

# Preschoolers' motor skill development connected to school readiness

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Researcher Megan MacDonald of Oregon State University plays catch with a child. Credit: Oregon State University

Preschoolers' fine and gross motor skill development is indicative of later performance on two key measures of kindergarten readiness,

according to a study published today by researchers from Oregon State University.

Preschoolers who performed better on fine and gross motor skill assessments early in the school year were more likely to have better social behavior and "[executive function](#)," or ability to pay attention, follow directions and stay on task later in the school year, scientists said.

"Physical activity and motor skills are important for preparing for school and for life," said Megan MacDonald, an assistant professor in OSU's College of Public Health and Human Sciences and lead author of the study. "Now that we know these things are linked to school readiness, we have more tools to share with parents and educators so they can help young children be ready for school."

The findings were published in *Research Quarterly for Exercise and Sport*, and supported by the Environmental Health Sciences Center and the Hallie E. Ford Center for Healthy Children and Families at OSU and OSU-Cascades. The work included an interdisciplinary team of researchers.

Past research has proven that good social behavior, including cooperation, is key to a healthy transition to school. Other research has shown that children with strong executive function skills are more likely to be successful in kindergarten and beyond. Executive function, also known as self-regulation, includes ability to pay attention, follow directions and persist through difficulty.

For the study, researchers used a range of assessments to measure the fine and [gross motor skills](#), as well as the executive function and social behavior, of 92 children, ages 3-5. The assessments were conducted in fall and again in spring.

Results showed that fall measures of visual motor integration skills - a type of fine motor skills - predicted children's scores on executive function tasks in the spring. Children's object manipulation skills, a type of gross motor skill, predicted their scores on spring social behavior assessments.

The researchers found that children with strong [fine motor skills](#) also showed better executive function skills, and stronger gross motor skills predicted better [social behavior](#).

"The findings speak to the potential role, early on, of fine and gross motor skill development," MacDonald said. "In kindergarten, children are playing games, socializing, lining up on the playground and more, which children learn through exposure and experience. For a variety of reasons, some children come into school not prepared for those things."

Additional research is needed to better understand how or why motor skills are linked to these key school readiness skills, but the findings underscore the importance of exposing young [children](#) to play and physical activity, which are essential to developing their fine and gross [motor skills](#), MacDonald said.

"If we know this, then that gives us some things we can advise parents to focus on if they want to help prepare their child for school," she said.

Fine motor skill development could include stacking blocks or other items, copying circles on a page or playing with creative toys such as Legos or crayons. Gross motor skill development could include things like playing catch, playing on toys at the park or drawing a line on the sidewalk and having the child jump back and forth over it.

"Kids need to move. It's part of who they are at that age," MacDonald said. "It's important to remember to give them time to do it."

**More information:** Megan MacDonald et al, Relations of Preschoolers' Visual-Motor and Object Manipulation Skills With Executive Function and Social Behavior, *Research Quarterly for Exercise and Sport* (2016). DOI: [10.1080/02701367.2016.1229862](https://doi.org/10.1080/02701367.2016.1229862)

Provided by Oregon State University

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