Figure S1. Flow chart for the study population.


Table S1. Results of backward-elimination, linear regression of cross-sectional PA and SB parameters for the AGESII cohort. Covariates included age, sex, BMI, self-reported health status, day length, and temperature. Data are presented as standardized Beta. A negative standardized Beta $(\beta)$ value indicates an inverse relationship.

| Variables |  | Tempe | e/Day length | Age |  | Female |  | BMI |  |  | Health status$95 \% \mathrm{CI}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\beta$ | 95\%CI | $\beta$ | 95\%CI | $\beta$ | 95\%CI | $\beta$ | 95\%CI | $\beta$ |  |
| WT-SB ${ }^{a}$ | Temperature | -0.10 | -0.17: -0.02 |  |  |  |  |  |  |  |  |
|  | Day length |  |  | 0.31 | $\begin{gathered} 0.23 ; \\ 0.38 \end{gathered}$ | -0.15 | $\begin{aligned} & -0.23 \\ & -0.08 \end{aligned}$ | 0.11 | $\begin{gathered} 0.03 ; \\ 0.19 \end{gathered}$ | 0.10 | $\begin{aligned} & 0.01 ; \\ & 0.17 \end{aligned}$ |
| TPA ${ }^{\text {b }}$ | Temperature | 0.10 | 0.03; 0.17 | -0.37 | $\begin{aligned} & \hline-0.45 ; \\ & -0.30 \end{aligned}$ | -0.04 | $\begin{gathered} \hline-0.11 ; \\ 0.04 \end{gathered}$ |  |  |  |  |
|  | Day length |  |  |  |  |  |  | -0.14 | $\begin{aligned} & -0.22 \\ & -0.06 \end{aligned}$ | -0.11 | $\begin{aligned} & -0.18 \\ & -0.03 \end{aligned}$ |
| LIPA $^{b}$ | Temperature |  |  |  |  |  |  |  |  |  |  |
|  | Day length | 0.06 | -0.02; 0.13 | -0.29 | $\begin{aligned} & -0.36 \\ & -0.21 \end{aligned}$ | 0.19 | $\begin{gathered} 0.11 ; \\ 0.26 \end{gathered}$ | -0.09 | $\begin{aligned} & -0.17 \\ & -0.01 \end{aligned}$ | -0.09 | $\begin{aligned} & -0.16 \\ & -0.002 \end{aligned}$ |
| LSPA $^{b}$ | Temperature | 0.11 | 0.038; 0.19 | -0.36 | $\begin{aligned} & -0.43 \\ & -0.28 \end{aligned}$ | -0.08 | $\begin{gathered} -0.16 ; \\ -0.006 \end{gathered}$ |  |  |  |  |
|  | Day length |  |  |  |  |  |  | -0.11 | $\begin{aligned} & -0.19 ; \\ & -0.03 \end{aligned}$ | -0.12 | $\begin{aligned} & -0.19 \\ & -0.04 \end{aligned}$ |
| $\mathrm{MVPA}^{\text {b }}$ | Temperature | 0.05 | -0.02; 0.13 | -0.29 | $\begin{aligned} & \hline-0.37 \\ & -0.21 \end{aligned}$ | -0.21 | $\begin{aligned} & \hline-0.29 ; \\ & -0.14 \end{aligned}$ |  |  |  |  |
|  | Day length |  |  |  |  |  |  | -0.18 | $\begin{aligned} & -0.25 ; \\ & -0.10 \end{aligned}$ | -0.10 | $\begin{aligned} & -0.17 \\ & -0.02 \end{aligned}$ |

$\mathrm{WT}=$ Wear time; $\mathrm{SD}=$ standard deviation, day to day variation in each $\mathrm{PA} / \mathrm{SB}$ variable; $\mathrm{PA}=\mathrm{Physical}$ activity; SB= Sedentary behavior; TPA= Total PA; LIPA= Low-intensity PA (100-759 counts $\times$ min $^{-1}$ ); LSPA = Lifestyle PA ( $\geq 760$ counts $\times \mathrm{min}^{-1}$ ); MVPA= Moderate-to-vigorous PA ( $\geq 2020$ counts $\times \mathrm{min}^{-1}$ ); $a=$ adjusted for wear time; $b=$ square root transformed.

