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Five-Year Changes in Afterschool Physical Activity and Sedentary Behavior

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**Background:** The afterschool period holds promise for the promotion of physical activity, yet little is known about the importance of this period as children age.

**Purpose:** To examine changes in 5-6 and 10-12 year-old children’s physical activity and sedentary time in the after-school period over 3- and 5-years, and to determine the contribution of this period to daily physical activity and sedentary behavior over time.

**Methods:** Data from two longitudinal studies conducted in Melbourne, Australia were used. Accelerometer data were provided for 2053 children at baseline (CLAN: 2001; HEAPS: 2002/3), 756 at 3-year follow-up (T2) and 622 at 5-year follow-up (T3). Light (LPA), moderate (MPA) and vigorous (VPA) physical activity were determined using age-adjusted cut-points. Sedentary time was defined as ≤100 counts/minute. Multilevel analyses, conducted in April 2012, assessed change in physical activity and sedentary time and the contributions of the after-school period to overall levels.

**Results:** Afterschool MPA and VPA decreased among both cohorts, particularly in the younger cohort who performed less than half of their baseline levels at T3 (MPA: T1=24min to T3=11min; VPA: T1=12min to T3=4min). LPA also declined in the older cohort. After-school sedentary time increased among the younger (T1=42min, T3=64min) and older cohorts (T1=57min, T3=84min). The contribution of the after-school period to overall MPA and VPA increased in the older cohort from 23% to 33% over 5 years. In the younger cohort, the contribution of the after-school period to daily MPA and VPA decreased by 3% over 5 years.

**Conclusions:** The importance of the afterschool period for children’s physical activity increases with age, particularly as children enter adolescence.
Introduction

The health benefits of physical activity throughout youth are well established\(^1\) and an emerging body of evidence suggests that participation in sedentary behaviors may have independent negative health impacts,\(^3\) although prospective evidence is not strong.\(^5\) Levels of children’s physical activity and sedentary behavior are, however, suboptimal.\(^6\) Identifying the most promising time periods in which to change children’s health behaviors will assist future intervention development. The after-school period is increasingly recognized as an important and feasible time period in which to promote increases in physical activity and reductions in sedentary time among children.\(^7\) After school, children are not restricted by school schedules and have the opportunity to engage in discretionary active and sedentary pastimes\(^10\), particularly during daylight hours. Inconsistent definitions of the after-school period (e.g. 4-6pm\(^11\), 3.30-8.30pm)\(^12\) make direct comparisons between studies difficult; however, it appears that children are engaging in between 11 minutes of accelerometer-defined moderate-to-vigorous physical activity\(^7\) and 77 minutes of pedometer-defined physical activity\(^13\) after school. Moreover, the after-school period can contribute up to 46% of children’s daily activity levels\(^14\) and 52% of their daily steps.\(^15\) Boys consistently engage in more physical activity after school than their female counterparts\(^11,15-17\) and it appears that this time period makes a larger contribution to daily physical activity levels among boys than among girls.\(^14\)

The prevalence of after-school sedentary behaviors and the contribution this period makes to daily sedentary time is difficult to ascertain as studies have used a range of different methods to assess behavior (e.g. TV log,\(^14\) self-report surveys of screen-based sedentary behaviors and social sedentary behaviors\(^17\)). Previous studies have used objective measures of after-school physical activity and sedentary behavior;\(^12,19-20\) however, none have used objective measures...
to examine changes in the after-school period over time. In the only longitudinal study to
examine changes in after-school behavior over time, Wickel and colleagues found declines in
total activity and increases in sedentary behavior.21 However, their sample was only followed
over a two year period (from age 9-11 years) and used self-report measures.21

Substantial changes may occur from early childhood to late adolescence, particularly as
children transition from elementary to middle school. It is plausible that the importance of the
after-school period to children’s and adolescents’ overall physical activity levels may change
as children age. Identifying the contribution the after-school period makes to overall activity
levels at different stages of childhood is essential for informing the development of
interventions that target periods of the day when young people are potentially most receptive
to behavior change strategies. The aim of this study was to investigate changes in children’s
after-school physical activity and sedentary time over 3- and 5-years and to determine the
contribution of this period to children’s overall physical activity and sedentary time as
children age.

Methods

Data from the Children Living in Active Neighbourhoods Study (CLAN)22 and the Health,
Eating and Play Study (HEAPS)23 were pooled for the current analysis. In brief, CLAN
aimed to examine the influence of the family environment on elementary-school aged
children’s physical activity and sedentary behavior over time22, whilst HEAPS examined the
family influence on children’s eating behaviors and physical activity over 5 years.23 Ethical
approval for both studies was granted by the Deakin University Human Research Ethics
Committee, the Department of Education and Training Victoria and the Victorian Catholic
Education Office. Parents provided informed written consent for their child’s participation at
each time point and adolescents also provided informed written consent subsequent to baseline.

**Sample**

Elementary schools in metropolitan Melbourne, Australia, with an enrollment greater than 200 students were randomly selected and invited to participate in CLAN and HEAPS. Forty-three schools (18 in low, 7 in middle and 18 in high socio-economic status (SES) areas) participated. At baseline (T1), all children in Grade Prep (younger cohort, aged 5-6 years) and Grades 5-6 (older cohort, aged 10-12 years) were invited to participate. Consent was provided from 2782 children (CLAN: n=1220, 38% response rate; HEAPS: n=1562, 42% response rate). At baseline, parents in CLAN (T1=2001) and HEAPS (T1=2002/3) were asked if they would be willing to be contacted about future research. Those willing were invited to participate in two follow-up measures three- and five- years post baseline (CLAN: T2=2004, T3=2006; HEAPS: T2=2006, T3=2008).

**Measures**

**Demographic Data**

At each time point, parents reported their marital status, highest level of education and employment status, and that of their partner (if applicable), as well as their child’s sex and date of birth. Maternal education was used as a proxy of SES and was classified as low (some high school attendance or less), medium (high school or trade certificate completion) high (tertiary education), consistent with previous research. Across both studies, data were provided by 2689 parents at baseline, 822 parents at T2 and 695 parents at T3.
Physical activity and sedentary time

Physical activity and sedentary time were objectively measured using a uni-axial accelerometer (ActiGraph 7164 model, Florida, USA). Accelerometers have been validated for assessing children’s physical activity and sedentary time in laboratory and field settings.25-26 The unit was worn on the right hip for up to eight consecutive days and measured movement in 1-minute epochs. Children were instructed to wear the monitor during all waking hours, excluding water-based activities. For the current study, the after-school period was defined as the end of the school day as determined by the school bell times (usually 3.30pm) until 6pm on weekdays. This is consistent with a previous longitudinal examination of children’s physical activity during the after-school period.21

Accelerometry data management

Accelerometer data were downloaded and initially checked for compliance using ActiLife software. Data were then analyzed using specifically developed Excel macros. Non-wear time was defined as ≥20 consecutive minutes of zero counts, which has been commonly used to define non-wear in children and adolescents.27 Children who provided valid after-school and whole day data on at least three weekdays were included in analyses. A valid weekday was defined as a day on which the monitor was worn for ≥610 minutes (T1), ≥647 minutes (T2) or ≥635 minutes (T3). This represents non-missing counts for at least 80% of a standard measurement day which is defined as the length of time that at least 70% of the sample wore the monitor.28 In addition, children were required to have worn the monitor for 50% of the after-school period.29 At baseline, 2053 children were included in the analyses. At T2 and T3, 756 children (87.1% of sample monitored) and 622 children (87.7% of sample monitored), respectively, met the inclusion criteria.
Data were analyzed using age-specific cut-points\textsuperscript{30} to determine time spent in light physical activity (LPA: 1.5-3.99 METs), moderate physical activity (MPA: 4-5.99 METs) and vigorous physical activity (VPA: ≥6 METs). A 4-MET threshold was used to represent MPA as brisk walking, which is often used to identify MPA in calibration studies, and has been associated with this level of energy expenditure.\textsuperscript{31} Sedentary time (SED) was defined as ≤100 counts per minute.\textsuperscript{32} The average time spent in SED, LPA, MPA and VPA was computed for each valid day and each valid after-school period. The contribution of the after-school period was computed as a percentage for each valid day (duration of each activity intensity in the after-school period / total duration of the activity intensity for that day \(\times 100\)) and averaged across valid days.

**Statistical Analyses**

Data were analyzed in April 2012. Descriptive statistics were calculated for all measured variables. Independent t-tests revealed significant differences between boy’s and girl’s physical activity levels in the after-school period and for the whole week day. All subsequent statistical analyses were stratified by sex. In addition, at each time point children who provided five days of data engaged in more SED and LPA and less MPA and VPA compared to children with three or four days of data. Therefore, analyses were adjusted for number of valid days.

Multilevel analyses (MLwiN 1.10 software, Institute of Education, University of London, UK) were used to examine changes in children’s physical activity levels and sedentary time during the after-school period and the contribution of the after-school period to daily physical activity and sedentary time. As multilevel models are robust regarding missing data points and can estimate effects over time using incomplete data sets,\textsuperscript{33} all valid data points collected
were used in the analyses. A three-level multilevel model was used. Level 1: measurement
time point (T1, T2, T3); Level 2: children; and Level 3: baseline school. The percentage of
time spent in SED, LPA, MPA and VPA after school, and the contribution of the after-school
period to daily SED, LPA, MPA and VPA were the outcome variables. SES (maternal
education), maternal employment, study (i.e. CLAN or HEAPS), number of valid days,
season of measurement and daily wear time were identified as potential confounding
variables a priori and included in the final analyses. Analyses were also stratified by age
cohort. To examine changes in the outcome variables, two dummy variables were generated.
These were for physical activity levels at T2 (3-year change) and T3 (5-year change)
compared to T1. The random structure considered random intercepts and random slopes on
T2 and T3. Separate analyses were conducted for the outcome variables. The regression
coefficients were assessed for statistical significance using the Wald Statistic,34 which was set
at $p < 0.05$.

Results

At baseline, 33% of participants had low, 35% medium and 32% high levels of maternal
education. The percent of the after-school period and of the whole day children spent in
physical activity and sedentary time (by sex and cohort) at baseline is shown in Table 1.
Among both the younger and older cohorts, boys engaged in significantly less LPA and
significantly more MPA and VPA than girls during the after-school period. Appendix A
illustrates the three- and five- year changes in the younger and older cohorts’ after-school
behaviors using raw scores. After-school SED time increased from 42 min at T1 to 64 min at
T3 for the younger cohort and from 57 minutes at T1 to 84 minutes at T3 for the older cohort.
Both cohorts decreased their MPA (younger cohort T1=24 min to T3=11 min; older cohort
T1=13 min to T3=9 min) and VPA (younger cohort T1=12 min to T3=4 min; older cohort
T1=6 min to T3=2 min) while declines were observed for LPA among the older cohort only (T1=76 min to T3=65 min).

**INSERT TABLE 1**

Table 2 shows percentage changes in after-school PA and SED over three and five years according to sex using multilevel analyses. Significant decreases were observed for MPA and VPA for boys and girls in both cohorts; however, the magnitude of change was greater among the younger cohort. Among the older cohort there were large significant decreases in LPA over three and five years with greater declines observed among the girls. In both cohorts children’s after-school sedentary time significantly increased over 3- and 5-years in boys and girls. The change in the proportion of time that both cohorts engaged in physical activity after school using raw scores is presented in Appendix A (available online at www.ajpmonline.org).

**INSERT TABLE 2 & 3 ABOUT HERE**

Among both cohorts the contribution of the after-school period to daily LPA and SED remained relatively stable at approximately 17% and 20% respectively for the younger cohort and 16% and 21% respectively for the older cohort. The greatest changes were seen in the contribution to daily MPA and VPA, with the period making a greater contribution to daily levels over time in the older cohort (23% at baseline and 33% at T3 for both MPA and VPA). Changes in the contribution of the after-school period to daily physical activity and sedentary time over 3- and 5-years according to sex using multilevel analyses are shown in Table 3. Overall, there were few consistent changes in the contribution the after-school period made to
the younger boys’ and girls’ daily PA or SED. In the older cohort, the contribution of the after-school period to each intensity of physical activity and sedentary time increased over 3- and 5-years, with the exception of boys’ sedentary time (significant at 3-years only) and LPA (significant at 5-years only). The relative contribution of the after-school period to daily physical activity using raw scores is presented in Appendix B (available online at www.ajpmonline.org).

Discussion

Consistent with previous research, both MPA and VPA declined during the after-school period in both cohorts. However, larger decreases were observed in LPA in the older cohort compared to MPA and VPA. These data indicate that all physical activity intensities decreased over time. Further research is needed to identify what behaviors youth engage in that correspond to these intensities to inform future intervention efforts. Interestingly, the contribution of the after-school period to daily MPA and VPA was greater for the older cohort over time (from under one-quarter of the daily physical activity levels to over one-third) compared to the younger cohort (stable at ~25%), highlighting the increasing importance of this time period to young people’s overall daily physical activity levels.

The relative decline in MPA and VPA was greater among younger children compared to the older children. Although age-related physical activity declines are consistently observed when examining daily behavior, amongst the after-school literature there are mixed findings. Declines in physical activity have been found in European samples, whereas among British youth (n=1307, aged 10-12 years) after-school physical activity increased with age. Few studies have examined the after-school behaviors of children during the early elementary school years with the main focus being on the behaviors of older children and
adolescents. This study suggests that children’s after-school behaviors undergo major changes between the age of 5/6 and 10/11 years, which may be explained in part by increases in screen-time usage such as TV viewing and electronic media. Further, it highlights the need for interventions to target children’s after-school MPA and VPA from early elementary school as although declines in after-school activity levels are seen, it is a period where children may be able to participate in greater amounts of discretionary physical activity compared to other periods throughout the day.

At baseline the older cohort in this Australian sample spent a similar proportion of the after-school period engaged in MPA and VPA compared with the accelerometer measured MVPA levels of 9-year olds in the European Youth Heart Study. Notably, there were large declines seen in after-school LPA among the older cohort, particularly for girls. Interestingly, the greatest increase in the contribution the after-school period makes to daily activity levels was observed in the first three years among the boys (i.e. during their transition from elementary school to secondary school); whereas among the girls, there were consistent increases in the contribution over three- and five-years. Previous research has found that as youth progress through secondary school they perform less physical activity throughout other periods of the day (e.g. recess and lunchtime), possibly suggesting that the in-school time contribution to physical activity levels decreases over time. This highlights the importance of the after-school period for youth to engage in physical activity and to promote activity levels through interventions during this time. After-school programs hold promise as one setting for increasing physical activity levels in youth, though further research is needed to identify which specific strategies are most effective in these settings over time.
Boys and girls in both cohorts showed increases in after-school sedentary time of a similar magnitude (approximately 25 minutes) over 3- and 5-years. Increases in the contribution to daily sedentary levels were minimal suggesting this increase is consistent across the entire day. The observed increase may in part be due to school timetabling and homework expectations as 54% of children (5-12 years) have previously reported homework to be a barrier to participation in physical activity after school.\textsuperscript{45} However, Atkin and colleagues found that among 15 year old students in the Project STIL (Sedentary Teenagers and Inactive Lifestyles), physical activity did not displace time spent doing homework between 3.30-6.30pm, suggesting that other factors (e.g. TV viewing) may contribute to these changes.\textsuperscript{18} The after-school period may be a key time to target reductions in children’s and adolescents’ sedentary time as it may be more challenging to change children’s sedentary time during structured school time, particularly as children progress through secondary school, or later in the evenings (after 6pm). One promising approach may be the modification of homework tasks that target both physical activity engagement and sedentary time during this time\textsuperscript{46-47}, though further research is needed to identify the effectiveness of such strategies in children and adolescents.

Strengths of this study include the large sample size, the use of objective measures of sedentary time and physical activity, and the five-year follow-up period. Limitations include the use of a 60-second epoch for the accelerometry, as this may not be sensitive enough to capture sporadic VPA among children.\textsuperscript{48} However, this epoch length was unavoidable when using the 7164 accelerometer model over extended periods of time. Second, defining non-wear as 20 minutes of consecutive zeros may be considered to be a limitation, as this may have resulted in an underestimation of sedentary time\textsuperscript{27}. Third, as accelerometers do not
capture behavioral information, it is not known what types of behaviors changed during the after-school period as children aged.

**Conclusion**

This study suggests that the after-school period may be an important time period for interventions targeting physical activity and sedentary time throughout childhood and adolescence. Children and adolescents’ after-school physical activity declines over time with changes in both MPA and VPA occurring during elementary school years and changes in LPA occurring during secondary school. Large increases in sedentary time were also observed, particularly over the 5-year period. The increasing contribution that the after-school period makes to overall physical activity, particularly during adolescence, suggests that after-school initiatives may be particularly important in this age group. However, interventions targeting both physical activity and sedentary behavior should begin during the early elementary school years to minimize the changes observed in the younger years.
**Acknowledgements**

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References


Table 1: Children’s physical activity and sedentary time at baseline (T1)

<table>
<thead>
<tr>
<th></th>
<th>Younger Cohort¥</th>
<th>Older Cohort‡</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Girls (n=295)</td>
<td>Boys (n=313)</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td><strong>After school (150 minute period)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%SED</td>
<td>27.87 (9.26)</td>
<td>27.80 (9.67)</td>
</tr>
<tr>
<td>%LPA</td>
<td>49.40 (7.86)*</td>
<td>47.20 (8.40)*</td>
</tr>
<tr>
<td>%MPA</td>
<td>15.73 (5.20)*</td>
<td>16.73 (5.53)*</td>
</tr>
<tr>
<td>%VPA</td>
<td>6.80 (4.53)*</td>
<td>8.80 (5.60)*</td>
</tr>
<tr>
<td><strong>Daily activity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%SED</td>
<td>33.63 (9.3)</td>
<td>31.96 (9.04)</td>
</tr>
<tr>
<td>%LPA</td>
<td>48.15 (6.05)</td>
<td>46.90 (5.94)</td>
</tr>
<tr>
<td>%MPA</td>
<td>13.04 (2.97)</td>
<td>14.12 (2.93)</td>
</tr>
<tr>
<td>%VPA</td>
<td>5.18 (2.17)*</td>
<td>7.00 (2.96)*</td>
</tr>
<tr>
<td>Daily wear time (mins)</td>
<td>750.6 (±70.5) *</td>
<td>755.6 (±66.7)*</td>
</tr>
</tbody>
</table>

¥ 5-6 years old at baseline; ‡ 10-12 years old at baseline; *p<0.05.

SED = Sedentary time (<100 counts per minute), LPA = Light intensity physical activity; MPA = Moderate intensity physical activity; VPA = Vigorous intensity physical activity using age adjusted thresholds.
Table 2: Mean changes in percentage of time spent in physical activity and sedentary time after school over 3- and 5-years.

<table>
<thead>
<tr>
<th></th>
<th>Younger Cohort(\dagger)</th>
<th>Older Cohort(\ddagger)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1 to T2 (\beta) (95% CI)</td>
<td>T1 to T3 (\beta) (95% CI)</td>
</tr>
<tr>
<td><strong>Boys</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%SED</td>
<td>8.37 (6.32 to 10.41)***</td>
<td>13.37 (11.30 to 15.44)***</td>
</tr>
<tr>
<td>%LPA</td>
<td>-0.31 (-2.02 to 1.40)</td>
<td>0.09 (-1.65 to 1.83)</td>
</tr>
<tr>
<td>%MPA</td>
<td>-5.14 (-6.22 to -4.06)***</td>
<td>-7.99 (-9.09 to -6.89)***</td>
</tr>
<tr>
<td>%VPA</td>
<td>-2.85 (-3.98 to -1.69)***</td>
<td>-5.41 (-6.55 to -4.27)***</td>
</tr>
<tr>
<td><strong>Girls</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%SED</td>
<td>5.36 (3.37 to 7.34)***</td>
<td>14.54 (12.18 to 16.90)***</td>
</tr>
<tr>
<td>%LPA</td>
<td>1.09 (-0.77 to 2.95)</td>
<td>-2.01 (-4.03 to 0.02)</td>
</tr>
<tr>
<td>%MPA</td>
<td>-5.16 (-6.15 to -4.17)***</td>
<td>-8.30 (-9.29 to -7.30)***</td>
</tr>
<tr>
<td>%VPA</td>
<td>-1.96 (-2.74 to -1.17)***</td>
<td>-4.37 (-5.24 to -3.50)***</td>
</tr>
</tbody>
</table>

***p < 0.001, **p < 0.01, *p < 0.05. CI = Confidence intervals. \(\dagger\) 5-6 years at T1, 8-9 years at T2, 10-11 years at T3; \(\ddagger\) 10-12 years at T1, 13-15 years at T2, 15-17 years at T3.
The β value reflects the percentage change in children’s after-school activity levels between Year 1 (T1) and Year 3 (T2) and Year 1 (T1) and Year 5 (T3). A positive β value reflects an increase in children’s sedentary time and physical activity after school at either T2 or T3 compared to T1, whilst a negative β value reflects a decrease in sedentary time and physical activity. All models are adjusted for study, season of measurement, maternal education, maternal employment, number of valid days, and daily wear time.
Table 3: Mean change in the contribution of the after-school period to daily physical activity and sedentary time

<table>
<thead>
<tr>
<th></th>
<th>Younger Cohort†</th>
<th></th>
<th>Older Cohort‡</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1 to T2 β (95% CI)</td>
<td>T1 to T3 β (95% CI)</td>
<td>T1 to T2 β (95% CI)</td>
<td>T1 to T3 β (95% CI)</td>
</tr>
<tr>
<td><strong>Boys</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%SED</td>
<td>0.79 (-0.17 to 1.77)</td>
<td>1.23 (0.23 to 2.22)**</td>
<td>0.80 (0.12 to 1.48)*</td>
<td>0.68 (-0.05 to 1.42)</td>
</tr>
<tr>
<td>%LPA</td>
<td>0.36 (-0.37 to 1.09)</td>
<td>0.28 (-0.43 to 0.98)</td>
<td>0.45 (-0.16 to 1.05)</td>
<td>2.36 (1.70 to 3.00)***</td>
</tr>
<tr>
<td>%MPA</td>
<td>0.57 (-0.89 to 2.04)</td>
<td>-1.93 (-3.42 to -0.43)*</td>
<td>4.79 (2.89 to 6.69)***</td>
<td>5.97 (3.92 to 8.01)***</td>
</tr>
<tr>
<td>%VPA</td>
<td>0.67 (-2.08 to 3.42)</td>
<td>0.12 (-3.71 to 3.95)</td>
<td>10.42 (7.14 to 13.67)***</td>
<td>11.15 (7.64 to 14.66)***</td>
</tr>
<tr>
<td><strong>Girls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%SED</td>
<td>-0.80 (-1.58 to -0.02)*</td>
<td>0.68 (-0.19 to 1.55)</td>
<td>1.58 (1.07 to 2.08)***</td>
<td>0.91 (0.35 to 1.48)***</td>
</tr>
<tr>
<td>%LPA</td>
<td>0.97 (0.40 to 1.53)***</td>
<td>0.78 (0.15 to 1.41)*</td>
<td>1.36 (0.86 to 1.85)***</td>
<td>3.01 (2.45 to 3.56)***</td>
</tr>
<tr>
<td>%MPA</td>
<td>2.04 (0.48 to 3.59)*</td>
<td>0.42 (-1.30 to 2.15)</td>
<td>6.51 (4.77 to 8.24)***</td>
<td>12.61 (10.68 to 14.54)***</td>
</tr>
<tr>
<td>%VPA</td>
<td>3.26 (0.37 to 6.15)*</td>
<td>-1.79 (-4.99 to 1.41)</td>
<td>8.25 (5.15 to 11.35)***</td>
<td>7.49 (4.02 to 10.96)***</td>
</tr>
</tbody>
</table>

Models adjusted for study, season of measurement, maternal education, maternal employment, number of valid days, and daily wear time.

***p < 0.001, **p < 0.01, *p<0.05 †5-6 years at T1, 8-9 years at T2, 10-11 years at T3; ‡10-12 years at T1, 13-15 years at T2, 15-17 years at T3.
The β value reflects the percentage change in the contribution of the after-school period to children’s daily sedentary time and physical activity levels between Year 1 (T1) and Year 3 (T2) and Year 1 (T1) and Year 5 (T3). CI = Confidence intervals.