Research Summary:
Physical Development–Health (PD-HLTH) Domain in the DRDP (2015) Assessment Instrument

The **Physical Development–Health (PD-HLTH)** domain assesses motor development and the development of routines related to personal care, safety, and nutrition. The domain includes the following knowledge and skill areas: perceptual-motor skills and movement concepts; gross locomotor movement skills; gross motor manipulative skills; fine motor manipulative skills; safety; personal care routines for hygiene, feeding, and dressing; active physical play; and nutrition.

PD-HLTH 1: Perceptual-Motor Skills and Movement Concepts

This measure highlights how children develop increasing awareness of their own physical effort, body awareness, spatial awareness, and directional awareness while moving their bodies and interacting with the environment. Initially, infants make simple responses to various types of sensory input (Alexander, Boehme, & Cupps, 1993; Lobo, Kokkoni, de Campos, & Galloway, 2014; Parks, 2004). As young children continue to develop, they explore different ways to move major body parts while interacting with the environment (Lobo et al., 2014; Parks, 2004). At a later level, children experiment with adjusting movements in response to task or spatial demands and benefit from adult guidance (Boyer, Carlson, & Pasnak, 2012). At the latest levels, children spontaneously adjust aspects of movement (e.g., effort, spatial, directional), initially within familiar contexts and then subsequently during new activities, in changed environments, or on different surfaces (Parham & Mailloux, 2015; Poole, Miller, & Church, 2006).

PD-HLTH 2: Gross Locomotor Movement Skills

This measure reflects how children show increasing proficiency in fundamental locomotor skills, for example, rolling, crawling, cruising, walking, running, jumping, and galloping (Fitts & Posner, 1967; Fairbrother, 2010; Gentile, 1972, 2000; Gallahue, Ozmun, & Goodway, 2011; Haibach, Reid, & Collier, 2011; Magill, 2010; Newell, 1984, 1986). Initially, infants attain locomotor skills such as rolling, creeping, crawling, or scooting (Adolph, Berger, & Leo, 2011; Alexander et al., 1993; Parks, 2004; Piek, 2006). After the child attains upright control on two feet, cruising and walking emerge (Adolph et al., 2011; Alexander et al., 1993; Haibach, Reid, & Collier, 2011; Parks, 2004). Next, children experiment with more advanced locomotor skills, such as running, jumping, or hopping, but initially demonstrate limited coordination and balance (Haibach et al., 2011; Kakebeeke, Locatelli, Rousson, Caflisch, & Jenni, 2012). Eventually, children can combine various locomotor movements together effectively (Haibach et al., 2011; Kakebeeke et al., 2012).

PD-HLTH 3: Gross Motor Manipulative Skills

This measure highlights how children show increasing proficiency in gross motor manipulative skills, which refer to, for example, reaching, kicking, grasping, throwing, and catching. Initially, infants demonstrate simple, repetitive manipulative actions such as kicking, reaching, or banging while in a reclined position (Alexander et al., 1993; Lobo, Galloway, & Heathcock, 2015; Parks, 2004). At the next developmental level, they can manipulate and explore objects when seated or when standing with support; however, loss of balance may occur while manipulating (Alexander et al., 1993; Parks, 2004).

At the next level, children manipulate objects using one or more body parts, with stability but limited coordination followed in later preschool years by demonstrating coordination of arms, legs, or body to manipulate objects, with sequential or simultaneous movements (Haibach et al., 2011). By

kindergarten, children apply a variety of manipulative skills in combination with locomotor skills and in different physical activities (Gallahue et al., 2011; Haibach et al., 2011).

PD-HLTH 4: Fine Motor Manipulative Skills

This measure highlights how children show increasing proficiency in fine motor manipulative skills, which refer to how the child demonstrates increasing precision, strength, coordination, and efficiency when using muscles of the hand for play and functional tasks. Initially, infants tend to maintain their hands in a fisted position and grasp objects using the entire hand (Alexander et al., 1993; Parks, 2004). As they continue to develop, children begin to incorporate the thumb for grasping (Case-Smith & Exner, 2015).

The research literature on the development of fine motor coordination during the preschool years emphasizes the increasing flexibility and planning of fine motor manipulative skills such as writing, cutting, and dressing activities (Case-Smith & Exner, 2015; Henderson & Pehoski, 2005; Klein, 1983). In the early preschool years, children typically manipulate objects with one hand while stabilizing objects with the other hand or with another part of their body. By later preschool years, children manipulate objects using hands with strength, accuracy, and coordination. By kindergarten, children perform with efficiency a variety of tasks that require precise manipulation of small objects.

PD-HLTH 5: Safety

This measure highlights how children develop an understanding of basic safety rules and consequences of unsafe behavior at home, school, and community. The existing research literature on the development of safety and injury prevention emphasizes the learning of safety rules, reasoning about safe and unsafe situations, and increasing abilities to follow safety rules in order to prevent injury. From birth, infants ordinarily react to unpleasant stimuli. Over time infants distinguish with increasing specificity between situations that make them feel safe versus unsafe, and they begin to rely more on familiar adults as a source of security as well as guidance (Marvin & Britner, 1999). In the early preschool years, children typically seek to follow basic safety practices with adult support, but many at this age do not consistently identify dangerous situations. Making judgments about how likely they are to be injured or harmed by their behavior or by a situation is difficult for them (Hardy, 2002; Morrongiello, McArthur, & Spence, 2016; Rivara, Booth, Bergman, Rogers, & Weiss, 1991). Moreover, without adult support, children in the early preschool years do not consistently take preventive actions in such situations or follow the safety rules they know (Morrongiello, Midgett, & Shields, 2001). By the later preschool years, children typically follow some basic safety practices on their own in familiar and novel situations, while still needing adult support. By kindergarten, children can independently apply some safety practices and can communicate an understanding of some safety practices to others. Children at this age have begun to identify at least a few effective behavioral strategies in areas such as fire safety (Morrongiello, Schwebel, Bell, Stewart, & Davis, 2012), stranger safety (Wurtele, Saslawsky, Miller, Marrs, & Britcher, 1986), and home safety (Morrongiello et al., 2016). This emerging ability to identify strategies for staying safe reflects both general cognitive development as well as domain-specific learning.

PD-HLTH 6: Personal Care Routines: Hygiene

This measure highlights how a child understands, responds to, and initiates personal care routines related to hygiene and shows increasing knowledge and skills of how and when to apply them. The research literature on the development of personal care skills emphasizes that children's abilities to perform self-help tasks depend on their gaining the fine motor skills to do so as well as their growing

abilities to reason about why personal care tasks related to hygiene promote health. Although infants show gradually increasing awareness of, and responsiveness to, steps in hygiene-related routines over time, their ability to participate in such routines is limited. In the early preschool years, children typically can carry out some parts of personal care routines with adult supervision. By the later preschool years, children initiate and carry out more steps of familiar personal care routines. By kindergarten, children initiate and complete personal care routines on their own. Although children do not always carry out routines they have already mastered, detailed knowledge of hygiene-related routines can now be observed in areas such as oral health and hand washing (Buller et al., 2006; de Silva-Sanigorski et al., 2013; Eiser, Patterson, & Eiser, 1983; Witt & Spencer, 2004). Both general cognitive development and domain-specific learning contribute to increasing knowledge of the mechanisms underlying these routines (Eiser, 1985; Siegal & Peterson, 1998). However, even at an early age, children can benefit from instruction by adults (e.g., Niffenegger, 1997; Rosen et al., 2006; Wennhall et al., 2005).

PD-HLTH 7: Personal Care Routines: Feeding

This measure highlights how children become increasingly active participants in feeding and feed themselves with increasing proficiency. Studies show that from birth, infants respond naturally to stimuli experienced during feeding, and they express interest in being fed, particularly as they learn to recognize familiar cues associated with feeding (Carruth & Skinner, 2002). Over time, infants and toddlers develop coordination of the head, trunk, and arm movements that allow them to feed themselves by hand with increasing dexterity (Sveistrup, Schneiberg, McKinley, McFadyen, & Levin, 2008). Coordination of these movements continues to become more sophisticated throughout early childhood. The development of fine motor skills is another major contributor to the growing ability to feed oneself, first by hand, and then through increasingly proficient use of utensils (Carruth, Ziegler, Gordon, & Hendricks, 2004). The physical and neurological changes that promote increasingly coordinated, precise movements are reflected in children's increasingly varied and efficient use of utensils during self-feeding. Interest in different foods, developing attention skills, and a growing understanding of the conventions of eating behavior also contribute to increasingly proficient self-feeding.

PD-HLTH 8: Personal Care Routines: Dressing

This measure highlights how children are able to increasingly understand and participate in routines for getting dressed and to take increasing responsibility for dressing oneself. Observational research shows that over time, infants demonstrate a growing awareness of dressing routines, but their ability to actively participate in these routines is initially limited. Gradually, the extent of children's participation in getting dressed increases, although throughout early childhood adult support is needed (Shepherd, 2010). By preschool and kindergarten age, children's movements are becoming more coordinated (Shelov, 2004); as a result, they are more proficient at dressing themselves but still need assistance with types and parts of clothing that are especially challenging (Hatcher & Squibb, 2011). Gross and fine motor development both contribute to the emerging ability to dress oneself, as do cognitive skills such as planning and attention.

PD-HLTH 9: Active Physical Play

This measure highlights how a child engages in physical activities with increasing endurance and intensity. Physical activity habits are established early in life and can persist over time (AAP, APHA, & NRC, 2010). During the preschool and early school ages, general movement activities as well as biological maturation help develop children's movement patterns and skills. As basic movements become established and skills improve, health, fitness, and behavioral components of physical activities increase in importance and also allow children to expand their creative and social skills (Burdette & Whitaker, 2005; Strong et al., 2005). Children who become skilled and knowledgeable in physical education are more likely to become healthy adults who are motivated to remain healthy and physically active throughout their lives (California Department of Education, 2009). During the toddler years, children engage in active play for brief instances (Vanderloo & Tucker, 2015) and in the early preschool years, for short periods of time (Bailey et al., 1995). In the later preschool years, children can engage regularly in active physical activities or play for more sustained periods of time. By kindergarten, children typically seek to engage in active physical activities or play with increased intensity and duration (Siegal & Peterson, 1998).

PD-HLTH 10: Nutrition

This measure highlights how a child is able to demonstrate increasing knowledge about nutrition and healthful food choices. From birth, infants show preferences for some flavors over others (Mennella, Jagnow, & Beauchamp, 2001), and distinctions between more- versus less-appealing foods are quickly learned (Beauchamp & Mennella, 2011). Throughout infancy and early childhood, increasingly specific preferences and interests in various foods can be observed. Children in the early preschool years typically can recognize or identify verbally and through other means a variety of foods. In the later preschool years, children show awareness that some foods are more healthful than others (Anliker, Laus, Samonds, & Beal, 1990), or at least should be eaten more frequently than others (Murphy, Youatt, Hoerr, Sawyer, & Andrews, 1995). By kindergarten, children communicate simple explanations about the healthfulness of different food choices and show more differentiation among types of foods. Children at this age are receptive to the idea that eating a varied diet promotes health (Gripshover & Markman, 2013). This emerging but still rudimentary appreciation of the need for a balanced diet reflects general cognitive development, as well as an increasing understanding of differences between food categories (Michela & Contento, 1984; Goldman, Whitney-Saltiel, Granger, & Rodin, 1991) and an appreciation of the benefits derived from different types of foods.

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