

SUPPLEMENTAL MATERIAL

Table S1. Age-adjusted rates of cardiovascular events per 100,000 person-years, by quartiles of physical activity and sedentary behavior (N=16,031)

	Events per 10,000 person-years (95% CI)		
	Total CVD	Myocardial infarction	Ischemic stroke
Total VM			
Q1	20.8 (6.6, 65.6)	11.7 (1.0, 140.0)	1.1 (0.2, 6.8)
Q2	14.7 (4.8, 44.9)	7.9 (0.7, 89.9)	1.0 (0.2, 5.8)
Q3	15.5 (5.2, 46.5)	8.1 (0.7, 87.8)	0.8 (0.1, 4.5)
Q4	10.0 (3.4, 29.7)	6.6 (0.6, 69.6)	0.6 (0.1, 3.3)
MVPA (min/d)			
Q1	23.1 (7.2, 74.5)	10.4 (0.8, 131.2)	1.4 (0.2, 9.3)
Q2	16.8 (5.4, 52.2)	9.4 (0.8, 109.1)	1.2 (0.2, 7.4)
Q3	15.6 (5.1, 47.3)	7.4 (0.6, 82.1)	0.9 (0.1, 5.1)
Q4	11.9 (4.0, 35.9)	6.5 (0.6, 70.4)	0.8 (0.1, 4.4)
HPLA (min/d)			
Q1	7.9 (2.7, 23.2)	5.1 (0.5, 52.2)	0.5 (0.1, 2.5)
Q2	7.2 (2.5, 21.1)	4.0 (0.4, 41.3)	0.4 (0.1, 2.3)
Q3	6.7 (2.3, 19.6)	3.9 (0.4, 39.2)	0.4 (0.1, 2.3)
Q4	6.0 (2.1, 17.4)	4.3 (0.4, 43.9)	0.4 (0.1, 2.1)
SB (min/d)			
Q1	6.9 (2.4, 20.1)	4.3 (0.4, 42.8)	0.4 (0.1, 2.5)
Q2	7.4 (2.5, 21.8)	5.2 (0.5, 53.9)	0.4 (0.1, 2.1)
Q3	8.5 (2.9, 25.1)	4.3 (0.4, 45.0)	0.5 (0.1, 2.8)
Q4	10.3 (3.5, 30.1)	6.3 (0.6, 66.7)	0.5 (0.1, 3.1)

Avg: average; Q1-Q4: quartiles 1-4; d: day; MVPA: moderate-to-vigorous physical activity; HPLA: high-light physical activity; SB: sedentary behavior

Quartiles of total VM (1000's): Q1 ≤ 385.4; 385.4 < Q2 ≤ 502.9; 502.9 < Q3 ≤ 639.5; 639.5 > Q4

Quartiles of MVPA min/day: Q1 ≤ 60.0; 60.0 < Q2 ≤ 87.5; 87.5 < Q3 ≤ 119.6; 119.6 > Q4

Quartiles of HPLA min/day: Q1 ≤ 86.2; 86.2 < Q2 ≤ 106.6; 106.6 < Q3 ≤ 128.9; 128.9 > Q4

Quartiles of SB min/day: Q1 ≤ 442.9; 442.9 < Q2 ≤ 507.9; 507.9 < Q3 ≤ 573.5; 573.5 > Q4

Table S2. Hazard ratios of cardiovascular events for increasing quartiles of physical activity and sedentary behavior, compared to the lowest quartile of physical activity, (N=16,031)

	n	Total CVD Hazard Ratio (95% CI)		n	Myocardial infarction Hazard Ratio (95% CI)		n	Ischemic stroke Hazard Ratio (95% CI)	
		Model 1	Model 2		Model 1	Model 2		Model 1	Model 2
Total VM									
Q1	172	1.00	1.00	37	1.00	1.00	63	1.00	1.00
Q2	117	0.77 (0.60, 0.98)	0.87 (0.67, 1.12)	25	0.77 (0.46, 1.29)	0.87 (0.51, 1.50)	52	0.95 (0.65, 1.39)	1.11 (0.74, 1.66)
Q3	119	0.84 (0.66, 1.08)	0.98 (0.74, 1.28)	25	0.83 (0.49, 1.43)	1.05 (0.60, 1.86)	39	0.76 (0.50, 1.16)	0.89 (0.55, 1.43)
Q4	74	0.57 (0.42, 0.76)	0.73 (0.53, 1.01)	20	0.73 (0.40, 1.33)	0.93 (0.49, 1.79)	27	0.59 (0.37, 0.97)	0.79 (0.46, 1.36)
<i>p-value</i>		<0.01	0.15		0.35	0.98		0.03	0.33
Per 5 th %ile		0.81 (0.71, 0.92)	0.92 (0.79, 1.07)		0.81 (0.61, 1.08)	0.91 (0.67, 1.24)		0.87 (0.70, 1.08)	0.99 (0.77, 1.26)
MVPA (min/d)									
Q1	175	1.00	1.00	34	1.00	1.00	68	1.00	1.00
Q2	120	0.79 (0.63, 1.01)	0.91 (0.71, 1.17)	30	1.02 (0.61, 1.69)	1.18 (0.70, 1.99)	51	0.90 (0.62, 1.30)	1.04 (0.69, 1.55)
Q3	107	0.77 (0.60, 1.00)	0.90 (0.68, 1.19)	23	0.75 (0.49, 1.49)	1.09 (0.60, 1.95)	34	0.67 (0.43, 1.03)	0.79 (0.49, 1.27)
Q4	80	0.62 (0.46, 0.82)	0.78 (0.57, 1.07)	20	0.81 (0.44, 1.47)	1.03 (0.54, 1.97)	28	0.59 (0.36, 0.94)	0.77 (0.45, 1.29)
<i>p-value</i>		<0.01	0.14		0.40	0.96		0.01	0.22
Per 10 min		0.96 (0.94, 0.99)	0.98 (0.96, 1.01)		0.96 (0.91, 1.01)	0.98 (0.93, 1.03)		0.97 (0.93, 1.01)	0.99 (0.95, 1.03)
HLEPA (min/d)									
Q1	136	1.00	1.00	31	1.00	1.00	49	1.00	1.00
Q2	125	0.98 (0.77, 1.25)	1.06 (0.81, 1.39)	25	0.88 (0.52, 1.49)	1.03 (0.59, 1.80)	44	0.94 (0.62, 1.42)	0.99 (0.64, 1.53)
Q3	117	0.94 (0.73, 1.21)	1.08 (0.82, 1.43)	24	0.87 (0.51, 1.50)	1.07 (0.60, 1.91)	46	0.99 (0.66, 1.50)	1.02 (0.65, 1.62)
Q4	104	0.84 (0.64, 1.10)	1.05 (0.78, 1.41)	27	1.03 (0.60, 1.76)	1.37 (0.76, 2.48)	42	0.89 (0.58, 1.37)	1.06 (0.65, 1.71)
<i>p-value</i>		0.20	0.72		0.95	0.31		0.68	0.80
Per 10 min		0.98 (0.95, 1.01)	1.01 (0.97, 1.04)		1.00 (0.94, 1.06)	1.03 (0.96, 1.10)		1.00 (0.95, 1.05)	1.02 (0.97, 1.08)
SB (min/d)									
Q1	96	0.67 (0.51, 0.89)	0.83 (0.61, 1.13)	22	0.65 (0.36, 1.17)	0.82 (0.43, 1.55)	40	0.85 (0.55, 1.33)	0.98 (0.59, 1.61)
Q2	108	0.72 (0.56, 0.94)	0.85 (0.64, 1.12)	28	0.83 (0.49, 1.41)	1.03 (0.59, 1.81)	36	0.68 (0.44, 1.05)	0.77 (0.48, 1.24)
Q3	125	0.83 (0.65, 1.06)	0.87 (0.67, 1.12)	23	0.67 (0.39, 1.16)	0.76 (0.43, 1.33)	49	0.92 (0.62, 1.36)	0.90 (0.59, 1.38)
Q4	153	1.00	1.00	34	1.00	1.00	56	1.00	1.00
<i>p-value</i>		<0.01	0.24		0.25	0.80		0.25	0.72
Per 30 min		1.04 (1.01, 1.07)	1.01 (0.98, 1.05)		1.01 (0.99, 1.03)	1.00 (0.93, 1.07)		1.02 (0.97, 1.07)	1.00 (0.94, 1.06)

n: number of events in each quartile; Q1-Q4: quartiles 1-4; d: day; MVPA: moderate-to-vigorous physical activity; HLEPA: high-light physical activity; SB: sedentary behavior

Quartiles of total VM (1000's): Q1 ≤ 385.4; 385.4 < Q2 ≤ 502.9; 502.9 < Q3 ≤ 639.5; 639.5 > Q4

Quartiles of MVPA min/day: Q1 ≤ 60.0; 60.0 < Q2 ≤ 87.5; 87.5 < Q3 ≤ 119.6; 119.6 > Q4

Quartiles of HLEPA min/day: Q1 ≤ 86.2; 86.2 < Q2 ≤ 106.6; 106.6 < Q3 ≤ 128.9; 128.9 > Q4

Quartiles of SB min/day: Q1 ≤ 442.9; 442.9 < Q2 ≤ 507.9; 507.9 < Q3 ≤ 573.5; 573.5 > Q4

Model 1: Cox proportional hazards models adjusted for confounders: accelerometer wear time, age, self-reported general health, postmenopausal hormone therapy, smoking status, and

alcohol use.

Model 2: Adjusted for confounders + potential mediators (BMI, hypertension, high cholesterol, diabetes, and physical function).

Table S3. Matrix of p-values of effect measure modification (factors listed left to right) of the associations of physical activity and sedentary behavior (left column) with total cardiovascular disease, myocardial infarction, and stroke. Grayed out boxes indicate associations that were not tested.

	Total CVD					
	SRH	Age	Obesity	Physical function	MVPA	SB
Total VM	0.250	0.614	0.090	0.421		
MVPA	0.186	0.669	0.016*	0.226		0.657
LHPA	0.405	0.995	0.457	0.479		
SB	0.666	0.419	0.919	0.119	0.606	
	Myocardial infarction					
	SRH	Age	Obesity	Physical function	MVPA	SB
Total VM	0.252	0.654	0.425	0.848		
MVPA	0.891	0.626	0.360	0.370		0.777
LHPA	0.939	0.671	0.599	0.697		
SB	0.904	0.321	0.988	0.614	0.320	
	Ischemic stroke					
	SRH	Age	Obesity	Physical function	MVPA	SB
Total VM	0.816	0.121	0.772	0.976		
MVPA	0.643	0.313	0.122	0.694		0.472
LHPA	0.242	0.610	0.772	0.292		
SB	0.724	0.730	0.763	0.755	0.643	

CVD: cardiovascular disease; SRH: self-reported general health status; VM: vector magnitude; MVPA: moderate-to-vigorous physical activity; LHPA: light-high physical activity; SB: sedentary behavior; *: p-value < 0.05

Categorizations for effect measure modification analyses:

SRH: excellent/very good vs. good/fair/poor

Age: ≤ 70 years vs. > 70 years

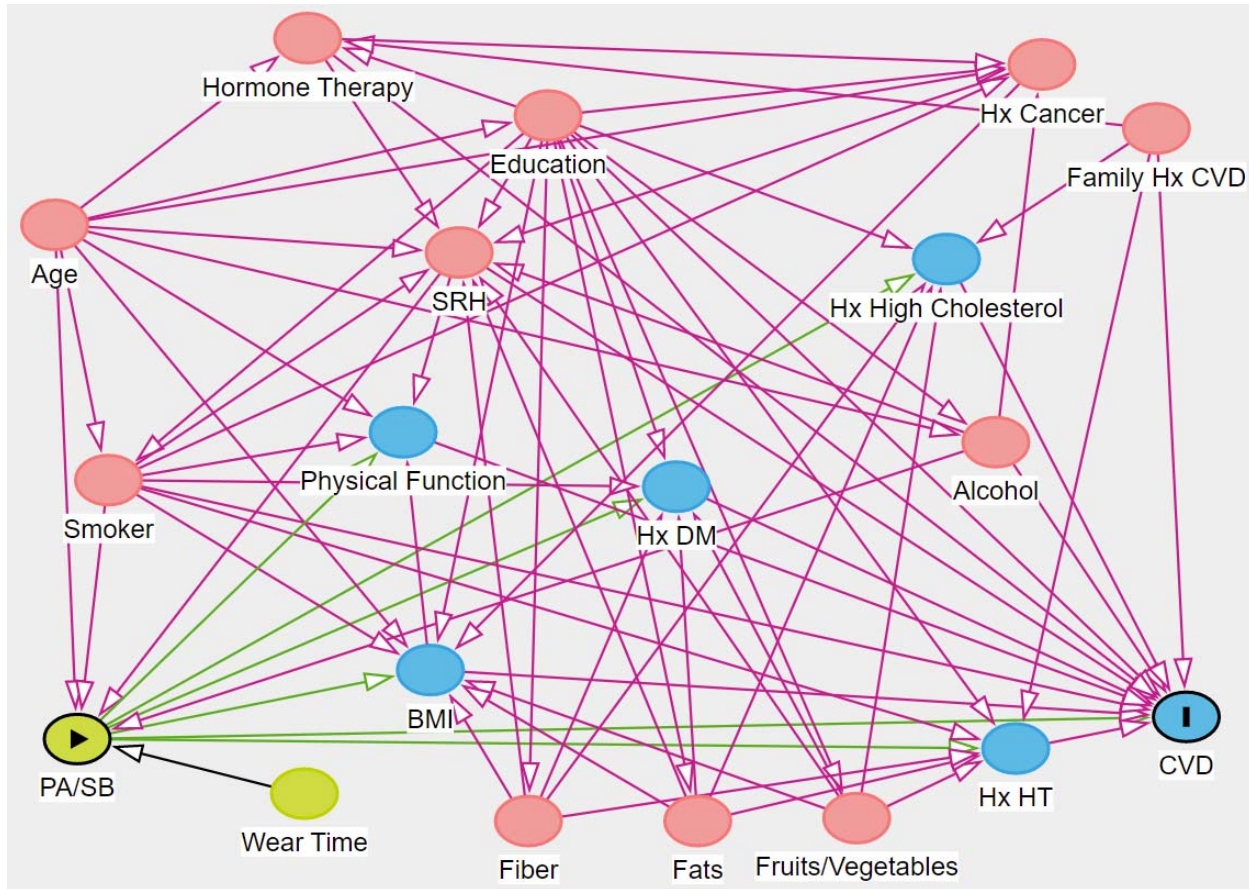
Obesity: BMI < 30 vs. BMI ≥ 30 kg/m²

Physical function: ≤ 75 vs. > 75

MVPA median: ≤ 88 minutes/day vs. > 88 minutes/day

SB median: ≤ 508 minutes/day vs. > 508 minutes/day

Figure S1. Directed acyclic graph (DAG) of the relationships between physical activity, sedentary behavior (exposures), and cardiovascular disease (outcome), including the role of potential confounders.



PA: physical activity; SB: sedentary behavior; SRH: self-reported general health; BMI: body mass index; Hx: history of; DM: diabetes mellitus; HT: hypertension; CVD: cardiovascular disease

Green node with an arrow indicates the exposure (PA/SB).

Blue node with a rectangle indicates the outcome (CVD).

Blue colored nodes with no symbol are mediators.

Green arrows begin at the exposure node, and include a mediator on the pathway between exposure and outcome.