Changes in non-occupational sedentary behaviors across the retirement transition: the Finnish Retirement and Aging Study (FIREA)

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ABSTRACT

Background Retirement is a major life transition which may influence health behaviors and time use. Little is known about how sedentary behavior changes as a result of increased time availability after retirement. The aim of this study was to examine changes in non-occupational sedentary behaviors across the retirement transition. In addition, we examined which pre-retirement characteristics were associated with these changes.

Methods The study population consisted of 2,011 participants from the Finnish Retirement and Aging Study (FIREA). Repeated postal survey including questions on sedentary behavior domains (television viewing, computer use at home, sitting in a vehicle and other sitting) were conducted once a year across the retirement transition, covering on average 3.4 study waves. Linear regression with generalized estimating equations (GEE) was used for the analyses.

Results Total sedentary time increased by 73 (95% CI 66-80) minutes/day during the retirement transition. Of the domain-specific sedentary behaviors, television viewing time increased by 28 (95% CI 25-32) minutes/day, computer use at home by 19 (95% CI 17-22) minutes/day, and other sitting time by 37 (95% CI 33-41) minutes/day, while time sitting in a vehicle decreased by 6 (95% CI 4-9) minutes/day. Highest increase in total sedentary time was among women and persons who had high occupational sitting time, low physical activity level, sleep difficulties, mental disorders, or poor health before retirement (all P-values for interaction <0.03).

Conclusion Total and domain-specific sedentary times, except sitting in a vehicle, increased during the retirement transition.

Key words: sedentary behavior, sitting, retirement, cohort, aging, television viewing

What is already known on this subject?

Retirement is associated with increased time spend sedentary.

There are no longitudinal studies with repeated measures of sedentary behavior domains across the retirement transition.

What this study adds?

Total and domain-specific sedentary behaviors, except sitting in a vehicle, increase during the retirement transition.

Total non-occupational sedentary time continued to increase during the post-retirement period.

Women, and those who had high occupational sedentary time, low physical activity level, sleep difficulties, mental disorders, or poor health before retirement were most likely to report an increase in total non-occupational sedentary time during the retirement transition.

BACKGROUND

Sedentary behavior, defined as any waking behavior characterized by an energy expenditure ≤1.5 metabolic equivalents (METs) whilst in a sitting or reclining posture [1], is highly prevalent among adult population [2]. Older adults are the most sedentary age group spending 65% to 80% of their wake time on sedentary behaviors [3]. This is potentially a public health concern as sedentary behavior is associated with poor health [4,5] and mortality [6,7].

Retirement is a major life transition in late mid-life which can cause changes in lifestyle [8]. Indeed, previous research has shown that retirement is associated with increased leisure physical activity [9] and sleep duration [10] most likely due to increased time availability, restructure of leisure activities and awareness of one's own health and well-being [11,12]. However, retirement has also been listed as a strong determinant for engaging sedentary behavior [13]. To date, only a small number of studies have examined how sedentary behavior changes during the retirement transition [14].

Prior longitudinal studies have shown that retirement is associated with increased time spend on television viewing and computer use, and with decreased passive transportation time [8,14–17]. However, previous studies have not been able to follow people with repeat measurements across the retirement transition nor to assess short and long-term changes in both total and domain-specific sedentary behaviors [8,15–17]. Furthermore, prior research has examined changes in sedentary behavior only by education and work-related factors [14]. Yet, multiple other factors, such as lifestyle and health factors, are shown to be associated with sedentary behavior [18] and therefore could potentially affect the changes in sedentary behavior during the retirement transition.

To address some of these the limitations, this longitudinal study examined how non-occupational sedentary behavior, such as television viewing, computer use at home, sitting in

a vehicle and other sitting, changed across the retirement transition using repeated annual measurements. We also investigated which pre-retirement characteristics were associated with changes in total and domain-specific sedentary time during the retirement transition.

METHODS

Study population

Finnish Retirement and Aging Study (FIREA) is an ongoing longitudinal cohort study of older adults in Finland established in 2013. The aim of the FIREA study is to follow aging workers from work to full-time retirement and to determine how health behaviors and clinical risk factors change during transition to statutory retirement. The eligible population for the FIREA study cohort included all public sector employees whose individual retirement date was between 2014 and 2019 and who were working in year 2012 in one of the 27 municipalities in Southwest Finland or in the 9 selected cities or 5 hospital districts around Finland. Information on the estimated individual retirement date was obtained from the pension insurance institute for the municipal sector in Finland (Keva). Participants were first contacted 18 months prior to their estimated retirement date by sending a questionnaire, which was thereafter sent annually, four times in total. The actual date of retirement was reported by the participants. Due to the eligibility criteria, large majority of the FIREA participants retired based on their age, and not due to disease. The FIREA study was conducted in line with the Declaration of Helsinki, and was approved by the Ethics Committee of Hospital District of Southwest Finland.

By the end of 2017, 6,673 (63% of the eligible sample, n=10,629) of the FIREA cohort members had responded to at least one questionnaire and of them 4,311 had responded at least twice to questionnaires, 2,082 both prior and after the actual retirement date reported. The final

analytical sample did not differ from the eligible sample (83 vs. 80% of women, 33 vs. 29% of upper grade non manual, 37 vs. 42% of manual workers, respectively).

There were two possible study waves before retirement (wave -2, wave -1) and three possible waves after retirement (wave +1, wave +2, wave +3) (Table 1). Each successive wave was one year apart from each other. To be included in this study, the participants had to have information on total sedentary time immediately before and after transition to statutory retirement (i.e. at wave -1 and at wave +1) (n=2,058). We excluded those with missing information on socio-economic status (n=24) and those who were not working full-time or part-time at wave -1 (n=23) resulting in an analytic sample of 2,011 persons. Thus, depending on the retirement date, participants' observations came from one of the following alternative set of waves: 1) wave -2, wave -1, wave +1, wave +2, or, 2) wave -1, wave +1, wave +2, and wave +3. On average, these participants provided information on total sedentary time at 3.4 (range 2-4) of the possible four study waves.

Assessment of sedentary behavior

Sedentary behavior was inquired at each study wave with a question: "On average, how many hours on a non-weekend days you spend on sitting: 1) at the office, 2) watching television or videos at home, 3) using computer at home, 4) in a vehicle (car, train, airplane), and 5) other sitting?" Response alternatives for each domain were: 0 (sitting less than an hour or not at all), 1, 2, …, 9, ≥10 hours per day, coded as 0 to 10 hours, respectively. We calculated a total non-occupational sedentary time by summing up sitting times for television viewing, computer use, vehicle and other.

Assessment of covariates

Sex, date of birth, and occupational status were obtained from the pension insurance institute for the municipal sector in Finland (Keva). Occupational status was categorized into three groups according to the occupational titles by the last known occupation preceding retirement: upper-grade non-manual workers (e.g. teachers, physicians), lower-grade non-manual workers (e.g. registered nurses, technicians) and manual workers (e.g. cleaners, maintenance workers). All other covariates were based on the responses in the last questionnaire prior to retirement (wave -1). These covariates were selected because they have been shown to be associated with sedentary behavior [18] and might influence the decision to retire [19]. Work status was divided into full-time or part-time workers and marital status into married/cohabiting or not married/other. Heavy physical work (no vs. yes) was assessed by using validated gender-specific job exposure matrix (JEM) for physical exposures [20,21]. Occupational sedentary time before the retirement transition was categorized as: <4 hours, 4 to <6 hours, 6 to <8 hours and ≥8 hours daily.

Physical activity was assessed with a question on average weekly duration and intensity of leisure and commuting physical activity during the past year. Weekly physical activity was expressed as metabolic equivalent (MET) hours and categorized as: low (<14 MET hours/week), moderate (14 to <30 MET hours/week), and high (≥30 MET hours/week) activity levels [22]. Body mass index (BMI) was calculated from self-reported weight and height and categorized into: underweight (<18.5 kg/m^2), normal weight (18.5 to <25.0 kg/m^2), overweight (25 to <30 kg/m^2) and obese (≥30 kg/m^2) [23]. The participants reported their habitual frequency and amount of beer, wine, and spirits consumption, in weekly units of alcohol. Heavy alcohol use (no vs. yes) was defined as >16 drinks/week for women and >24 drinks/week for men, as these limits correspond with the lower limit for heavy use of alcohol set by the Finnish Ministry of Health and Social Affairs [24]. Smoking status was categorized into non-smokers (never and former) and current smokers. Sleep difficulties were measured

148 with the Jenkins Sleep Problem Scale [25] and categorized as no sleep difficulties (sleep
149 difficulties ≤ 1 night/week), moderate sleep difficulties (2-4 nights/week), or severe sleep
150 difficulties (5-7 nights/week) [26].

151 Data on chronic diseases was based on question "Have your doctor ever told that you have or
152 have had …." and following diseases were taken into account: angina pectoris, myocardial
153 infarction, stroke, claudication, osteoarthritis, osteoporosis, sciatica, fibromyalgia, rheumatoid
154 arthritis, migraine, and malign cancer. For the analyses, participants were categorized into
155 having 0, 1, >1 chronic diseases. Mental disorders included depression and/or other mental
156 diseases (no vs. yes). Self-rated health was assessed with a 5-point scale (1=good, …, 5=poor),
157 and was then categorized as good (1-2), average (3), and poor (4-5) health. Psychological
158 distress was measured with the 12-item version of General Health Questionnaire (GHQ-12),
159 which gives a total score ranging from 0 to 12. A cut-off point of three or more symptoms was
160 used to indicate psychological distress (no vs. yes) [27].

161

162 **Statistical analysis**

163 Characteristics of the study population before retirement (at wave -1) are presented as numbers
164 and percentages for categorical variables and as means and standard deviations (SDs) for
165 continuous variables. We first calculated mean estimates and their 95% confidence intervals
166 (CI) for the total and domain-specific sedentary times in each study wave to illustrate the levels
167 of these behaviors across the retirement transition (from wave -2 to wave +3). We used linear
168 regression analyses with generalized estimating equations (GEE). The GEE models control for
169 the intra-individual correlation between repeated measurements using an exchangeable
170 correlation structure and is not sensitive to measurements missing completely at random
171 [28,29]. The difference in the mean change in total and domain-specific sedentary times

between two specific time periods: the retirement transition period (from wave -1 to wave +1) and the post-retirement period (from wave +2 to wave +3) were tested using a period*time interaction term.

We also examined whether sociodemographic and work-related factors (sex, occupational status, work status, marital status, heavy physical work and occupational sedentary time), lifestyle factors (physical activity, BMI, heavy alcohol use, current smoking status, sleep difficulties), and health factors (number of chronic diseases, mental disorders, self-reported health, and psychological distress) before retirement were associated with the magnitude of changes in total and domain-specific sedentary times during the retirement transition (from wave -1 to wave +1). For these analyses, the interaction term pre-retirement factor*time was added to the GEE models. All models were adjusted for age, sex, and occupational status. The SAS 9.4 Statistical Package was used for all of the analyses (SAS Institute Inc., Cary, NC).

RESULTS

Characteristics of the study population are shown in Table 2. Before the retirement transition (at wave -1), the mean age of the study population was 63.2 (SD 1.3) years, 39% had low physical activity level, 38% had normal BMI, and 28% were free of chronic diseases. The mean time spent being sedentary at leisure was 4.7 (95% CI 4.5-4.8) hours/day. The total sedentary time before retirement differed by sex, work and marital status, physical strenuousness of the work, physical activity level, BMI category, alcohol use, severity of sleep difficulties, self-reported health, and psychological distress ($P<0.05$ for all).

Figure 1 illustrates the changes in total and domain-specific non-occupational sedentary times across the retirement transition. The total sedentary time, including sitting time for television viewing, computer use, vehicle and other, increased by 73 minutes/day to 5.9 hours/day during

196 the retirement transition and continued to increase by 18 minutes/day to 6.2 hours/day during
197 the post-retirement period. Thus the change in total sedentary time during the retirement
198 transition was four times that of change during the post-retirement period (period*time
199 interaction p<.0001). Of the domain-specific sedentary behaviors, television viewing time
200 increased by 28 minutes/day to 2.7 hours/day, computer use at home by 19 minutes/day to 1.1
201 hours/day, and time spent on other sitting activities by 37 minutes/day to 1.6 hours/day during
202 the retirement transition. Time sitting in a vehicle decreased by 6 minutes/day during retirement
203 transition. Computer use and other sitting times continued to increase during the post-
204 retirement period (by 5 and 8 minutes/day, respectively).

205 Table 2 presents mean estimates for the change in total non-occupational sedentary time during
206 the retirement transition by the pre-retirement characteristics. Supplemental Tables 1-3 present
207 results for domain-specific sedentary times. Women increased their total sedentary time more
208 than men during the retirement transition (77 vs. 56 minutes/day, sex*time interaction p=0.01).
209 Changes in total sedentary time across the retirement transition among men and women are
210 shown in Supplemental Figure 1.

211 Those who retired from full-time jobs increased total sedentary time more than those who
212 retired from part-time jobs (78 vs. 62 minutes/day, pre-retirement job status*time interaction
213 p=0.02). This was also seen for the change in television viewing time (Supplemental Table 1).
214 Those who had high pre-retirement occupational sedentary time reported higher increase in
215 total sedentary time during the retirement transition than those who had low occupational
216 sedentary time (98 vs. 65 minutes/day, pre-retirement occupational sedentary time*time
217 interaction p<0.0001). This association was also seen for the changes in computer use
218 (Supplemental Table 2) and other sitting time (Supplemental Table 3). In addition, those who
219 had low pre-retirement physical activity level reported higher increase in total sedentary time
220 during the retirement transition than those who had high pre-retirement physical activity level

(79 vs. 62 minutes/day, pre-retirement activity level*time interaction p=0.02). The pre-retirement physical activity level was also associated with the change in television viewing time (Supplement Table 1).

Among those with severe sleep difficulties before retirement, the increase in total sedentary time during the retirement transition was reported to be higher than among those who had no pre-retirement sleep difficulties (89 vs. 64 minutes/day, pre-retirement sleep difficulties*time interaction p=0.002). Sleep difficulties were also associated with the change in sitting time for computer use (Supplemental Table 2). Those who had chronic diseases reported higher increase in total sedentary time during the retirement transition than those who had no chronic diseases before retirement (79 vs. 61 minutes/day, pre-retirement disease status*time p=0.03). Furthermore those who had mental disorders before retirement increased their total sedentary time more than those who had no pre-retirement mental disorders (94 vs. 71 minutes/day, pre-retirement mental health*time interaction p=0.009). In addition, self-reported health before retirement was associated with the change in total sedentary time: those reporting poor health increased their total sedentary time more than those reporting good health (96 vs. 68 minutes/day, pre-retirement health*time interaction p=0.03). Self-reported health showed strongest association with increased television viewing time (Supplemental Table 1). Also psychological distress before retirement was associated with the changes in television viewing time (Supplemental Table 1) and computer use (Supplemental Table 2) during the retirement transition.

DISCUSSION

This is apparently the first longitudinal study examining changes in non-occupational sedentary behavior across the retirement transition. Total sedentary time as well as television viewing

time, computer use at home, and other sitting time increased during the retirement transition. Total sedentary time, and especially computer use and other sitting time, continued to increase during the years following retirement. Women, and those who had high occupational sedentary time, low level of physical activity, sleep difficulties, mental disorders, or poor health before retirement were most likely to report an increase in total sedentary time during the retirement transition. Compared to previous studies, an advantage of the present investigation is the analysis of annual changes in sedentary behavior using repeated measures of domain-specific sedentary behaviors across the retirement transition. In addition, we studied the associations between pre-retirement characteristics and the changes in total and domain-specific sedentary time during the retirement transition.

Our finding that total sedentary time, television viewing, computer use, and other sitting time increase during the retirement transition corresponds to previous longitudinal findings showing higher increase in total leisure sedentary time [16], television viewing time [8,15,16], and computer time [16] among retiring adults than among those who remained employed. As sedentary behavior in general [2,4] and television viewing specifically [30–32] are related to adverse health outcomes among older adults, our findings, among others, suggest that more attention should be paid to reducing overall sedentary behavior and especially television viewing time after transitioning to retirement. We also observed that total, computer use at home, and other sitting time continued to increase in the years following retirement. However, computer use and other sitting time increased to lower absolute level of sedentary behavior per day than television viewing. It is worth noting that computer use is mentally activating compared to passive television viewing[33], and may not be as harmful for health among older adults [34]. Despite the overall increase in sedentary behavior during retirement, we also observed that sitting in a vehicle decreased during the retirement transition. Similarly to our finding, a previous study has shown that passive transportation decreases more among retiring

than among already retired adults [17]. This decrease is probably mostly due to absence of commuting-related passive transportation after retirement.

A unique feature in our study is that we included a wide range of pre-retirement characteristics that could affect the magnitude of change in total and domain-specific sedentary behaviors during the retirement transition. We found that women increased their total sedentary time more than men, although men were more sedentary before retirement. Also high occupational sedentary time before the retirement transition was associated with greater increase in total, computer use and other sitting time during the retirement transition. Similar relationships were also seen in previous studies where higher work-related sitting [35] and physically demanding job [15] associated with greater increase in screen time after retirement. Although less educated adults [17] and those retiring from manual social class [16] have previously been shown to be more susceptible to increase television viewing time after retirement, we did not observe similar associations.

According to our findings, high level of physical activity before retirement was associated with less increase in total and television viewing time during the retirement transition. Another novel finding is that those who had sleep difficulties, mental disorders or poor health before retirement were most likely to report an increase in total sedentary time during the retirement transition. Sleep difficulties were associated with increased sitting time for computer use whereas poor self-reported health associated with increased television viewing time. In addition, pre-retirement psychological distress was associated with increased television viewing and computer use after retirement. These findings adds to previous studies which have found that sedentary behavior is associated with poor sleep quality [36], poor mental health [37,38] and increased risk of depression [39,40].

The main limitation of this longitudinal study is the reliance on self-reported data, which can lead to bias and underreporting of sedentary time [3]. To our knowledge the questionnaire used in this study is not validated against objective measurements of sedentary behavior. In addition, since we calculated the total non-occupational sedentary time based on the time used in different domains, we were not able to control the simultaneity of domain-specific sedentary behaviors. This may have led to slight overestimation of the total sedentary time. However, the assessment of sedentary behavior as self-reported hours/day is frequently used in observational studies [7] and we were able to use the same questions of domain-specific sedentary behaviors in each of the study waves. Future studies with objective monitoring of sedentary time are therefore needed to fully understand the changes in sedentary behavior during the retirement transition.

There are also some other methodological issues that deserve discussion. We only assessed sedentary time on non-weekend days. This can be a limitation, because sedentary time may be different in weekend vs. week days among older adults [41]. On the other hand, by focusing on week-days only we were able to better capture changes in sedentary behavior when week-day routines change after retirement. In addition, we did not include occupational sedentary time in the calculation of total sedentary time because occupational sitting disappears after retiring from work [16] and this would have masked the increase in non-occupational sedentary behavior [14]. Instead we examined changes in sedentary behavior during the retirement transition based on the levels of pre-retirement occupational sedentary time. Finally, the study population is representative of the Finnish public sector employees, however, the results may not necessarily be generalizable to other sectors.

Conclusions

Total non-occupational sedentary time and television viewing, computer use and other sitting time increased during the retirement transition. Total sedentary time continued to increase during the post-retirement period. Women and adults who had high occupational sedentary time, low physical activity level, sleep difficulties, mental disorders, or poor health before retirement were most likely to report an increase in time spend sedentary after the retirement transition. However, objective measurements of sedentary behavior are needed to fully understand the changes in sedentary behavior across the retirement transition.

Contributionship SS and JV designed this study and the data collection. TL analyzed the data and drafted the manuscript. All authors contributed to data interpretation, revised article critically, and approved the final version of manuscript.

Competing interest: None declared.

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Data sharing The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Ethical approval The FIREA study is conducted in line with the Declaration of Helsinki, and was approved by the Ethics Committee of Hospital District of Southwest Finland.

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474 **Figure Labels**

475 **Figure 1. Total and domain-specific sedentary times across the retirement transition.**
476 **Adjusted for age, sex and occupational status.**

477

Tables

Table 1. Study design. Annual study waves around retirement and the construction of the pre-retirement, retirement transition and post-retirement periods.

Pre-retirement period	Retirement transition			Post-retirement period	
n=955	*n*=2,011	RETIREMENT	*n*=2,011	*n*=1,211	*n*=547
	wave -1		wave +1	wave +2	wave +3
wave -2	wave -1		wave +1	wave +2	

Table 2. Total non-occupational sedentary time before retirement (wave -1) and mean changes in total sedentary time during the retirement transition period (from wave -1 to wave +1) by pre-retirement characteristics of the population. All models adjusted for age, sex and occupational status.

			Before retirement			During retirement transition			
	n	%	Total sedentary time (h)	95% CI		Mean change (h)	95% CI		P-value[1]
Total	2011	100	4.65	4.52	4.78	1.23	1.11	1.34	
Sex									0.01
Men	335	17	5.02	4.77	5.26	0.94	0.69	1.19	
Women	1676	83	4.39	4.29	4.49	1.28	1.16	1.41	
Occupational status									0.45
Upper grade, non-manual	665	33	4.55	4.38	4.71	1.24	1.07	1.42	
Lower grade, non-manual	605	30	4.67	4.48	4.86	1.30	1.10	1.50	
Manual	741	37	4.71	4.53	4.89	1.15	0.98	1.32	
Work status									0.02
Full-time	1401	70	4.52	4.38	4.66	1.31	1.18	1.44	
Part-time	610	30	4.94	4.75	5.15	1.04	0.85	1.23	
Marital status									0.43
Married or cohabiting	1436	73	4.57	4.44	4.71	1.21	1.09	1.34	
Not married or other	518	27	4.82	4.59	5.04	1.30	1.10	1.51	
Heavy physical work									0.33
No	1713	85	4.58	4.44	4.72	1.24	1.12	1.36	
Yes	298	15	5.01	4.74	5.29	1.10	0.85	1.36	
Occupational sedentary time									<.0001
0-<4 h	931	50	4.54	4.37	4.71	1.08	0.93	1.23	
4-<6 h	400	22	4.74	4.51	4.97	1.34	1.11	1.56	
6-<8 h	452	24	4.38	4.18	4.57	1.70	1.49	1.91	
≥8h	78	4	4.47	3.99	4.95	1.63	1.10	2.16	
Physical activity									0.02
Low	777	39	4.85	4.67	5.03	1.31	1.14	1.49	
Moderate	589	29	4.50	4.31	4.68	1.32	1.13	1.51	
High	631	32	4.51	4.33	4.68	1.03	0.86	1.20	
Body mass index									0.65

Underweight	7	0.5	4.72	3.36	6.09	NA			
Normal weight	757	38	4.38	4.20	4.55	1.19	1.03	1.35	
Overweight	806	41	4.56	4.41	4.71	1.20	1.03	1.36	
Obese	414	21	5.31	5.06	5.55	1.30	1.06	1.54	
Heavy alcohol use									0.83
No	1837	92	4.60	4.47	4.72	1.23	1.11	1.35	
Yes	164	8	5.19	4.80	5.58	1.20	0.86	1.53	
Current smoking									0.32
No	1802	91	4.62	4.48	4.75	1.21	1.09	1.33	
Yes	172	9	4.90	4.53	5.28	1.39	1.05	1.73	
Sleep difficulties									0.002
No	985	49	4.54	4.38	4.69	1.06	0.91	1.21	
Moderate	460	23	4.78	4.57	4.99	1.22	1.00	1.44	
Severe	565	28	4.77	4.58	4.97	1.48	1.28	1.68	
Number of chronic diseases									0.03
0	540	28	4.60	4.42	4.79	1.02	0.83	1.21	
1	745	38	4.64	4.45	4.82	1.29	1.12	1.47	
≥2	655	34	4.71	4.52	4.89	1.32	1.13	1.50	
Mental disorders									0.01
No	1527	84	4.63	4.49	4.78	1.18	1.05	1.31	
Yes	285	16	4.80	4.53	5.07	1.56	1.29	1.83	
Self-reported health									0.03
Good	1492	74	4.52	4.38	4.65	1.13	1.00	1.26	
Average	438	22	4.92	4.70	5.13	1.40	1.18	1.63	
Poor	78	4	5.70	5.07	6.34	1.60	1.11	2.10	
Psychological distress									0.08
No	1760	88	4.62	4.48	4.75	1.18	1.06	1.30	
Yes	243	12	4.90	4.61	5.18	1.46	1.16	1.77	

[1]P-value for interaction with time

Supplement material

Supplemental Figure 1. Total sedentary time across the retirement transition among men and women.

Supplemental Table 1. Television viewing time before retirement (wave -1) and mean changes in television viewing time during the retirement transition period (from wave -1 to wave +1) by pre-retirement characteristics of the population. All models adjusted for age, sex and occupational status.

Supplemental Table 2. Computer use at home before retirement (wave -1) and mean changes in computer use during the retirement transition period (from wave -1 to wave +1) by pre-retirement characteristics of the population. All models adjusted for age, sex and occupational status.

Supplemental Table 3. Other sitting time before retirement (wave -1) and mean changes in other sitting time during the retirement transition period (from wave -1 to wave +1) by pre-retirement characteristics of the population. All models adjusted for age, sex and occupational status.