

PHYSICAL ACTIVITY GUIDE

Guidelines for Promoting Preschool Children's Physical Activity on Playgrounds



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Published September 2011

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Acknowledgments

Our intention in writing this document is to support the thoughtful selection of activities and materials to improve preschool children's vigorous physical activity during outdoor play. We appreciate the American Recovery and Reinvestment Act (ARRA) funding for the development and publication of these guidelines. The ARRA funds were made available to the South Carolina Department of Social Services (SCDSS) under the leadership of Leigh Bolick and Beverly Hunter. The illustrative activities and materials represent the collaborative work and professional wisdom of members of the Children's Physical Activity Research Group (CPARG) at the Arnold School of Public Health at the University of South Carolina, which is led by Russell Pate, PhD. We are especially grateful to the following CPARG intervention team members, Erin Howie, Karin Pfeiffer, and Ruth Saunders, and Study of Health and Activity in Preschool Environments (SHAPES) Project Coordinator, Brandy Dashnaw.

Graphic design by Michelle M. Moshinskie.



Childhood Obesity: A Contemporary Challenge for Early Childhood Educators

Most Americans realize that the nation has an ongoing problem with obesity (Popkin, 2007). Less obvious to many early childhood educators, however, is the fact that during the last three decades overweight and obesity has increased among young children, including preschoolers. Indeed, more than one in four 2- to 5-year-old preschoolers are at risk for being overweight (i.e., heavier than the 85th percentile) and over five years ago early childhood and public health educators noted a potential epidemic in childhood obesity (Krishnamoorthy, Hart, & Jelalian, 2006). Given the number of children who now participate in community-based preschools (e.g., childcare centers, church-based preschools, pre-kindergartens, Head Start Programs) and the increasing amounts of time spent in those settings, childhood weight status has clearly become an especially important contemporary challenge for early childhood educators (American Academy of Pediatrics, American Public Health Association, and National Resource Center for Health and Safety in Child Care and Early Education, 2010; Committee on Obesity Prevention Policies for Young Children, 2011; Storey, Kaphingst, & French, 2006; Ward, 2010).

The purpose of the *Guidelines for Promoting Preschool Children's Physical Activity on Playgrounds* is to provide early childhood educators with information about how to enhance young children's vigorous physical activity, especially during outdoor activities in spaces made available for active play. We believe the guidelines should be employed as a separate informational document by interested early childhood practitioners or in combination with other professional development materials and resources to plan for children's enhanced physical activity. We do not intend for the guidelines to be used as

a comprehensive or rigid curriculum to address current nutritional and physical activity needs of young children. Rather, we view the document as a proactive approach to improving young children's physical activity with several illustrative examples of how to enhance preschoolers' activity levels during appropriate times on playgrounds. In addition, we, along with preschool teachers who have implemented and developed similar preschool activities, believe that children's improved physical activity has added greatly to children's day-to-day preschool experiences without interfering with their learning in other critical areas such as language, cognitive, and social emotional development (Pellegrini & Bohn, 2005). Indeed, we view well-embedded and vigorous physical activity during regularly scheduled periods for children as providing much needed revitalization and support for their optimal learning during other classroom activities such as large groups, small groups, and center times (Pellegrini, 2009).

What We Know About Preschool Children's Physical Activity

In recent years, public health and educational researchers have begun to carefully investigate children's physical activity during their preschool schedules (e.g., Bower, Hales, Tate, Rubin, Benjamin, & Ward, 2008; Pate, McIver, Dowda, Brown, & Addy, 2008). Similar to many other investigators, Pate and colleagues (2008) carefully observed in 24 South Carolina preschools and found that most of children's preschool day was spent in sedentary activity such as sitting and squatting, standing without movement, and lying down (87% of day and 83% when naptime removed) – see Figure I.



FIGURE I

Brief Descriptions of Children's Levels of Physical Activity

ACTIVITY LEVELS	BRIEF DESCRIPTIONS
1—Stationary or motionless*	Stationary or motionless with no major limb movement or major joint movements (e.g., standing, sitting, riding passively in a wagon)
2—Stationary with limb or trunk movements*	Stationary with easy movement of limb(s) or trunk without translocation (e.g., standing up, holding a moderately heavy object, hanging off of bars)
3—Slow Easy Movements**	Translocation at a slow and easy pace (e.g., walking with translocation of both feet, slow and easy cycling, swinging without assistance and without leg kicks)
4—Moderate Movements***	Translocation at a moderate pace (e.g., walking uphill, two repetitions of skipping or jumping, climbing on monkey bars, handing from bar without leg swinging)
5—Fast Movements***	Translocation at a fast or very fast pace (e.g., running, walking up stairs, three repetitions of skipping or jumping, translocation across monkey bars with hands while hanging)

*Levels 1 and 2 become Sedentary Behavior

**Level 3 is Light Activity

***Levels 4 and 5 become Moderate to Vigorous Activity



In addition, they also reported that improved levels of physical activity were associated with higher quality preschools as indicated by the Early Childhood Environmental Rating Scales-Revised (ECERS-R, Dowda, Brown, Addy, Pfeiffer, McIver, & Pate, 2009). Even when we observed children on playgrounds, when one would anticipate they will be most active, only 17% of their outdoor play was moderately to vigorously active. Indeed, 27% of outdoor play was light activity and 56% or the majority of children's physical activity was sedentary and inactive on playgrounds.

In another investigation of 20 different preschools in North Carolina, Bower and colleagues (2008) with their Environment and Policy Assessment and Observation (EPAO) found that children in supportive preschools had more moderate and vigorous physical activity and less sedentary activity. They determined that essential elements of "supportive preschools" (i.e., more active preschools) included (a) many opportunities for physical activity, (b) access to portable play and fixed equipment for physical activity, and (c) teachers' previous physical activity trainings. In summary, considerable evidence concerning preschoolers' physical activity by multiple researchers in various preschool settings across time have provided similar and relatively compelling findings that, contrary to "conventional wisdom," many preschoolers for most of their preschool days are simply not very active (for review see Oliver, Schofield, & Kolt, 2007 and Ward,

2010). Unfortunately, review of state early learning standards has also indicated that motor development and especially physical activity have not been as widely planned for as cognitive, language, and social emotional state standards (Scott-Little & Kagan, 2006).



Intentional Teaching to Promote Preschoolers' Physical Activity

Recently, early childhood educators have been reconsidering their roles and responsibilities while working with young children, especially preschoolers (Copple & Bredekamp, 2009). For example, the National Association for the Education of Young Children has published an important monograph entitled *The Intentional Teacher: Choosing the Best Strategies for Young Children's Learning* (Epstein, 2007). Epstein's primary point, along with members of the National Research Council (2000), is that preschool children need both child-guided and adult-guided experiences for their optimal learning and development. For example, she stated, "Regardless of whether children are engaged in child-guided or adult-guided experience, however, teachers always play a vital education role by creating supportive environments and scaffolding learning." (Epstein, 2007, p. viii). Epstein defined intentional teaching as "... teachers act with specific outcomes and goals in mind for children's development and learning." (p. 1).

With respect to physical activity, we believe that teachers ought to be intentional about enhancing children's physical activity, especially moderate to vigorous physical activity outdoors at the times designated for active play. Specifically, we recommend that teachers allow for periods of outdoor play, which consist of both child-guided activities and teacher-implemented activities. In addition, we believe that teacher-guided activities should focus on vigorous activity for relatively brief periods such as 5 to 10 minutes (Brown, Googe, McIver, & Rathel, 2009; Brown, Pfeiffer, McIver, Dowda, Addy, & Pate, 2009).

Establishing Playgrounds to Promote Children's Physical Activity

Playground Environments. Playgrounds and outdoor spaces are an essential element of any high-quality childcare and early childhood program. Many preschools have permanently installed fixed equipment such as slides, swings, and monkey bars and other climbing equipment. Nevertheless, careful observations of children's play contexts has revealed that fixed equipment when compared to moveable portable equipment and materials brought to the play area may not promote moderate to vigorous physical activity (Brown, Pfeiffer, et al., 2009). Specifically, Brown and colleagues found that children spent: (a) 27% of their observed times with balls and objects; (b) 23% in open spaces; (c) 14% on fixed equipment; (d) 13.5% on wheel toys; and 11% playing with socio-dramatic play props. Preschoolers were more than 3 times more likely to be active when playing with balls and other movable play materials and more than 2 and ½ times more likely to be active when playing in open space. It appears then that portable equipment and materials such as balls, hula-hoops, scarves and flags, may be important materials for enhancing preschoolers' moderate to vigorous physical activity (see Appendix I for Outdoor Portable Play Materials). Inclement weather, which is defined by the American Academy of Pediatrics, American Public Health Association, and National Resource Center for Health and Safety in Child Care and Early Education (2010) as a wind chill factor at or below 15 degrees Fahrenheit or at or above a heat index of 90 degrees Fahrenheit, and rain, thunder, and lightning, can prevent outdoor activities. Nevertheless, even on relatively cold and hot days children should spend time in outdoor play areas to promote their moderate to vigorous physical activity. In addition, on those days when inclement weather inhibits outdoor play, teachers and administrators should provide alternative vigorous activities that allow children

to be physically active indoors. Although finding enough space may be challenging, teachers and administrators should have a plan for modifying existing classroom or indoor space for brief periods of vigorous physical activity.



Intentionally Teaching. Contrary to “conventional wisdom,” preschool children are not as active on playgrounds as we might expect and want (Brown, Pfeiffer, et al., 2009; Bower et al., 2008). Therefore, as we mentioned, intentional teaching of moderate to vigorous physical activity is warranted and sorely needed. That is, teachers should plan and implement activities that are likely to increase preschool children's physical activity for brief 5- to 10- minute periods on playgrounds. Since the initial development of state early learning standards (Scott-Little & Kagan, 2006), several state (South Carolina ABC Grow Healthy Standards), and national physical activity standards (American Academy of Pediatrics, American Public Health Association, and National Resource Center for Health and Safety in Child Care and Early Education, 2010) strongly support the recommendation that teachers act purposefully and with intent to enhance children's physical activity on playgrounds. Given the importance of preschoolers' vigorous physical activity, we are somewhat surprised that only a very limited number of “teacher friendly” interventions have been developed, evaluated, and reported to date.

In one of the few preschool physical activity intervention studies, Hannon and Brown (2008) demonstrated that preschool playgrounds might be improved by adding portable “activity friendly” materials in an intentional manner. Specifically, with 3- to 5-year-old children they

established outdoor activity centers with the intention of enhancing children's physical activity in those outdoor areas. We believe that it is important to note that Hannon and Brown essentially followed a recommended early childhood practice and made outdoor playgrounds similar to indoor activity centers. "Activity friendly" portable play equipment, which was located in centers or stations, included: (a) age appropriate hurdles to jump over; (b) hoops to jump through; (c) tunnels to crawl through; (d) balance beams; and (e) balls and target toss/throw sets. Importantly, participating preschoolers decreased their sedentary time and increased their light, moderate, and vigorous physical activity (see "Going on a Bear Hunt" below).

In another preschool intervention study, Brown, Googe, et al. (2009) developed and implemented two illustrative outdoor activities, "Track Team" and "Dance Party." The intervention activities had several important elements including: (a) brief and age-appropriate teacher-guided discussions of the importance of preschoolers' physical activity; (b) "Plan, Do, and Review" process related to children's outdoor physical activity; (c) short teacher "pep talks" about basic rules and participation in physical activity; (d) teacher participation in physical activity; and (e) teacher encouragements and acknowledgements of children's physical activity efforts. The 5- to 10-minute activities clearly enhanced children's moderate-to-vigorous physical activity and children enjoyed the short activities. Indeed, many children from other classrooms asked to join in "Track Team" and "Dance Party" while the physical activities were implemented. The teacher-guided discussion about the importance of healthy behaviors such as "building a strong heart" and improving "muscle strength," and teacher enthusiasm and participation were important components of the brief activities. Indeed, intentional teachers may want to include the time spent "building a strong heart"

as part of their own daily schedule of physical activity.

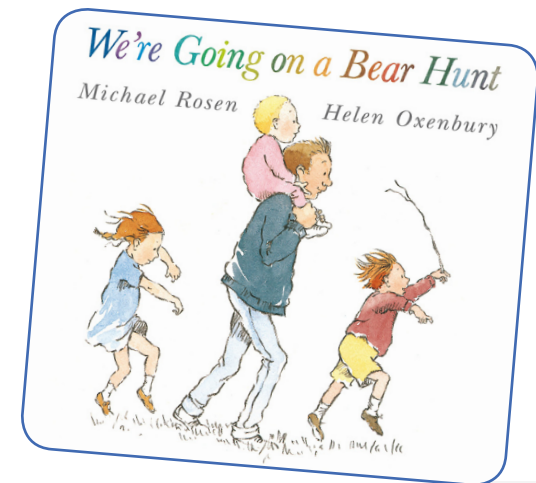
Both Hannon and Brown (2008) and Brown and colleagues (2009) have demonstrated that teachers' thoughtful planning of playground activities and portable materials and equipment use can increase children's physical activity and decrease sedentary activity for short periods. Given that many children appear to be most active when they initially go outdoors, teachers may want to wait and plan brief intentional physical activities during the middle of outdoor play and allow for "cool down" periods before re-entering classrooms.

Encouragement and Acknowledgement of Children's Physical Activity. In addition to intentionally planning brief "activity friendly" playground and teacher-guided activities to improve preschoolers' moderate-to-vigorous activity, teachers' encouragements of children's efforts should be frequent, descriptive, and authentic. Both children and teachers quickly tire of and "tune out" the same old "good job" or "good boy" exclamations of adults. To make optimal teacher verbal encouragements and acknowledgements we strongly recommend that they be authentic, enthusiastic, and descriptive with their praise (e.g., "Wow, You guys can run so fast!", "Cool, You're all building healthy hearts!", "Man oh man, can you feel your heart beating faster after playing so hard!"). In addition, because young children have varying individual differences and emerging abilities in their motor skills and they may become overly competitive, we recommend that teachers encourage and acknowledge children's *engagement and effort over absolute motor performance* and winning, or being the best during activities.

An Example of a Teacher-Guided Activity to Promote Vigorous Physical Activity. Given our work with teachers, along with those teachers we have developed several teacher-guided activities to enhance preschoolers' moderate-to-vigorous physical activity. The most important aspect of the selected vigorous physical activities is that when they are well implemented they are high-energy and high-interest activities that most children want to engage in actively. We do not believe children should ever be forced to participate. Nevertheless, if they observe same age peers frequently engaged vigorously while having fun, the likelihood of preschoolers becoming physically active will be increased. Finally, observations of children's affect in young children's faces and their engagement are clear and straightforward methods of assessing their interests in vigorous activities deployed by intentional teachers on playgrounds. We will discuss one potential outdoor activity, "Going on a Bear Hunt," and how to adapt it and encourage children's engagement in activity that is vigorous.

"Going on a Bear Hunt" is a well-known story by Michael Rosen and Helen Oxenbury with the words and multiple examples of the story available on the internet. Unfortunately, most of the on-line video examples are relatively sedentary with teachers or adults reading or chanting the "Bear Hunt" story and children responding verbally while standing or sitting and acting out parts of the story with relatively restricted motor movements. An exception we found is a video vignette with a young girl on a playground who acts out the story and spends about 6 minutes moving, walking, jumping, and running around her playground while chanting the story out loud and pretending she is on a "Bear Hunt" <http://www.youtube.com/watch?v=oW91RcYjnq8>. Although the girl is playing alone during her "Bear Hunt," we can easily envision the activity with groups of children and carefully guided by enthusiastic intentional teacher-story tellers who frequently encourage and acknowledge children's

active engagement during a "Bear Hunt." In addition, intentional teachers can make the activity even more vigorous than the young girl by integrating the available playground equipment (e.g., climbing monkey bars, running through the grass, marching vigorously through imaginary mud) as well as portable equipment (e.g., crawling tubes, objects to jump over repeatedly) into the story and encouraging children to be very active in their playing and pretending during the story. The primary point of the "Bear Hunt" is for children to have fun pretending and chanting and to increase their moderate-to-vigorous physical activity for at least five minutes.



“GOING ON A BEAR HUNT”

ENHANCED TO PROMOTE MODERATE-TO-VIGOROUS PHYSICAL ACTIVITY ON PLAYGROUNDS

Story by Michael Rosen and Helen Oxenbury

(TEACHER CHANTS SCRIPT IN GREEN) We're going on a bear hunt!
(CHILDREN'S CHORAL RESPONSE IN BLUE) We're going on a bear hunt!

INITIAL VERSE (Encourage children to walk while telling and chanting the story)

(Teacher) We're going on a bear hunt! (Children) We're going on a bear hunt!
(Teacher) We're gonna catch a big one! (Children) We're gonna catch a big one!
(Teacher) I'm not afraid! (Children) I'm not afraid!
(Teacher) Are you? (Children) Are you?
(Teacher) Not me! (Children) Not me!

SECOND VERSE (Encourage children to walk briskly, jump, or skip)

(Teacher) Here comes the gate (Children) Here comes the gate
(Teacher) Now we're on a bear hunt (Children) Now we're on a bear hunt
(Teacher) We're gonna catch a big one (Children) We're gonna catch a big one
(Teacher) I'm not afraid! (Children) I'm not afraid!
(Teacher) Are you? (Children) Are you?
(Teacher) Not me! (Children) Not me!

THIRD VERSE (Encourage children to climb up slide or steps on stationary or fixed equipment and then go down)

(Teacher) We're coming to a tall mountain (Children) We're coming to a tall mountain
(Teacher) It sure is high (Children) It sure is high
(Teacher) It sure is wide (Children) It sure is wide
(Teacher) Let's climb up it (Children) Let's climb up it
(Teacher) Well, there's nothing over there (Children) Well, there's nothing over there



(Teacher) Nothing over there (Children) Nothing over there
(Teacher) Nothing back there (Children) Nothing back there
(Teacher) Hey! Wait! I think I see something (Children) Hey! Wait! I think I see something
(Teacher) Quick! Everybody run down! (Children) Quick! Everybody run down!

FIRST, REPEAT OF INITIAL CHORUS (Encourage children to walk briskly)

(Teacher) We're going on a bear hunt! (Children) We're going on a bear hunt!
(Teacher) We're gonna catch a big one! (Children) We're gonna catch a big one!
(Teacher) I'm not afraid! (Children) I'm not afraid!
(Teacher) Are you? (Children) Are you?
(Teacher) Not me! (Children) Not me!

FOURTH VERSE (Have children keep walking, jumping, or skipping)

(Teacher) We're going thru the tall grass (Children) We're going thru the tall grass
(Teacher) We're going thru the short grass (Children) We're going thru the short grass
(Teacher) Hey! Look! There's a little tree (Children) Hey! Look! There's a little tree
(Teacher) Well, let's climb up it (Children) Well, let's climb up it
(Teacher) See anything over that way? (Children) See anything over that way?
(Teacher) Anything over that way?, Uh, oh! (Children) Anything over that way?, Uh, oh!,
(Teacher) Oh, no! Whoa! Agh! Let's get down! (Children) Oh, no! Whoa! Agh! Let's get down!

SECOND, REPEAT OF INITIAL CHORUS (Encourage children to power walk or high step through pretend grass area in open space)

(Teacher) We're going on a bear hunt! (Children) We're going on a bear hunt!
(Teacher) We're gonna catch a big one! (Children) We're gonna catch a big one!
(Teacher) I'm not afraid! (Children) I'm not afraid!
(Teacher) Are you? (Children) Are you?
(Teacher) Not me! (Children) Not me!

FIFTH VERSE (Encourage children to jump repeatedly with big jumps over the pretend mud)

(Teacher) Oh, no! (Children) Oh, no!
(Teacher) It's a big puddle of mud (Children) It's a big puddle of mud
(Teacher) Can't go around it (Children) Can't go around it
(Teacher) Gotta go right thru it, Yeuk (Children) Gotta go right thru it; Yeuk
(Teacher) Well, let's go. (Children) Well, let's go.
(Teacher) Squish, Squish, Blaaahh. (Children) Squish, Squish, Blaaahh.

THIRD, REPEAT OF INITIAL CHORUS (Encourage children to walk briskly)

(Teacher) We're going on a bear hunt! (Children) We're going on a bear hunt!
(Teacher) We're gonna catch a big one! (Children) We're gonna catch a big one!
(Teacher) I'm not afraid! (Children) I'm not afraid!
(Teacher) Are you? (Children) Are you?
(Teacher) Not me! (Children) Not me!

SIXTH VERSE (Encourage children to pretend swim vigorously with big arm movements while walking briskly)

(Teacher) We're coming to a wide river (Children) We're coming to a wide river
(Teacher) And, there's no bridge going over it (Children) And, there's no bridge going over it
(Teacher) No tunnel going under it (Children) No tunnel going under it
(Teacher) And, we're gonna have to swim (Children) And, we're gonna have to swim
(Teacher) All right, dive in and start swimming (Children) All right, dive in and start swimming
(Teacher) OK Jump out, shake yourself off (Children) OK Jump out, shake yourself off

FOURTH, REPEAT OF INITIAL CHORUS (Encourage children to walk briskly and keep moving)

(Teacher) We're going on a bear hunt! (Children) We're going on a bear hunt!
(Teacher) We're gonna catch a big one! (Children) We're gonna catch a big one!
(Teacher) I'm not afraid! (Children) I'm not afraid!
(Teacher) Are you? (Children) Are you?
(Teacher) Not me! (Children) Not me!

SEVENTH VERSE (Stop for cave to build children's anticipation about what happens next; when confronting the bear, encourage children to repeat all the vigorous activity in reverse but safely)

(Teacher) Shhh, it's a cave (Children) Shhh, it's a cave
(Teacher) Looks like a cave that B-bears live in (Children) Looks like a cave that B-bears live in
(Teacher) I don't know if I want to go in there (Children) I don't know if I want to go in there
(Teacher) You think we oughta go in? (Children) You think we oughta go in?
(Teacher) Are you nuts? There may be a bear! (Children) Are you nuts? There may be a bear!
(Teacher) I'll go in. You stay here; and if I find a bear, I'll come out and get you
(Teacher) And, we'll all go in and grab him together
(Teacher) Quiet, while we are in that cave; cuz if we wake him up, we'll be in trouble
(Teacher) Bears are awful ornery when they first wake up, you know; OK, I'm going on in
(Teacher) Oooo, it's dark in here; It's really dark in here; I can't see a thing
(Teacher) Agh, there are spiders webs; Ooo, what was that???
(Teacher) What's this??.... it's soft, uh oh, it's kind of fuzzy; Ahg!!!!!!!!!!!! Run! Everybody run!!
(Teacher) I saw a bear!!!! I saw a bear!!!!
(Teacher) Jump in the water! Swim fast very fast; run through the mud!; Forget the tree!!
(Teacher) Go through the tall grass; Quick! Go up the mountain and down the other side
(Teacher) Go thru the gate and into the house, under the bed and under the pillow
(Teacher) Hide!!!!!!!!; Hide!!!! Uh, it's awful quiet around here
(Teacher) I'm not afraid (Children) I'm not afraid
(Teacher) Are you? (Children) Are you?



Nurturing Preschoolers' Self-Regulation During Physical Activity

We recognize that some teachers have concerns related to children's vigorous physical activity such as "We don't want to get the children jazzed up!" or "They tend to misbehave and initiate rough and tumble play fighting when they are active." In spite of these concerns, we need to remember that preschoolers are only beginning to develop their dispositions, health habits, and self-regulation as they mature from 3- to 5-years of age. Self-regulation, which is also known as self-control or self-management, is an especially important social and emotional competence to promote and nurture during early childhood. Self-regulation usually becomes relatively well established in most children about age 7 or 8 (Landy, 2009). Landy defined self-regulation as "a child's ability to contain and manage his own behavior without relying on caregivers to guide him. Gaining self-control is a long process and depends on the child gradually internalizing an understanding of what behaviors are acceptable and not acceptable, distinguishing right from wrong, and meeting the requirements and standards of society" (pp. 381, Landy, 2009). Unfortunately, for many children who need to acquire better self-regulation skills the most, often they have many fewer opportunities to learn self-control. In addition, they are frequently excluded from activities that might help them develop and acquire better self-regulation across time, learn how to manage their behavior, and calm down after vigorous activities. Finally, given the well-known developmental principle of individual differences, children acquire these important social emotional competencies earlier, some later, and some children require additional carefully crafted adult guidance and assistance from teachers to learn the skills through frequent teaching and learning opportunities. We believe that well implemented intentional teaching of appropriate vigorous physical activity at the appropriate times and with adult assistance

may actually improve children's behavior and self-regulation, a fundamental social emotional ability for children. Indeed, an essential aspect of teaching young children should be developing activities that will promote self-regulation with multiple teaching and learning opportunities to acquire and internalize, with adult guidance, appropriate behavior. For example, initially after planned vigorous activities, teachers should encourage children to "calm down." Teachers can demonstrate talking in a quieter calm voice and taking slow deep breaths to "settle down." Across time, teachers may want children to discuss their calming techniques with a quiet voice that describes the deep breathing as a transition routine to the next small group or large group activity.

We believe that across time several "helpful hints" may assist intentional teachers in establishing and promoting children's self-regulation with respect to vigorous physical activities. These strategies should be carefully considered by early childhood educators and are based on 35 years of experience by the first author, as well as converging evidence for guiding and managing young children's behavioral difficulties (see Center on the Social Emotional Foundations for Early Learning; <http://csefel.vanderbilt.edu/>). Remember that careful positive albeit authoritative supervision and guidance are always needed when teaching young children. Our suggested recommendations for teachers should be carefully considered with strategic planning to promote young children's self-regulation through vigorous physical activity include:

- Establish clear classroom routines that include high-interest and high-energy physical activities (e.g., perform "dance party" during longer whole group activities to give children an activity break, we are playing "Going on a Bear Hunt" at outdoor play again today, who wants to go?");



- Establish basic activity rules to prevent and manage behavioral difficulties during those physical activities (e.g., “Remember we do not touch and push friends during activity,” “Remember, if you want to dance and hold hands you have to ask your friends.”);
- Always pre-teach and remind children of the basic rules before, during, and after each physical activity;
- Consistently enforce rules during activities using (a) your proximity, (b) redirections, (c) authentic praise for appropriate participation, and (d) contact touches to calm children down who have not followed the rules, if needed;
- Authentically, enthusiastically describe and explicitly encourage children’s active participation in intentional physical activities;
- “Set the stage” by briefly discussing the physical activities and modeling appropriate participation or have other children model active engagement;
 - o Publicly and explicitly acknowledge children’s vigorous activity efforts with positive comments and gestures to those children who are participating and following the rules;
 - o After physical activities, provide authentic and accurate feedback to children about how they followed the rules and how they were able to “control their bodies,” especially those children who have difficulty with self-regulation and their behavior;
 - o After teacher discussions and feedback, have children self-evaluate and discuss their participation and behavior (e.g., “I

danced in my area,” “I asked a friend to dance and we had fun,” “I didn’t push any friends”); and

- Immediately after high-energy physical activity, employ a “COOL DOWN” strategy (Examples: talking in soft relaxed voice, modeling deep breathing to slowly relax participants, and providing a clear signal for the end of the high-energy activity).

Again, remember that intentional teachers use their proximity, careful supervision, redirections before major problems, and explicit and authentic encouragements about children’s appropriate behavior throughout the preschool day.

Summary and Main Messages about Preschoolers’ Physical Activity

Our main messages are four-fold. First, in spite of “conventional wisdom,” too many preschool children are sedentary in community-based preschools, even outdoors at times arranged for their increased activity. Second, because a majority of preschoolers are in daylong community-based programs, preschool teachers are on the “front lines” of prevention in promoting healthy habits and behaviors, and disposition and lifestyles, related to healthful day-to-day vigorous physical activity. Third, preschool teachers can and should routinely be proactive and intentional in implementing high-interest and high-energy physical activities that are embedded at appropriate times during the day. Finally, careful intentional teaching of self-regulation might assist many preschoolers with self-control difficulties to better manage their own behavior across the early childhood years. Of course, our speculation awaits further evidence about that recommendation. We hope our information and recommendations are helpful to teachers of preschool children, especially outdoors in planning vigorous outdoor play activities.

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APPENDIX I

Outdoor Play Portable Play Materials

RECOMMENDED PORTABLE EQUIPMENT	DESCRIPTION
Playground Balls	Variety is helpful to provide for different player preferences and mastery (i.e., sturdy, durable balls for hard, outdoor play; soft and tactile options for building skill and confidence, and indoor play; and various sport options for play exposure). Provide many balls to increase playtime per child, (i.e., avoid ball hogging).
Obstacle Cones	Use to promote various routes to travel/run. Cones can also be used to demarcate activity stations.
Parachutes	Facilitate high-energy group play with large and/or small parachutes. Incorporate learning with number, directional, and color cues. Add lightweight balls or beanbags to bounce high, low, and fast.
Hula Hoops	Hula-hoops can be very versatile. While 4-year olds may not be ready to jump rope, many can hula. Hoops are also great markers and props for obstacle courses and playground stations.
Scarves	Scarves and like equipment make great relay and cheering props. If students are waiting to participate, or otherwise not participating at the time, encourage them to participate on sidelines by jumping (i.e., high energy) and waving scarves to cheer on fellow participants.
Riding and Push Toys (e.g., scooters, tricycles, trucks, etc.)	Promote coordination and moderate to vigorous physical activity (push truck running, cycling) with child sized riding and push toys.
Music Player	When children (and adults) hear fun and upbeat music, they dance. Keep your playground lively with a dance/music station.



APPENDIX II

Teacher-Guided Activities to Promote Vigorous Physical Activity on Playgrounds

OUTDOOR ACTIVITY	DESCRIPTION	VARIATIONS	THIS ACTIVITY IS GREAT FOR ...	WATCH OUT FOR ...
Track Team	Children love to run and race themselves and with each other. Facilitating this love is one of the easiest and most effective playground strategies to encourage moderate to vigorous activity. To engage the children in this activity simply invite the children to “join the track team” and let them know that all they have to do to join is run with the rest of the team	<ul style="list-style-type: none"> • <i>Run by category (color or type of clothing, girls and boys, first letter in one’s name)</i> • <i>Racing for recess dots (stickers/markers)</i> • <i>Race like a... (duck, plane, kangaroo, skip, bear crawl)</i> • <i>Walkman walking (headphones for music/ books on tape)</i> • <i>Pedometer step counting</i> • <i>Field trip races (i.e., use of alternate school spaces - track, field)</i> 	<ul style="list-style-type: none"> • Ability to engage a large group. • Continuous movement for sustained moderate to vigorous physical activity (students rarely tire of this activity with an engaged teacher; to avoid exhaustion and disinterest, promote short bouts of running versus lap after lap. • Variations keep students excited about running; also, helps keep it interesting for the encouraging / non-running teachers. 	Some teachers might want to call off activity too soon because some children request a break. Do not force physical activity. And, try not to call off the physical activity when there is time left and most students still want to participate. Allow students to sit out and rejoin when ready.
Activity Stations	Assign defined areas (stations) for various physical activity opportunities. Divide children into small groups (i.e., 3-5 children) and cycle small groups through these stations for at least 5 minutes per station. <i>While the outdoors can provide more room, this activity can also be implemented as great inclement weather activity, indoors.</i>	<ul style="list-style-type: none"> • <i>Winter Wonderland / Olympics (e.g., bobsledding, figure skating, triathlon)</i> • <i>Summer Time/Water Day (e.g., mow the lawn, catch butterflies, water balloon toss)</i> • <i>Active Nursery Rhymes (e.g., Humpty Dumpty’s ‘All the king’s men’ horse races)</i> • <i>Circus Acts (e.g., acrobats, elephant stomp)</i> • <i>Assorted gym/physical activity equipment (e.g., beams, stilts, balls, parachute)</i> 	<ul style="list-style-type: none"> • Ability to engage a large group. Small groups with multiple stations discourage wait time for physical activity, resulting in more time in physical activity for all, and per child. 	While multiple stations can be implemented with limited supervision (e.g., two teachers), be sure to design station locations for high visibility, in order to see all stations at once and promote safety.
Obstacle Course	Teacher-instructed tasks keep children in motion and showing-off how fast, how far, and how good they are at moving and following basic safety rules.	<ul style="list-style-type: none"> • <i>A staged course route with use of portable and/or fixed equipment and/or the natural playground environment (e.g., “go down the slide, around the tree, through the hula hoops, and race to the classroom door”)</i> • <i>Teacher cues, with or without equipment: “How fast can you jump from here to the tire swings?”</i> 	<ul style="list-style-type: none"> • Ability to engage a large group. 	We strongly encourage activity that allows multiple children to participate at once. One-by-one participation tends to create extended inactive periods, waiting to take turns. If portable supplies are limited, use them in ways that do not require individual use (e.g., each child must kick the one red ball; instead, cue all students to run, skip, or hop around the red ball).
Dance Party	Children love music and love to dance. While music makes for great indoor activity, it can also be instituted outdoors to encourage movement like any other playground equipment, or as a teacher-led activity.	<ul style="list-style-type: none"> • <i>Free style</i> • <i>Follow the leader</i> <ul style="list-style-type: none"> o <i>Dancing to songs with dance cues</i> o <i>All students dancing, taking turns to individually lead the class in their signature move</i> 	<ul style="list-style-type: none"> • Ability to engage a large group. • Intensity can vary depending on tempo, instructional dance cues, and child choice of dance moves; preschool children are often inclined to jumping dance moves. Encourage this (and big moves like wide steps, high jumps, movement of multiple body parts) for great vigorous activity. 	Over-doing teacher instruction can backfire: Children can keep going a lot longer than adults; if they can jump through entire song(s), let them. Model as needed (e.g., pump your arms when you notice most children are not; jump to inspire children to do so). And, please repeat: most song tracks are not a full five minutes long. Favorites deserve an encore.



PHYSICAL ACTIVITY GUIDE

For additional copies of the Physical Activity Guide, please contact the USC Yvonne & Schuyler Moore Child Development Research Center at cdrc@sc.edu.



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