

# **SUPPLEMENTAL MATERIAL**

**Table S1. Weighted means (Standard Error) for physical activity variables by quartiles of light and moderate-to-vigorous physical activity.**

	Light PA				Moderate-to-Vigorous PA			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	(n = 1159)	(n = 1215)	(n = 1236)	(n = 1230)	(n = 1174)	(n = 1217)	(n = 1229)	(n = 1220)
	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)
<b>Physical Activity (counts)</b>								
Sedentary (AC<100)	7.7 (0.1)	8.3 (0.1)	8.7 (0.1)	8.6 (0.1)	8.3 (0.1)	8.6 (0.1)	8.5 (0.1)	8.0 (0.1)
Light (100≥AC<760)	47.7 (0.4)	71.6 (0.2)	89.1 (0.2)	115.1 (0.6)	58.5 (0.80)	80.5 (0.7)	89.4 (0.7)	93.4 (0.6)
Moderate-to-vigorous (AC≥760)	85.2 (4.4)	141.8 (4.8)	167.8 (4.3)	198.3 (0.6)	27.1 (0.5)	80.2 (0.7)	145.5 (0.8)	288.5 (3.0)
Total (AC≥100)	133.0 (4.6)	213.4 (4.8)	256.9 (4.3)	313.5 (4.8)	85.6 (1.2)	160.7 (0.9)	234.9 (0.8)	381.6 (2.9)
<b>Physical Activity (minutes)</b>								
Sedentary (AC<100)	582.0 (4.3)	519.2 (3.9)	474.2 (4.3)	417.7 (3.3)	572.9 (4.4)	520.6 (2.9)	484.0 (4.2)	432.8 (3.8)
Light (100≥AC<760)	163.4 (1.2)	224.2 (0.9)	270.5 (0.7)	336.5 (1.6)	202.6 (2.6)	251.7 (1.9)	268.9 (2.0)	272.2 (1.5)
Moderate-to-vigorous (AC≥760)	49.6 (2.1)	86.9 (2.1)	110.2 (2.1)	137.1 (2.4)	22.7 (0.4)	62.0 (0.5)	101.7 (0.7)	169.9 (1.5)
Total (AC≥100)	352.9 (2.3)	212.9 (2.6)	380.7 (2.3)	473.6 (2.7)	225.4 (2.9)	313.7 (2.1)	370.6 (2.3)	442.1 (2.1)
<b>Wear Time (minutes)</b>	794.9 (4.2)	830.3 (4.8)	854.9 (4.4)	891.3 (4.8)	798.3 (4.9)	834.3 (3.1)	854.5 (3.2)	874.9 (4.6)
<b>Number of Valid Days</b>	5.1 (0.1)	5.7 (0.1)	5.8 (0.1)	5.9 (0.1)	5.3 (0.1)	5.6 (0.1)	5.8 (0.1)	5.8 (0.1)

AC – Activity counts

PA – Physical activity

Light PA Quartiles: Q1- 1<sup>st</sup> Quartile (AC ≤61.8); Q2 – 2<sup>nd</sup> Quartile (61.8< AC ≤80.5); Q3 – 3<sup>rd</sup> Quartile (80.5< AC ≤ 98.5); Q4 – 4<sup>th</sup> Quartile (AC > 98.5)

Moderate-to-Vigorous PA Quartiles: Q1- 1<sup>st</sup> Quartile (AC ≤13.7); Q2 – 2<sup>nd</sup> Quartile (13.7< AC ≤49.1); Q3 – 3<sup>rd</sup> Quartile (49.1< AC ≤ 113.6); Q4 – 4<sup>th</sup> Quartile (AC > 113.6)

Weighted mean (Standard Error) age for quartiles 1 through 4 of Light PA were 62.5 (0.6), 57.1 (0.4), 55.3 (0.6), and 53.6 (0.2) yrs, respectively;

Weighted mean (Standard Error) age for quartiles 1 through 4 of Moderate-to-Vigorous PA were 69.9 (0.6), 58.0 (0.5), 54.2 (0.4), and 50.6 (0.4) yrs, respectively.

**Table S2. U.S. population weighted means (Standard Error) for physical activity counts and minutes across joint classifications of light and moderate-to-vigorous physical activity quartiles.**

Moderate-to-vigorous PA	Light PA							
	AC ≤61.8		61.8 < AC ≤80.5		80.5 < AC ≤98.5		AC >98.5	
<b>Physical activity (counts)</b>	N	Mean (SE)	N	Mean (SE)	N	Mean (SE)	N	Mean (SE)
Sedentary (<100)								
AC ≤50.8	717	7.8 (0.1)	288	8.4 (0.2)	115	9.2 (0.3)	54	10.2 (0.5)
50.8 < AC ≤110.2	228	7.4 (0.1)	375	8.4 (0.1)	371	9.2 (0.2)	243	9.2 (0.1)
110.2 < AC ≤187.9	122	7.7 (0.3)	302	8.4 (0.2)	387	8.7 (0.1)	418	8.7 (0.1)
AC >187.9	92	7.4 (0.2)	250	7.9 (0.1)	363	8.1 (0.1)	515	8.1 (0.1)
Light PA (100 ≥ AC < 760)								
AC ≤50.8	717	43.0 (0.6)	288	69.7 (0.5)	115	88.1 (0.6)	54	108.4 (1.6)
50.8 < AC ≤110.2	228	51.6 (0.7)	375	71.9 (0.4)	371	88.2 (0.4)	243	113.0 (1.1)
110.2 < AC ≤187.9	122	53.0 (0.8)	302	72.3 (0.4)	387	89.3 (0.3)	418	115.6 (1.1)
AC >187.9	92	54.0 (0.6)	250	71.9 (0.4)	363	89.9 (0.3)	515	116.1 (0.7)
Moderate-vigorous PA (AC ≥ 760)								
AC ≤50.8	717	22.2 (0.6)	288	31.9 (0.7)	115	36.1 (1.0)	54	38.7 (1.4)
50.8 < AC ≤110.2	228	77.9 (1.3)	375	77.7 (1.0)	371	80.9 (1.0)	243	85.7 (1.5)
110.2 < AC ≤187.9	122	148.1 (2.1)	302	142.3 (1.4)	387	144.3 (1.4)	418	148.3 (1.6)
AC >187.9	92	292.5 (12.3)	250	283.1 (6.7)	363	287.7 (5.6)	515	290.8 (5.9)
Total (AC ≥ 100)								
AC ≤50.8	717	65.2 (1.0)	288	101.6 (0.9)	115	124.2 (1.2)	54	147.1 (2.4)
50.8 < AC ≤110.2	228	129.5 (1.7)	375	149.6 (1.1)	371	169.0 (1.1)	243	198.6 (1.4)
110.2 < AC ≤187.9	122	201.1 (2.2)	302	214.6 (1.3)	387	233.9 (1.7)	418	263.9 (2.0)
AC >187.9	92	346.5 (12.0)	250	355.1 (6.8)	363	377.6 (5.6)	515	406.9 (6.0)
<b>Physical activity (minutes)</b>								

Sedentary (<100)								
AC ≤50.8	717	604.6 (6.1)	288	542.2 (7.3)	115	519.1 (14.0)	54	492.9 (18.5)
50.8< AC ≤110.2	228	571.9 (4.8)	375	537.7 (5.3)	371	511.2 (6.3)	243	453.3 (8.7)
110.2< AC ≤187.9	122	565.8 (10.6)	302	519.0 (6.8)	387	481.3 (6.1)	418	430.9 (5.4)
AC >187.9	92	525.3 (11.9)	250	484.1 (7.1)	363	428.4 (5.6)	515	388.5 (5.3)
Light (100≥AC<760)								
AC ≤50.8	717	158.2 (1.8)	288	233.3 (1.8)	115	289.9 (2.9)	54	349.6 (6.0)
50.8< AC ≤110.2	228	168.0 (2.3)	375	226.1 (1.4)	371	275.8 (1.7)	243	343.8 (2.9)
110.2< AC ≤187.9	122	167.8 (2.9)	302	223.4 (1.4)	387	268.9 (1.3)	418	339.5 (3.0)
AC >187.9	92	171.0 (2.0)	250	217.1 (1.7)	363	263.7 (1.1)	515	330.4 (1.7)
Moderate-vigorous (AC≥760)								
AC ≤50.8	717	17.8 (0.5)	288	27.3 (0.6)	115	31.7 (0.9)	54	35.0 (1.2)
50.8< AC ≤110.2	228	54.2 (1.2)	375	59.3 (0.6)	371	64.6 (0.8)	243	70.4 (1.1)
110.2< AC ≤187.9	122	87.3 (1.9)	302	94.7 (1.0)	387	102.2 (1.3)	418	111.7 (1.0)
AC >187.9	92	130.5 (7.8)	250	147.6 (2.8)	363	171.1 (2.6)	515	189.3 (3.3)
Total (AC≥100)								
AC ≤50.8	717	176.0 (2.1)	288	260.6 (1.8)	115	321.6 (2.7)	54	384.6 (6.1)
50.8< AC ≤110.2	228	222.1 (2.8)	375	285.4 (1.7)	371	340.3 (1.6)	243	414.6 (2.8)
110.2< AC ≤187.9	122	255.1 (3.6)	302	318.1 (1.7)	387	371.1 (1.5)	418	451.3 (3.1)
AC >187.9	92	301.5 (7.9)	250	364.7 (3.0)	363	434.9 (2.8)	515	519.7 (3.3)

AC – Activity counts

PA – Physical activity

**Table S3. Number of deaths occurrences across joint classifications of light and moderate-to-vigorous physical activity quartiles.**

Moderate-to-vigorous PA	Light PA							
	AC ≤61.8		61.8 < AC ≤80.5		80.5 < AC ≤98.5		AC >98.5	
<b>Mortality Records (n)</b>	N	Deaths	N	Deaths	N	Deaths	N	Deaths
AC ≤50.8	717	309	288	84	115	27	54	9
50.8 < AC ≤110.2	228	30	375	44	371	54	243	25
110.2 < AC ≤187.9	122	13	302	18	387	18	418	19
AC >187.9	92	3	250	8	363	19	515	20

**Table S4. Joint associations for quartiles of accumulated light and moderate-to-vigorous intensity activity counts after excluding first 2 years of follow-up.**

<b>Moderate-to-vigorous PA</b>	<b>Light PA</b>			
	AC ≤61.8	61.8 < AC ≤80.5	80.5 < AC ≤98.5	AC >98.5
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
AC ≤50.8	1.00 (REF)	0.73 (0.45, 1.17)	0.72 (0.42, 1.26)	0.61 (0.21, 1.75)
50.8 < AC ≤110.2	0.52 (0.28, 0.97)	0.50 (0.33, 0.77)	0.48 (0.31, 0.74)	0.42 (0.23, 0.80)
110.2 < AC ≤187.9	0.45 (0.22, 0.94)	0.15 (0.07, 0.31)	0.29 (0.17, 0.48)	0.18 (0.08, 0.39)
AC >187.9	0.06 (0.01, 0.45)	0.17 (0.06, 0.47)	0.26 (0.12, 0.58)	0.28 (0.11, 0.72)

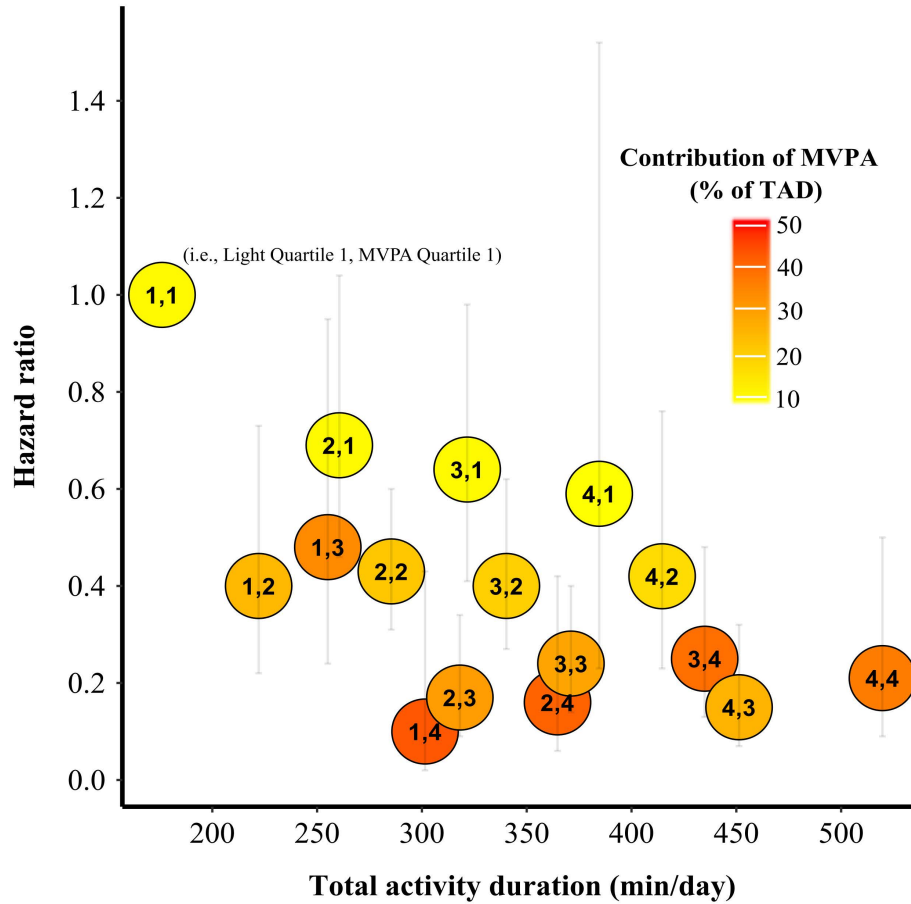
AC – Activity counts

PA – Physical activity

HR – Hazard ratio

95% CI – 95% Confidence interval

**Figure S1. Hazard ratios\* for jointly classified quartiles of light, moderate-to-vigorous physical activity from Table 3 for each category: by Total activity duration (TAD).**



\*HR 1,1 is for quartile 1 for both type of activity, while HR 4,1 is for quartile 4 of light PA and quartile 1 of moderate-to-vigorous PA, etc.

The amount of moderate-to-vigorous PA (MVPA) as a proportion of total activity counts (TAC) is reflected by color (least MVPA bright yellow, most MVPA dark red). For example, quartiles 4,1 spent on average 400 minutes in total activity and approximately 10% of the total activity duration was spent on moderate-to-vigorous PA intensity. The remaining 90% were spent in light PA intensity. Joint quartiles filled with orange indicate joint distributions with relatively similar contributions of moderate-to-vigorous and light PA to total physical activity.