

Supplementary Table S-F2-2. Summary of Original Research Studies on Sedentary Behavior and All-cause Mortality Identified in the Systematic Reviews and Meta-Analyses

Reference	Year of Publication	Population	Sample Size	Age	Definition of Sedentary Behavior	Mortality Follow-up Period	Main Results	Dose-Response
Weller and Corey 1998	1998	Canadian Women; Canada Fitness Survey Mortality Follow-up Study	6,620	>30 y	Daily sitting time	~ 7 y	OR (95% CI) across levels of daily sitting time in age-adjusted model: >50%: 1.00 (reference) 50%: 0.84 (0.64-1.11) <50%: 0.58 (0.44-0.75)	Not tested
Suzuki 2007	2007	Japanese Adult; Japan Collaborative Cohort Study for Evaluation of Cancer Risk (JACC Study)	N/A	N/A	TV Viewing time	N/A	HR (95% CI) across levels of TV viewing time in age- and area of study-adjusted model: <u>Men</u> <2 h/d: 1.00 (reference) 2-4 h/d: 1.06 (1.00-1.12) >4 h/d: 1.27 (1.19-1.36) <u>Women</u> <2 h/d: 1.00 (reference) 2-4 h/d: 0.92 (0.85-0.99) >4 h/d: 1.05 (0.97-1.14)	Not tested
Inoue et al. 2008	2008	Japanese Adults; Japan Public Health Center-based Prospective Study (JPHC Study)	83,034	45-74 y	Daily sitting time	1995-1999 to 2005 Mean of 8.7 y	HR (95% CI) across levels of daily sitting time in fully adjusted model: <u>Men</u> <3 h/d: 1.00 (reference) 3-8h/d: 1.02 (0.95-1.11) ≥8 h/d: 1.18 (1.04-1.35) P for trend = 0.036 <u>Women</u>	Men: Yes Women: No

							<p><3 h/d: 1.00 (reference) 3-8h/d: 0.95 (0.85-1.06) ≥8 h/d: 1.10 (0.82-1.25) P for trend = 0.698</p>	
Katzmarzyk et al. 2009	2009	Canadian Adults; Canada Fitness Survey Mortality Follow-up Study	17,013	18-90 y	Daily sitting time	1981 to 1993 Mean of 12.0 y	<p>HR (95% CI) across levels of daily sitting time in fully adjusted model: 0%: 1.00 (reference) 25%: 1.00 (0.86-1.18) 50%: 1.11 (0.94-1.30) 75%: 1.36 (1.14-1.63) 100% 1.54 (1.25-1.91) P for trend <0.0001</p> <p>Significant effects were observed in subgroup analyses stratified by sex, BMI, and smoking status.</p> <p>No significant interaction between sitting time and moderate-to-vigorous physical activity (p=0.45).</p>	Yes
Patel et al. 2010	2010	U.S. Adults; Cancer Prevention Study II (CPS-II) Nutrition Cohort	123,216	50-74 y	Daily leisure sitting time	1992 to 2006 Mean of ~14 y	<p>HR (95% CI) across levels of daily sitting time in fully adjusted model: <u>Men</u> <3 h/d: 1.00 (reference) 3-5 h/d: 1.07 (1.03-1.12) ≥5 h/d: 1.17 (1.11-1.24) P for trend <0.0001 <u>Women</u> <3 h/d: 1.00 (reference) 3-5 h/d: 1.13 (1.07-1.18)</p>	Men: Yes Women: Yes

							<p>≥5 h/d: 1.34 (1.25-1.44) P for trend <0.0001</p> <p>Significant effects were observed in subgroup analyses stratified by BMI. No significant effect modification by age, sex, BMI, and smoking status.</p> <p>Sitting time was associated with mortality regardless of physical activity level.</p>	
Dunstan et al. 2010	2010	Australian Adults; The Australian Diabetes, Obesity and Lifestyle Study (AusDiab)	8,800	≥25 y	TV viewing time	1999-2000 to 2006 Median of 6.6 y	<p>HR (95% CI) across levels of TV viewing time in fully adjusted model: <2 h/d: 1.00 (reference) 2-<4 h/d: 1.13 (0.87-1.36) ≥4 h/d: 1.46 (1.04-2.05)</p> <p>No significant effect modification by age, sex, education, smoking status, hypertension, waist circumference, BMI, and glucose tolerance status (p>0.01).</p> <p>No significant interaction between TV viewing time and leisure-time exercise (p>0.01).</p>	Yes
Stamatakis et al. 2011	2011	Scottish Adults; 2003 Scottish Health Survey	4,512	≥35 y	TV viewing time	2003 to 2007 Mean of 4.3 y	<p>HR (95% CI) across levels of TV viewing time in fully adjusted model: <2 h/d: 1.00 (reference) 2-<4 h/d: 1.14 (0.80-1.62) ≥4 h/d: 1.48 (1.04-2.13)</p>	Yes

							P for trend = 0.029	
Wijndaele et al. 2011	2011	UK Adults; European Prospective Investigation into Cancer and Nutrition Study (EPIC) - Norfolk	13,197	Mean of 61.5 y	TV viewing time	1998-2000 to 2009 Mean of 9.5 y	HR (95% CI) per hour of TV viewing = 1.05 (1.01-1.09), p=0.03 No significant interactions between TV time and sex, age, education and BMI. Subgroup analyses generally showed similar HRs across sex, age, education levels, and BMI with varying levels of significance. No significant interaction between TV viewing and physical activity EE (p=0.46).	Yes
van der Ploeg et al. 2012	2012	Australian Adults; 45 and Up Study	222,497	≥45 y	Daily sitting time	2006-08 to 2010 Mean of 2.8 y	HR (95% CI) across levels of daily sitting time in fully adjusted model: <4 h/d: 1.00 (reference) 4-<8 h/d: 1.02 (0.95-1.09) 8-<11 h/d: 1.15 (1.06-1.25) ≥11 h/d: 1.40 (1.27-1.55) Trend: 1.11 (1.08-1.15) Significant effects were observed in subgroup analyses stratified by sex, age, BMI, health status, and presence of CVD or diabetes. Significant effects were observed when stratified by physical activity level.	Yes

Matthews et al. 2012	2012	U.S. Adults; NIH-AARP Diet and Health Study	240,819	50-71 y	Daily sitting time, TV viewing time	1995-96 to 2005 Mean of 8.5 y	<p>HR (95% CI) across levels of daily sitting time in fully adjusted model:</p> <p><3 h/d: 1.00 (reference) 3-4 h/d: 0.98 (0.95-1.03) 5-6 h/d: 1.03 (0.98-1.08) 7-8 h/d: 1.02 (0.96-1.07) ≥9 h/d: 1.19 (1.12-1.27) P for trend <0.001</p> <p>HR (95% CI) across levels of TV viewing in fully adjusted model:</p> <p><1 h/d: 1.00 (reference) 1-2 h/d: 1.04 (0.96-1.12) 3-4 h/d: 1.14 (1.06-1.23) 5-6 h/d: 1.31 (1.21-1.42) ≥7 h/d: 1.61 (1.47-1.76) P for trend <0.001</p> <p>Significant effects were observed for TV viewing in subgroup analyses stratified by sex, age, BMI, race (white and black), education level, smoking status, presence of chronic conditions, and diet quality.</p> <p>There was a significant interaction between TV viewing and moderate-to-vigorous physical activity (p=0.002). The significant associations for TV viewing were not fully mitigated by high levels of moderate-to-vigorous physical activity.</p>	Yes
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Ford 2012	2012	U.S. Adults; 1999-2002 National Health and Nutrition Examination Survey (NHANES)	7,350	≥20 y	Daily TV viewing and computer use outside of work	1999-2002 to 2006 Median of 5.8 y	HR (95% CI) across levels of daily sedentary time in fully adjusted model: <1 h/d: 1.00 (reference) 1 h/d: 1.10 (0.69-1.73) 2 h/d: 1.09 (0.78-1.53) 3 h/d: 1.38 (0.78-2.42) 4 h/d: 1.02 (0.64-1.61) ≥5 h/d: 1.33 (0.85-2.09) P for trend = 0.181	No
Koster et al. 2012	2012	U.S. Adults; 2003- 2004 National Health and Nutrition Examination Survey (NHANES)	1906	≥50 y	Waist Accelerometry (<100 counts/min)	2003-04 to 2006 Mean of 2.8 y	HR (95% CI) across quartiles of daily sedentary time in fully adjusted model: Q1: 1.00 (reference) Q2: 1.74 (0.81-3.73) Q3: 2.74 (1.35-5.52) Q4: 3.26 (1.59-6.69)	Not tested
Kim et al. 2013	2013	U.S. Adults; Multiethnic Cohort Study	134,596	45-75 y	Daily sitting time; TV viewing time	1993-96 to 2007 Median of 13.7 y	HR (95% CI) across quartiles of daily sitting time in fully adjusted model: <u>Men</u> <5 h/d: 1.00 (reference) 5-<10h/d: 0.99 (0.94-1.04) ≥10 h/d: 1.04 (0.98-1.11) P for trend = 0.09 <u>Women</u> <5 h/d: 1.00 (reference) 5-<10h/d: 0.99 (0.93-1.05) ≥10 h/d: 1.11 (1.04-1.19) P for trend <0.01	Daily sitting: No for men; Yes for women TV viewing: Yes

						<p>HR (95% CI) across quartiles of TV viewing time in fully adjusted model:</p> <p><u>Men</u></p> <p><1 h/d: 1.00 (reference) 1-4 h/d: 1.02 (0.96-1.08) ≥5 h/d: 1.19 (1.10-1.29) P for trend <0.01</p> <p><u>Women</u></p> <p><1 h/d: 1.00 (reference) 1-4 h/d: 1.01 (0.94-1.08) ≥5 h/d: 1.32 (1.21-1.44) P for trend <0.01</p> <p>Significant effects were observed for TV viewing in subgroup analyses stratified by age, sex, BMI, race/ethnicity (white, African American, Native Hawaiian, Latino), education level, smoking status, presence of diabetes or hypertension, fruit and vegetable intake, and sleeping duration. HRs were generally elevated in all groups with the exception of Japanese, and those with a BMI < 18.5 kg/m².</p> <p>Significant interaction between TV viewing and physical activity in men ((P<0.01) but not women (p=0.40). The association was stronger in less active men.</p>	
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Martinez-Gomez et al. 2013	2013	Spanish Adults	3,465	≥60 y	Daily sitting time	2000-01 to 2011 Mean of 9.0 y	HR (95% CI) across levels of sitting time in fully adjusted model: ≥8 h/d: 1.00 (reference) <8 h/d: 0.70 (0.60-0.82)	Not tested
Seguin et al. 2014	2014	U.S. Women; Women's Health Initiative (WHI)	92,234	50-79 y	Total sedentary time (sitting and lying while awake)	1993-98 to 2010 Mean of 12 y	HR (95% CI) across levels of total sedentary time in fully adjusted model: ≤4 h/d: 1.00 (reference) >4-8 h/d: 1.03 (0.97-1.10) >8-11 h/d: 1.07 (0.99-1.14) >11 h/d: 1.12 (1.05-1.21) P for trend = 0.0006 No significant interactions between sedentary time and age, BMI, physical functioning, and history of chronic disease. There was a significant interaction with race/ethnicity (white, black, Hispanic, other) with significant associations observed in white and black adults. No significant interaction between sedentary time and physical activity (p=0.16); no association with sedentary time observed in most active quartile.	Yes
Petersen et al. 2014	2014	Danish Adults; Danish Health Examination Survey (DANHES)	71,363	18-99 y	Daily sitting time	2007-08 to 2012 Mean of	HR (95% CI) across levels of daily sitting time in fully adjusted model: 0 -<6 h/d: 1.00 (reference)	Yes

						5.4 y	6-<10 h/d: 1.05 (0.90-1.22) 10+ h/d: 1.31 (1.09-1.57) P for trend <0.01 Significant interaction between sitting time and physical activity (p=0.04) with a stronger association in the inactive group.	
Basterra-Gortari et al. 2014	2014	Spanish Adults; SUN Project	13,284	Mean of 37 y	TV viewing time	Median of 8.2 y	HR (95% CI) across levels of TV viewing time in fully adjusted model: <1 h/d: 1.00 (reference) 1-2 h/d: 1.05 (0.59-1.87) 2-3 h/d: 1.44 (0.85-2.43) >3 h/d: 2.04 (1.16-3.57) P for trend = 0.008 No significant interaction between TV viewing and physical activity.	Yes
Matthews et al. 2014	2014	U.S. Adults; Southern Community Cohort Study	63,308	40-79 y	Daily sitting time; TV viewing time	2002-2009 to 2011 Mean of 6.4 y	HR (95% CI) across levels of daily sitting time in fully adjusted model: <u>Blacks</u> <5.76 h/d: 1.00 (reference) 5.76-8.50 h/d: 1.02 (0.93-1.12) 8.51-12.00 h/d: 1.18 (1.07-1.30) >12.0 h/d: 1.19 (1.08-1.32) P for trend <0.0001 <u>Whites</u> <5.76 h/d: 1.00 (reference) 5.76-8.50 h/d: 1.08 (0.93-1.25)	Yes

							8.51-12.00 h/d: 1.07 (0.92-1.25) >12.0 h/d: 1.24 (1.06-1.47) P for trend = 0.002 HR (95% CI) for TV viewing time >5 h/d versus <1 h/day: Black Men: 1.21 (1.03-1.43) Black Women: 1.55 (1.22-1.96) White Men: 1.24 (0.94-1.64) White Women: 1.70 (1.22-2.37)	
Pavey et al. 2015	2015	Australian Women; Australian Longitudinal Study of Women's Health	6,656	76-81 y	Daily sitting time	2002 to 2011 Median of 6.0 y	HR (95% CI) across levels of daily sitting time in fully adjusted models: <4 h/d: 1.00 (reference) 4-<8 h/d: 0.90 (0.79-1.03) 8-<11 h/d: 1.21 (1.01-1.44) ≥ 11 h/d: 1.24 (0.98-1.56) HR for trend: 1.03 (1.01-1.05) Significant interaction between sitting time and sitting time and physical activity (p=0.02) with significant association only in the inactive group.	Yes
Chau et al. 2015	2015	Norwegian Adults; Nord-Trøndelag Health Study 3 (HUNT3)	50,817	≥20 y	Daily sitting time; TV viewing time	2006-08 to 2010 Mean of 3.3 y	HR (95% CI) across levels of daily sitting time in fully adjusted model: 0 -<4 h: 1.00 (reference) 4-<7 h: 1.12 (0.89-1.42) 7-<10 h: 1.18 (0.90-1.57) 10+ h: 1.65 (1.24-2.21) P for trend = 0.001	Sitting time: Yes TV viewing: No

							HR (95% CI) across levels of TV viewing time in fully adjusted model: <1 h: 1.00 (reference) 1-3 h: 0.98 (0.75-1.27) 4+ h: 1.11 (0.83-1.48) P for trend = 0.312	
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Legend: BMI=body mass index, CI=confidence interval, HR=hazard ratio, OR=odds ratio, TV=television, N/A=not available

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