

Movement Guidelines and Development of Motor Skills

Exercise Television Public Health

Early Childhood

Read the published, peer-reviewed paper here: <https://pubmed.ncbi.nlm.nih.gov/32653249/>

Citation

Kracht CL, Webster EK, Staiano AE. Relationship between the 24-hour movement guidelines and fundamental motor skills in preschoolers. *J Sci Med Sport* 2020;23:1185-1190.

General Summary

In 2019, the World Health Organization (WHO) adopted 24-hour movement guidelines for children under 5 years of age, which outlines how much activity, sleep, and sedentary behavior a child should attain within 24-hours. To explore the relationship between WHO guidelines and fundamental motor skills (FMS) for preschoolers, we looked at 107 children at one point in time and followed up with 53 of those children one year later. We found that physical activity, sleep, and screen-time were associated with fundamental motor skills (FMS) one-year later. Promoting a balance of activity, sleep, and screen-time may improve fundamental motor skills in preschool children.



What is the purpose of the study?

This study examines the relationship of child movement, as outlined by the World Health Organization (WHO) 24-hour movement guidelines (physical activity, sleep, screen-time) and fundamental motor skills (FMS) in preschoolers.



Who was involved?

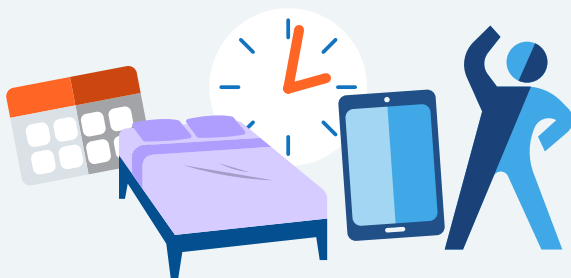
Parents and their preschool-aged children from Early Childhood Education (ECE) centers in the state of Louisiana participated in this study.

ECE centers were eligible to participate if they served children ages 3-5 years and were located within a specific metropolitan parish (county).

Parents were recruited through the use of an informational flyer, phone call, email, or in-person recruitment effort. Children were eligible to participate if they were 3-4.9 years of age, attended the ECE center full time (at least 6 hours/day), and planned to attend the same ECE center the following year. Parents provided written consent; children were given age-appropriate explanations and offered the opportunity to refuse to participate.

How will the results help preschoolers and those who care for them?

Encouraging the appropriate balance of physical activity, sleep, and screen-time among preschoolers promotes healthy development in preschool children.



How did we get the results and findings?

The results and findings of this study were based upon original information collected from 107 preschool children and their parents, which includes 53 preschoolers who provided complete longitudinal data.

The present study examined data collected from a baseline measure and compared those results to a one-year follow-up data from a prospective observational cohort.

The sample included children from diverse backgrounds, including by race and household income.



When did the study take place?

Research participants for this study were recruited from participating ECE centers through either two of the following approaches: informational flyer, phone call, email, mail, or in-person. This study took place between 2016 and 2018.

What was unique about this study? How were patients given a voice in research?

As a prospective cohort, this study was able to follow a specific group of children (cohort) over a period of time in order to track any changes in their fundamental motor skills.

What were participants asked to do during the study?

Parents were asked to complete a demographic questionnaire at home that included their child’s date of birth, sex, race, and household income (options of < \$10,000 and then \$20,000 increments until \$140,000 and above) as well as the child’s amount spent using screen-time.

Children wore an accelerometer, which is a device that measures movement, placed on their right hip by a trainer researcher, to measure their physical activity and sleep. Trained researchers administered the Test of Gross Motor Development-3rd Edition (TGMD-3) to assess fundamental motor skills (FMS) in preschoolers.

Were there any limitations to the study?

One limitation of the study was the small number of children that returned for the one-year follow-up assessment. Only 33 children (31% of cross-sectional sample) had data for complete movement behaviors at both time points. This makes it challenging to recognize how movement behaviors changed over time. Another potential limitation is that we asked parents to recall information on child screen-time use for 30 days, whereas accelerometry data monitored 7 days of physical activity and sleep. Sometimes our memory about past events may not be 100% accurate. The children who participated in the follow-up reported less screen-time and more sleep than those not included in the follow-up, and this might present a challenge to generalize these findings.



What did we learn?

Findings from this study show that many preschoolers met the physical activity (PA) guideline (91%) and sleep guideline (83%), but few preschoolers met the screen-time guideline (8%) or all three guidelines (6%).

This study demonstrated that each movement behavior (physical activity, sleep, and screen-time) contributed to prospective fundamental motor skills (FMS) one year later. This study provides evidence that attaining an adequate balance of movement behaviors may have long-term benefits on fundamental motor skills (FMS) development. An appropriate balance of all movement behaviors should be encouraged for healthy development.

91%
Physical Activity

83%
Sleep Guideline

8%
Screen-time

6%
All Three

Why is this research important to patients, clinicians, and other researchers?

The behaviors that preschoolers engage in over the span of 24-hours has an important impact on their health and development. As this study found that few preschoolers meet the screen-time guidelines, it is important for parents and ECE teachers to promote the use of less screen-time in young children.

What’s next?

Parents play an important role in the lives of their children. Future work should look at how parents influence children’s movement behaviors and fundamental motor skills. Also, another common place that young children spend a lot of time is in early childcare and education centers. Taking a closer look at how early care centers include movement behaviors, sleep, and screen-time into the daily lives of children is another potential area of future research.

