choice to enroll young children in child care is up to parents, and their motivations are as varied as they and the providers are, ranging from...
perceived educational needs of the child to the child-care needs of the parents.

In that regard, there is some evidence that education is gradually taking precedence over mere child care (Barnett & Yarosz, 2004). Thus, whether or not there is a need for child care, parents are increasingly enrolling their children in preschool as an early exposure to and preparation for formal schooling. Whatever parental motivation may be involved, however, it is reasonable to assume that the need to provide for appropriate forms of physical activity in preschool settings is unlikely to be a primary concern.

Public and Private Physical Activity Programs

In both urban and suburban areas there are a wide variety of commercial (pay-as-you-go) and public programs designed to offer physically active play for children (including sports, dance, and recreational activities such as swimming). YMCAs, for example, serve over 500,000 children in 9,000 locations (Welcome to the YMCA, n.d.). They provide age-graded instruction in a wide range of activities and, in some cases, both child-care and preschool programs as well (although the latter do not necessarily include systematic provisions for physical activity).

Throughout North America, gymnastics clubs are an example of the many popular commercial outlets offering physical activity specifically for preschool-age children. USA Gymnastics (n.d.) currently offers a two-part preschool fundamentals course that is “focused on teaching gymnastics movement education to preschool children (ages 1–5).” U.S. Youth Soccer (n.d.) is another popular activity provider, with rules specific to children under 6 years.

Across all of these programs, access for children is unevenly distributed, training of adults for teaching and supervision varies from none to extensive, programs may or may not be designed with developmental needs given full consideration, and evaluation generally is nonexistent. Nevertheless, the primary components of good programs are well understood and have been widely disseminated.

Quality Physical Education

As the leading organization for physical education over the past hundred years, the National Association for Sport and Physical Education (NASPE) has coordinated efforts to develop standards and guidelines for quality physical education programs. Those standards and guidelines have been continuously updated as social priorities change and as motor development research provides evidence of links between skills and habits learned in childhood and subsequent adult health and physical fitness.

Developmentally Appropriate Motor Skills

Movement is a fundamental function of life, but, though young children have an inherent interest in physical play, there is a real challenge in perpetuating that interest through middle childhood and adolescence into adulthood. The most important sustaining element for that purpose is the development of competence in fundamental motor skills (Brustad, 1993)—a form of learning that is best accomplished in the young child.

Fundamental motor skills are the basic blocks upon which subsequent sport and lifetime activity skills are built. Children who participate regularly in physical activity are more likely to increase mastery via skill practice and also to become more comfortable with the sensations (i.e., perspiration, accelerated heart rate, and strenuous muscle contractions) that accompany physical exertion. Therefore, purposeful, age-appropriate instruction at an early age builds a foundation necessary to support future health-related physical activity.

Pedagogy and Learning Environments

Developmentally appropriate physical activity settings use age-appropriate in-
structional strategies (NASPE, 2002). To ensure optimal development, young children must experience positive and caring relationships with adults and other children, benefit from adult guidance and assistance, and explore interesting environments with many things to learn and do (Bredekamp & Copple, 1997). The teacher’s responsibility is to create an environment presenting situations, challenges, and activities that allow children to develop physical skills and learn about their potential for movement (Sanders, 2002). Effective teachers organize the environment and plan ways to assist learning by providing for child-initiated activities as well as those planned and initiated by the teacher.

In a high-quality program, there are planned provisions for physical activity throughout the young child’s day and across the curriculum. Requiring long periods of sitting is at odds with children’s characteristically active style of learning—through moving, exploring, and acting on objects. Planned activities should challenge children to use a range of motor skills, allowing for and adapting to a wide range of differences in maturational rates, motivation, experience, and practice. All of these demands, when coupled with the preschool child’s as yet immature capacity for judgment, make direct adult supervision a necessity.

Although the core elements of pedagogy for motor skill development are the same for all ages, developmentally appropriate instructional strategies for use with young children are highly age specific. That fact supports the assertion that methods for teaching physical education in early childhood should be differentiated in ways that require both substantial teacher preparation and extensive practice.

It is not appropriate to review the body of research, theory, and instructional methods here, but interested readers can access excellent overviews by Sanders (2002, 2006). Further compilations of related literature are available as journal features (Rudisill, 2004; Sanders, 1994; Sanders & Stork, 2001). Among the most important pedagogical skills are the teacher’s ability to (1) arrange tasks in progressions that yield high rates of success while maintaining a necessary degree of challenge, (2) use physical and verbal cues to shape and refine motor performance, (3) individualize tasks to accommodate differences in ability and interest, (4) model the form and nature of physical actions with a clarity and simplicity that allows children to grasp key elements, and (5) employ a wide range of strategies for inviting children to believe they can improve through practice and effort, can make decisions about their own motor performances, and, above all, can enjoy the pleasures of success.

Appropriate Space and Equipment

In general, most equipment appropriate for young children is soft, flexible, graspable, and slow moving. These characteristics accommodate children’s slower reaction time and lack of both tactile coordination and overall agility. Further, as much as possible, there should be sufficient equipment that children are not forced to share. There need not be enough of any single item for every child, but there should be enough variety that all children can be simultaneously active at appropriate tasks.

Spaces for children’s physical activity may take many forms, but there are degrees of appropriateness, and certain minimum attributes are essential. In a developmentally appropriate physical activity setting, children have adequate space to move freely and develop fundamental motor skills through play-based learning activities (NASPE, 2000). Learning and practicing physical skills requires open space, such as a large room, gym, spacious hallway, or outdoor area (Sanders, 2006). Children must be able to swing a bat, kick a ball, or jump rope in a safe environment. For playgrounds to incorporate active motor play, 100 square feet per child is a reasonable minimum (Greenman, 1988).
Continuous and Active Engagement (Participation)

Not all physical activity is the same. *Free play* and *recess* generally allow young children to self-select their own activities and level of exertion, a process that is important in its own terms but that does not constitute physical education. *Game play* directed by child-care personnel or classroom teachers often emphasizes circle games in which a limited number of children are active while the others watch. That too has its place, but it is not physical education. In almost any form of physical activity for children, learning to wait quietly in line and politely taking turns often are considered desirable outcomes, but, by themselves, displays of rule compliance and civil behavior are not the equivalent of doing physical education.

In contrast, a quality physical education program includes a planned curriculum that presents sequences of playful physical activities and basic motor skills in an age-appropriate manner. There is concern for individualizing tasks, high levels of active participation, and provision of sufficient repetition and feedback to ensure progress in learning. Children benefit from all forms of physical activity; however, participation in a quality physical education program forms the broadest foundation for future movement abilities and interests.

**Standards**

A significant portion of all learning in early childhood is mediated (entirely or in substantial part) through the child’s activities in the physical domain. Yet, standards for both time and content of physical activity for young children are conspicuously absent. Of 38 states responding to a recent survey, only 10 had comprehensive curriculum standards (which, by definition, were to include health and physical activity) (Barnett, Robin, Hustedt, & Schulman, 2003). Further, the survey data provided no indication that mechanisms existed to exert accountability to standards for health and physical activity. In most instances it was clear that the standards applied only to state-funded programs.

Federal sources offer no comparable information about standards for early childhood physical education. In sum, absent the mandate of specific standards and the trained personnel required to determine compliance with such benchmarks, we know next to nothing about what happens to children in their earliest encounters with physical activity and physical education.

Over the past decade, NASPE has devoted extensive attention to improving the specificity and clarity of expectations for physical education in schools, including standards for preschool and early childhood programs. Their guidance has been disseminated through a series of standards-based publications that include the following: (1) *Appropriate Practices in Movement Programs for Young Children Ages 3–5* (NASPE, 2000), and (2) *Active Start: Physical Activity for Children Birth to Five Years* (NASPE, 2002). Standards and outcomes outlined within such documents underlie the foundation of physical education by addressing the importance of physical activity in the lives of children and the ways in which instruction should be conducted. The following is a brief description of the relevance of the NASPE documents listed above.

**Appropriate Practice in Movement Programs for Children Ages 3–5**

Standards for physical activity programs designed for young children are formulated in this document by employing the construct of *best practices*. Such practices maximize opportunities for learning and success among all children. As such, they take into account children’s ages as well as individual, instructional, and cultural needs, elements that must all be present for any movement activity to be considered developmentally appropriate. As both a position statement and a set of guides for practice, this document signals a growing awareness of the need to begin physical...
skill development at an early age but also
to do so in ways that meet the unique de-
velopmental characteristics of preschool
children.

**Active Start: Physical Activity for
Children Birth to Five Years**

NASPE (2002) developed this document
as a statement of physical activity guide-
lines that are specific to early childhood.
The guidelines outline appropriate physical
activity for infants, toddlers, and preschool-
ers, providing a road map for the growing
number of efforts to educate young children
and parents about the importance of regular
physical activity. Further, *Active Start* pro-
vides a standard against which to measure
the adequacy of what presently exists.

In sharp contrast to the efforts of NASPE
to provide benchmarks for professional
workers in early childhood physical edu-
cation, physical activity is not given central
and systematic attention in most preschool
programs. Child-care personnel and teach-
ers in school settings who have had special
training in the area of early childhood
physical education are a rarity. Physical ac-
tivities are supervised or led by adults who
frequently are unaware of effective teaching
strategies, do not understand the centrality
of movement in child development, and of-	en employ assessment practices that are in-
appropriate as measures of children’s status
and progress (Burgeson, Wechsler, Brener,
Young, & Spain, 2001). Against that reality,
NASPE documents assert that in order to
effectively promote activity habits early in
life, developmentally appropriate physical
activities for preschool children must be de-
veloped based on the following guidelines:
(1) Preschoolers should accumulate at least
1 hour of daily, structured physical activity.
(2) Preschoolers should engage in unstruc-
tured physical activity whenever possible
and should not be sedentary for more that
1 hour at a time. (3) Preschoolers should de-
develop competence in movement skills that
are building blocks for more complex
movement tasks. (4) Preschoolers should
have access to indoor and outdoor areas
that meet or exceed recommended safety
standards for performing large-muscle ac-
tivities.

**Structure and Play in the Curriculum**

Unfortunately, practices common to elemen-
tary school physical education are applied
with minimal modification to preschool chil-
dren. This “push-down” curriculum is in-
appropriate inasmuch as 3-, 4-, and 5-year-
olds have unique characteristics and needs
when compared to their older peers. In par-
ticular, young children learn primarily
through play, and this characteristic accom-
plices them in all of their early experiences
with formal instruction (Sanders & Graham,

Physically active play not only engages
the enthusiasm of young children, it pro-
vides them with opportunities to practice
movement skills in a variety of contexts. In
contrast, overreliance on play is detrimental
to development if, in the process, skills are
neglected that, by necessity, must be taught.
Thus, a degree of structure is required to
take full developmental advantage of chil-
dren’s playful movement experiences.

Planning and careful organization of
physical activities maximize opportunities
for children to acquire a wider variety of
physical skills than might be developed dur-
ing play alone. The combination of structure
and play results in a unique curriculum. In-
stead of playing traditional large-group or
circle games, it is preferable that children de-
develop fundamental movement skills via in-
struction related to skill themes (generic ver-
sions of what may some day become sport
skills) and movement concepts (knowledge
of how skills can be modified for specific
purposes).

**Conclusion**

Physical activity is crucial to overall devel-
opment during early childhood. It pro-
motes mastery of skills and attitudes that
may lead to more healthful behaviors later
in life, and it also facilitates cognitive and
social development in ways that, due to the unique physiological and neurological limitations imposed by the proximity to infancy, cannot otherwise proceed. The lack of research on the incidence of physical activity among young children suggests an assumption that, as children, they are creating their own opportunities. Likewise, parents and a variety of caregivers appear to assume that physical activity is provided “somewhere else.” Yet the evidence that does exist suggests that opportunities for gross-motor, large-muscle activity are declining, even for very young children.

Such shifts in the social context that determines the nature of daily life for children may have serious negative consequences for physiological and neurological development. From a public health perspective, they also mean that children have less opportunity to learn the fundamental skills necessary to reverse the increase in obesity and other diseases associated with a sedentary lifestyle. This points to the need for both free play and specific skill instruction in physical education.

Although parents, caregivers, and movement specialists all agree on the necessity of physical activity, there is no consensus on how to ensure that it occurs. One possibility is to take advantage of public and commercial pay-as-you-go programs (i.e., Youth Sport). However, instructor training in sport-based programs is unsure, the motor skills taught are often highly specialized, and access for all children is far from universal. The only way to ensure comprehensive and informed instruction is to support quality early childhood physical education in the public schools.

To guide young children toward becoming physically active for a lifetime, physical education experiences in early childhood must include (a) the learning of developmentally appropriate skills, (b) personnel trained in appropriate instructional practices for physical activity, (c) promotion of a positive and safe physical activity environment, including child-sized equipment, and (d) an inclusive curriculum based on an understanding of movement concepts and skill themes.

Note

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References


