

Original Article

Body and movement in early childhood; spaces for movement-based play

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Abstract

This essay discusses the importance of offering young children places for play and physical activity for development, learning and health. Childhood is an essential period for development and opportunities to learn and develop different motor skills and physical fitness characteristics through movement-based play. There are clear evidence that a physically active lifestyle and sufficient physical fitness levels from a young age have significant health benefits. However, it is a common finding that physical activity levels are lower than recommended in preschoolers. Early Child Education and Care (ECEC) institutions are central to children's development, learning and health. In this context, the physical environment is an integral part of the learning environment in ECEC institutions and is of importance for children's well-being, experiences and learning. The physical environment may influence children's possibilities for play and exploration. Several attributes of the outdoor environment seem to influence children's physical activity levels and motor development, including paths, portable and fixed play equipment, open spaces and natural elements. Gibson's theory of affordances (Gibson, 1977) is a beneficial framework to comprehend how the physical environment influences children's behavior. The theory of affordances focuses on what children perceive in their environment and suggests an interconnection between the environment and the child. The different terrain, materials, surfaces, spaces and areas in the outdoor environment are perceived as affordances and offers, invites and inspires the child to move and be active. Children's motor competence and physical fitness should be encouraged, as they may serve as positive and sustainable trajectories of health behavior and lead to positive long-term health outcomes.

Keywords: Motor competence, physical fitness, outdoor environment, kindergarten, health

Introduction

Childhood is period characterized by essential processes in development and opportunities to learn and develop different motor skills and physical fitness characteristics through functional activities and play. Basic locomotor, manipulative and stability skills should be developed in the early childhood years in order to gain motor control and competence to respond to a variety of stimuli (Gallahue et al. 2012). The everyday activities require that children master different motor skills. Among these are the skills that are essential to biological functioning such as crawling, walking, and running, as well as those required for adequate social functioning, such as dressing and playing (Haga, Haapala and Sigmundsson, 2019). Motor competence can be conceptualized as a person's ability to execute different motor actions, including coordination of both fine and gross motor skills. Motor competence is found to significantly impact upon the likelihood of participation in physical activity and overall performance on different fitness components (Haga, 2008; Catuzzo et al., 2016).

Young children who master different movements and have a comprehensive motor repertoire tend to have an improved basis for participation in various physical activity play, sports, and games, and as a consequence increase their fitness levels. Additionally, physically fit children are more likely to be more physically active and to continue to develop their motor competence (Sigmundsson and Haga, 2016). Typically, preschoolers engage in different forms of energetic play which is described as play behavior that is of moderate to vigorous intensity, such that metabolic activity is well above resting metabolic rate (Pellegrini and Smith 1998). Forms of physical activity play include for example gross locomotor movements (like running, climbing and chasing) which can be categorized as aerobic activities involving large muscle groups, depending on their intensity. Analyses of age trends in such energetic play suggest an inverted U-shape development course with a likely peak around four to five years (Dwyer, Baur, and Hardy, 2009; Pellegrini and Smith 1998). Brown et al. (2009) found walking, running, crawling, jumping, skipping and climbing to be the most commonly physical activity behavior within preschools.

Motor competence, physical activity and physical fitness

These activities require good motor competence to participate in successfully. All together, these activities enhance physical fitness components such as muscle strength and endurance and cardiorespiratory

fitness. The more time a child spends in such physically active play the more opportunity they have to increase their fitness and to gain experience and practice that influences the rate and direction of their motor development (Haga, Haapala and Sigmundsson, 2019). Children with a poor motor proficiency may tend to avoid or withdraw from activities that require a considerable extent of motor performance. Because of this, the skill–learning gap will further increase between children with low motor competence and their peers as the latter group will generally achieve a higher level of motor competence and begin to participate in even more demanding physical activity tasks. Given that the activity deficit gap between children with low and high motor competence apparently widens with age, children with low motor competence continue to be more physically inactive compared to the latter group as they age. Indeed, longitudinal studies confirm that these relative differences in fitness components between children with high and low motor competence tend to persist as children grow older (Haga, 2009). In general, the association between different physical fitness components and motor competence can potentially be explained by physical activity patterns and levels; the type, amount, and intensity of physical activity impact upon aspects of physical fitness and motor development/learning. Different activities promote different physiological adaptations, that is, changes in the various physical fitness components depend on the type of activity performed.

Physical activity and physical fitness are associated with numerous health benefits and behavioral outcomes. There is still insufficient evidence about the type and amount of physical activity required for some health benefit in young children; however, both physical activity and physical fitness have been identified as factors that affect overweight and obesity, cardiovascular disease risk factors, skeletal health, mental health, and cognitive performance in young people (Janssen and LeBlanc, 2010). Therefore, it is recommended that young children achieve a daily level of physical activity of at least 180 minutes in varying intensity, and at least 1 hour of energetic play of the moderate to high intensity at the age of 5 years. In addition, sedentary activities over extended periods should be minimized. Because of an increased risk of various health and psychological concerns due to inactivity and low activity levels, the behavior of preschool children in various environmental contexts has been investigated (Tortella et al., 2016; 2019). Children spend many hours in the kindergarten, and the staff has a special responsibility to facilitate active physical play and thereby influence the level of physical activity. However, a common finding is that physical activity levels are lower than recommended in preschool (Reilly, 2010). A Norwegian study reports that 32 percent of the girls and 67% of the boys reached the recommended level of 60 min of moderate to vigorous physical activity per day during their time in preschool (Andersen et al., 2017). Italian preschoolers generally spend little time in physical activity and movement activities, and the emphasis is mainly on fine motor skills (Tortella et al., 2011).

Outdoor environment and movement-based play

Type, location and organization of spaces (indoor and outdoor) impact upon the physical activity levels of preschool children (Dowda et al., 2009). In general, the presence of opportunities for practicing movement-based play is an important predictor of the levels of physical activity (Sando, 2019), and the early child education and care (ECEC) institutions are found to be influential on children’s physical activity levels. Thus, promoting children’s physical activity in ECEC institutions may benefit children’s health and well-being. However, there is a great variety in how national guidelines for ECEC programs consider the importance of motor development and learning, physical active play and outdoor environment as educational goals for educators in ECEC institutions across countries.

In recent years, Norway have had an increased focus on quality in the ECEC sector. Norwegian governmental policies are based on the value that ECEC institutions are central to children’s development, learning and health. Moreover, the physical environment is an integral part of the learning environment in ECEC institutions and is of importance for children’s well-being, experiences and learning (Ministry of Education and Research, 2017). Promoting physical activity and play both indoor and outdoor is a core value in the curriculum. Body, movement, food and health is a one out of 7 knowledge areas in the Framework Plan for the Norwegian ECEC institutions (Ministry of education and Research, 2017) and highlight the promotion of children’s health by physical activity and a varied and healthy diet. The curriculum states that the physical environment in kindergartens shall be safe and challenging and give the children opportunities for engaging in varied forms of movement. Habits and patterns of behavior begin to take shape from an early age and kindergartens shall enable all the children to discover the joy of movement. The children shall be included in activities in which they can engage in and experience well-being, joy and achievement through a variety of physical activities, indoors and outdoors, all year round.

The Framework Plan highlight that children shall continue to develop their motor skills, body control, co-ordination and physical capabilities and experience risky play through physical challenges. Additionally, the staff are responsible for designing the physical environment facilitating all children to actively participate in play and other activities and ensure that adequate toys and equipment are accessible to the children (Ministry of education and Research, 2017).

The theory of affordances

The physical environment can be defined as the objective and perceived characteristics of the physical context and may influence children’s possibilities for play and exploration. Physical elements of the ECEC

environment includes the landscape, buildings, furniture, playground equipment, natural elements, toys, and objects. Gibson's theory of affordances (Gibson, 1977) is an advantageous perspective to get a deeper knowledge of how the physical environment influences children's behavior. The theory of affordances focuses on what children perceive in their environment and suggests an interconnection between the environment and the child. Moreover, in order for activities to be possible, the child must perceive them as such. For example, an object such as a tree trunk will only be used by a child if it is perceived as a usable affordance that is designed for play. Affordances can often be perceived differently by a child compared to an adult. While the child could see an object to climb and balance on top of, the adult only perceives this as an obstacle that must be forced by crossing over. Typically, affordances that can be found in the physical ECEC environment is objects and places (Sando, 2019). Objects can be both fixed and portable, and have different qualities like substance, surface, form and color. Places refers to locations in the environment that offer sets of affordances, like localizations with different physical structures and objects affording different possibilities.

Several attributes of the outdoor environment seem to influence children's physical activity levels and motor development, including paths, portable and fixed play equipment, open spaces and natural elements (Sando, 2019). The different characteristics of these attributes facilitate activities and motor skills such as walking, running, climbing, jumping, cycling, chasing, balancing and jumping. The different terrain, materials, surfaces, spaces and areas in the outdoor environment are perceived as affordances and offers, invites and inspires the child to move and be active. Affordances emerge from the interaction between the child and the environment; how the child perceive the information surrounding it will effect on the movements, but the child's actions (movements and physical activity) will also influence the perception of the environments and what possibilities the child grasps in the environment.

Conclusion

The ECEC institutions are found to play an influential role on children's physical activity levels, as opportunities for practicing different outdoor movement-based play will increase the levels of physical activity. Thus, promoting children's physical activity in ECEC institutions may benefit children's health and well-being. Habits and patterns of behavior are established from an early age and kindergartens shall enable children to discover the joy of movement. In this context, the social environment is also important for children's active play, highlighting the staff's ability to motivate, engage, organize and facilitate movement-based play. Based on the existing evidence, it is important to ensure children's access to activities and outdoor environments that promote physically active play and motor development, and that reduce sedentary behavior. Children's motor competence and physical fitness should be encouraged, as they may serve as positive and sustainable trajectories of health behavior and lead to positive long-term health outcomes.

Practical implications:

- Create time and space for a variety in movement experience; development of motor skills and physical mastery depends on "learning by doing". Organize the activities so children can try out and practice a variety of movements and motor skills.
- The physical environment should invite and stimulate varied physical activity, both indoors and outdoors. Affordances that invite and influences the child to be active can be tools and equipment, open spaces, paths and natural environments.
- The social environment is also important for physically active play. The staff must have competence and ability to motivate, engage, organize and facilitate movement-based play.
- Give the children experience with risky play and give them challenges that are in line with their skills - mastery gives self-confidence and creates joy of movement.
- Some children may have a delayed motor development, that may need facilitation and adaptation for a period

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