Preparing Students for a Physically Literate Life

E. Paul Roetert
Dean Kriellaars
Todd S. Ellenbecker
Cheryl Richardson

The earliest reference to the concept of physical literacy the authors were able to identify in the scientific literature was from eight decades ago. In fact, a 1938 article in the *Journal of Health and Physical Education* (the precursor of *JOPERD*) outlined that public schools were responsible for physical literacy as well as mental literacy (National Physical Education Service, 1938). Although the term was referenced sporadically in the following decades, and specifically by one of our field's most distinguished leaders in the 1950s (McCloy, 1957, 1958), it was not until the groundbreaking work by Dr. Margaret Whitehead in the early 1990s that a renewed interest in and emphasis on the concept of physical literacy emerged (Whitehead, 1990, 2001). A few countries, as well as some national organizational structures, have completely embraced the overall concept, while others are incorporating components of the concept within various sectors including sport, recreation, early childhood education, and physical activity promotion (Corbin, 2016; Roetert & Jefferies, 2014).

E. Paul Roetert (proetert@shapeamerica.org) is the chief executive officer, and Cheryl Richardson is the senior director of programs, of SHAPE America in Reston, VA. Dean Kriellaars is an associate professor in the Department of Physical Therapy at the University of Manitoba in Manitoba, Winnipeg, Canada. Todd S. Ellenbecker is a physiotherapy associate with the Scottsdale Sports Clinic in Scottsdale, AZ.

As a re-emerging concept, a variety of definitions have been put forth, including one by Mandigo, Francis, Lodewyk and Lopez (2012), which was also used in SHAPE America's *National Standards and Grade-level Outcomes for K–12 Physical Education* book (SHAPE America – Society of Health and Physical Educators, 2014). They defined physical literacy as "the ability to move with competence and confidence in a wide variety of physical activities in multiple environments that benefit the healthy development of the whole person." One of the most recent definitions was put forth by the Aspen Institute following a series of meetings with key national and international stakeholders (Aspen Institute, 2015). Their definition is succinct: "Physical literacy is the ability, confidence, and desire to be physically active for life." Both definitions are wholly consistent with the definition put forth by the International Physical Literacy Association, as stated in the Vancouver declaration (Consensus Statement) at the International Physical Literacy Conference (2015). The Consensus Statement indicates that "physical literacy is a life-long endeavor that starts with the understanding and learning of motor skills at a young age thereby creating the proper conditions to encourage habits of health and physical activity for life" ("Canada's Physical Literacy Consensus Statement," 2015). Therefore, the physical educator plays a unique and critical role in helping to guide young students in the journey toward becoming more physically literate. This, in turn, allows educators to learn the different aspects of physical literacy in order to help each individual student reach his or her maximum potential for success.

A proper understanding of the concepts of physical literacy is necessary in order to design programs based on students' experience, skills, age and maturity level. Particularly in the school setting, the physical educator should evaluate their program design, as well as proper teaching and learning activities, for young students to become physically literate. Establishing the building blocks of movement and physical activity at a young age will set the stage for developing physical literacy as students grow. To that end, a few sample concepts and activities are provided in this article. The examples specifically highlight students at the elementary and middle school ages, though the concepts easily translate to students at the high school level as well.

The term "student" in this article is meant to be inclusive of *all* children, regardless of ability and experience. In fact, inclusiveness and opportunity for all are key for physical literacy, as described by Mandigo (2015), who stated that supporting the development of physical literacy by providing inclusive and developmentally appropriate resources for practitioners has been at the heart of Physical and Health Education (PHE) Canada's (the national organization for physical education in Canada) vision for the past 10 years. Although it is important to recognize that each child learns and develops on his or her own timetable, age-appropriate guidelines and standards provide a structure that forms the basis for a physically literate lifestyle. SHAPE America has developed the National Standards for K–12 Physical Education (see Table 1) based on that very principle. The standards are grounded in physical literacy and define what a student should know and be able to do as a result of a quality physical education program.

One of the goals of physical literacy is that, taken together, SHAPE America's National Standards are intended to operationalize the concept of physical literacy and to provide a framework for teachers to use in developing curricula and lesson plans (SHAPE America, 2014; Roetert & Couturier MacDonald, 2015). These standards and grade-level outcomes form the basis for developing a well-rounded curriculum. To support that curriculum, appropriate activities should be designed to teach skills that form the building blocks for the acquisition of more advanced skills that lead to a healthy and physically active lifestyle. In this article the authors outline some activities that allow children to help attain the competence, confidence and desire or motivation necessary to be successful in a variety of sports, fitness activities and overall movement skills for life.

Table 1.
SHAPE America's National Standards

Standard 1 — The physically literate individual demonstrates competency in a variety of motor skills and movement patterns.
Standard 2 — The physically literate individual applies knowledge of concepts, principles, strategies and tactics related to movement and performance.
Standard 3 — The physically literate individual demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.
Standard 4 — The physically literate individual exhibits responsible personal and social behavior that respects self and others.
Standard 5 — The physically literate individual recognizes the value of physical activity for health, enjoyment, challenge, self-expression and/or social interaction.

Developing a Movement Vocabulary

The physical literacy journey in life can and should start at an early age. Lloyd et al. (2016) appropriately pointed out that from an athletic development perspective, it is important to expose youth to a variety of movement patterns to ensure that a child can competently perform a breadth of movement skills in a range of different activities and environments before specializing in specific movement patterns within a single sport. This is consistent with the recommendation of an "early start" in the long-term athlete development model of Canadian Sport for Life (www.canadiansportforlife.ca). Quality motor development in early life has a significant effect on quality of life in later years (Aspen Institute, 2015). Developing a proper understanding of motor patterns and teaching age-appropriate skills, therefore, becomes imperative for a full understanding of the benefits of physical literacy.

Longmuir and Tremblay (2016) supported this idea by stating that a physically literate child is one who is committed to healthy habitual movement behaviors, including recommended regular physical activity and limited sedentary behavior. By developing physical literacy, a child will choose to become physically active and then acquire mental and physical fitness through meaningful participation. Therefore, as outlined by Cairney, Bedard, Dudley, and Kriellaars (2016), physical literacy provides a powerful framework from which to view movement in relation to both its fundamental movement-skill elements, the environmental context in which those movements occur, and the positive affective elements that produce lasting connections between movement experiences and positive psychological states.

In this article, sample progressions of activities meeting SHAPE America's National Standards 1, 2 and 3 are provided (see the Physical Literacy Training Concepts section). Creating a physical literacy–enriched environment and program will foster the optimal development of competence by offering a challenge to children of all ability levels. The activities listed next are examples that can form the basis of an initial program design. The focus of these specific exercises is on balance, spatial awareness, dynamic stability and learning to control one's center of gravity while in motion. For maximum benefit, these are all multi-joint activities. These activities are designed to foster perceived competence in the participant and purposefully minimize competition and rivalry at this early stage. Perceived competence has been shown to positively predict physical activity levels (Couturier MacDonald, 2015).

As students develop competence in specific skills, this will open the door to participation as well as enhance their performance, and can contribute to a reduced risk of injury (Lloyd et al., 2015; Lloyd et al., 2016). The authors would like to introduce the following recommendations for teaching concepts to help promote and develop physical literacy (Aspen Institute, 2015; Lloyd et al., 2016; Mandigo, 2015; Roetert & Jefferies, 2014; Roetert & Couturier MacDonald, 2015; SHAPE America, 2014):

- Chronological age is not always the best barometer for specific phases of development and not every student or young athlete matures at the same rate. Therefore, the educator should tailor exercises and workouts to the individual whenever possible.
- Quality of movement is essential. This goes for learning initial skills as well as improving dysfunctions.
- When initiating a program, many skills can and should be taught using the student's or athlete's own bodyweight.
- Teaching an understanding of human movement, such as functional movement anatomy alongside fundamental motor skills, helps in the learning process.
- Many of the featured exercises in this article can be used as "performance or movement preparation" activities (the authors are using this term as a more appropriate alternative to warm-up activities). See www.physicalliteracy.ca/move-prep.
- Teaching students and young athletes to perform under balanced, as well as unbalanced (yet controlled), conditions can assist in understanding how to move the body in space.
- Activities are meant to foster perceived competence; therefore, rivalry should be minimized in the early stages to avoid social inhibition of movement.

Physical Literacy Training Concepts

Many different exercises can be implemented to help students and young athletes learn appropriate health and physical activity knowledge and skills, as well as general and sport-specific skills. The concepts and exercises highlighted in this section are specifically focused on teaching skills that help provide a learning environment that will prepare students for a lifetime of physical activity. The intent is to attain motor skill competency with a focus on lifetime physical activities (Corbin, 2002; Pangrazi, 2010; Stodden et al., 2008). Each sample exercise therefore contains functional movement progressions with application to future sports activities, as well as preparation of activities for daily living. The exercises featured in the figures can be performed in different environments, such as sport-training settings; however, because the physical education class is one of the few places that can influence every child's health behaviors, the students are featured participating in a middle school physical education class. Physical educators have a unique opportunity and responsibility to create an environment that will positively impact children throughout their lives (Castelli, Barcelona, & Bryant, 2015; Corbin, 2002; Holt/Hale & Hall, 2016).

Concept #1 – Spatial Awareness (Group Format)

Although this activity can be performed by students of almost any age, ability and experience level, the size of the space, speed of change in commands, and progression to steps 3 and 4 can be adapted to students' needs and skills.

1. In a marked-off space in a gymnasium or court, walk in random patterns while also paying attention to the leader. No physical contact with other students is allowed. Mimic the leader when he or she assumes "ready position" (see Figures 1 and 2).
2. Same as #1, except students jog
3. Same as #2, but this time students jog backwards (advanced activity)

© SHAPE America

Figure 1. Spatial awareness — Random movement with eyes focused on coach

© SHAPE America

Figure 2.
Spatial awareness — Athletic ready position

© SHAPE America

Figure 3.
Balance — Hip flexion with knee extension

4. Same as #3, but students follow the instructor's verbal commands (forward, backward, sideways)

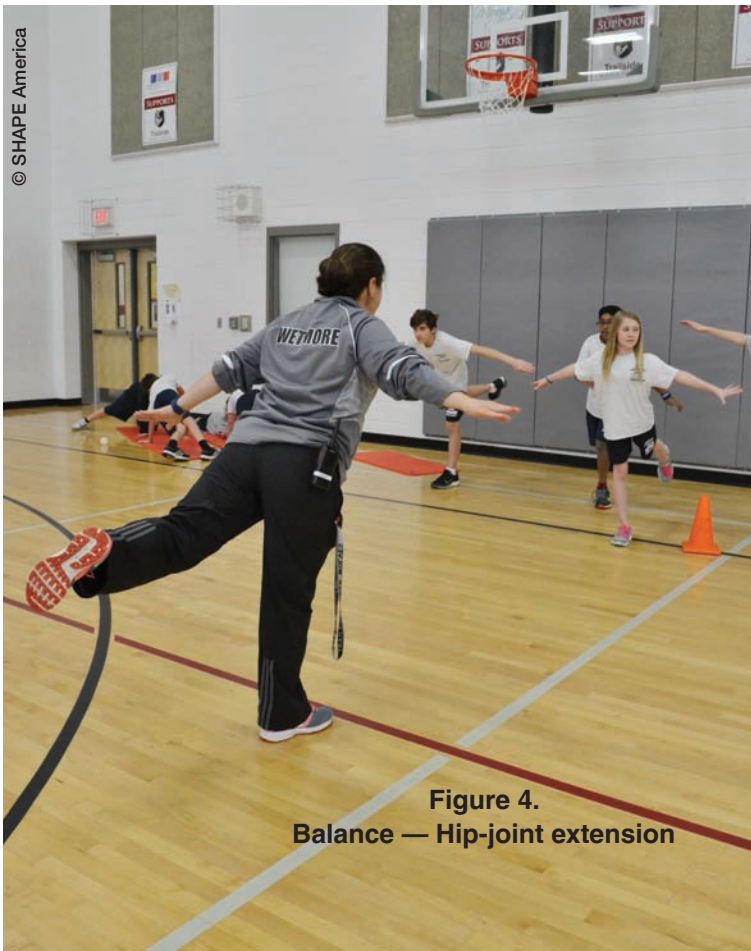
Teaching Objectives: Students learn to

- be aware of their environment while moving (preparation for team sports)
- perform proper athletic positions (necessary in many sports) while moving in different directions
- pay attention to an instructor, as well as the overall environment

Concept #2 – Balance (Individual or Group Format)

This activity can be modified based on skill, age and experience by altering how long each position is held, as well as providing support as needed (e.g., holding on to a chair, table or wall) while conducting the activity. Hold each position for 15–30 seconds. The goal is to teach strength and coordination in balanced and unbalanced conditions.

1. Stand on one leg while flexing the opposite leg at the hip (hold position for 15–30 seconds; see Figures 3 and 4).



© SHAPE America

Figure 4.
Balance — Hip-joint extension

Figure 5.
Strength — Push-up position with hacky sack

© SHAPE America

2. Continue standing on the same leg while extending the opposite leg.
3. Continue standing on the same leg while abducting the opposite leg.
4. Adduct the opposite leg to resting position.
5. Repeat #1–4 while standing on the opposite leg.
6. The difficulty can be decreased by flexing the knee in each of the positions.

Teaching Objectives: Students learn to

- balance on one leg while performing a controlled movement skill
- control their center of gravity in an unbalanced position
- pronounce proper anatomical movement skills (flexion, extension, abduction, adduction) as well as muscles activated (such as feeling a burn in the gluteus medius of the leg they are standing on)

Concept #3 – Strength (Muscular Endurance)

If the student is not able to assume and hold a proper push-up or plank position, the activity can be modified by allowing him or her to start with the knees on the ground and/or with a ball under the belly for support. In addition, for less experienced children, hacky sacks might work better than balls.

1. Assume a push-up or plank position and reach forward with one hand to pick up a ball (tennis, softball, baseball) or hacky sack. Move back to the starting position. Feet stay in place. Distance to the ball is determined by the teacher based on each student's age, experience and skill (see Figures 5 and 6).

Figure 6.
Strength — Push-up position with partner

© SHAPE America

2. From the starting position, pick up the hacky sack from one side and place it on the small of your back. The hacky sack should stay in place. Resume the push-up position. Pick up the hacky sack from your back with the same hand.

3. Repeat #2, except this time place and pick up the hacky sack with the opposite hand.

4. Line up with your classmates in a push-up or plank position, then pick up a hacky sack and place on the small of the back of the person next to you. This can be done as a relay race (hacky sack has to be stabilized on each person).

Teaching Objectives: Students learn to

- assume a proper push-up or plank position (body alignment)
- balance with three-limb support
- perform gross and fine motor skill simultaneously
- participate in a full-body strength exercise

Summary

There are numerous physical activities and exercises that benefit students, and many traditional exercises can be enriched to develop physical literacy. This article focused on a sample set of exercises that teach motor skills and develop confidence in students, which may have a direct transfer and application to lifelong learning — in other words, operationalizing the concept of physical literacy. Each of the three activities highlighted here represents an important concept in helping to develop the competency, confidence and desire to become active for a lifetime. These are merely sample exercises and need to be considered in the context of a developmentally appropriate curriculum framework for physical education (following the SHAPE America National Standards and Grade-level Outcomes), or in the context of a coaching framework such as a long-term athlete development plan in a sports environment (Lloyd et al., 2016). Although the focus of this article was on elementary school–age children, the physical literacy journey starts much earlier. We need to recognize that younger children (≤7 years of age) should still be encouraged to engage in less formalized structured and unstructured activities to promote kinesthetic development as an essential element of physical literacy. The overall goal is to provide the building blocks for the attainment of physical literacy. This approach focuses on self-sufficiency as well as on allowing students to adapt to the overall environment in which we live — both of which allow for a physical literacy journey throughout the lifespan.

Acknowledgments

The authors would like to express their gratitude to Laura Strecker (photographer) as well as the physical education students and teachers from Trailside Middle School in Ashburn, VA.

References

Aspen Institute. (2015). *Physical literacy in the United States: A model, strategic plan and call to action*. Retrieved from www.PLreport.ProjectPlay.us

Cairney, J., Bedard, C., Dudley, D., & Kriellaars, D. (2016). Towards a physical literacy framework to guide the design, implementation and evaluation of early childhood movement-based interventions targeting cognitive development. *Annals of Sports Medicine and Research, 3*(4), 1073.

Canada's physical literacy consensus statement. (2015, June). Adopted at the International Physical Literacy Conference, Vancouver, Canada.

Castelli, D. M., Barcelona, J. M., & Bryant, L. (2015). Contextualizing physical literacy in the school environment: The challenges. *Journal of Sport and Health Science, 4*, 156–163.

Corbin, C. B. (2002). Physical activity for everyone: What physical educators should know about promoting lifelong physical activity. *Journal of Teaching Physical Education, 21*, 128–144.

Corbin, C. B. (2016). Implications of physical literacy for research and practice: A commentary. *Research Quarterly for Exercise and Sport, 87*, 14–27.

Couturier MacDonald, L. (2015). Moving high school students toward physical literacy. *Journal of Physical Education, Recreation & Dance, 86*(7), 23–27.

Holt/Hale, S., & Hall, T. (2016). *Lesson planning for elementary physical education*. Champaign, IL: Human Kinetics.

Longmuir, P. E., & Tremblay, M. S. (2016). Top 10 research questions related to physical literacy. *Research Quarterly for Exercise and Sport, 87*(1), 28–35.

Lloyd, R. S., Cronin, J. B., Faigenbaum, A. D., Haff, G. G., Howard, R., Kraemer, W. J., Micheli, L. J., Myer, G. D., & Oliver, J. L. (2016). National Strength and Conditioning Association position statement on long-term athletic development. *Journal of Strength and Conditioning Research, 30*, 1491–1509.

Lloyd, R. S., Oliver, J. L., Faigenbaum, A. D., Howard, R., De Ste Croix, M. B. A., Williams, C. A., … Myer, G. D. (2015). Long-term athletic development: Part 2: Barriers to success and potential solutions. *Journal of Strength and Conditioning Research, 29*, 1451–1464.

Mandigo, J. (2015). *Physical literacy and the 2015 UNESCO International Charter of Physical Education, Physical Activity and Sport: An opportunity for Canadian leadership*. Retrieved from www.phecanada.ca/resources

Mandigo, J., Francis, N., Lodewyk, K., & Lopez, R. (2012). Physical literacy for educators. *Physical Education and Health Journal, 75*(3), 27–30.

McCloy, C. H. (1957). Towards a greater degree of physical literacy (Part 1). *Physical Educator, 18,* 83–85.

McCloy, C. H. (1958). Towards a greater degree of physical literacy (Part 2). *Physical Educator, 18,* 126–130.

National Physical Education Service. (1938). *Journal of Health and Physical Education, 9*, 424–458.

Pangrazi, R. P. (2010). Chasing unachievable outcomes. *Quest, 62*, 323–333.

Roetert, E. P., & Couturier MacDonald, L. (2015). Unpacking the physical literacy concept for K–12 physical education: What should we expect the learner to master? *Journal of Sport and Health Science, 4*, 108–112.

Roetert, E. P., & Jefferies, S. C. (2014). Embracing physical literacy. *Journal of Physical Education, Recreation & Dance*, *85*(8), 38–39.

Society of Health and Physical Educators. (2014). *National standards and grade level outcomes for K–12 physical education*. Champaign, IL: Human Kinetics.

Stodden, D. F., Goodway, J. L., Langendorfer, S. J., Roberton, M., Rudisill, M. E., Garcia, C., & Garcia, L. E. (2008). A developmental perspective on the role of motor skill competence in physical activity: An emergent relationship. *Quest, 60*, 290–306.

Whitehead, M. (1990). Physical literacy. *Journal of Philosophy of Education, 24*(1), 3–14.

Whitehead, M. (2001). The concept of physical literacy. *European Journal of Physical Education, 6*, 127–138.