
Cro

B

Sleep, sedentary behaviour, and physical activity are three behaviours that are distributed throughout a 24-h period that fall on the movement/non-movement intensity continuum. These three behaviours have recently been referred to collectively as “movement behaviours” [1]. The study of the health implications of movement behaviours is a growing research area [1–5] that is gaining increased public health interest [6]. Traditionally, research has studied the association between individual

normal weight (–2 to 1 standard deviations), at risk for overweight (>1 to 2 standard deviations), and overweight/obese (>2 standard deviations) based on WHO growth standards [30]. Underweight and normal weight sub-groups had to be collapsed due to frequency distributions. For waist circumference, quartiles were used, with quartile one representing low waist circumference and quartile four representing high waist circumference. Further details on the calculations of these descriptive statistics have been previously published [3, 4].

To address objective one of this study, four compositional linear regression models were conducted to examine the association with each adiposity indicator by sequentially rotating the sequence of sleep duration,

the above discussions around adiposity rebound [40]. To the authors' knowledge, similar international standards do not exist for waist circumference in this age group. Therefore, this study used the raw waist circumference measures in centimetres for all analyses. It is unknown whether this had any impact on the findings. Furthermore, there may be lower accuracy in measuring waist circumference, in comparison to heights and weights, in this young age group [45].

Given that this is the first study to examine the integrated associations between movement behaviours and adiposity in preschool-aged children, future research is needed to confirm these findings. While more direct measures of adiposity, such as dual X-ray absorptiometry, are logistically challenging in population-based studies such as the CHMS, future studies that utilize these more direct measures may provide further insight into these associations. Similarly, studies that utilize 24-h accelerometer protocols to obtain an objective measure of sleep may provide further insight. Furthermore, since movement behaviours may impact the timing of adiposity rebound in young children [40], future longitudinal

Authors’

37. Na a S F, r a . H r a ? ://
r a / - / - r - - - a .
A 24 Ma 2017.
38. W a SM, Fa VL, Ta BJ, Ta RW. D a
? A a - a a a r a PL S Q .
2014;9: 93117.
39. C DP, R JJ, O AD. M a a a r
a a a a a 0-5
a . J S M S . 2009;12:557–67.
40. M LL, Ga D, B a ML, G LA, S a a a -Ra a r A, P ,
MH, a . D a a a a a , a a r , r
? P M . 2003;37:10–7.
41. E a a-R V, M JA, D a M, O'N JR, Pa RR. O
a r a , a a a a a
. P a E S . 2013;25:154–63.
42. R a -Ca a MF, D M, Ma M, B F. Ea a
r : a a r a . J
O . 2006;30(S 4) S(S(S(S(-301(M,)-297(Ma)71 0.4930T (7.)T -15.779-1.202T (41.)-93.31 a -Ca a)3304(MF, 41.) 5E)-CJ)-30J)-295 a a