

# The whole day matters for cognitive development in children

September 26 2018

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In a new study, researchers at the CHEO Research Institute have found that children aged nine and 10 who meet recommendations in the Canadian 24-hour Movement Guidelines for physical activity, screen time and sleep time have superior global cognition. The results were

published today in *The Lancet Child & Adolescent Health* journal.

Researchers from the CHEO Research Institute's Healthy Active Living and Obesity (HALO) group used data from the US National Institutes of Health (NIH)-funded Adolescent Brain Cognitive Development (ABCD) study—more than 4,500 US children aged nine and 10. The study team looked at the cognition of children compared to their [physical activity](#) levels, recreational screen time use and sleep time. When children met the recommendations for these, they were found to have higher measures of cognition. Cognition was measured six ways: language abilities, episodic memory, executive function, attention, working memory, and processing speed, using the Youth NIH ToolBox.

"When we looked at the ABCD data, we saw clearly that the whole day matters for children's cognitive health," says Dr. Jeremy Walsh, lead author of the study, formerly post-doctoral fellow at the CHEO Research Institute and currently a Michael Smith Foundation for Health Research Post-Doctoral Fellow at University of British Columbia—Okanagan. "The greatest benefits for cognition were when children met the screen time plus sleep time recommendations or the screen time recommendations alone. But, the more recommendations a child met, the more positive their global cognition."

The 24-hour Movement Guidelines were developed by the Canadian Society for Exercise Physiology, with leadership from HALO and are the first guidelines to incorporate movement recommendations for a child's whole day. In children aged five to 13 years, the guidelines recommend at least 60 minutes of moderate-to-vigorous-intensity physical activity, no more than two hours of daily recreational screen time and nine to 11 hours of uninterrupted sleep. The study shows that only half of children were meeting the [sleep time](#) recommendation, 36% met the screen time recommendation and only 17% met the physical activity [recommendation](#).

"The shift in the lifestyle behaviours of children towards low physical activity, a reduction in sleep and ubiquitous [screen time](#) use may pose a threat to [cognitive](#) development," says Dr. Mark Tremblay, Senior Scientist with the CHEO Research Institute, Professor of Pediatrics, Faculty of Medicine, University of Ottawa and senior author of the paper. "We need to be doing more to encourage behaviours that promote healthy activity throughout the whole day. There is a positive relationship among childhood global cognition, future academic success and lower all-cause mortality. Meeting the recommendations in the 24-hour Guidelines sets kids up for a lifetime. If kids aren't meeting the recommendations, their healthy development could be at risk."

The ABCD is a 10-year longitudinal, observational study investigating brain development in US children. Data were collected on more than 4,500 US [children](#) aged nine and 10 years old at 20 study sites across the country.

Provided by Children's Hospital of Eastern Ontario Research Institute

Citation: The whole day matters for cognitive development in children (2018, September 26) retrieved 24 April 2024 from

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