

Physical activity, reading beat screen time for kids' brain development

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Physical activity and reading were positively linked to children's cognitive development in a literature review by UAlberta researchers. A second review showed that screen time, especially watching TV, had either no association or a negative association with cognitive development. Credit: John Ulan

Amid a growing market of television shows, electronic toys and apps targeted at young children, the impact on early childhood cognitive development from those sedentary activities is under scrutiny by a group of researchers at the University of Alberta.

Valerie Carson, an assistant professor in the Faculty of Physical Education and Recreation, and Sandra Wiebe, an associate professor in the Department of Psychology, are researching the positive effects of [physical activity](#)—as well as the potentially negative effects of sedentary behaviour—on early childhood [cognitive development](#). Though the research is ongoing, early results clearly point to the positive role that physical activity plays in developing [children's](#) ability to think and understand, whereas sedentary behaviour may have a negative impact on developing those abilities.

"Our rigorous review of the scientific literature on physical activity and cognitive development in early childhood found limited studies on the topic," noted Carson "but in the studies we did find, the vast majority showed that physical activity is positive for [brain development](#)."

A second review conducted by the team showed that [screen time](#), particularly TV, was either not associated with or had detrimental associations with cognitive development in the majority of studies. Evidence also indicated that reading, and being read to, have beneficial associations with cognitive development.

"The findings challenge the assumption that screens are beneficial for learning," explained Carson. "The take-home message is we want to promote [regular physical activity](#) in [young children](#). We understand that children and their parents cannot be active every minute of the day, so our findings suggest that a sedentary activity like reading is more beneficial to brain development than screen time."

Though the physical activity findings are consistent with a much larger body of evidence in older children and adults, Carson and Wiebe and their U of A research teams need more time and participants to strengthen the evidence that [early childhood](#) is a critical period for developing cognitive abilities and forming lifelong habits when it comes

to physical activity.

Working with families that have children ranging from 2.5 to four years old, the researchers are studying how children's movement relates to their ability to regulate their actions, thoughts and emotions over time. The children who are participating in the study, accompanied by their parents, arrive at the Alberta Brain and Cognitive Development Lab and play games that require them to hold information in mind or choose between conflicting responses. Children also wear a special cap that measures their brainwaves while they complete some of these games.

The participants also wear an Actigraph motion sensor, a device similar to a fitness watch in that it measures and records activity levels, for seven days.

"Our current research study addresses the gaps we identified in the literature reviews to help us better understand the connection between children's movement activities and their growing and developing brain in this important period of life. We are looking for more participants to help with the study."

Provided by University of Alberta

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