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# Changes in Daily Activity Patterns with Age among US Men and Women: NHANES 2003–2004 and 2005–2006

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## Abstract

**Background/Objectives—**Men achieve more moderate-to-vigorous physical activity (MPVA) than women, yet with advancing age men become more sedentary than women. No study has comprehensively assessed this change in activity pattern. We compare daily and hourly activity patterns by gender and age.

**Design—**Cross-sectional; Observational

**Setting—**Nationally-representative community sample: NHANES 2003–2004; 2005–2006

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The editor in chief has reviewed the conflict of interest checklist provided by the authors and has determined that the authors have no financial or any other kind of personal conflicts with this paper.

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Kathryn R. Martin contributed to the study design, led and conducted the analyses and drafted text in all sections of the manuscript, reviewed and revised the manuscript critically, and approved the final version to be published. Dr. Martin conducted this research while a Post-doctoral Research Fellow at the National Institute on Aging Intramural Research Program.
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Robert J. Brychta was involved with data interpretation, reviewed and revised the manuscript critically for important intellectual content and approved the final version to be published.
Kong Y. Chen was involved with data interpretation, reviewed and revised the manuscript critically for important intellectual content, and approved the final version to be published.
Tamara B. Harris conceived the study idea and supervised the project, was involved in interpretation of the data, reviewed and revised the manuscript critically for important intellectual content and approved the final version to be published.


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**Participants—**Accelerometer data from respondents (n=5,788) aged ≥20 years with 4+ valid days of monitor wear-time, no missing data on valid wear-time minutes, and covariates.

**Measurements—**Activity was examined as average counts per minute (CPM) during wear-time, percentage of time spent in non-sedentary activity, and time (minutes) spent in sedentary (<100 counts); light (100–759); MVPA (≥760) intensity levels. Analyses accounted for survey design, adjusted for covariates and were gender specific.

**Results—**In adjusted models, men spent slightly greater time (~1–2%) in non-sedentary activity than women 20–34y, with levels converging at 35–59y, though a non-significant difference. Women age ≥60 spent significantly greater time (~3–4%) in non-sedentary activity than men, despite similarly achieved average CPM. With increasing age, all non-sedentary activity decreased in men; levels of light-activity remained constant among women (~30%). Older men had fewer CPM at night (~20 CPM), more daytime sedentary minutes (~3), fewer daytime light minutes (~4), and more MVPA minutes (~1) until early evening, than older women.

**Conclusion—**While gender differences in average CPM reduced with age, differences in non-sedentary activity time emerged as men increased sedentary behavior and reduced MVPA time. Maintained levels of light-intensity activity suggest women continue engaging in common daily activities into older-age more often than men. Findings may help inform the development of behavioral interventions to increase intensity and overall activity levels, particularly among older adults.

### Keywords

NHANES 2003–2004, 2005–2006; Physical activity; Sedentary behavior; Accelerometer; Patterns of daily activity

## INTRODUCTION

Several studies of nationally-representative samples with accelerometer-assessed physical activity indicate that, at all ages, men engage in moderate-to-vigorous physical activity (MVPA) more often than women (1–4). Additionally, there is evidence of gender differences in time spent in other activity intensity domains, including sedentary and light activity. Despite achieving greater MVPA, men spend significantly more time sedentary than women, while women accumulate a significantly greater number of light activity minutes than men. These differences have been observed among Chinese adults aged 40–74 (5) and Norwegians aged 20–85 (2).

However, those gender patterns are not observed in the United States (US) population, as previous research using NHANES 2003–2004 data suggests that women actually spend more time sedentary than men until early old age, at which time-point, men surpass women in the amount of time spent sedentary (6). This analysis did not adjust for possible confounders and the authors suggested this change could be the result of an increase in either the number of comorbid conditions or time spent in sedentary leisure activities in men (6). To date, no study has formally tested this potential crossover in activity patterns with age.

Greater time spent sedentary and physically inactive has been linked with mortality, as well as with increased risk for disease (e.g., diabetes, cardiovascular disease) (7–10). Because activity has many known benefits for physical and mental health, it becomes increasingly important to understand whether gender differences in sedentary behavior and physical activity do exist among older Americans. Additionally there is a lack of data and information demonstrating population trends of how activity is distributed throughout the course of the day into sedentary behavior, light-intensity, and moderate-to-vigorous intensity physical activity, as well as the times in the day where individuals are most active. This information would prove very useful, particularly as it directly relates to clinical promotion of physical activity and the development and prioritization of physical activity interventions.

Our aims are twofold: 1) to examine whether the previously identified gender differences in activity levels across the lifespan are independent of health status, demographic characteristics, and sedentary behavior; 2) to identify whether gender differences may be better understood or explained by examining the hourly patterns of sedentary behavior and activity at different ages.

# METHODS

## Data Source

Data from the 2003–2004 and 2005–2006 National Health and Nutrition Examination Survey (NHANES) were combined and analyzed. The NHANES uses a stratified, multistage probability sampling design to draw a nationally representative sample of US civilian, non-institutionalized population age 6 and older, and has been described extensively elsewhere (11, 12). Enrolled participants were interviewed in their homes and asked to participate in a health examination conducted in a mobile examination center (MEC). The National Center for Health Statistics ethics review board approved all survey protocols and all participants gave informed consent.

## Physical Activity

A detailed accelerometer protocol and description of its use in the 2003–2004 and 2005–2006 NHANES survey has been previously published (12, 13). Briefly, all examined participants, aged 6 years or above who were ambulatory, were asked to wear an Actigraph AM-7164 accelerometer (Actigraph, LLC; Ft. Walton Beach, FL) for seven days after their examination ($n$=7,176 in 2003–2004; $n$=7,455 in 2005–2006). Participants were instructed to wear the device on an elasticized belt over the right hip during waking hours, but not while swimming, bathing or sleeping. The accelerometers were uniaxial and provide an indication of the intensity of physical activity by measuring and recording vertical acceleration in counts; data were recorded in 1-min epochs (3).

In the current study, non-wear was defined as a period of at least 60 consecutive minutes during which the activity monitor recorded zero counts and non-wear was treated as zero-activity (14–16). All other intervals were considered valid monitor wear-time. A valid day of accelerometer wear was defined as 10 or more hours of valid monitor wear-time (3,6). We calculated the following physical activity variables: average accelerometer counts per minute (CPM) during wear-time; valid minutes of wear-time; % time spent in all activity intensities (≥100 CPM) (6, 17); and % time and time (min·day$^{-1}$) spent in sedentary (0–99 CPM); light (100–759 CPM); and MVPA (≥760 CPM) levels (18). While the 760 CPM cut-point is lower than MVPA cut-points found in some literature, it was chosen so as to ensure that activity classified as light-intensity did not include walking, which may occur in the 'lifestyle-intensity' range of 760–2019 CPM. This is particularly important for examining physical activity patterns in older adults where a higher MVPA cut-point (i.e.1952 CPM), which indicates higher-intensity walking/running (18), may not capture their main form of activity, lower-intensity walking. Though previous research has grouped 'lifestyle-intensity' activity as part of light-intensity activity (19), we chose instead to classify 'lifestyle-intensity' as MVPA so that all walking activity was captured. The 760 CPM cut-point offered us this analytic approach, as it has been previously discussed in the literature (18) as 'being calibrated to capture lifestyle and ambulatory activities of ≥ 3 MET energy expenditure (20) and validated against indirect calorimetry (20), pattern recognition monitors (21), and time-use diaries (22) in free-living studies'.

**Covariates—**Age was assessed as current age at time of screening and was recoded into (a): 5-year categories for ages 20 to 79 and ≥80, and (b) categories 20–39; 40–59; 60–69; and ≥70. Race was self-reported and based on the 2000 US Census race and ethnicity categories: non-Hispanic white (referent), non-Hispanic black, Mexican American, and other, where all else were labeled other, including mixed race. Educational attainment was coded as less than High School; High School/General Educational Development test; and some college and above (referent). Household size was assessed by asking participants how many individuals resided in their household using seven categories (one to six, and seven or more), and was treated as a continuous variable. Body mass index (BMI) (kg/m$^2$) was calculated from exam measured height and weight, and categorized as 'non-obese' (<30 (referent)) and 'obese' (≥30). Self-rated health was assessed using the Centers for Disease Control Health Related Quality of Life measure of global self-rated health (23). Response options were collapsed into two categories: excellent/very good/good (referent) and fair/poor. Participants reported the number of inactive days, in the past 30 days, that were due to poor physical or mental health. A comorbid condition count was assigned to participants indicating a doctor-diagnosed condition (e.g., asthma, congestive heart failure, heart disease), and coded as having either 'none' (referent), 'one' or 'two or more' conditions. Current employment status was assessed and categorized as 'employed full-time', 'employed part-time', and 'not currently employed'. Average time spent watching television or video per day in the past 30 days was assessed with seven categories ranging from 'none' to '6 hours or more', and treated as a continuous variable.

## Statistical analyses

Data from 5,788 participants aged 20 years and older, with four or more valid days of accelerometer data, and no missing data on covariates were analyzed using STATA v. 12.1 (StataCorp, LP College Station TX, USA). We accounted for the complex survey design (24) and applied the MEC weights adjusted for the physical activity monitor sub-sample in all analyses. For Aim 1, we tested the relationship between non-sedentary activity in all intensities and gender in each age-group using linear regression models that sequentially adjusted for the above covariates: (Model 1) adjusted for valid wear-time minutes only; (Model 2) adjusted for age, race, education, marital, household size; (Model 3) further adjusted for BMI, self-rated health, number of physical or mental unhealthy days, and number of chronic conditions; and (Model 4) further adjusted for employment status and time spent watching television. A separate linear regression model also tested the relationship between average wear-time counts per minute and gender in each age group in a fully-adjusted model (i.e., same set as in Model 4 above). For Aim 2, multivariate regression models were conducted to examine hourly patterns of average time spent ($min \cdot day^{-1}$) in sedentary, light, moderate-to-vigorous activity, as well CPM, and adjusted for all covariates. All regression analyses adjusted for the average number of minutes of valid wear-time; this accounted for the variation in time that participants spent wearing the device, by standardizing the number of minutes spent in each activity intensity-level according to the number of minutes the device was worn. *P*-values for tests of differences between gender in each age-group were examined and are reported; statistical significance was assessed at $\alpha$=0.05.

## RESULTS

Participant characteristics are shown in Table 1 according to age-groups and are stratified by gender. All characteristics differed significantly across age-groups ($P$<0.001), except for BMI, number of unhealthy days, total valid wear-time counts (women) ($P$<0.05), and total valid wear-time counts (men) ($P$>0.05). Data on the PA measures indicate a wide range of physical activity in both men and women, given the large standard deviations (SD) (e.g., men age ≥70: mean 56.8 (±SD 48.1); women age ≥70: mean 44.9 (±SD 46.8).

Figure 1 illustrates the relationship between gender and the percent time spent in all non-sedentary activity intensities (i.e., the proportion of the day not classified as sedentary) for each age-group after progressive adjustment for covariates. Generally speaking, younger women spent less the percent time in all non-sedentary activity intensities than younger men (Model 1). The percent time spent in all activity intensities converged and a crossover occurred among those aged 60 and over, such that women spent more time in all activity intensities than men. This overall pattern remained after sequential adjustments, yet differences became non-statistically significant (Figure 1; Model 4). Decreases in time spent in all activity intensities were observed among older men, as older women spent greater time in all activity intensities ( ix Table 1: 60–64: $P$<0.001; 65–69: $P$=0.140; 70–74: $P$=0.001; 75–79: $P$=0.110; ≥80: $P$=0.028, respectively). The relationship between average counts per minute (CPM) and gender was then examined for each age-group in the fully adjusted model (i.e., Model 4). Women had statistically significantly fewer CPM than men from ages 20–59, until a convergence occurred at age 60 (Figure 2). From age 60, there was no statistically significant difference by gender, indicating that older men and women achieve similar average CPM (Figure 2).

In older men, the decrease in activity, particularly in the percent time spent in all non-sedentary activity intensities, was evidenced by a decrease in both MVPA, as well as a decrease in the percent time spent in light-intensity activity observed in men at all ages (Figure 3). Like men, there was a decrease in the percent time spent in MVPA with increasing age in women. Yet because the percent time spent in light-intensity activity remained fairly constant for women, approximately 30% in each age-group (Appendix Table 2), older women better maintained the percent time spent in all non-sedentary activity intensities.

Figure 4 (upper left and Appendix Table 3) illustrates both age and gender differences in hourly activity patterns. Younger men had a steeper rise of CPM in the morning when compared to older men. Men age 20–39 carried higher CPM longer into the day, with a peak around 3PM that gradually declined around mid-evening. CPM were lower for men age 40–59 than those age 20–39 and the decline was more pronounced. When compared to their younger counterparts, activity began progressively later in the morning for men age 60–69 and ≥70 and maximum CPM was achieved progressively earlier in the day (e.g., 11AM and 10AM, respectively). After this peak, as with younger men, there was a gradual decline in CPM throughout the day which declined substantially in mid-evening (e.g., 6PM and 5PM, respectively). As a result, with older age, peak activity was reduced as activity started later in the morning, peaked earlier, and then declined over the rest of the day essentially compressing activity into a smaller proportion of the day. Age-related patterns were similar among women. Older women achieved lower CPM than younger women, and periods of daily activity shifted to begin later in the morning and end earlier in the evening. Women's CPM levels converged with men's in the evening, with levels crossing over such that older women achieved greater CPM than older men during this period of the day.

The patterns of hourly sedentary behavior were generally similar across the day, by age and gender (Figure 4: upper right), where the number of sedentary minutes gradually increased through the morning and mid-day, and peaked in the evening. However, when compared to men, younger women tended to spend more minutes in sedentary behavior during the morning and into the afternoon (9AM to 4PM), while older women spent significantly fewer minutes in sedentary behavior, both earlier in the morning (6AM to 10AM) and in the evening (5PM to 7PM).

Patterns of hourly light-intensity activity demonstrated clear age and gender differences (Figure 4: lower left). In general, women of all ages engaged in more minutes of light activity throughout the day than their male counterparts; women age 60–69 had the greatest number of light minutes in the morning hours, while those age 20–39 had the greatest minutes of light activity in the evening. For all women, light activity patterns tended to be bimodal, with a peak occurring in early morning, dipping in the early afternoon and then increasing again in early evening (5PM to 7PM). In comparison, levels of light activity were more normally distributed throughout the day for younger men age 20–39 and 40–59, but peaked at 11AM and decreased steadily throughout the day for older men age 60–69 and ≥70. Men age ≥70 had the lowest light activity levels of all gender/age subgroups.

Finally, Figure 4 shows patterns of MVPA (lower right). Men age 20–39 and 40–59 achieved the highest number of minutes of all groups. As with CPM, participants engaged in this intensity progressively later in the morning and levels declined earlier in the evening. While men age ≥70 achieved greater number of minutes than women from 10AM to 4PM, this relationship crossed over in the evening and women age ≥70 achieved significantly greater number of minutes from 8PM to 10PM, than men of the same age.

## DISCUSSION

In this study of 5,788 free-living US adults, we demonstrate that gender differences in the patterns of sedentary behavior and activity change with age, after adjustment for health-status indicators and sociodemographic factors. In general, no statistically significant difference in average CPM was observed between men and women after age 60, however men spent more time in MVPA and may reflect what is typically considered a healthier pattern of physical activity. Despite finding that both men and women reduce time in activity with increasing age, gendered differences in time spent sedentary or in light activity throughout the day were particularly striking among those ≥60 years. Older men appear to replace higher-intensity activity with sedentary behavior rather than light-intensity activity, thus resulting in a reduced amount of active time during the day. In contrast, levels of light-intensity activity remained relatively constant (approximately 30% of total activity) for women in each age-group. Older women appear to remain active in this intensity-level over a greater period of the day and into the evening. These findings provide context for why no difference was observed in average CPM between men and women ≥60 years.

The adjusted findings in this study differ from those reported in other non-US nationally representative studies. While gender differences were observed in sedentary behavior and light-intensity activity among Chinese (5) and Norwegians (2) adults, the differences were not age-dependent, having been observed among all adults - not just older adults. Data from a sample of Swedish adults were suggestive of gender differences in sedentary behavior and light-intensity activity among those aged 40–59 and 60–75 however these differences were not formally tested or adjusted for covariates (4). In contrast, gender differences in sedentary behavior and light-intensity activity were not found among Canadian adults aged 20–79, even when stratified by age (1). The differences between these international studies and our findings may be due in part to the age-groups examined, minimal or no adjustment for covariates in the other studies, and/or varied methods physical activity measurement (e.g., wear-time algorithms, intensity cut-points). Cultural differences in preferred activity (25) may also help to explain the differences in activity levels and patterns found between the studies.

Two important contributors to differences in activity levels among men and women at different ages are employment-status and occupation-type. Weekday activity levels were notably higher among US adults aged 20–60 who were employed full-time in active jobs when compared to those in sedentary jobs (16). However, findings were different by gender when examining weekday activity levels among full-time workers and healthy non-workers: working men were more active and less sedentary regardless of whether or not their job was sedentary, whereas women were less active and more sedentary if they worked full-time in a sedentary job. In the current study, we include adults aged ≥20 years and adjust for employment status. Retirement may play a role in the reduced higher-intensity activity levels and increased sedentary time observed in men aged ≥60 years, whereas retirement may reduce overall sedentary-time in women aged ≥60 years - while light-intensity activity levels are maintained. Future studies with longitudinal data are necessary to examine the effect of retirement on objective activity levels.

The literature examining gender differences in the activity-type and activity-intensity levels during the day among older adults is sparse. In this study, we found distinct hourly patterns by gender and age when examining each intensity level. Our findings suggest that with age, men's overall time spent in higher-intensity activity is reduced because higher-intensity activity begins progressively later in the morning and declines earlier in the afternoon/ evening, while time spent sedentary steadily increases throughout the day and peaks in the evening. In contrast to older women, older men's levels of light-intensity activity peak in early morning and progressively decline throughout the day. Older women also appear to replace loss of higher-intensity activities with increasing sedentary time throughout the day, yet they engage in a great deal more light-activity in the morning and in the evening than do older men (e.g., bimodal peaks vs. flat decline).

Results from the American Time Use Survey indicate that gender differences exist in the frequency of self-reported non-work, non-sleep activities by intensity type in adults ≥20 years (26). For example, women more frequently report household activities that would fall under lighter-intensity activities (e.g., interior cleaning, food preparation/clean up) and caring for household members than do men (26). Similarly, with other self-report activity data, researchers have found that women show higher levels of indoor/domestic activity across all age-groups, while men achieve physical activity more often through occupation and outdoor sports, especially in early and mid-adulthood (27–29). However, gender differentials in time spent walking, a common leisure-time physical activity, are reduced with greater age (27, 28). Collectively, this prior research can qualitatively support and add a contextual understanding to our findings. The types of activity that women typically engage in (e.g., housekeeping/cleaning, food preparation) may continue to be pursued into older age whereas those that men typically engage in (e.g., strenuous occupational activity, lawn and yard maintenance) may not.

Recent findings have indicated that even modest levels of physical activity can be beneficial to women's health (30). Therefore, our findings of differences in hourly patterns of activity by gender and age, specifically that levels of light-intensity activity remain constant across age-groups in women, may help to explain some of the observed health differences among men and women in older age. However, future research should examine the modifying role of disability, given that paradoxically women tend to have higher rates of disability in older age when compared to men.

A primary strength of the current study is that data are from a diverse, nationally representative sample of adults with accompanying accelerometer data that captured physical activity intensity. Our study adjusts for many known covariates that may influence physical activity levels across adulthood. Several limitations should also be noted. Location and type of accelerometer, a hip-worn uniaxial accelerometer, may not be sensitive to detect activity at various levels or by different body segments (31). Because participants were instructed to remove the device for sleep and water activities, any activity during this time would not be captured. Methods used in this study assume that this non-wear time is random, which could bias interpretation of results. In addition, we can only report patterns of activity by gender and age because of the cross-sectional nature of the data. And while a decline in accelerometer-measured MVPA with age has been consistently reported in the literature (1; 3–5), we need to consider that our findings of women being more active than men in later life might reflect a cohort effect. Therefore, future research should examine time-use and objectively-measured physical activity patterns among community-dwelling adults in a longitudinal cohort to better understand the dynamics of activity and gender roles within an aging context. It should also be noted that the report of minutes of activity in each category (sedentary, light and MVPA) will differ from other NHANES analyses, as a result of the sample and choice of MVPA cut-point (e.g., ≥760 CPM) in this study. Therefore any comparison of accelerometer-measured activity levels to other published statistics should bear this difference in mind. In addition, there is no current consensus on best practice for categorizing the intensity of physical activity and there is ongoing debate around the use of blanket cut-points for all adults, versus the use of age-specific cut-points. Results reported here rest upon the assumption that one set of cut-points may be applied to all-groups, and future research may find different age and gender patterns by using different cut-points. Finally, future research should also examine the role that race and socioeconomic factors play in activity patterns, and their relationship to age-related activity patterns.

## Conclusion

We are the first to demonstrate that gender differences in time spent in non-sedentary activity across the lifespan remain independent of covariates among US adults ≥60 years. Further examination of hourly patterns by sedentary behavior and activity intensity level also demonstrate that gender and age differences exist independent of covariates. The noted age and gender differences in this study may be of importance to clinicians as they promote physical activity to their patients. Beyond encouraging activity, emphasis could also be given to reducing overall time spent in sedentary behaviors. Therefore, clinicians might also consider helping patients to identify times within their day where they could replace sedentary behavior by engaging in activity of higher intensity over greater periods of time. For example, findings from this study suggest that older men could increase light intensity activity throughout the whole day, while older women could increase time spent in MVPA intensity activities in the morning, and both genders could increase MVPA in the late-afternoon/early evening. Finally, findings from this study may also help to inform directions for future research, as well as the development of sex-specific physical activity interventions aimed at increasing the amount and intensity of activity among older adults.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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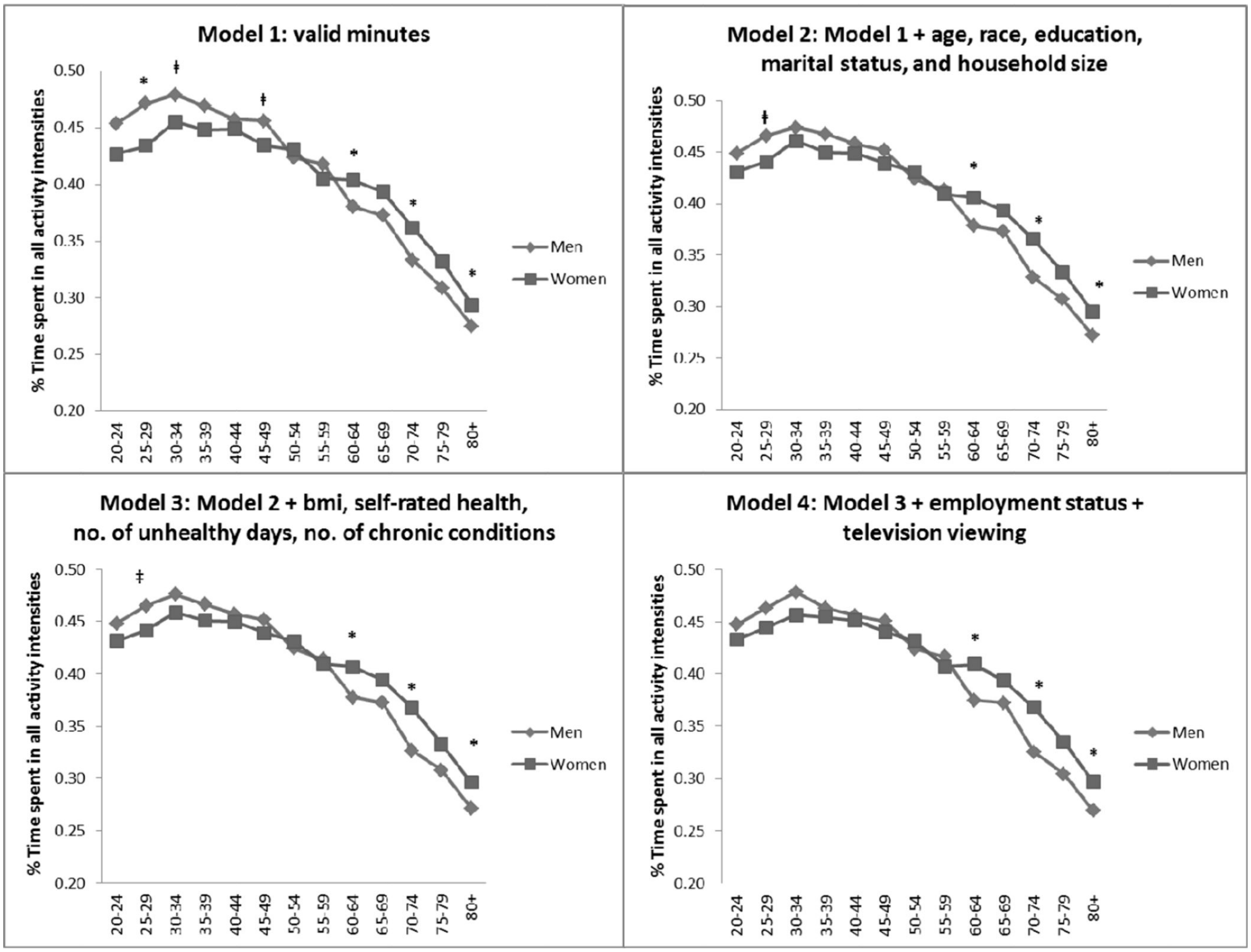


**Figure 1.**

Percent (%) Time Spent in All Non-Sedentary Activity Intensitites Stratified by Gender and Age-Group, NHANES 2003–2004 and 2005–2006

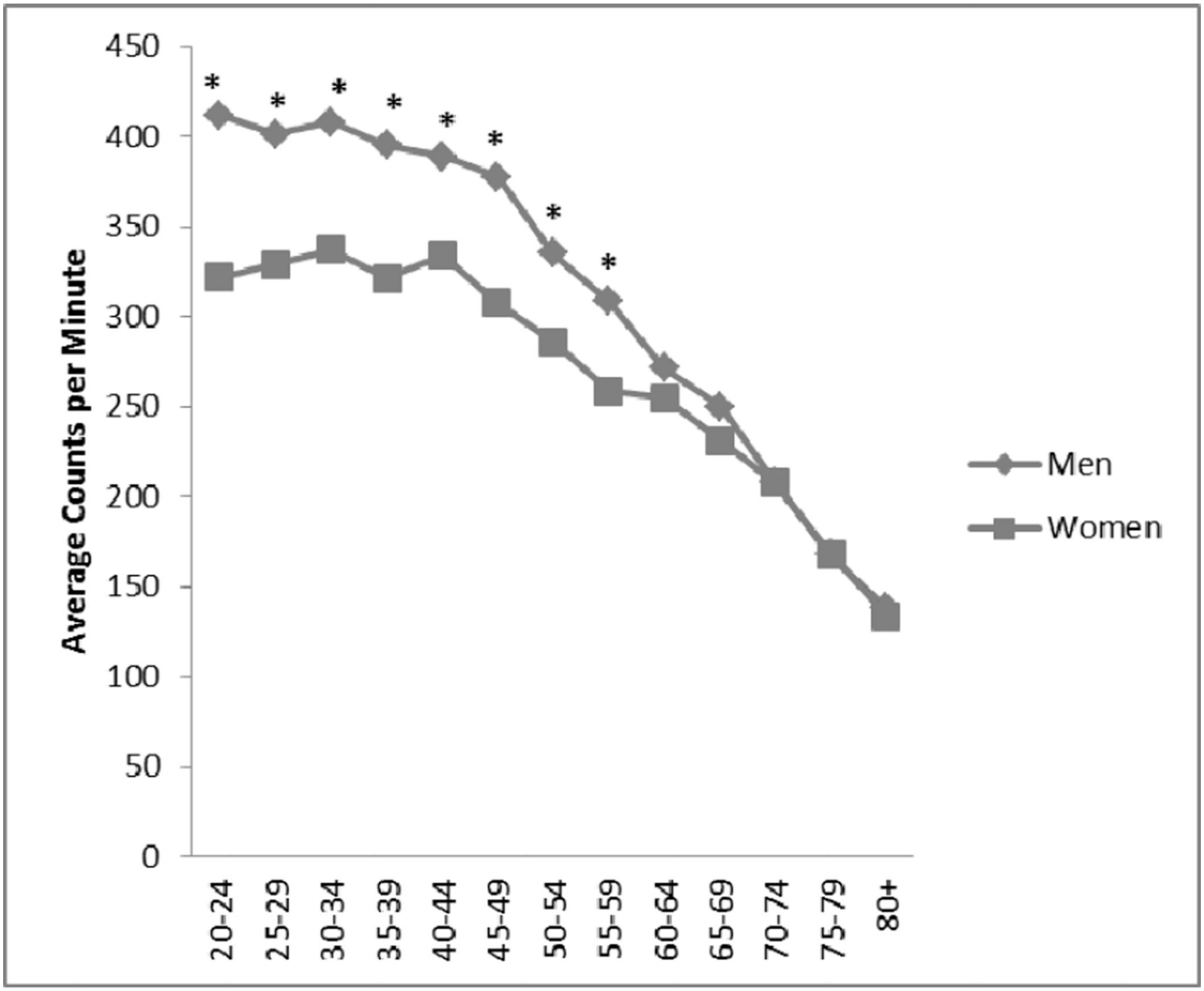


**Figure 2.**

Adjusted Average Counts per Minute, Stratified by Gender and Age-Group, NHANES 2003–2004 and 2005–2006

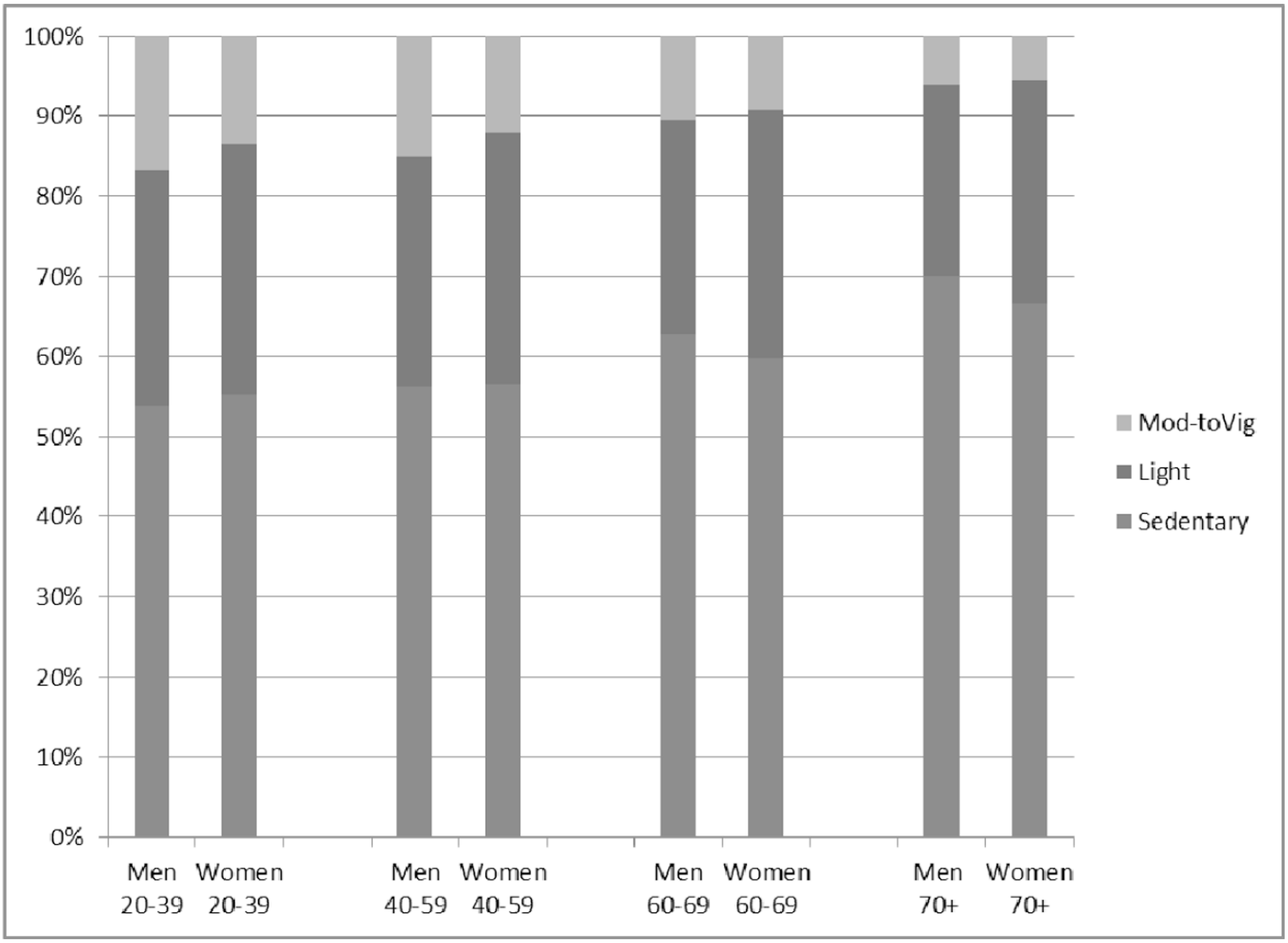


**Figure 3.**

Adjusted Percent (%) Time Spent in Various Activity Intensities Stratified by Gender and Age-Group, NHANES 2003–2004 and 2005–2006

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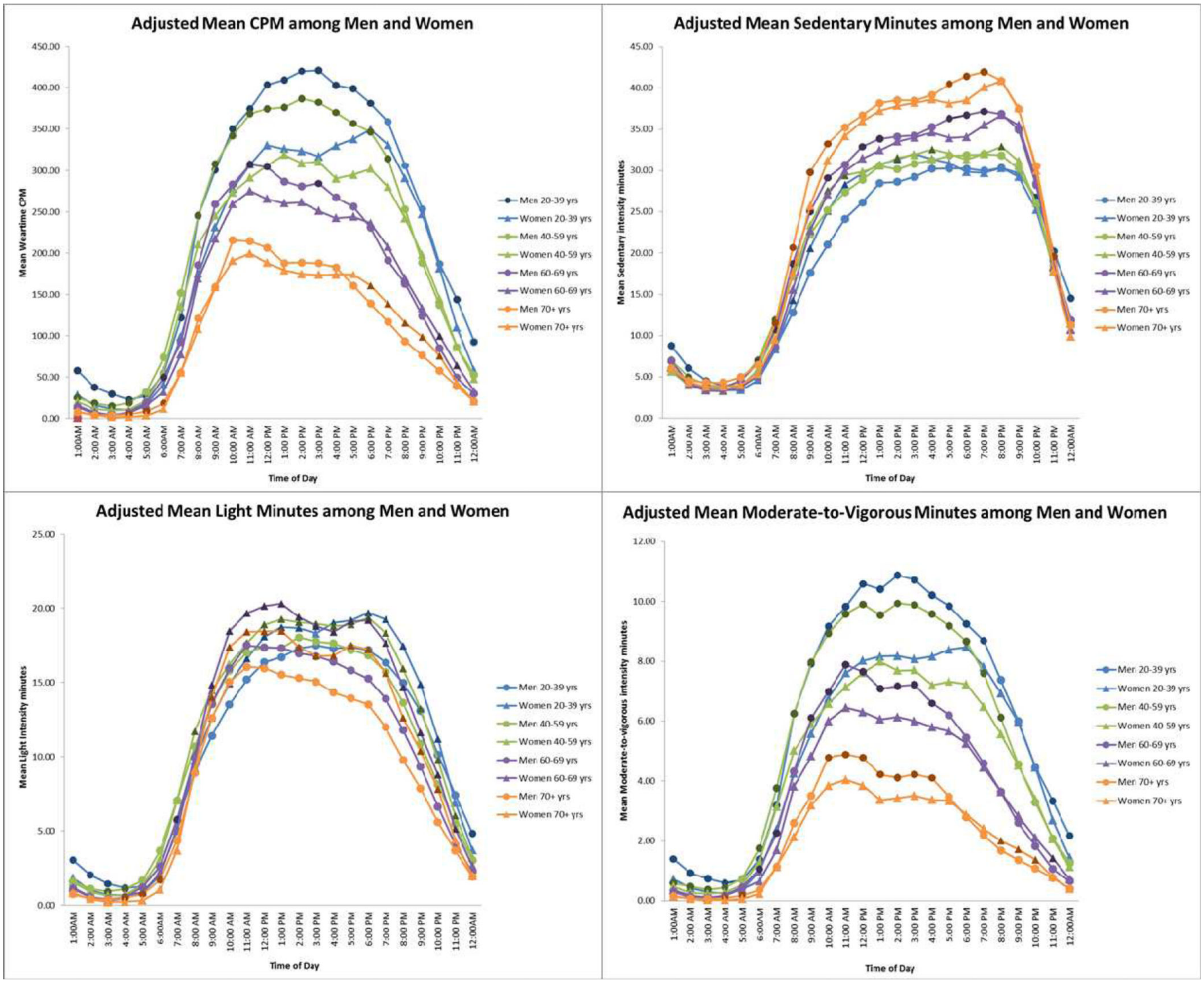


**Figure 4.**

Adjusted Mean Hourly CPM, Sedentary Minutes, Light Minutes, and Moderate-To-Vigorous Minutes stratified by Gender and Age-Group, NHANES 2003–2004 and 2005–2006

**Table 1**

Participant Characteristics Stratified by Gender and Age-Group, NHANES 2003–2004 and 2005–2006

| | Men | | | | | Women | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **20–39** | **40–59** | **60–69** | **≥ 70** | ***P*-value** | **20–39** | **40–59** | **60–69** | **≥ 70** | ***P*-value** |
| Participant Sample, N | 795 | 899 | 501 | 646 | | 920 | 903 | 522 | 602 | |
| Weighted Sample, (%) | 38.9 | 39.7 | 10.9 | 10.5 | | 36.3 | 38.4 | 11.3 | 14.0 | |
| Race, (%) | | | | | <0.001 | | | | | <0.001 |
| Non-Hispanic White | 65.9 | 77.7 | 82.0 | 88.3 | | 64.4 | 7.4 | 79.3 | 84.6 | |
| Non-Hispanic Black | 10.5 | 9.8 | 8.5 | 6.7 | | 13.2 | 11.8 | 9.7 | 8.2 | |
| Mexican-American/Hispanic | 17.3 | 8.7 | 5.9 | 4.6 | | 15.8 | 8.8 | 6.7 | 4.2 | |
| Other | 6.3 | 3.7 | 3.6 | 1.4 | | 6.6 | 5.0 | 4.3 | 3.0 | |
| Education, (%) | | | | | <0.001 | | | | | <0.001 |
| <High School | 16.6 | 11.4 | 19.8 | 29.4 | | 9.9 | 11.0 | 18.9 | 30.2 | |
| High School | 26.6 | 25.6 | 24.4 | 24.7 | | 19.7 | 24.4 | 30.2 | 34.7 | |
| Some college and above | 56.8 | 63.0 | 55.9 | 45.9 | | 70.4 | 64.6 | 50.9 | 35.1 | |
| Marital Status, (%) | | | | | <0.001 | | | | | <0.001 |
| Married/living with partner | 61.7 | 80.3 | 81.4 | 77.4 | | 62.8 | 68.7 | 65.4 | 41.5 | |
| Not partnered | 38.3 | 19.8 | 18.6 | 22.6 | | 37.2 | 31.3 | 34.6 | 58.5 | |
| Household size[‡], (%) | | | | <0.001 | | | | | | <0.001 |
| One | 8.6 | 10.8 | 14.7 | 17.6 | | 8.4 | 12.6 | 19.0 | 41.4 | |
| Two | 26.2 | 30.0 | 66.8 | 70.0 | | 25.5 | 35.3 | 60.7 | 48.2 | |
| Three or more | 65.2 | 59.2 | 18.5 | 12.4 | | 66.1 | 52.1 | 20.3 | 10.5 | |
| Self-reported health, (%) | | | | | <0.001 | | | | | <0.001 |
| Excellent to Good | 90.7 | 84.4 | 85.7 | 78.1 | | 90.8 | 82.7 | 79.7 | 75.7 | |
| Fair or poor | 9.3 | 15.6 | 14.3 | 21.9 | | 9.2 | 17.3 | 20.3 | 24.3 | |
| Number of chronic conditions, (%) | | | | | <0.001 | | | | | <0.001 |
| None | 77.2 | 57.2 | 32.1 | 24.6 | | 69.2 | 45.2 | 26.8 | 19.4 | |
| One | 18.9 | 29.5 | 33.9 | 32.2 | | 22.8 | 30.5 | 33.2 | 28.3 | |
| Two or more | 3.9 | 13.3 | 34.0 | 43.2 | | 8.0 | 24.3 | 40.0 | 52.3 | |
| BMI, (%) | | | | | 0.002 | | | | | 0.035 |
| Obese (≥ 30 kg/$m^2$) | 28.3 | 35.8 | 35.7 | 26.7 | | 29.8 | 38.2 | 33.9 | 27.6 | |

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| | Men | | | | | Women | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **20–39** | **40–59** | **60–69** | **≥ 70** | ***P*-value** | **20–39** | **40–59** | **60–69** | **≥ 70** | ***P*-value** |
| Employment status, (%) | | | | | <0.001 | | | | | <0.001 |
| Full time | 84.5 | 83.8 | 34.7 | 9.7 | | 65.4 | 64.5 | 21.4 | 2.9 | |
| Part time | 7.4 | 4.3 | 10.3 | 8.6 | | 16.1 | 13.3 | 12.4 | 4.8 | |
| Unemployed/not working | 8.1 | 11.9 | 55.0 | 81.6 | | 18.5 | 22.2 | 66.2 | 92.3 | |
| Time spent watching television, (%) | | | | | 0.001 | | | | | <0.001 |
| ≥ 3 hours a day/week | 17.4 | 19.6 | 31.7 | 33.0 | | 19.0 | 18.7 | 28.9 | 37.8 | |
| No. unhealthy days, mean (±SD) | 0.8 (3.9) | 1.9 (10.7) | 1.2 (7.9) | 1.9 (8.1) | 0.005 | 1.1 (5.5) | 1.5 (4.8) | 1.5 (6.3) | 1.7 (6.7) | 0.040 |
| Valid wear-time minutes, mean (±SD) | 886.2 (117.0) | 900.3 (136.2) | 897.7 (193.1) | 883.1 (191.8) | 0.723 | 853.8 (121.6) | 874.1 (113.0) | 864.7 (149.9) | 868.8 (146.9) | 0.036 |
| Counts per minute, mean (±SD) | 407.9 (168.8) | 357.2 (141.0) | 261.8 (141.4) | 178.9 (92.7) | <0.001 | 322.4 (119.8) | 299.3 (148.4) | 243.2 (131.3) | 165.8 (115.6) | <0.001 |
| Sedentary minutes[≠], mean (±SD) | 476.8 (163.7) | 508.9 (123.9) | 566.5 (209.3) | 615.9 (170.1) | <0.001 | 476.6 (148.1) | 497.6 (147.4) | 519.8 (154.7) | 586.01 (171.2) | <0.001 |
| Light minutes[≠], mean (±SD) | 258.2 (121.5) | 256.3 (73.6) | 237.9 (77.0) | 210.4 (73.0) | <0.001 | 265.8 (88.3) | 272.1 (69.8) | 265.4 (93.2) | 237.9 (83.1) | <0.001 |
| Mod-to-Vig [≠] minutes, mean ± (SD) | 151.2 (88.8) | 135.1 (66.7) | 98.4 (54.5) | 56.8 (48.1) | <0.001 | 111.4 (59.6) | 104.4 (65.6) | 79.5 (62.0) | 44.9 (46.8) | <0.001 |

BMI: body mass index; SD: standard deviation; Mod-to-Vig: Moderate-to-Vigorous

[≠]Reported here in three categories; Sedentary cut-points: 0–99; Light cut-point: 100–759; Mod-to-Vig cut-points: ≥760.