

SUPPLEMENTARY FILE.

Martinez-Gomez et al. Lifetime High Occupational Physical Activity and Total and Cause-Specific Mortality Among 320,000 Adults in the NIH-AARP Study: A Cohort Study

Table S1. Association of history and duration of high occupational physical activity with all-cause mortality with individual adjustments in men.

	Never	Ever					
	0 years	<1 year	1-2 years	3-5 years	6-9 years	10+ years	Total (ever)
n	89582	7847	13722	19681	12135	43905	97290
cases	7688	628	1191	1772	1137	4496	9224
Age-adjusted	1 (Reference)	0.92 (0.87-0.97)	0.96 (0.92-0.99)	1.06 (1.08-1.16)	1.12 (1.08-1.17)	1.29 (1.26-1.31)	1.14 (1.12-1.16)
Socioeconomic factors							
Age-adjusted + deprivation index	1 (Reference)	0.93 (0.88-0.98)	0.95 (0.91-0.98)	1.04 (1.00-1.07)	1.08 (1.04-1.13)	1.20 (1.17-1.22)	1.10 (1.08-1.12)
Age-adjusted + educational level	1 (Reference)	0.95 (0.90-1.00)	0.98 (0.93-1.01)	1.05 (1.01-1.08)	1.08 (1.04-1.13)	1.13 (1.10-1.15)	1.07 (1.05-1.09)
Age-adjusted + race/ethnicity	1 (Reference)	0.92 (0.87-0.96)	0.96 (0.91-0.98)	1.06 (1.02-1.09)	1.12 (1.08-1.17)	1.28 (1.25-1.31)	1.14 (1.12-1.15)
Age-adjusted + marital status	1 (Reference)	0.92 (0.89-0.98)	0.96 (0.93-1.00)	1.06 (1.03-1.10)	1.13 (1.09-1.17)	1.29 (1.26-1.29)	1.15 (1.13-1.17)
Lifestyle behaviors							
Age-adjusted + calorie intake	1 (Reference)	0.92 (0.89-0.98)	0.96 (0.93-0.99)	1.06 (1.02-1.09)	1.12 (1.07-1.16)	1.27 (1.24-1.29)	1.13 (1.11-1.15)
Age-adjusted + HEI	1 (Reference)	0.94 (0.88-0.98)	0.96 (0.92-1.00)	1.06 (1.03-1.10)	1.12 (1.08-1.17)	1.24 (1.21-1.26)	1.13 (1.11-1.15)
Age-adjusted + alcohol intake	1 (Reference)	0.92 (0.87-0.96)	0.96 (0.91-0.99)	1.06 (1.02-1.09)	1.12 (1.08-1.17)	1.28 (1.25-1.31)	1.14 (1.12-1.16)
Age-adjusted + smoking	1 (Reference)	0.92 (0.87-0.97)	0.92 (0.88-0.95)	1.00 (0.99-1.08)	1.04 (0.99-1.08)	1.18 (1.15-1.20)	1.07 (1.05-1.09)
Age-adjusted + MVPA	1 (Reference)	0.95 (0.90-0.99)	0.99 (0.95-1.02)	1.10 (1.06-1.13)	1.17 (1.12-1.22)	1.31 (1.28-1.34)	1.17 (1.15-1.20)
Age-adjusted + body mass index	1 (Reference)	0.92 (0.87-0.97)	0.95 (0.92-0.98)	1.04 (1.01-1.07)	1.10 (1.06-1.14)	1.25 (1.22-1.28)	1.12 (1.10-1.14)
Cardiometabolic risk factors							
Age-adjusted + diabetes	1 (Reference)	0.93 (0.88-0.98)	0.96 (0.92-0.99)	1.06 (1.02-1.09)	1.12 (1.07-1.16)	1.27 (1.24-1.30)	1.14 (1.12-1.16)
Age-adjusted + hypertension	1 (Reference)	0.93 (0.88-0.98)	0.96 (0.93-0.99)	1.06 (1.02-1.09)	1.12 (1.08-1.17)	1.28 (1.25-1.31)	1.14 (1.12-1.16)
Age-adjusted + hypercholesterolemia	1 (Reference)	0.92 (0.87-0.97)	0.95 (0.91-0.99)	1.06 (1.02-1.09)	1.12 (1.08-1.17)	1.28 (1.25-1.31)	1.14 (1.12-1.16)
Chronic health conditions							
Age-adjusted + coronary heart disease	1 (Reference)	0.93 (0.88-0.98)	0.96 (0.93-0.99)	1.05 (1.02-1.09)	1.12 (1.08-1.16)	1.28 (1.25-1.31)	1.14 (1.12-1.16)
Age-adjusted + stroke	1 (Reference)	0.92 (0.87-0.97)	0.96 (0.93-0.99)	1.06 (1.03-1.09)	1.11 (1.07-1.16)	1.28 (1.25-1.30)	1.14 (1.12-1.16)
Age-adjusted + osteoporosis	1 (Reference)	0.92 (0.87-0.97)	0.96 (0.92-0.99)	1.06 (1.03-1.09)	1.12 (1.08-1.17)	1.28 (1.25-1.31)	1.14 (1.12-1.16)
Age-adjusted + cancer*	1 (Reference)	0.92 (0.86-0.96)	0.95 (0.91-0.98)	1.05 (1.01-1.08)	1.12 (1.08-1.17)	1.29 (1.25-1.31)	1.14 (1.12-1.16)
Age-adjusted + pulmonary emphysema	1 (Reference)	0.92 (0.87-0.96)	0.95 (0.91-0.98)	1.04 (1.01-1.08)	1.09 (1.05-1.14)	1.24 (1.21-1.27)	1.12 (1.10-1.14)

HEI: Healthy Eating Index. MVPA: moderate-to-vigorous physical activity. Values are hazard ratios (95% confidence interval). *Others than colorectal cancer, breast cancer, and prostate cancer.

Table S2. Association of history and duration of high occupational physical activity with all-cause mortality with individual adjustments in women.

	Never	Ever					
	0 years	<1 year	1-2 years	3-5 years	6-9 years	10+ years	Total (ever)
n	113552	1407	2131	3729	3122	11313	21702
cases	7771	105	144	261	258	839	1607
Age-adjusted	1 (Reference)	1.18 (1.04-1.33)	1.15 (1.04-1.28)	1.23 (1.14-1.33)	1.25 (1.16-1.36)	1.23 (1.17-1.28)	1.22 (1.18-1.26)
Socioeconomic factors							
Age-adjusted + deprivation index	1 (Reference)	1.15 (1.02-1.30)	1.13 (1.02-1.25)	1.20 (1.12-1.30)	1.22 (1.12-1.32)	1.18 (1.13-1.23)	1.18 (1.14-1.23)
Age-adjusted + educational level	1 (Reference)	1.16 (1.02-1.30)	1.13 (1.02-1.24)	1.21 (1.12-1.31)	1.21 (1.12-1.31)	1.17 (1.12-1.22)	1.18 (1.14-1.22)
Age-adjusted + race/ethnicity	1 (Reference)	1.17 (1.04-1.32)	1.15 (1.04-1.28)	1.23 (1.14-1.32)	1.26 (1.16-1.36)	1.22 (1.17-1.28)	1.22 (1.18-1.26)
Age-adjusted + marital status	1 (Reference)	1.15 (1.02-1.30)	1.14 (1.03-1.26)	1.22 (1.13-1.31)	1.24 (1.15-1.35)	1.20 (1.16-1.26)	1.20 (1.17-1.24)
Lifestyle behaviors							
Age-adjusted + calorie intake	1 (Reference)	1.16 (1.03-1.31)	1.15 (1.04-1.27)	1.22 (1.14-1.32)	1.24 (1.14-1.35)	1.21 (1.15-1.26)	1.20 (1.17-1.25)
Age-adjusted + HEI	1 (Reference)	1.16 (1.03-1.31)	1.14 (1.03-1.26)	1.21 (1.12-1.30)	1.23 (1.13-1.33)	1.23 (1.13-1.33)	1.19 (1.14-1.24)
Age-adjusted + alcohol intake	1 (Reference)	1.18 (1.04-1.32)	1.16 (1.04-1.27)	1.23 (1.15-1.32)	1.26 (1.16-1.36)	1.22 (1.17-1.28)	1.22 (1.18-1.27)
Age-adjusted + smoking	1 (Reference)	1.12 (0.99-1.26)	1.10 (0.99-1.26)	1.14 (1.06-1.24)	1.16 (1.07-1.26)	1.15 (1.10-1.20)	1.14 (1.10-1.18)
Age-adjusted + MVPA	1 (Reference)	1.18 (1.05-1.33)	1.19 (1.07-1.31)	1.27 (1.17-1.37)	1.30 (1.20-1.41)	1.29 (1.23-1.34)	1.27 (1.23-1.31)
Age-adjusted + body mass index	1 (Reference)	1.15 (1.02-1.30)	1.13 (1.03-1.25)	1.20 (1.11-1.29)	1.23 (1.13-1.33)	1.18 (1.13-1.23)	1.18 (1.15-1.22)
Cardiometabolic risk factors							
Age-adjusted + diabetes	1 (Reference)	1.16 (1.03-1.31)	1.15 (1.04-1.27)	1.21 (1.12-1.30)	1.25 (1.15-1.35)	1.21 (1.16-1.26)	1.20 (1.17-1.24)
Age-adjusted + hypertension	1 (Reference)	1.18 (1.05-1.33)	1.19 (1.07-1.31)	1.27 (1.12-1.31)	1.25 (1.16-1.36)	1.22 (1.16-1.27)	1.21 (1.17-1.26)
Age-adjusted + hypercholesterolemia	1 (Reference)	1.17 (1.04-1.32)	1.15 (1.04-1.27)	1.23 (1.14-1.32)	1.25 (1.15-1.36)	1.22 (1.17-1.28)	1.22 (1.18-1.26)
Chronic health conditions							
Age-adjusted + coronary heart disease	1 (Reference)	1.17 (1.04-1.32)	1.14 (1.03-1.26)	1.20 (1.11-1.30)	1.22 (1.13-1.32)	1.19 (1.13-1.24)	1.19 (1.15-1.23)
Age-adjusted + stroke	1 (Reference)	1.17 (1.03-1.32)	1.14 (1.03-1.26)	1.22 (1.13-1.32)	1.24 (1.15-1.35)	1.21 (1.16-1.27)	1.21 (1.17-1.25)
Age-adjusted + osteoporosis	1 (Reference)	1.16 (1.02-1.30)	1.14 (1.03-1.28)	1.22 (1.14-1.32)	1.23 (1.14-1.34)	1.21 (1.16-1.26)	1.21 (1.17-1.25)
Age-adjusted + cancer*	1 (Reference)	1.16 (1.01-1.31)	1.14 (1.04-1.29)	1.22 (1.13-1.32)	1.24 (1.16-1.37)	1.22 (1.16-1.27)	1.21 (1.17-1.25)
Age-adjusted + pulmonary emphysema	1 (Reference)	1.13 (1.00-1.27)	1.14 (1.03-1.26)	1.21 (1.12-1.30)	1.23 (1.13-1.33)	1.19 (1.14-1.24)	1.19 (1.15-1.23)

HEI: Healthy Eating Index. MVPA: moderate-to-vigorous physical activity. Values are hazard ratios (95% confidence interval). *Others than colorectal cancer, breast cancer, and prostate cancer.

Table S3. Association of history and duration of high occupational physical activity with all-cause mortality in men, stratified by socioeconomic factors, lifestyle behaviors, cardiometabolic risk factors and chronic health conditions.

	n/deaths	Never 0 years	Ever						P for interaction	
			<1 year	1-2 years	3-5 years	6-9 years	10+ years	Total (ever)	History	Duration
Age < 62 years*	84746/13351	1 (Reference)	0.92 (0.84-1.01)	0.98 (0.91-1.05)	0.99 (0.94-1.05)	1.03 (0.96-1.09)	1.09 (1.04-1.14)	1.03 (0.99-1.07)		
Age ≥ 62 years*	102126/34993	1 (Reference)	0.97 (0.92-1.03)	0.94 (0.90-0.98)	1.01 (0.97-1.05)	1.02 (0.97-1.06)	1.05 (1.02-1.08)	1.01 (0.99-1.03)	0.005	<0.001
Low deprivation*	94368/21367	1 (Reference)	0.95 (0.89-1.02)	0.98 (0.93-1.03)	1.02 (0.97-1.06)	1.04 (0.98-1.10)	1.09 (1.05-1.13)	1.03 (1.00-1.06)		
High deprivation*	92504/26977	1 (Reference)	0.97 (0.90-1.04)	0.93 (0.88-0.98)	0.99 (0.95-1.04)	1.00 (0.95-1.05)	1.05 (1.02-1.08)	1.01 (0.98-1.04)	0.379	0.046
Low education*	94027/27713	1 (Reference)	1.03 (0.95-1.11)	0.98 (0.93-1.04)	1.00 (0.95-1.04)	1.03 (0.98-1.08)	1.06 (1.03-1.09)	1.04 (1.01-1.06)		
High education*	88587/19146	1 (Reference)	0.94 (0.88-1.00)	0.93 (0.88-0.98)	1.02 (0.97-1.06)	1.01 (0.95-1.07)	1.09 (1.04-1.16)	0.99 (0.97-1.03)	0.039	0.333
Married	158621/39156	1 (Reference)	0.96 (0.90-1.01)	0.95 (0.91-0.99)	0.99 (0.96-1.03)	1.02 (0.98-1.06)	1.06 (1.03-1.09)	1.02 (0.99-1.04)		
Single/widowed	27249/8857	1 (Reference)	0.97 (0.87-1.09)	0.96 (0.88-1.05)	1.03 (0.95-1.10)	1.02 (0.93-1.11)	1.06 (1.00-1.11)	1.02 (0.98-1.07)	0.995	0.671
Never smoker	55167/9416	1 (Reference)	0.97 (0.88-1.08)	0.86 (0.78-0.94)	0.99 (0.92-1.06)	1.04 (0.95-1.14)	1.10 (1.04-1.16)	1.01 (0.97-1.06)		
Ever smoker	125162/37001	1 (Reference)	0.96 (0.91-1.02)	0.99 (0.95-1.03)	1.03 (0.99-1.06)	1.05 (1.01-1.09)	1.08 (1.05-1.11)	1.04 (1.02-1.06)	0.260	0.819
Leisure time MVPA < 4 hours/day*	92670/26741	1 (Reference)	0.95 (0.89-1.02)	0.93 (0.88-0.97)	0.96 (0.92-1.01)	1.00 (0.95-1.05)	1.04 (1.00-1.07)	0.99 (0.97-1.02)		
Leisure time MVPA ≥ 4 hours/day*	92147/20823	1 (Reference)	0.97 (0.90-1.04)	0.98 (0.93-1.04)	1.04 (0.99-1.08)	1.02 (0.97-1.08)	1.07 (1.03-1.11)	1.03 (1.00-1.06)	0.983	0.665
Low HEI*	92356/26049	1 (Reference)	0.92 (0.85-0.98)	0.96 (0.91-1.01)	0.98 (0.94-1.02)	0.99 (0.93-1.04)	1.04 (1.01-1.07)	1.00 (0.98-1.03)		
High HEI*	94510/22293	1 (Reference)	1.00 (0.94-1.07)	0.94 (0.89-0.99)	1.03 (0.98-1.07)	1.05 (0.99-1.11)	1.09 (1.05-1.13)	1.04 (1.01-1.07)	<0.001	<0.001
Non-alcohol drinker	10762/3633	1 (Reference)	0.82 (0.66-1.02)	1.00 (0.87-1.16)	0.99 (0.87-1.11)	1.02 (0.89-1.17)	1.05 (0.97-1.14)	1.01 (0.95-1.08)		
Alcohol drinker	176110/44711	1 (Reference)	0.97 (0.92-1.02)	0.95 (0.91-0.99)	1.00 (0.97-1.03)	1.02 (0.98-1.05)	1.06 (1.03-1.08)	1.05 (0.99-1.04)	0.844	0.546
Non-obesity	146849/36190	1 (Reference)	0.96 (0.91-1.01)	0.94 (0.90-0.98)	1.00 (0.96-1.04)	1.01 (0.97-1.06)	1.05 (1.02-1.08)	1.01 (0.99-1.03)		
Obesity	37197/11291	1 (Reference)	0.95 (0.85-1.05)	0.97 (0.90-1.05)	0.99 (0.93-1.06)	1.02 (0.95-1.10)	1.09 (1.04-1.14)	1.04 (0.99-1.08)	0.574	0.881
Without diabetes	168613/39986	1 (Reference)	0.97 (0.92-1.02)	0.96 (0.92-0.99)	1.00 (0.97-1.04)	1.02 (0.98-1.06)	1.06 (1.03-1.09)	1.02 (0.99-1.04)		
With diabetes	18259/8358	1 (Reference)	0.92 (0.81-1.04)	0.92 (0.84-1.01)	0.99 (0.92-1.07)	1.01 (0.92-1.10)	1.07 (1.01-1.13)	1.01 (0.97-1.06)	0.324	0.492
Without hypertension	88881/18905	1 (Reference)	1.02 (0.94-1.09)	0.93 (0.88-0.99)	1.00 (0.95-1.05)	1.03 (0.97-1.09)	1.02 (0.98-1.06)	1.00 (0.97-1.03)		
With hypertension	76154/23971	1 (Reference)	0.93 (0.86-0.99)	0.96 (0.92-1.01)	1.00 (0.96-1.05)	1.02 (0.97-1.08)	1.09 (1.05-1.13)	1.03 (1.00-1.06)	0.724	0.908
Without hypercholesterolemia	80966/21155	1 (Reference)	0.97 (0.89-1.04)	0.99 (0.94-1.05)	1.03 (0.98-1.07)	1.07 (1.01-1.14)	1.08 (1.04-1.12)	1.04 (1.01-1.07)		
With hypercholesterolemia	77897/19211	1 (Reference)	0.97 (0.89-1.04)	0.94 (0.88-0.99)	0.98 (0.93-1.03)	0.97 (0.91-1.03)	1.04 (0.99-1.08)	0.99 (0.97-1.02)	0.099	0.255
Without coronary heart disease	153513/34466	1 (Reference)	0.96 (0.91-1.02)	0.95 (0.91-0.98)	1.00 (0.97-1.04)	1.02 (0.97-1.06)	1.05 (1.02-1.08)	1.01 (0.99-1.04)		
With coronary heart disease	33359/13878	1 (Reference)	0.96 (0.87-1.05)	0.96 (0.90-1.03)	1.01 (0.95-1.07)	1.02 (0.95-1.10)	1.09 (1.04-1.13)	1.03 (0.99-1.06)	0.765	0.637
Without stroke	182870/46225	1 (Reference)	0.96 (0.92-1.01)	0.96 (0.92-0.99)	1.01 (0.98-1.04)	1.04 (0.99-1.08)	1.06 (1.04-1.09)	1.02 (1.00-1.04)		
With stroke	4002/2119	1 (Reference)	0.83 (0.64-1.07)	0.86 (0.70-1.05)	0.87 (0.75-1.02)	0.73 (0.60-0.88)	1.04 (0.93-1.16)	0.93 (0.84-1.01)	<0.001	0.001
Without osteoporosis	185334/47734	1 (Reference)	0.95 (0.91-1.00)	0.95 (0.91-0.98)	1.00 (0.97-1.03)	1.02 (0.98-1.06)	1.06 (1.03-1.08)	1.01 (0.99-1.04)		
With osteoporosis	1538/610	1 (Reference)	1.36 (0.88-2.07)	1.32 (0.96-1.82)	1.02 (0.75-1.40)	0.96 (0.68-1.37)	1.35 (1.09-1.66)	1.23 (1.03-1.48)	0.351	0.731
Without cancer	170823/42698	1 (Reference)	0.98 (0.93-1.03)	0.96 (0.92-0.99)	1.02 (0.98-1.05)	1.03 (0.99-1.07)	1.06 (1.03-1.09)	1.02 (1.00-1.04)		
With cancer	7346/3160	1 (Reference)	0.85 (0.71-1.02)	1.03 (0.90-1.18)	0.92 (0.82-1.04)	1.00 (0.87-1.16)	1.04 (0.95-1.15)	0.99 (0.92-1.06)	0.137	0.227
Without pulmonary emphysema	181526/45047	1 (Reference)	0.96 (0.91-1.01)	0.95 (0.92-0.99)	1.01 (0.98-1.04)	1.02 (0.98-1.06)	1.07 (1.04-1.09)	1.02 (1.00-1.04)		
With pulmonary emphysema	5346/3297	1 (Reference)	0.95 (0.77-1.17)	0.93 (0.80-1.07)	0.91 (0.80-1.02)	0.97 (0.84-1.11)	1.01 (0.93-1.10)	0.97 (0.90-1.04)	<0.001	<0.001

HEI: Healthy Eating Index. MVPA: moderate-to-vigorous physical activity. HR: hazard ratios. CI: confidence interval. * According to the median in this cohort. Analyses were adjusted for age, deprivation index, educational level, race, marital status, energy intake, HEI, smoking status, alcohol intake, leisure time MVPA, body mass index categories, diabetes, hypertension, hypercholesterolemia, coronary heart disease, stroke, cancer (excluding colorectal cancer, breast cancer, and prostate cancer), osteoporosis, and pulmonary emphysema

Table S4. Association of history and duration of high occupational physical activity with all-cause mortality in women, stratified by socioeconomic factors, lifestyle behaviors, cardiometabolic risk factors and chronic health conditions.

	n/deaths	Never 0 years	Ever						P for interaction	
			<1 year	1-2 years	3-5 years	6-9 years	10+ years	Total (ever)	History	Duration
Age < 62 years*	66107/7574	1 (Reference)	0.95 (0.77-1.16)	1.06 (0.91-1.24)	1.11 (0.99-1.25)	1.18 (1.05-1.33)	1.02 (0.94-1.10)	1.06 (1.00-1.12)		
Age ≥ 62 years*	69147/17645	1 (Reference)	1.05 (0.90-1.21)	1.02 (0.89-1.17)	1.01 (0.92-1.11)	0.98 (0.88-1.10)	1.03 (0.97-1.08)	1.02 (0.98-1.06)	0.046	0.039
Low deprivation*	68146/11140	1 (Reference)	0.87 (0.68-1.11)	1.10 (0.91-1.33)	1.05 (0.91-1.20)	1.10 (0.94-1.29)	1.02 (0.94-1.12)	1.04 (0.99-1.10)		
High deprivation*	67108/14079	1 (Reference)	1.16 (0.97-1.38)	1.02 (0.87-1.19)	1.11 (0.99-1.24)	1.17 (1.04-1.31)	1.09 (1.02-1.16)	1.04 (0.99-1.08)	0.677	0.556
Low education*	88375/17951	1 (Reference)	1.05 (0.91-1.22)	1.03 (0.91-1.15)	1.06 (0.97-1.16)	1.09 (1.00-1.19)	1.00 (0.95-1.05)	1.03 (0.99-1.15)		
High education*	43050/6346	1 (Reference)	0.93 (0.72-1.19)	1.17 (0.96-1.44)	1.00 (0.85-1.16)	1.02 (0.84-1.24)	1.11 (1.00-1.23)	1.07 (0.98-1.17)	0.477	0.253
Married	59882/8930	1 (Reference)	1.08 (0.88-1.32)	0.90 (0.75-1.07)	0.92 (0.80-1.05)	1.12 (0.98-1.28)	0.99 (0.92-1.07)	0.99 (0.94-1.05)		
Single/widowed	74306/16033	1 (Reference)	0.99 (0.85-1.15)	1.11 (0.98-1.26)	1.11 (1.01-1.21)	1.04 (0.94-1.15)	1.04 (0.98-1.10)	1.06 (1.01-1.10)	0.083	0.155
Never smoker	59437/7937	1 (Reference)	1.11 (0.89-1.39)	0.96 (0.79-1.17)	1.05 (0.91-1.22)	1.06 (0.91-1.24)	1.05 (0.97-1.14)	1.05 (0.98-1.11)		
Ever smoker	71605/16421	1 (Reference)	0.99 (0.85-1.15)	1.09 (0.96-1.22)	1.12 (1.03-1.23)	1.10 (1.00-1.22)	1.05 (0.99-1.11)	1.07 (1.03-1.11)	0.675	0.761
Leisure time MVPA < 4 hours/day*	67441/13925	1 (Reference)	1.00 (0.85-1.17)	0.98 (0.85-1.12)	1.03 (0.93-1.14)	1.03 (0.92-1.16)	1.02 (0.96-1.09)	1.02 (0.97-1.07)		
Leisure time MVPA ≥ 4 hours/day*	65575/10710	1 (Reference)	1.02 (0.85-1.23)	1.10 (0.95-1.27)	1.09 (0.98-1.22)	1.11 (0.99-1.24)	1.02 (0.96-1.08)	1.05 (0.99-1.10)	0.340	0.555
Low HEI*	56184/12013	1 (Reference)	0.89 (0.74-1.08)	1.06 (0.92-1.22)	1.01 (0.91-1.12)	1.09 (0.98-1.22)	1.03 (0.97-1.09)	1.03 (0.98-1.08)		
High HEI*	79066/13205	1 (Reference)	1.12 (0.95-1.31)	1.03 (0.89-1.19)	1.09 (0.99-1.21)	1.03 (0.92-1.16)	1.03 (0.97-1.10)	1.05 (0.99-1.10)	0.006	0.541
Non-alcohol drinker	12806/3192	1 (Reference)	1.05 (0.75-1.47)	1.02 (0.78-1.33)	1.13 (0.93-1.36)	1.06 (0.86-1.31)	1.01 (0.90-1.13)	1.04 (0.95-1.13)		
Alcohol drinker	122428/22027	1 (Reference)	1.00 (0.88-1.14)	1.04 (0.94-1.16)	1.04 (0.96-1.12)	1.07 (0.98-1.16)	1.03 (0.98-1.08)	1.03 (0.99-1.07)	0.940	0.776
Non-obesity	102125/17604	1 (Reference)	0.97 (0.83-1.13)	1.03 (0.91-1.17)	1.04 (0.95-1.14)	1.03 (0.93-1.14)	1.04 (0.99-1.10)	1.04 (0.99-1.08)		
Obesity	29423/6646	1 (Reference)	1.10 (0.88-1.36)	1.03 (0.86-1.23)	1.06 (0.93-1.20)	1.18 (1.03-1.35)	1.00 (0.92-1.08)	1.04 (0.98-1.10)	0.944	0.720
Without diabetes	125859/21546	1 (Reference)	1.04 (0.91-1.19)	1.04 (0.93-1.16)	1.05 (0.97-1.14)	1.06 (0.97-1.16)	1.02 (0.97-1.07)	1.03 (0.99-1.07)		
With diabetes	9395/3673	1 (Reference)	0.92 (0.67-1.27)	1.03 (0.80-1.33)	1.08 (0.90-1.30)	1.09 (0.89-1.34)	1.07 (0.96-1.19)	1.06 (0.98-1.15)	0.666	0.462
Without hypertension	75941/11288	1 (Reference)	0.92 (0.76-1.11)	1.03 (0.89-1.21)	1.12 (1.00-1.25)	1.06 (0.94-1.19)	0.99 (0.93-1.06)	1.02 (0.97-1.08)		
With hypertension	50574/12519	1 (Reference)	1.03 (0.87-1.22)	1.04 (0.91-1.20)	1.03 (0.93-1.15)	1.07 (0.96-1.21)	1.04 (0.98-1.10)	1.04 (0.99-1.09)	0.745	0.824
Without hypercholesterolemia	61929/11823	1 (Reference)	1.06 (0.89-1.27)	1.06 (0.92-1.22)	1.00 (0.90-1.11)	1.11 (0.99-1.25)	1.01 (0.95-1.08)	1.03 (0.98-1.08)		
With hypercholesterolemia	63232/10897	1 (Reference)	0.99 (0.82-1.19)	1.01 (0.87-1.19)	1.18 (1.05-1.32)	1.03 (0.91-1.17)	1.04 (0.98-1.12)	1.06 (1.00-1.11)	0.345	0.294
Without coronary heart disease	123869/21005	1 (Reference)	0.99 (0.87-1.13)	1.03 (0.92-1.15)	1.09 (1.00-1.18)	1.10 (1.01-1.20)	1.03 (0.98-1.08)	1.05 (1.00-1.09)		
With coronary heart disease	11385/4214	1 (Reference)	1.07 (0.81-1.43)	1.10 (0.87-1.38)	0.95 (0.79-1.13)	0.96 (0.80-1.16)	1.03 (0.94-1.14)	1.02 (0.94-1.10)	0.093	0.099
Without stroke	132921/24255	1 (Reference)	1.01 (0.90-1.15)	1.07 (0.96-1.18)	1.06 (0.98-1.15)	1.09 (1.00-1.18)	1.03 (0.99-1.08)	1.05 (1.01-1.08)		
With stroke	2333/964	1 (Reference)	0.78 (0.40-1.53)	0.61 (0.36-1.05)	0.94 (0.66-1.33)	0.71 (0.44-1.12)	0.86 (0.70-1.06)	0.83 (0.70-0.98)	0.001	0.004
Without osteoporosis	124428/22227	1 (Reference)	1.04 (0.92-1.19)	1.04 (0.94-1.16)	1.07 (0.99-1.16)	1.09 (1.00-1.19)	1.05 (1.00-1.10)	1.06 (1.02-1.10)		
With osteoporosis	10826/2992	1 (Reference)	0.83 (0.59-1.16)	1.03 (0.78-1.35)	0.96 (0.77-1.20)	0.96 (0.79-1.18)	0.90 (0.80-1.02)	0.93 (0.85-1.01)	<0.001	<0.001
Without cancer	122461/21844	1 (Reference)	0.99 (0.87-1.13)	1.04 (0.93-1.16)	1.05 (0.97-1.14)	1.08 (0.99-1.18)	1.03 (0.98-1.08)	1.04 (0.99-1.07)		
With cancer	7106/2222	1 (Reference)	1.17 (0.83-1.66)	1.01 (0.75-1.36)	1.01 (0.80-1.28)	1.07 (0.84-1.36)	0.94 (0.81-1.09)	0.99 (0.89-1.11)	0.072	0.029
Without pulmonary emphysema	132015/23414	1 (Reference)	1.02 (0.90-1.15)	1.01 (0.91-1.12)	1.05 (0.97-1.13)	1.06 (0.98-1.16)	1.03 (0.99-1.08)	1.04 (1.00-1.07)		
With pulmonary emphysema	3239/1805	1 (Reference)	0.94 (0.65-1.36)	1.37 (0.99-1.90)	1.25 (0.97-1.61)	1.18 (0.90-1.54)	0.97 (0.84-1.13)	1.06 (0.95-1.20)	0.122	0.045

HEI: Healthy Eating Index. MVPA: moderate-to-vigorous physical activity. HR: hazard ratios. CI: confidence interval. * According to the median in this cohort. Analyses were adjusted for age, deprivation index, educational level, race, marital status, energy intake, HEI, smoking status, alcohol intake, leisure time MVPA, body mass index categories, diabetes, hypertension, hypercholesterolemia, coronary heart disease, stroke, cancer (excluding colorectal cancer, breast cancer, and prostate cancer), osteoporosis, and pulmonary emphysema

Table S5. Joint associations of high occupational physical activity and leisure-time physical activity with all-cause mortality, stratified by sex

Leisure time physical activity	History of high occupational physical activity		Duration of high occupational physical activity					
	Never	Ever	0 years	<1 years	1-2 years	3-5 years	6-9 years	10+ years
Men								
MVPA <4 h/week	1 (Ref)	0.99 (0.96-1.01)	1 (Ref)	0.95 (0.89-1.01)	0.92 (0.88-0.97)	0.96 (0.92-1.00)	1.00 (0.95-1.05)	1.03 (1.00-1.06)
MVPA ≥4 h/week	0.81 (0.78-0.83)	0.84 (0.82-0.86)	0.80 (0.78-0.82)	0.78 (0.72-0.84)	0.79 (0.75-0.83)	0.84 (0.80-0.87)	0.83 (0.78-0.87)	0.87 (0.84-0.90)
Women								
MVPA <4 h/week	1 (Ref)	1.02 (0.97-1.07)	1 (Ref)	1.00 (0.85-1.17)	0.97 (0.84-1.12)	1.03 (0.92-1.14)	1.03 (0.92-1.15)	1.02 (0.96-1.09)
MVPA ≥4 h/week	0.85 (0.82-0.85)	0.89 (0.85-0.93)	0.85 (0.82-0.87)	0.87 (0.72-1.05)	0.94 (0.81-1.08)	0.94 (0.84-1.04)	0.94 (0.84-1.05)	0.87 (0.82-0.92)

HR: hazard ratios. CI: confidence interval. MVPA: moderate to vigorous physical activity. Analyses were adjusted for age, deprivation index, educational level, race, marital status, energy intake, Healthy Eating Index, smoking status, alcohol intake, body mass index categories, diabetes, hypertension, hypercholesterolemia, coronary heart disease, stroke, cancer (excluding colorectal cancer, breast cancer, and prostate cancer), osteoporosis, and pulmonary emphysema

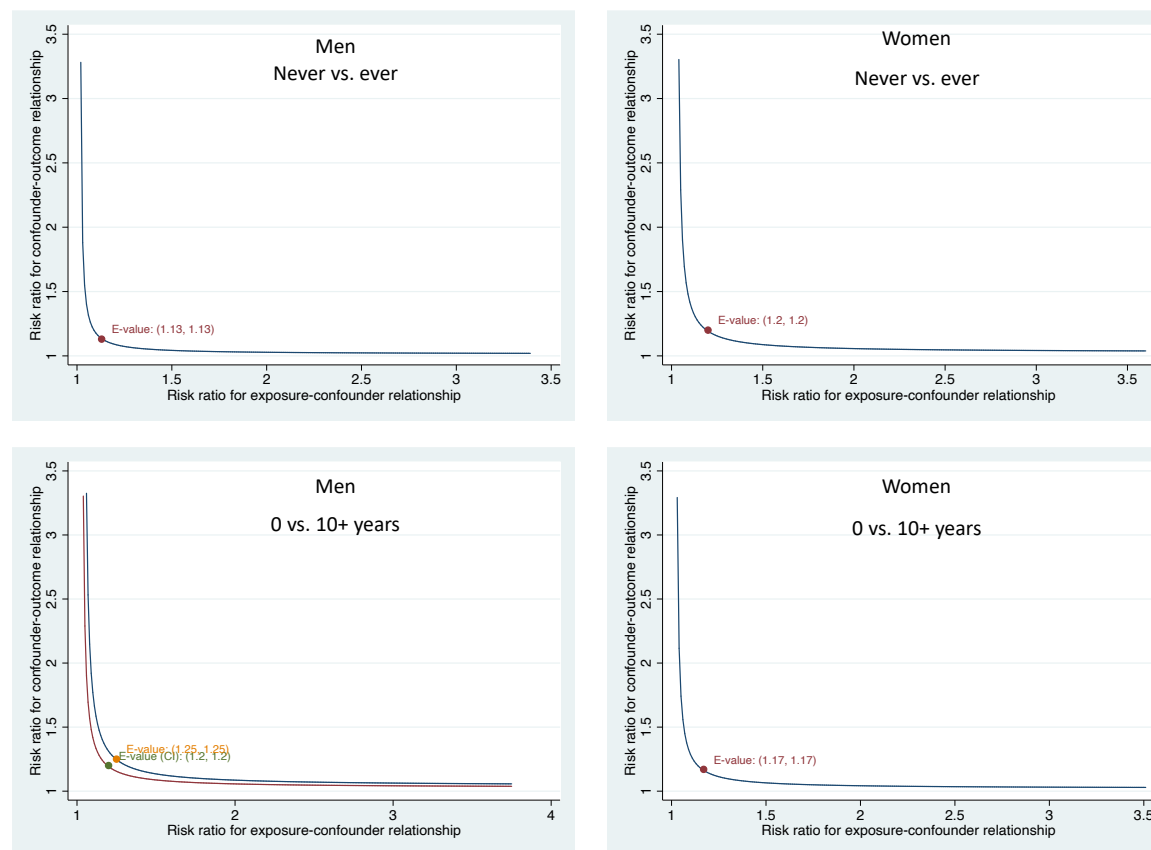


Figure S1. Robustness to unmeasured confounding with reported e-values for the association of history and duration of high occupational physical activity with all-cause mortality. Analyses were adjusted for age, deprivation index, educational level, race, marital status, energy intake, Healthy Eating Index, smoking status, alcohol intake, leisure time moderate to vigorous physical activity, body mass index categories, diabetes, hypertension, hypercholesterolemia, coronary heart disease, stroke, cancer (excluding colorectal cancer, breast cancer, and prostate cancer), osteoporosis, and pulmonary emphysema. E-values (CI) =1.00 if not shown.