

# Movement by Design: Creating Outdoor Play Spaces that Promote Young Children's Motor Skill Development and Physical Fitness

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## Rationale

- ▶ National physical activity guidelines specify that young children get:
  - 120 minutes to several hours of active play daily
  - Outdoor play fostering basic movement skills
- ▶ However, preschoolers' typical daily activity consists of:
  - 15 minutes of moderate-to-vigorous physical activity
  - 6 hours of sedentary time
- ▶ Recent studies show that some features of traditional, built playgrounds are more likely to be associated with moderate-to-vigorous physical activity, but alternative play settings have not been studied.

## Purposes of the Study

- ▶ Identify the characteristics of playground features that most contribute to
  - Moderate-to-vigorous physical activity
  - Motor skill diversity
- ▶ Compare the features of non-traditional outdoor prepared environments and traditional playgrounds in facilitating physical activity
- ▶ Determine the extent to which young children self-regulate their interactions with features during unstructured outdoor play



## Project Design

- ▶ 17 preschoolers, ages 3-5 years
- ▶ 12 sessions
- ▶ Children played in 4 outdoor settings for 16 minutes each
  - Nature area
  - Traditional playground/fixed climber
  - Adventure/loose parts playground
  - Garden
- ▶ Adults did not interact with children during play sessions
- ▶ Data collection instruments:
  - ActiGraph GT3x accelerometers
  - System for Observing Play and Recreation in Communities (SOPARC)

## Open spaces and large fixed and movable features were most associated with beneficial physical activity



Large, fixed or movable features requiring full body contact were associated with the greatest variety of motor skills



Features placed to encourage incidental movement through open spaces resulted in the most moderate-to-vigorous physical activity (MVPA)



Moving large objects through open spaces increased both MVPA and motor skill diversity

### Nature Setting



Best Gross Motor Activities

### Traditional Playground



Good Locomotor Activities ...but...Most Sedentary Time

### Adventure Playground



Best Upper Body Activities

### Garden



Best Fine Motor Activities

## Practice and Policy Implications

- ▶ Montessori teachers and administrators would benefit from knowledgeable guidance in designing outdoor play spaces and continually adapting play features to best promote children's motor skill learning.
- ▶ Montessori administrators can facilitate children's physical development by explicitly including modules in preparing the outdoor environment for motor skill development in teacher training programs.
- ▶ Playscape designers can create and install the types of play settings and features most conducive to high-intensity activity and physically diverse motor skills.



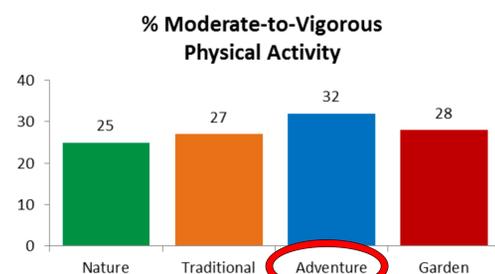
## Acknowledgments

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Moderate-to-vigorous physical activity was highest on an Adventure Playground



Step counts and multi-directional movement were highest in a Nature Setting



Young children demonstrated excellent self-regulation during unstructured active play

- Of 5864 observations...
- 10 interactions with adults (<1%) (exclusive of restroom requests)
  - 4 safety/rule infractions
  - 1 injury requiring First Aid