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Patterns of weekday and weekend sedentary behavior among older adults

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Abstract

The purpose of this study was to compare estimates of sedentary time on weekdays vs. weekend days in older adults and determine if these patterns vary by measurement method. Older adults (N = 230, M = 83.5, SD = 6.5 years) living in retirement communities completed a questionnaire about sedentary behavior and wore an ActiGraph accelerometer for seven days. Participants engaged in 9.4 (SD = 1.5) hours per day of accelerometer-measured sedentary time, but self-reported engaging in 11.4 (SD = 4.9) hours per day. Men and older participants had more accelerometer-measured sedentary time than their counterparts. The difference between accelerometer-measured weekday and weekend sedentary time was non-significant. However, participants self-reported 1.1 hours per day more sedentary time on weekdays compared to weekend days. Findings suggest self-reported but not accelerometer-measured sedentary time should be investigated separately for weekdays and weekend days, and that self-reports may overestimate sedentary time in older adults.

Keywords

accelerometry; self-report; measurement; sitting time

Introduction

Older adults with low levels of physical activity (PA) have increased risk for cardiovascular disease, glucose intolerance, poor vital capacity, low muscular strength and decreased bone mass (Nelson et al., 2007; U.S. Department of Health and Human Services, 2008). In addition to the deleterious health consequences of low PA, there is growing evidence that prolonged sitting has an impact on obesity, type 2 diabetes, metabolic syndrome, coronary artery disease and deep vein thrombosis (Kronenberg et al., 2000). Of note is that the health consequences of sitting appear independent of moderate to vigorous physical activity

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(MVPA) (Hamilton, Healy, Dunstan, Zderic, & Owen, 2008). Thus, reducing sitting time is especially important for older adults because they spend more than 9 hours of the waking day sitting, which is more than any other demographic subgroup (Matthews et al., 2008).

Most studies of sedentary behavior and its relationship to health have been conducted in samples of children and middle aged adults. There are few studies of sedentary behavior in older adults, and no studies of older adults who live in retirement centers or assisted living facilities. Older adults who live in retirement centers or assisted living communities may be especially vulnerable to prolonged sitting because many of the services and facilities offered at these centers (e.g., bingo, TV rooms, etc.) may inadvertently promote a sedentary lifestyle (Kerr et al., 2011).

Sedentary behavior can be measured using self-reported surveys and objective monitoring devices, such as accelerometers (Bowles, 2012). It is important to use both objective and self-report methods in studies of sedentary behavior. Although accelerometry circumvents many sources of bias inherent to self-reports, accelerometry is limited because it relies on detection of accelerations at the hip or wrist, which yields no information about behavior. While accelerometry provides data on the time spent at different levels of physical activity intensity (e.g., light, moderate, vigorous), self-reports are needed to capture information about specific behaviors, such as television viewing, reading, and car driving. Understanding the time spent in different sedentary behaviors may lead to better tailored interventions.

In most child and adult studies, self-reported sedentary behavior is measured on weekdays separately from weekends because the frequency and duration of different types of behavior appear to vary according to work and school commitments (Burton, Haynes, van Uffelen, Brown, & Turrell, 2012; Ramirez-Rico, Hilland, Foweather, Fernandez-Garcia, & Fairclough, 2013). This creates a measurement burden on participants because questions need to be asked twice, once for typical weekend days and again for typical weekdays. Among retired older adults, it is unclear if similar differences exist, especially for those living in retirement communities. Given the burden of completing long self-report surveys, which can be especially tiresome for older adults, it is important to know if asking questions about weekday and weekend days is needed. In addition, are patterns across weekday and weekend days dependent upon how sedentary time is measured? If no differences are found, future research using self-reports may be able to rely on a single recall period and studies using objective measures may be able to monitor behavior on randomly sampled days of the week. Moreover, this knowledge could inform future interventions to reduce sedentary behavior in older adults because researchers could benefit from knowing if certain days need to be targeted for behavior change.

The purpose of this study is to compare patterns of sedentary behavior across weekday and weekend days in a sample of older retired adults and determine if these patterns vary by method of measurement. Further, we will examine if age and gender moderate the relationship between weekday and weekend sedentary time.

Method

Participants

Two hundred thirty participants were recruited from seven Continuing Care Retirement Centers (CCRC) in Southern California. Participants were recruited as part of a randomized controlled trial to increase physical activity. All data for these analyses were from baseline assessments conducted prior to the implementation of the intervention.

Participants were eligible for the current study if they completed a Timed Up and Go test (Podsiadlo and Richardson, 1991) within 30 seconds and did not have a fall in the previous 12 months that resulted in hospitalization. These criteria were chosen because increasing physical activity, which was the aim of the intervention, was viewed as potentially too difficult and unsafe in those not meeting the aforementioned eligibility criteria. Thus, all participants recruited to the RCT were included in this study. Participants were recruited through flyers and staff presentations at each retirement center. After providing informed written consent and completing a post consent comprehension test, participants completed a measurement battery described below. All measures and study procedures were approved by the Institutional Review Board of the University of California, San Diego.

Measures

Participant's age, gender, and race/ethnicity were collected via survey administered after an objective monitoring period (i.e., after 6 days of wearing a hip mounted accelerometer).

Self-reported sedentary behavior was assessed using a modified version of the Sedentary Behavior Questionnaire (SBQ) (Rosenberg et al., 2010). The modified version included an additional response option to reflect that older adults spend more time being sedentary, and included more age relevant sedentary behavior examples under each type of sedentary behavior category (e.g., hobbies – doing crafts, playing bingo, etc.).

Participants were asked to report the time spent in nine sedentary behaviors during a typical weekday and typical weekend day. Sedentary behaviors included television watching, computer/internet use, reading, socializing, driving or using motorized transportation, doing hobbies, office or volunteer work, napping, and other behaviors.

Participants responded to each item by selecting one of 11 response categories, ranging from "None" to "More than 8 hours." The midpoint of each time category (e.g., 2.5 hours if the category was 2-3 hours) was used to compute the time spent being sedentary in each of the listed activities. The time spent in individual sedentary activities and the mean hours per day for a typical weekday and weekend day were computed. Finally, a weighted daily mean of sedentary time (hours per day) was computed as ((Σ (sedentary time during typical weekday)* 5) + (Σ (sedentary time during typical weekend day)* 2))/7.

Objective measurement of sedentary time was conducted using the ActiGraph GT3X+ accelerometer (ActiGraph, LLC; Pensacola, FL). The GT3X+ is a lightweight, triaxial solid state accelerometer. The ActiGraph device has been validated and calibrated for use in both controlled and field conditions for physical activity and sedentary behavior SB (Bassett, Rowlands, & Trost, 2012), and in samples of older adults (Evenson, Buchner, & Morland, 2012). Users wore the device over the suprailiac crest of their right hip during waking hours for 6 days. The device was set to sample at 30hz with the Low Frequency Extension enabled. Accelerometer data were processed using ActiLife software v6.3. Non wear time was determined as periods of ≥90 consecutive minutes of zero counts, with a two minute spike tolerance to allow for artifactual movement (Choi, Liu, Matthews, & Buchowski, 2010). Participants were asked to re-wear the device if they wore it for fewer than 4 days, or less than 2400 minutes. Sedentary time was computed as the number of minutes spent at < 100 counts per minute (Matthews et al., 2008). Weekday and weekend sedentary hours per day were calculated, as well as a weekly sum (hours per week) weighted by weekend and weekdays, where weight weekly sum = ((Σ (mean minutes per day <100 cts.min^{-1} during weekday monitoring days)* 5) + (Σ (mean minutes per day spent <100 cts.min^{-1} during weekend monitoring days)* 2))/ 7.

Data Analysis

Between-participants ANOVAs (for self-reported sedentary time) and ANCOVAs (for accelerometer sedentary time, adjusted for wear time) were used to examine differences in sedentary time by gender and age. Bonferroni corrections were performed to interpret significance of between group differences. Concordance Correlation Coefficients (CCCs), repeated measures ANOVAs (for self-reported sedentary time) and ANCOVAs (for accelerometer sedentary time, adjusted for wear time), and Pearson correlations, were used to examine agreement, accuracy and precision between 1) weekday vs. weekend and 2) accelerometer versus self-reported sedentary time. The CCC was used instead of an Intraclass Correlation Coefficient (ICC) because of its ability to measure accuracy and precision (Lin & Torbeck, 1998). CCCs ≥ .60 were interpreted as strong agreement, CCCs between 0.4 and 0.59 were interpreted as moderate agreement, and CCCs < 0.4 were interpreted as poor agreement.

Pearson correlations and ANCOVAs were used to examine the precision of self-reported individual sedentary behaviors with accelerometer measured sedentary time. Because sedentary time correlated with monitor wear time (r = .67), we included monitor wear time as a covariate in all analysis. All between-subject analyses were adjusted for gender (centered on 0) and age (mean centered). Interaction terms were tested to investigate whether associations between 1) weekday versus weekend and 2) accelerometer versus self-reported sedentary time were moderated by gender or age. A p-value of 0.10 was used to interpret significance of interaction coefficients to maximize sensitivity and reduce type 2 errors. Significant interactions were plotted for visualization. Bland-Altman plots with regression lines and 95% limits of agreement were used to examine the distribution of potential measurement bias between the two measurement methods and between weekday and weekend time. SPSS version 20 and the free statistical software package R (http://www.r-project.org/) were used for the analyses.

Results

The mean age of participants was 83.5 (SD = 6.5) years, 70% were women and 94% were non-Hispanic White. Participants wore the accelerometer for an average of 3.9 (SD = 0.8) weekdays and 1.8 (SD = 0.4) weekend days, yielding 5.7 wear days per week. Accelerometer monitoring time did not differ significantly between weekdays and weekends or by gender or age group (see Table 1).

Overall Trends by Gender and Age

Compared to women, men had significantly more accelerometer-measured sedentary time (M = 9.9 versus 9.2 hours/day), self-reported computer use (M = 1.8 versus 1.0 hours per day), and daytime napping (M = 0.7 versus 0.4 hours per day) when considering all days of the week. Total self-reported sedentary time did not differ by gender or age group. However, compared to those aged 75-84 years, participants aged 85-94 years had significantly more accelerometer-measured sedentary time (M = 9.2 versus 9.7 hours per day, respectively). Self-reported computer use, sitting and talking in groups, and “other sitting” differed significantly between two or more age groups (see Table 1).

Weekday/Weekend Trends in Accelerometer Measured Sedentary Time

Mean accelerometer sedentary time did not differ significantly between weekdays and weekends, and the agreement and association across these types of day is best described as ‘moderate’ (CCC = .55 and r = .57, respectively) (see Table 2). However, the agreement between weekday and weekend sedentary time appeared to depend on how much total sedentary time was accumulated. Participants who accumulated, on average, >10 hours per day of objectively monitored sedentary time were more sedentary on the weekends than the weekdays. Participants who accumulated, on average, <10 hours per day of sedentary time were more sedentary on the weekdays than the weekends (see Figure 1). These findings were stronger for men than women, suggesting that gender moderates this relationship (see Figure 2).

Weekday/Weekend Trends in Self-reported Sedentary Time

Self-reported sedentary time was higher on weekdays (1.05 hours more per day) than on weekends and agreement was moderate-to-high (CCC = 0.72). Only three of the nine individual sedentary behaviors (computer use, talking, doing group activities) were significantly different across weekday and weekend days and, in each case, more time was spent in the behavior during weekdays. Computer use had the highest association and agreement across weekday and weekend days (r = 0.91, ICC = 0.90), whereas sitting doing group activities had the lowest association and agreement (r = 0.33, ICC = 0.29). Eight of the nine sedentary behaviors had moderate-to-high associations and agreement across weekday and weekend days. Across all nine sedentary behaviors, the median association from weekday to weekend days was r = 0.71, and the median agreement was CCC = 0.69.

The Effect of Measurement Method on Weekday/Weekend Trends in Sedentary Time

On average, participants self-reported 2.06 hours per day more sedentary time (p = .048) than was measured by the accelerometer (see Table 3). No statistically significant differences were observed between accelerometer and self-reported estimates of sedentary time when investigating weekday and weekend days separately. The correlation between objective and self-reported estimates was ~r = 0.2 and there was low absolute agreement during weekdays (CCC = 0.06) and weekends (CCC = 0.11) between the methods. The Bland-Altman plot in Figure 3 suggests systematic measurement bias related to sedentary time, with underreporting (compared to the accelerometer) more likely to occur by participants who engaged in <9-10 hours per day of sedentary time. Conversely, over reporting appeared more likely among participants who engaged in >9-10 hours per day. The limits of agreement suggest that 95% of the observed discrepancies between accelerometer and self-reported estimates time fall within plus or minus 9.76 hours per day.

Pearson correlations between specific self-reported sedentary behaviors and total accelerometer-measured sedentary time were also low (mean, absolute r = 0.1; data not presented). The strongest association was between watching television/DVDs and total objective sedentary time (r = .18).

Discussion

The main findings of this study are that (1) group level differences between weekday and weekend days are evident when sedentary time was measured by self-report (mean weekday/weekend day difference = 1.05 [SD = 3.66] hours per day, p<.001), but not when measured by accelerometry (-0.03 [SD = 1.27] hours per day; p = 0.49); (2) self-reports and accelerometers appear to measure different features of sedentary behavior and so using both instruments may be an important measurement strategy; (3) there appear to be gender and age related differences in weekday versus weekend day sedentary time, regardless of measurement method; (4) there is a systematic measurement bias related to sedentary time which can be minimized by using group level–estimates.

The mean daily sedentary time in our sample is greater than has been reported in nationally representative samples of older adults. Across all measured days, participants spent, on average, 9.4 hours per day being sedentary when it was measured objectively, and men were significantly more sedentary than women (9.9 versus 9.2 hours per day). In NHANES, the mean sedentary time of 70-90 year olds was 8.8 hours per day when it was measured using the same accelerometer and cut point as used in the current study (Evenson et al., 2012).

Our study provides evidence that accelerometer studies of older adults who live in retirement communities may not need to measure weekday and weekend days to yield stable group-level estimates of total sedentary time. However, a significant gender interaction (p = .044) and slope suggests that the weekday/weekend relationship was stronger in women. Although, on average, total accelerometer measured sedentary time did not differ between weekday and weekend days, older adults who engaged in <10 hours per day of sedentary time on weekdays tended to be more sedentary during the weekend. Conversely, adults who engaged in >10 hours per day of sedentary time on weekdays tended to be less sedentary during the weekend. This may provide evidence of a behavioral compensation mechanism occurring across the week for older adults who typically engage in lower or higher levels of sedentary time relative to their peers. However, an important measurement conclusion from this finding is that the weekday/weekend distinction may be important when estimating the sedentary habits of individuals. Ignoring the weekday/weekend distinction in accelerometer measured sedentary time appears tenable only when group-level estimates are of interest.

In contrast to trends in accelerometer measured behavior, there were significant differences between week days and weekend days when sedentary time was measured by self-report. On average, older adults self-reported approximately 1 hour per day more total sedentary time on weekdays than weekend days (as shown in Table 2). This difference was due to typical weekdays having more computer time (+11 min per day), sitting and talking (+23 min per day), and sedentary group activities (+29 min per day), compared to typical weekend days. It is an interesting question as to whether the difference of approximately 1hr in self-reported sedentary time between weekday and weekend time is of practical importance. It is plausible that differences across the week in the context of overall sitting time might be important because the ‘leverage’ points (i.e., the determinants) for changing these behaviors are might also be different. For example, there was a significant difference in sedentary socializing time (e.g., sitting and talking; sedentary group activities) between weekday and weekend days. This could suggest that interventions targeting social mediators of sitting time may be more effective during the week compared to the weekend. However, this has not been empirically tested.

Although there were no gender differences in self-reported overall sedentary time, men reported almost 50 minutes per day more computer time than women, and time spent using a computer decreased with age. Overall, this suggests that when sedentary time is estimated using the SBQ (Rosenberg et al., 2010), the weekday/weekend day distinction may be worth preserving when specific sedentary behaviors and/or gender and age differences are of interest. However, these findings should be replicated using other self-report measures of sedentary behavior before more definitive conclusions can be made.

Our findings partially support data from a recent study by Visser and colleagues in which both accelerometer and self-reported sedentary time of Dutch older adults did not differ significantly between weekdays and weekend days (Visser & Koster, 2013). Our study found no significant differences for accelerometer time but a significant difference in self-reported sedentary time between weekday and weekend days. Although there are likely different cultural and environmental influences on sedentary behavior in the Netherlands compared to the US, it should also be noted that total sedentary time was similar for both groups. The Dutch sample was, on average, 10 years younger than our North American sample and they did not live in retirement centers. However, accelerometer data processing rules may have influenced estimates of sedentary time. Visser and colleagues used a 60 minute window of consecutive zeros to determine non wear time, whereas we used 90 minutes, as recommended by Choi et al (Choi et al., 2010). We also increased the sensitivity of the device by using the low frequency extension. Data processing algorithms can exert a differential impact on weekday versus weekend estimates if the pattern of sedentariness differs across days. For example, if more prolonged bouts (e.g., >60 min) of sitting occur on weekend days compared to weekdays, this will be counted as non-wear time and excluded from the analysis.

Compared to accelerometer based measurements, the convergent validity of the SBQ in our sample was low (r = 0.22), which is consistent with previous findings. On average, self-reports yielded estimates of daily sedentary time 2 hours greater than was measured by accelerometry. This is relatively consistent with other self-report measures of sedentary time in older adults (Gardiner et al., 2011) and suggests caution when using the SBQ as a measure of sedentary behavior in older adults. It is unclear exactly why self-reports on the SBQ yielded higher estimates of sedentary time than accelerometer measurements.

One plausible explanation is that acceleration based measures are actually underestimating true sitting time. Certainly, vertical acceleration of the hips is ontologically distinct from a self-report of behavior and some researchers have cautioned against the use of hip based accelerometry as a criterion method for estimating sedentary behavior (Bussmann & van den Berg-Emons, 2013), particularly among older adults (Strath, Pfeiffer, & Whitt-Glover, 2012). Accelerometer data processing and scoring methods have also been criticized, particularly the use of 100 CPM as a cut-point for sedentary time which may lack adequate sensitivity and specificity (Kerr et al., 2013). Indeed, there is evidence to suggest that much sedentary time occurs in to 0-50 counts per minute (CPM) range (Hart, McClain, & Tudor-Locke, 2011), with higher counts more likely to reflect light intensity PA. Regardless, the 100 CPM threshold remains the most widely accepted and used cut point for determining accelerometer measured sedentary time.

Bias also exists in self-reported measures. Evidence suggests that recall error increases as the behavior being recalled decreases in intensity, increases in frequency, or bypasses conscious processing altogether (van Poppel, Chinapaw, Mokkink, van Mechelen, & Terwee, 2010). This is important because bouts of sitting that are interrupted frequently by other activities of daily living (e.g., answering a telephone, walking to the kitchen or bathroom) may get misreported and episodes of ‘opportunistic sitting’ (e.g., sitting at a bus stop or on a bench to admire a view) may go unreported. Evidence suggests that combining self-reported sedentary and light intensity PA improves validity (Barwais, Cuddihy, Washington, Tomson, & Brymer, 2013), and previous day recall of sedentary time is preferable to longer recall periods (Clark et al., 2011; Matthews et al., 2013). It should also be noted that single-item measures often yield lower estimates of sedentary time compared to accelerometry, whereas multi-item measures, such as the SBQ, often yield higher estimates. The latter finding may be due to suggestion bias (the tendency to report events that are suggested by a survey) and/or “double counting” (participants reporting the same behavior across different items). Studies that have used cognitive interviewing methods to study physical activity recall have confirmed this (Altschuler et al., 2009) but few data are available about sedentary behavior recall. The instructions on the SBQ attempt to minimize double counting by requesting that only the main activity be reported. However, more validation research with the SBQ may be warranted, particularly using methods such as cognitive interviewing that might help elucidate how participant responses are formulated. This is especially important because evidence suggests that older adults experience some confusion when asked to self-report their sedentary time (van Uffelen, Heesch, Hill, & Brown, 2011). Finding different patterns of reporting bias based on the number of items in the scale also suggests that social desirability may not be the primary source of bias when self-reporting sedentary behavior. The large 95% limits of agreement (± 9.76 hours per day) between self-reported and objective data highlights the considerable systematic bias in sedentary time measurement and underscores the conclusion that the SBQ may not be a good measure of sedentary time at the individual level.

There are several limitations to this study, particularly with regard to generalizability of the findings. The sample was comprised predominantly of non-Hispanic whites, all of whom lived in retirement communities. Thus, our findings may not generalize to younger adults, non-white older adults, or older adults who do not live in retirement communities. Importantly, it is unknown the extent to which behavioral routines and self-report bias differs between sociodemographic groups of older adults or among older adults who live in different residential environments. There is also likely to be a socioeconomic bias in our sample because the living costs associated with residential care are expected to be higher than that incurred in regular housing. Residential communities also provide structured opportunities for PA and sedentary time throughout the week and similar opportunities are unlikely to be available (or as convenient) to older adults who live in the community.

Future research should attempt to untangle and quantify the measurement error inherent to multi-item self-reports of sedentary behavior and accelerometer based estimates of sitting time. The goal should be to help researchers reduce measurement error in the design of studies and provide suggestions for how correct for systematic artifactual variance inherent to methods and specific measures. If relationships between sedentary time and health outcomes appear measure-dependent, using both instruments could be an important measurement strategy. However, few studies have examined measurement invariance in sedentary behavior-health relationships and this is a worthwhile objective of future study.

In conclusion, this study suggests that significant differences between weekday and weekend sedentary time of older adults are evident when sedentary time is measured by self-report. These differences are not evident at the group-level when sedentary time is measured using accelerometry. When differences by age, gender, or in specific behaviors are of interest, the weekday/weekend day distinction may be important.

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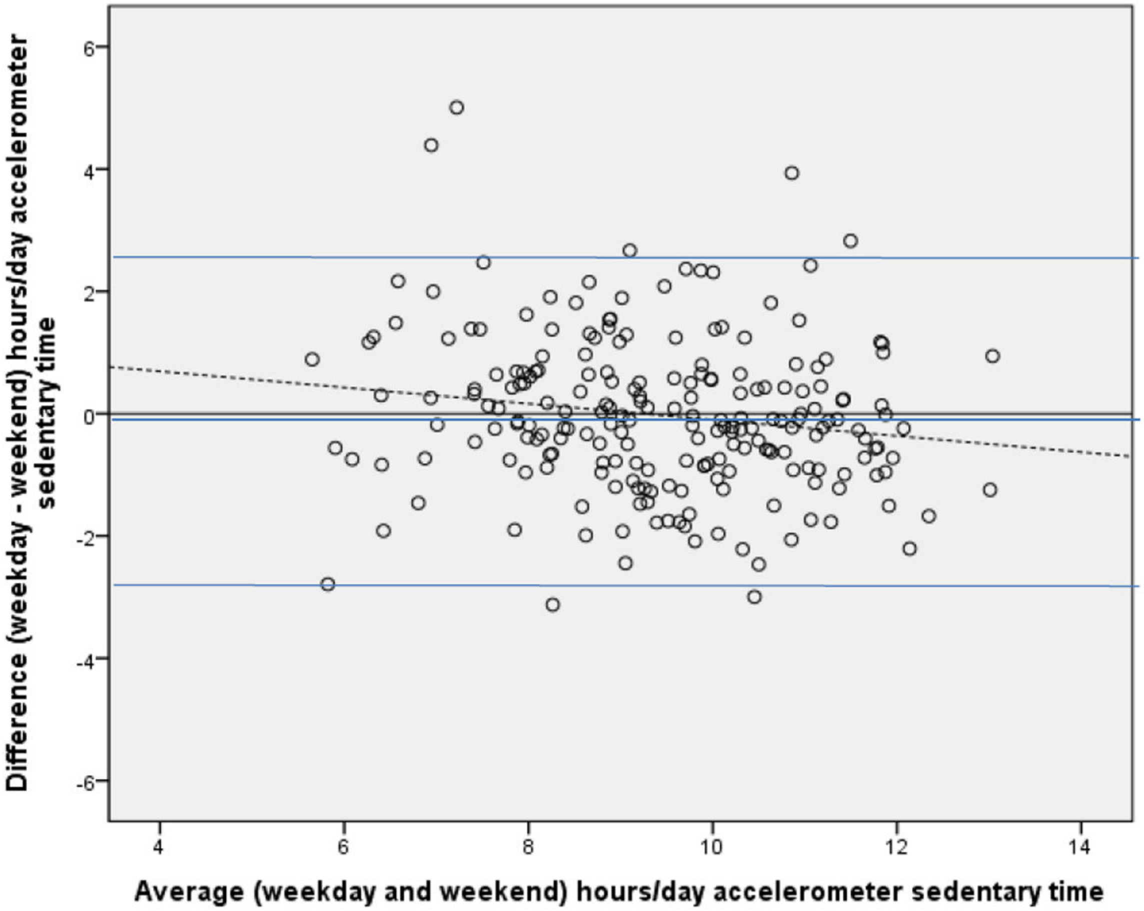

Figure 1.

Bland-Altman plot for weekday versus weekend accelerometer-measured sedentary time (N = 230). Note: Lines are at zero, mean difference, 95% limits of agreement, and best fit (R^2 = .026).

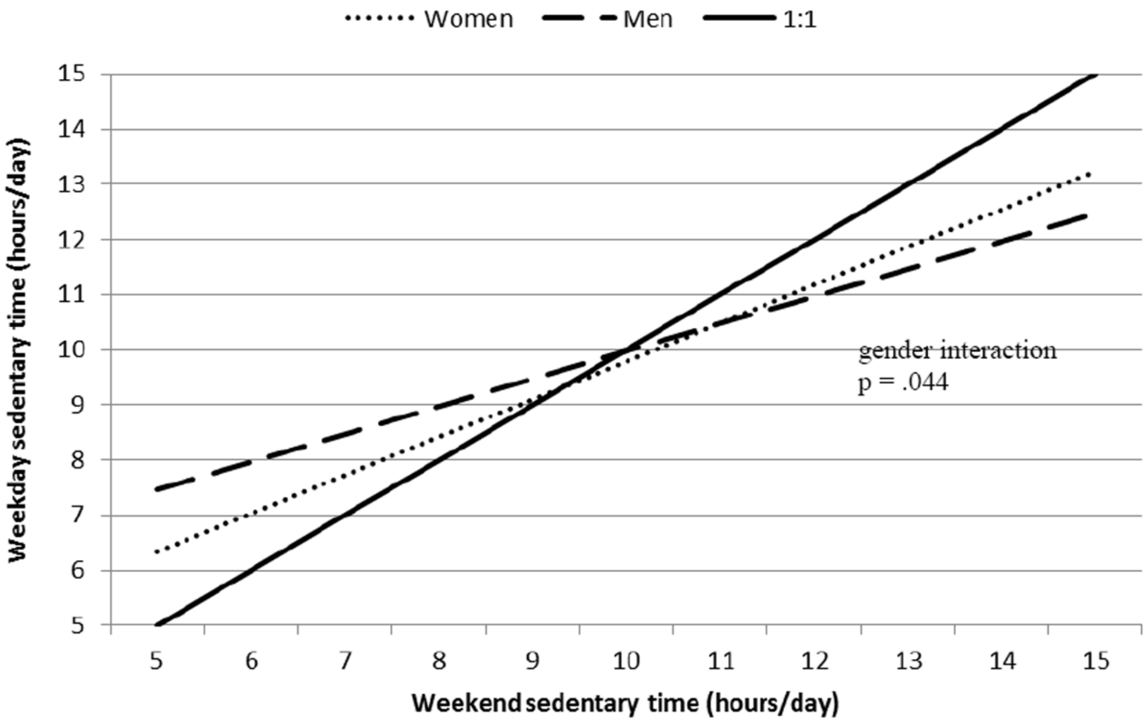

Figure 2.

Gender differences in the association between weekday and weekend accelerometer sedentary time (N = 230).

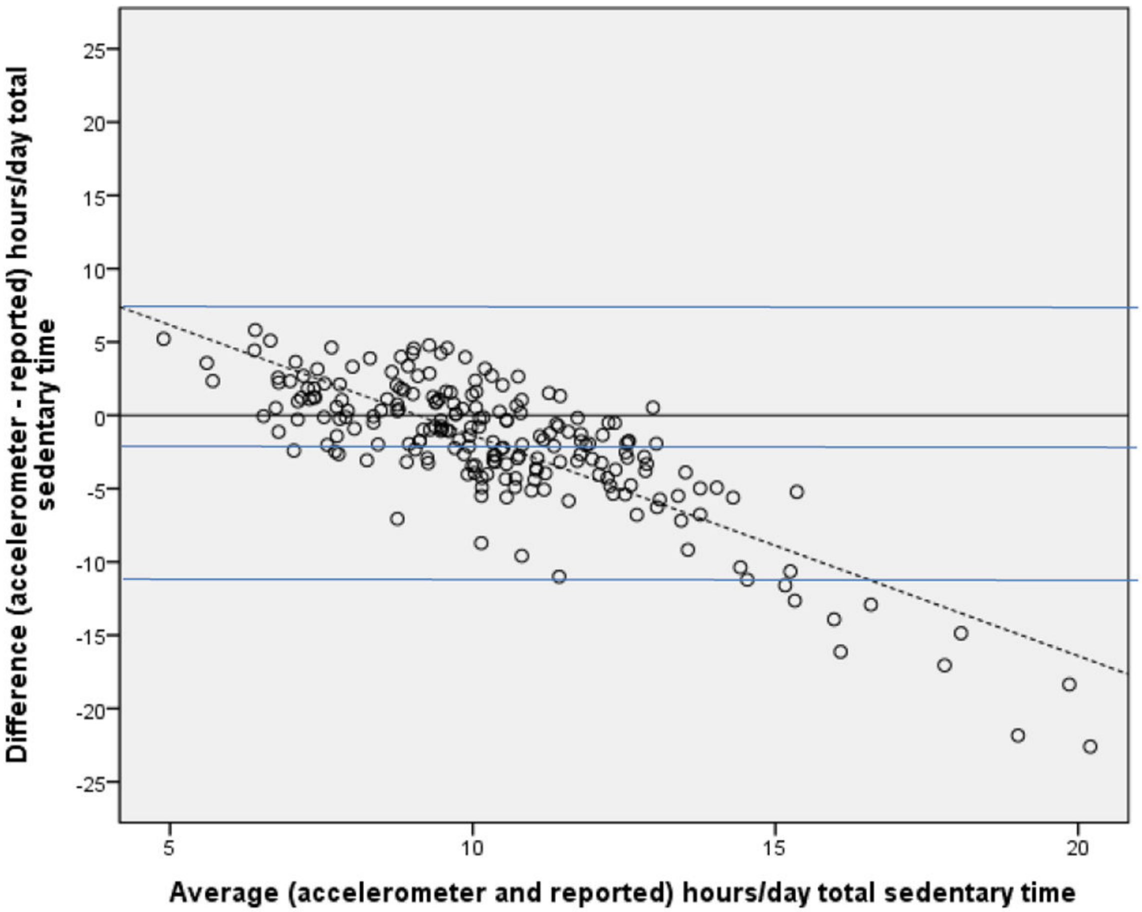

Figure 3.

Bland-Altman plot for accelerometer versus self-reported sedentary time (N = 230) Note: Lines are at zero, mean difference, 95% limits of agreement, and best fit (R^2 = .692).

Table 1

Self-reported and accelerometer sedentary time[a] (Mean ± SD hours per day) in older adults by gender and age.

		By gender		By age				
	Total[a]	Women	Men	1. Age 65-74	2. Age 75-84	3. Age 85-94	4. Age 95+	Differences[b]
N	230	161	69	21	105	89	15	-
Accelerometry								
Wear time	13.3 (1.5)	13.3 (1.5)	13.3 (1.6)	13.6 (1.4)	13.2 (1.5)	13.2 (1.6)	13.3 (1.5)	None
Sedentary time[c]	9.4 (1.5)	9.2 (1.1)	9.9 (1.2)[b]	9.2 (1.1)	9.2 (1.2)	9.7 (1.1)	9.9 (1.2)	2 versus 3
Self-report								
Overall (sum all items)	11.4 (4.9)	11.6 (5.0)	11.1 (4.6)	10.4 (3.3)	11.3 (4.8)	11.7 (5.4)	12.9 (3.0)	None
Watching television/DVDs	2.5 (1.5)	2.5 (1.6)	2.5 (1.5)	2.6 (2.1)	2.7 (1.5)	2.3 (1.5)	2.5 (1.6)	None
Using the computer	1.4 (1.4)	1.0 (1.2)	1.8 (1.6)[b]	1.8 (1.3)	1.5 (1.6)	1.0 (1.1)	0.4 (0.7)	1 versus 4
Reading	1.8 (1.1)	1.9 (1.2)	1.5 (1.2)	1.5 (1.0)	1.8 (1.3)	1.7 (1.1)	2.5 (1.1)	None
Sitting while talking/thinking	1.5 (1.5)	1.3 (1.5)	1.0 (1.1)	1.0 (0.9)	1.2 (1.3)	1.4 (1.7)	0.9 (0.9)	None
Traveling in a car or bus	0.7 (0.6)	0.7 (0.6)	0.7 (0.6)	0.9 (0.6)	0.6 (0.5)	0.8 (0.8)	0.8 (0.8)	None
Sitting doing hobbies	0.9 (1.0)	0.9 (1.3)	0.6 (0.7)	0.8 (0.9)	0.8 (0.9)	0.9 (1.5)	1.1 (0.9)	None
Sitting doing group activities	1.2 (1.0)	0.9 (1.0)	0.8 (1.0)	0.8 (0.8)	0.8 (1.1)	0.9 (0.9)	1.7 (1.1)	2 versus 4
Taking a nap	0.5 (0.5)	0.4 (0.5)	0.7 (0.6)[b]	0.6 (0.7)	0.5 (0.6)	0.4 (0.5)	0.5 (0.7)	None
Other	0.9 (1.2)	1.0 (1.4)	0.8 (1.4)	0.8 (0.9)	0.7 (1.1)	1.1 (1.6)	2.3 (1.5)	1 versus 4; 2 versus 4

[a] Total sedentary time was calculated as (weekday*5 + weekend*2)/7

[b] Significant group differences after Bonferoni adjustment, $p<0.05$

[c] Adjusted for accelerometer wear time

Table 2

Agreement and association between weekday and weekend sedentary time (n = 230)

	Weekday versus Weekend ANOVAs			Pearson r (95% CI)	CCC[a] (95% CI)
	Mean difference (SD) weekday-weekend hours per day	F (df)	p-value		
Accelerometry[b]	-0.03 (1.27)	0.48 (228)	.49	.57 (.41, .63)	.55 (.46, .64)
Self-report					
Overall (sum all items)	1.05 (3.66)	18.31 (229)	<.001	.74 (.65, .83)	.72 (.66, .78)
Watching television/DVDs	-0.03 (1.12)	0.13 (229)	.72	.75 (.66, .84)	.75 (.69, .80)
Using the computer	0.19 (0.60)	22.18 (229)	<.001	.91 (.86, .97)	.90 (.88, .92)
Reading	0.10 (0.96)	2.43 (229)	.12	.67 (.57, .77)	.66 (.59, .73)
Sitting while talking/thinking	0.38 (1.42)	15.68 (229)	<.001	.63 (.52, .73)	.59 (.51, .67)
Traveling in a car or bus	-0.02 (0.64)	0.18 (229)	.68	.50 (.38, .61)	.50 (.40, .59)
Sitting doing hobbies	0.05 (0.96)	0.53 (229)	.47	.63 (.52, .73)	.62 (.53, .69)
Sitting doing group activities	0.48 (1.34)	27.98 (229)	<.001	.33 (.20, .45)	.29 (.19, .39)
Taking a nap	0.0 (0.36)	0.01 (229)	.94	.80 (.73, .88)	.80 (.75, .84)
Other	-0.10 (0.99)	2.31 (229)	.13	.74 (.65, .83)	.73 (.67, .79)

[a] Concordance Correlation Coefficient

[b] Adjusted for monitor wear time

CI = confidence interval

Table 3

Agreement and association between self-reported and accelerometer sedentary time (N = 230)

	Self-report versus accelerometer ANCOVAs[a]			Pearson r (95% CI)	CCC (95% CI)
	M (SD) accelerometry-self report hours per day	F (df)	P value		
Overall					
Weekday	-2.34 (5.19)	3.54 (226)	.061	.18 (.04, .32)	.06 (0, .12)
Weekend	-1.31 (5.21)	2.56 (226)	.111	.18 (.05, .32)	.11 (.03, .19)
Total[b]	-2.06 (4.98)	3.94 (226)	.048	.22 (.09, .34)	.08 (.02, .15)

[a] Adjusted for participant age, gender and accelerometer wear time

[b] Calculated as (weekday*5 + weekend*2)/7