



Meeting new Canadian 24-Hour Movement Guidelines and associations with adiposity among toddlers living in Edmonton, Canada

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Abstract

Background: Canada has recently released guidelines that include toddler-specific recommendations for physical activity, screen-based sedentary behaviour, and sleep. This study examined the proportions of toddlers meeting the new Canadian 24-Hour Movement Guidelines for the Early Years (0–4 years) and associations with body mass index (BMI) z-scores in a sample from Edmonton, Canada.

Methods: Participants included 151 toddlers (aged 19.0 ± 1.9 months) for whom there was complete objectively measured physical activity data from the Parents' Role in Establishing healthy Physical activity and Sedentary behaviour habits (PREPS) project. Toddlers' physical activity was measured using ActiGraph wGT3X-BT monitors. Toddlers' screen time and sleep were measured using the PREPS questionnaire. Toddlers' height and weight were objectively measured by public health nurses and BMI z-scores were calculated using World Health Organization growth standards. Meeting the overall 24-Hour Movement Guidelines was defined as: ≥ 180 min/day of total physical activity, including ≥ 1 min guidelines. Based on the findings of this study, identifying modifiable correlates of screen time to inform appropriate strategies to reduce screen time appears key for increasing the proportion of toddlers meeting the 24-Hour Movement Guidelines for the Early Years. Future research should examine the associations between meeting the new guidelines and other health indicators. Furthermore, future high-quality studies examining dose-response relationships between movement behaviours and health indicators are needed to inform guideline updates.

Keywords: Physical activity, Sedentary behaviour, Sleep, Guidelines, Toddlers, Body mass index

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15.2% ... 82.1%
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 ≥45, ... ≥60 ... **A** ... 55.3%, 54.7%,
 78.1%, ... 44.4%

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1. The first part of the document is a list of names and their corresponding page numbers. The names are listed in a single column, and the page numbers are listed in a second column to the right of the names. The names are: A. B. C. D. E. F. G. H. I. J. K. L. M. N. O. P. Q. R. S. T. U. V. W. X. Y. Z. The page numbers are: 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. The names and page numbers are listed in a single column, and the page numbers are listed in a second column to the right of the names.

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BMI: Body mass index; ICC: Intraclass correlation; LPA: Light-intensity physical activity; MVPA: Moderate- to vigorous-intensity physical activity; PREPS: Parents' Role in Establishing healthy Physical activity and Sedentary behaviour habits; TPA: Total physical activity; WHO: World Health Organization

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The data set for the current study is available from the corresponding author upon reasonable request.

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EL analyzed the data, and led the interpretation of the results as well as the writing of the paper. VC conceived and designed the study, secured funding, oversaw the study's conduct, conducted the data reduction of accelerometry data, and assisted with the interpretation of results and writing of the paper. SH and NK helped with data collection. All authors critically revised the paper for important intellectual content, and read and approved the final manuscript.

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Ethics approval was obtained from the University of Alberta Human Research Ethics Board, and all participating parents provided written informed consent.

C

Not applicable.

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