

Motor skills and physical activity practice supports preschoolers' learning, finds researcher

June 6 2023



The Movement with Early Numeracy intervention program utilizes storybooks and various sports equipment, such as balls. Credit: Pinja Jylänki

In recent years, concerns have been raised about children and adolescents being less physically active and having weaker motor skills

than previous generations. A further cause of concern is the decline of for instance mathematical and language skills, with an increasing number of children in schools and kindergartens needing support in their learning. Prior research has shown that physical inactivity is a new risk factor for skills development.

A doctoral thesis by Pinja Jylänki from the University of Helsinki has demonstrated that motor skills and physical activity practice can support the cognitive and early academic skills of preschoolers, particularly when the activities include motor skills practice, or when motor skills or physical activity practice is combined with the subject to be learned.

In systematic reviews included in her doctoral thesis, Jylänki examined a total of 57 previously completed studies on the topic. Roughly 70% of these studies had demonstrated that motor skill and physical activity interventions have positive effects on preschoolers' cognitive and early academic skills.

Effects had been observed particularly in [children](#)'s memory and executive function as well as language and early numeracy skills. The most marked effects were seen as a result of motor skills practice, or when motor skills or physical activity practice was combined with the topic being taught.

"The findings support the idea that practicing one skill, motor skills in this case, supports the learning of another skill, that is, early academic or [cognitive skills](#), more than a quantitative increase of physical activity alone," Jylänki says.

Based on the prior research, it is also advisable to combine the practice of different skills, as such combination was found to be more effective compared to practicing motor skills or physical activity exclusively.

However, the field is relatively new, and further research of a high standard is needed to verify the results.

Intervention program narrowed down learning differences in early numeracy skills

For her thesis, Jylänki and her colleagues developed an [intervention](#) program called Movement with Early Numeracy. This program for practicing motor and early numeracy skills is designed for Finnish early childhood education. It supports children with challenges in early numeracy skills.

Movement with Early Numeracy combines the practice of numerical concepts with motor skills practice. Concepts describing numerical relational skills, such as "more," "less" or "half" and "whole," were first practiced in a story read for children, after which the same concepts were incorporated into [motor skills](#) training. The effects of practice were observed in 36 children.

According to the study, the effects were positive, and a delayed measurement showed that the effects remained approximately eight weeks following the intervention. Moreover, differences in numerical relational skills decreased in the eight-week period between children whose performance was lower at the beginning of the intervention and the average performance control group. There were no significant differences between the groups at the end of the intervention.

"The novelty value of this finding is boosted by the fact that, in previous intervention programs for early [numeracy](#) practice, long-term effects or the narrowing of differences between children with lower and average performance have not often been identified," Jylänki says.

More information: Active Early Interventions : Supporting Preschoolers' Cognitive and Academic Skills with Fundamental Motor Skill and Physical Activity Interventions, hdl.handle.net/10138/356911

Provided by University of Helsinki

Citation: Motor skills and physical activity practice supports preschoolers' learning, finds researcher (2023, June 6) retrieved 18 June 2024 from <https://phys.org/news/2023-06-motor-skills-physical-preschoolers.html>

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