Teaching Skills and Health-related Fitness Through a Preservice Gymnastics Program

SHAE DONHAM-FOUTCH

Preservice students learn by doing, as they teach gymnastics to community children.

The need for children to stay physically active has become paramount in order to fight the onset of childhood obesity and chronic diseases caused by an unhealthy lifestyle (Sanders, 2002). Many health professionals and educators have reported that regular physical activity helps children build and maintain healthy bones, muscles, and joints; reduces fat; prevents or delays the development of high blood pressure; and reduces feelings of depression and anxiety (Corbin & Pangrazi, 1998; Epstein, Valoski, & McCurley, 1995; Portman, 2003). From experience and research, educators indicate that children who do not develop a foundation of basic motor skills are less likely to participate in physical activity on a daily basis. These basic physical skills are invaluable lifetime tools that children and adults need to successfully participate in regular physical activities to help maintain their physical and mental health (McCall & Craft, 2000). Children use movement to express feelings, manipulate objects, and learn about their surroundings. The urge to master physical skills and capitalize on the body's capacity for movement is common to all children (Sanders, 2002).

An excellent means of teaching basic motor skills, as well as health-related fitness, is through gymnastics. However, teaching gymnastics is challenging for many young teachers. To address this challenge, the author developed a preservice gymnastics program that would give preservice students experience in teaching gymnastics, while benefiting children in the community. The program evolved from ideas contained in the Coordinated School Health Program (CSHP), which was developed by the Centers for Disease Control and Prevention (CDC, 1997). To address the nation's most serious health and social problems, the CSHP was established to coordinate the efforts of eight interactive components in education (health education; physical education; health services; nutrition services; counseling, psychological, and social services; healthy school environment; health promotion for staff; and family and community involvement).

The purpose of the gymnastics program was to promote two components of the CSHP (physical education and family/community involvement), through the combined efforts of a professor, college students, children from the community, and the children's parents. The program emphasized the importance of teaching skill development and health-related fitness through a gymnastics unit and of providing a foundation for lifetime physical activity. This article will present (1) the importance of gymnastics for the development of movement skills and health-related fitness; (2) the goals of the preservice gymnastics program; (3) the methods and implementation of the program; and (4) the outcomes of the program.

Importance of Gymnastics

Cooper and Trnka (1994) defined gymnastics as "physical activity of any kind" (p. 1). Nilges (cited in Masterson, 2003) and Cooper and Trnka suggested that gymnastics

All photos by the author

Preservice students assist with the climbing rope, which helps to develop strength and confidence in the program participants.

develops many valuable skills and components of health-related fitness, including increased strength, flexibility, balance, endurance, kinesthetics, agility, self-discipline, coordination, courage, self-confidence, social awareness, and perseverance. They also suggested that gymnastics is a fundamental and critical part of the physical education curriculum that should be offered in preschool through college. The national standards (National Association for Sport and Physical Education, 2004) recognize the importance of gymnastics by including it among some sample performance outcomes. Unfortunately, many physical educators do not have an extensive background in the methodology of teaching developmentally appropriate gymnastics (Werner, 2004). One reason may be that gymnastics remains largely underdeveloped in most physical education programs (Lathrop & Drake, 1998).

Goals of the Program

This article introduces a preservice gymnastics course that prepared future physical educators to teach skill progression through a developmentally appropriate gymnastics program. By acquiring hands-on experience teaching children gymnastics skills, the preservice students gained the confidence to incorporate a gymnastics unit safely into their physical education curriculum. The program also educated parents about the importance of their children being physically active and of their involvement with their children during the early stages of development in order to lay a foundation for a lifetime of physical activity.

The professor demonstrates proper spotting for a child on the balance beam.

The goals of the program for participating children were (1) to improve fundamental motor skills (i.e., nonlocomotor and locomotor); (2) to improve health-related fitness (e.g., flexibility, strength, endurance, and cardiovascular fitness); (3) to develop motor-fitness skills (e.g., coordination, balance, and agility); (4) to provide different methods to introduce gymnastics skills; and (5) to help children at all skill and fitness levels develop the confidence to maintain future lifetime activities.

Methods and Implementation

Developmentally appropriate gymnastics, as defined by Werner (2004), is an activity that involves movement in a controlled manner, aiding in the development of locomotive, nonlocomotive, manipulative, and health-related fitness skills and that enhances an individual's body awareness. The author implemented a developmentally appropriate gymnastics program in the Health & Kinesiology Department at Northeastern State University (NSU), in Tahlequah, Oklahoma. This was done in collaboration with the NSU Continuing Education Department and with parents and children of the community. Several known methods of teaching gymnastics were used for the course curriculum in order to provide the preservice students with more options for teaching gymnastics based on their individual situations once they become certified physical education teachers. These methods included ideas from Kidnastics (Malmberg, 2003); the Sports, Play, & Active Recreation for Kids (SPARK) curriculum (Kimbrell, Richey, Rosengard, & McKenzie, 2003); fundamental gymnastics (Mitchell, Davis, & Lopez, 2002); developmental gymnastics (O'Quinn 1990; Werner, 2004); and beginner-to-intermediate, basic gymnastics (Cooper & Trnka, 1994).

At the beginning of each semester, the program asked

enrolled preservice students the following questions:

- What is gymnastics?
- Who can teach gymnastics?
- How can gymnastics help students understand the importance of skill progression?

The responses were varied and most often wrong, showing the need to start with fundamentals. The first four weeks of each semester were dedicated to training approximately 25 preservice students enrolled in the "Techniques of Teaching Gymnastics" course. This training included an introduction to gymnastics terminology, appropriate use of equipment, safety procedures, spotting techniques, teaching methods, how to work with small and large groups, and the benefits of teaching skill development through gymnastics.

In the fifth week, the 10-week continuing-education class began. Two separate continuing-education classes were offered consecutively: one for children who were three to five years of age, and one for children who were six to 14 years of age. Each class was limited to 25 children, in accordance with Werner's (2004) recommendations for a normal class size. Limiting the class size helped the preservice students to become aware of how many students they should be required to work with to provide safe and productive instruction. Despite the suggestion of keeping the class size at 25, many schools tend to schedule several physical education classes during a single class period, reaching class sizes of 40 to 60 students. To prepare the preservice students for such a situation, they were told to develop a lesson plan indicating how they would manage a large number of students while teaching gymnastics in an effective and safe manner.

During the first and ninth weeks of the continuing-education gymnastics classes, the professor and college students used objective skill measures to observe and assess each child's basic body positions, nonlocomotor and locomotor skills, health-related fitness, and gymnastics skills. They used this assessment to place the children in smaller groups based on skill level and to document their skill improvement at the end of the class. Starting in the fifth week, the second half of the class was dedicated to an aerobic circuit-training arrangement designed to help the children work on their endurance as well as their gymnastics skills. During the last week of the class, the parents, extended families, and friends were invited to take photographs and participate in the class activities.

The first continuing-education class, for the three- to five-year-olds, lasted 45 minutes. The second class, for the five- to 14-year-olds, lasted 60 minutes. Each day, the gymnastics classes began with a warm-up that focused on body positions (arch, tuck, pike, straddle, and layout) and six basic locomotor skills (running, galloping, sliding, hopping, jumping, and leaping). Balancing, directional movements, and health-related fitness skills (flexibility, strength, and endurance) were also practiced. Each day after the warm-up, the children learned basic gymnastics skills by rotating through stations of gymnastics equipment, including tumbling mats of different shapes, balance beams, ropes, rings, single bar, vaulting horse, and the mini-trampoline. During the circuit-training rotations, pairs of preservice students stayed at an assigned station and worked with all of the children. Each day ended with a cool-down activity. The younger children's cool down included the "Hokey-Pokey" dance, which was a fun way of identifying body parts and practicing directional movements. The older children's cool down included stress reduction and stretching activities.

In addition to developing motor skills, participants improved their muscular strength.

Parents were allowed to observe the classes from the bleachers, but were given guidelines to follow so that they would not distract their children. It was imperative that the children pay attention to their college student partners. If children could not work with their parents in attendance, the parents cooperated by leaving the gymnasium. If the parents had questions or comments during the class, they were asked to discuss them with the professor after class.

Program Outcomes

Assessments. In the spring 2006 semester, an effort was made to emphasize the importance of assessing and identifying the children's improvements. To achieve this, the first and ninth weeks of the gymnastics class were dedicated to collecting assessment data. Pre- and post-assessments of six locomotor

A preservice student helps a program participant practice his gymnastics skills.

skills (running, galloping, sliding, hopping, jumping, and leaping), using the guidelines set by the early childhood SPARK curriculum (Kimbrell et al., 2003), were collected for the children in both classes. The children in the older class were also assessed on nonlocomotor skills, balance, health-related skills, and gymnastics skills. Some of the skills assessed were scored with a scale of zero to three. Zero indicated an inability to perform the task, and three indicated the mastering of a skill. Some of the skills were scored by repetitions or by time. The pre- and post-assessments that were collected for all children showed statistically significant improvement in all skills. This improvement, seen over a nine-week period in a class meeting once a week, strongly suggests that the program was effective.

Reports and Reflections. After the preservice students collect the assessments, they prepare a report for the professor's review and then provide the parents with a copy of the approved report. At the beginning and end of the course, the preservice students are asked to complete a survey and write their reflections on the course, using the previously mentioned questions as prompts. The parents of the participating children are also asked to complete a survey and provide a reflection on their experience with the continuing-education class.

Reflection Results. The preservice students' reflections have shown that they felt more skilled and confident in teaching children basic movement and gymnastics skills. They also responded that, having seen that the children enjoyed participating in the gymnastics activities, they felt more motivated to teach a basic gymnastics unit in their own classes in the school system.

Several of the preservice students who completed the gymnastics course now work in after-school programs, internships, and summer-school programs, and they have reported that they are able to teach children gymnastics skills with confidence. Their reflections also indicated that a gymnastics unit is a valuable and unique way to teach a variety of basic movement skills that prepare children for other sports and physical activities. They also felt qualified to demonstrate these methods to mentoring physical education teachers, administrators, and family members of children they are associated with in their respective school systems.

When asked to express their observations and perceptions about their child's experience in the program, the parents' responses have been positive throughout the continuing-education program. Many parents have expressed their gratitude and said that they would like their child to attend the gymnastics class more than once a week because they wanted him or her to progress beyond the basic gymnastics skills. The parents observed their children's improvements throughout the 10 weeks and realized that the gymnastics class helped their children develop a foundation for confident and coordinated movement. They also expressed satisfaction with the improvements they observed in the preservice students who worked with their children. Both the preservice students and the parents provided qualitative feedback that shows a reinforced commitment to help children continue a lifetime of physical activity.

References

Cooper, P. S., & Trnka, M. (1994). *Teaching basic gymnastics: A coeducational approach*. New York: Macmillan.

Corbin, C. B., & Pangrazi, R. P. (1998). *Physical activity for children: A statement of guidelines*. Reston, VA: National Association for Sports and Physical Education.

Centers for Disease Control and Prevention (1997). Guidelines for school and community programs to promote lifelong physical activity among young people. *Morbidity & Mortality Weekly Report, 46*(RR-6), 1-36.

Centers for Disease Control and Prevention. (2005). *Healthy Youth! Coordinated School Health Program.* Retrieved July 18, 2005, from http://ww.cdc.gov/healthyyouth/cshp/.

Epstein, L. H., Valoski, A. M., Vara, L. S., McCurley, J., Wisniewski, L., Kalarchian, M. A., Klein, K. R., et al. (1995). Effects of decreasing sedentary behavior and increasing activity on weight change in obese children. *Health Psychology, 14,* 109-115.

Kimbrell, P. A., Richey, P. A., Rosengard, P. F., & McKenzie, T. L. (2003). *SPARK: Early childhood preschool program.* San Diego, CA: San Diego State University Foundation.

Lathrop, A., & Drake, V. (1998). Assessment and evaluation procedures in educational gymnastics. *Canadian Association of Health, Physical Education, and Recreation Journal, 48*(6), 9-12.

Malmberg, E. (2003). *Kidnastics: A child-centered approach to teaching gymnastics.* Champaign, IL: Human Kinetics.

Masterson, C. (2003). Teaching educational gymnastics and the spider web. *Teaching Elementary Physical Education, 14*(6), 6-11.

Continues on page 44

References

Barela, J. A., Jeka, J. J., & Clark, J. E. (1999). The use of somatosensory information during the acquisition of independent upright stance. *Infant Behavior and Development, 22,* 89-104.

Centers for Disease Control and Prevention. (2007) *Overweight and Obesity: Home*. Retrieved March 29, 2007 from http://www.cdc.gov/nccdphp/dnpa/obesity/index.htm

Chen, L. C., Metcalfe, J. S., Jeka, J. J., & Clark, J. E. (2007). Two steps forward and one back: Learning to walk affects infants' sitting posture. *Infant Behavior and Development, 30,* 16-25.

Clark, J. E. (1994). Motor development. In V. S. Ramachandran (Ed.), *Encyclopedia of Human Behavior* (3rd ed., pp. 245-255). New York: Academic Press.

Clark, J. E., Getchell, N., Smiley-Oyen, A. L., & Whitall, J. (2005). Developmental coordination disorder: Issues, identification, and intervention. *Journal of Physical Education, Recreation & Dance, 76*(4), 49-53.

Clark, J. E., & Metcalfe, J. M. (2002). The mountain of motor development: A metaphor. In J. E. Clark & J. H. Humphrey (Eds.), *Motor development: Research and reviews* (vol. 2, pp. 163-190). Reston, VA: National Association for Sport and Physical Education.

Clark, J. E., & Phillips, S. J. (1985). A developmental sequence of the standing long jump. In J. E. Clark & J. H. Humphrey (Eds.), *Motor development: Current selected research* (pp. 73-85). Princeton, NJ: Princeton Book.

Clark, J. E., & Phillips, S. J. (1987). The step cycle organization of infant walkers. *Journal of Motor Behavior, 19,* 421-433.

Clark, J. E., & Phillips, S. J. (1991). The development of intralimb coordination in the first six months of walking. In J. Fagard & P. Wolff (Eds.), *The development of timing control and temporal organization in coordinated action* (pp. 245-257). Amsterdam: Elsevier.

Clark, J. E., & Phillips, S. J. (1992). A dynamical systems approach to the development of intralimb coordination in the first year of walking. In M. H. Woollacott & F. B. Horak (Eds.), *Posture and gait: Control mechanisms* (pp. 350-353). Eugene, OR: University of Oregon Books.

Clark, J. E., & Phillips, S. J. (1993). A longitudinal study of intralimb coordination in the first year of independent walking: A dynamical systems analysis. *Child Development, 64,* 1143-1157.

Clark, J. E., Phillips, S. J., & Petersen, R. D. (1989). Developmental stability in jumping. *Developmental Psychology, 25,* 929-935.

Clark, J. E., Truly, T. L., & Phillips, S. J. (1990). A dynamical systems approach to understanding the development of lower limb coordination in locomotion. In H. Bloch & B. I. Bertenthal (Eds.), *Sensory-motor organizations and development in infancy and early childhood* (pp. 363-378). Dordrecht, Netherlands: Kluwer.

Clark, J. E., & Whitall, J. (1989). Changing patterns of locomotion: From walking to skipping. In M. H. Woollacott & A. Shumway-Cook (Eds.), *Development of posture and gait across the life span* (pp. 128-151). Columbia, SC: University of South Carolina Press.

Clark, J. E., Whitall, J., & Phillips, S. J. (1988). Human interlimb coordination: the first 6 months of independent walking. *Developmental Psychobiology, 21,* 445-456.

DiRocco, P. J., Clark, J. E., & Phillips, S. J. (1987). Jumping patterns of mentally retarded children. *Adapted Physical Activity Quarterly, 4,* 178-191.

Forrester, L. M., Phillips, S. J., & Clark, J. E. (1993). Locomotor coordination in infancy: The transition from walking to running. In G. J. P. Savelesbergh (Ed.), *The development of coordination in infancy* (pp. 359-393). Amsterdam: Elsevier Science.

Jensen, J. L., Phillips, S. J., & Clark, J. E. (1994). For young jumpers, differences are in the movement's control, not its coordination. *Research Quarterly for Exercise and Sport, 65,* 258-268.

Kagerer, F. A., Bo, J., Contreras-Vidal, J. L., & Clark, J. E. (2004). Visuomotor adaptation in children with developmental coordination disorder. *Motor Control, 8,* 450-460.

Kagerer, F. A., Contreras-Vidal, J. L., Bo, J., & Clark, J. E. (2006). Abrupt, but not gradual visuomotor distortion facilitates adaptation in children with developmental coordination disorder. *Human Movement Science, 25,* 622-633.

Phillips, S. J., & Clark, J. E. (1997). Temporal coordination and control in the development of the standing long jump. In J. E. Clark & J. H. Humphrey (Eds.), *Motor development: Research and reviews* (vol. 1, pp. 99-121). Reston, VA: National Association for Sport and Physical Education.

Phillips, S. J., Clark, J. E., & Petersen, R. D. (1985). Developmental differences in standing long jump takeoff parameters. *Journal of Human Movement Studies, 11,* 75-87.

Seefeldt, V. (1980). Developmental motor patterns: Implications for elementary school physical education. In C. H. Nadeau, W. R. Halliwell, K. M. Newell, & G. C. Roberts (Eds.), *Psychology of motor behavior and sport—1979* (pp. 314-323). Champaign, IL: Human Kinetics.

Whitall, J., Block, M. E., & Clark, J. E. (1992). The development of walking: Interlimb coordination as coupled limit cycle systems. In M. H. Woollacott & F. B. Horak (Eds.), *Posture and gait: Control mechanisms* (pp. 315-318). Eugene, OR: University of Oregon Books.

Jane E. Clark (jeclark@umd.edu) is a professor and chair of the Department of Kinesiology at the University of Maryland in College Park, MD 20742.

Donham-Foutch

Continued from page 38

McCall, R. M., & Craft, D. H. (2000). *Moving with a purpose: Developing programs for preschoolers of all abilities.* Champaign, IL: Human Kinetics.

Mitchell, D., Davis, B., & Lopez, R. (2002). *Teaching fundamental gymnastics skills.* Champaign, IL: Human Kinetics.

National Association for Sport and Physical Education. (2004). *Moving into the future: National standards for physical education* (2nd ed.). Reston, VA: Author.

O'Quinn, G. (1990). *Teaching developmental gymnastics: Skills to take through life.* Austin, TX: University of Texas Press.

Portman, P. A. (2003). Are physical education classes encouraging students to be physically active? Experiences of ninth graders in their last semester of required physical education. *Physical Educator, 60*(3), 150-161.

Sanders, S. W. (2002). *Active for life: Developmentally appropriate movement programs for young children*. Champaign, IL: Human Kinetics; Washington, D.C.: National Association for the Education of Young Children.

Werner, P. (2004). T*eaching children gymnastics* (2nd ed.). Champaign, IL: Human Kinetics.

Shae Donham-Foutch (colemasl@nsuok.edu) is an associate professor in the Health and Kinesiology Department at Northeastern State University, in Tahlequah, OK 74464.