SUPPLEMENTAL DATA

Physical Activity and mortality among male survivors of Myocardial Infarction

Laila Al-Shaar MS, MPH, PhD[1], Yanping Li, PhD[1], Eric B. Rimm[1,2,4], ScD, JoAnn E. Manson[4,5], MD, DrPH, Bernard Rosner,[3,4], PhD, Frank B. Hu[1,2,4], MD, PhD, Meir J. Stampfer[1,2,4], MD, DrPH, Walter C. Willett[1,4] MD, DrPH.

[1]Department of Nutrition, Harvard T.H. Chan School of Public Health, Boston, MA, USA;

[2]Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, MA, USA;

[3]Department of Biostatistics, Harvard T.H. Chan School of Public Health, Boston, MA, USA;

[4]Channing Division of Network Medicine, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA;

[5]Division of Preventive Medicine, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston;

Correspondence to:
Walter C. Willett, MD, Dr.PH
Department of Nutrition
Harvard T.H. Chan School of Public Health,
655 Huntington Avenue, Boston, MA 02115, USA
Phone: 617.432.4680
Email: wwillett@hsph.harvard.edu

Supplemental Table 1: Age adjusted baseline characteristics of the Study Participants in the Health Professionals Follow up Study by Moderate to vigorous physical activity categories (MET-hours/week) before MI (N=1651)

	≤ 1.5 (N=338)	1.6-7.4 (N=287)	7.5-20.9 (N=404)	≥ 21 (N=622)	p-value
Continuous Variables	**Mean (Standard Deviation) or Median (Interquartile Range)**				
Mod to vig PA (MET-hrs/week)	0 (0-0.2)	4.3 (2.7-5.8)	12.6 (10.0-16.3)	41.5 (29.0-58.7)	<0.001
Mod to vig PA (hrs/week)	0.0 (0-0)	1.0 (0.5-1.2)	2.5 (2.0-3.4)	8.1 (5.5-11.5)	<0.001
Total PA (hrs/week)	0.7 (0-2.5)	1.5 (1.0-3.0)	4.0 (2.5-5.5)	9.0 (6.5-13.5)	<0.001
Total PA (MET-hours/week)	2.5 (0.1-7.5)	6.4 (4.3-10.0)	16.8 (12.8-22.5)	45.0 (31.5-66.6)	<0.001
Age at diagnosis	65.1 (8.8)	65.4 (9.1)	64.6 (9.2)	65.6 (8.4)	0.58
BMI (Kg/m2)	27.1 (3.7)	26.8 (3.5)	26.3 (3.6)	26.0 (3.1)	<0.001
Alternate Healthy Eating Index score	53 (12)	53 (11)	55 (11)	56 (12)	<0.001
Alcohol intake (g/day)	8.6 (12.5)	9.5 (14.8)	10.7 (15.1)	10.7 (14.6)	0.01
Categorical variables	**%**	**%**	**%**	**%**	
White race	91	92	94	92	0.75
Married	73	78	79	82	0.001
Family history of MI	45	42	42	41	0.32
Family history of Diabetes	28	23	24	22	0.12
Family history of cancer	37	32	36	33	0.44
Types of physical activity					
Walking ≥ 1 hr/week	51	56	78	80	<0.001
Running ≥ 1 hr/week	0	0	1	8	<0.001
Jogging and rowing ≥ 1 hr/week	1	6	19	36	<0.001
Biking and swimming ≥ 1 hr/week	0	13	27	31	<0.001
Racquet sports ≥ 1 hr/week	0	2	11	16	<0.001
Mod-heavy outdoor work ≥ 1 hr/week	2	19	42	55	<0.001
Weight training ≥ 1 hr/week	0	0	10	22	<0.001
Smoking					
Never smoker	38	46	43	38	0.42
Former smoker	46	45	49	53	0.01
Current smoker	15	9	8	9	0.01
Comorbidities					
Diabetes	12	11	8	8	0.07
Hypertension	47	41	44	41	0.24
Hypercholesterolemia	43	49	49	52	0.02
Medication use					
Aspirin	42	46	46	45	0.28
Anti-hypertensives	40	35	36	34	0.11
Anti-hypercholesterolemia	15	17	17	20	0.05

* Not Age-adjusted; PA: Physical Activity; Mod to vig: Moderate to vigorous intensity physical activity; Racquet sports included tennis, squash, and racquetball. Variables were assessed on average 13 months pre-MI diagnosis.

Supplemental Table 2: Age and multivariate adjusted Hazard Ratios (95% CI) of all-cause mortality after simultaneous adjustment for categories of moderate to vigorous intensity physical activity shortly before and after myocardial infarction diagnosis (in MET-hours/week) (N=1651).

All-cause Mortality	N_{events} (N_{total})	Multivariate Adjusted $^{\Psi}$	Multivariate Adjusted [*]
Before MI diagnosis			
All-cause mortality			
≤ 1.5	168 (338)	Reference	Reference
1.6-7.4	131 (287)	0.81 (0.64, 1.02)	**0.82 (0.65, 1.04)**
7.5-20.9	158 (404)	**0.71 (0.57, 0.89)**	**0.71 (0.57, 0.90)**
≥ 21	221 (622)	**0.73 (0.59, 0.89)**	**0.75 (0.60, 0.95)**
$P_{nonlinearity}$		0.13	0.14
P_{trend}		**0.03**	0.20
CVD mortality			
≤ 1.5	87 (338)	Reference	Reference
1.6-7.4	56 (287)	**0.69 (0.47, 0.94)**	**0.67 (0.47, 0.95)**
7.5-20.9	69 (404)	**0.60 (0.43, 0.83)**	**0.61 (0.44, 0.85)**
≥ 21	95 (622)	**0.62 (0.46, 0.84)**	**0.65 (0.46, 0.90)**
$P_{nonlinearity}$		**0.03**	0.08
P_{trend}		**0.04**	0.15
After MI diagnosis			
All-cause mortality			
≤ 1.5	147 (280)	Reference	Reference
1.6-7.4	113 (243)	0.79 (0.62, 1.01)	0.82 (0.64, 1.05)
7.5-20.9	176 (405)	0.91 (0.73, 1.14)	0.96 (0.76, 1.21)
≥ 21	242 (713)	**0.74 (0.60, 0.92)**	0.82 (0.65, 1.04)
$P_{nonlinearity}$		0.89	0.67
P_{trend}		**0.02**	0.20
CVD mortality			
≤ 1.5	72 (280)	Reference	Reference
1.6-7.4	52 (243)	0.77 (0.53, 1.10)	0.80 (0.56, 1.16)
7.5-20.9	75 (405)	0.81 (0.58, 1.13)	0.87 (0.62, 1.22)
≥ 21	108 (713)	**0.71 (0.52, 0.97)**	0.82 (0.59, 1.16)
$P_{nonlinearity}$		0.43	0.84
P_{trend}		0.09	0.48

$^{\Psi}$: Adjusted for age, race, family history of myocardial infarction, cancer, and diabetes, smoking, marital status, alcohol consumption, alternate healthy eating index score, year of MI diagnosis, and aspirin use. Models using PA after MI diagnosis were further adjusted for heart failure during hospital admission and incidence of stroke and cancer after MI diagnosis.
*Simultaneous adjustment for Pre and Post-MI physical activity.

Supplemental Table 3: Distribution of participants (in percentages) according to their change in moderate to vigorous intensity physical activity from before to after MI diagnosis (N=1651).

Change in moderate to vigorous PA (MET-hours/week)		After MI			
		≤ 1.5	1.6-7.4	7.5-20.9	≥ 21
Before MI	≤ 1.5	38	19	25	18
	1.6-7.4	21	24	27	28
	7.5-20.9	12	16	20	41
	≥ 21	6	8	21	65

Supplemental Table 4: Multivariate adjusted Hazard Ratios (95% CI) of all-cause and CVD mortality for the joint association between physical activity changes, and changes in weight and diet quality (N=1541).

Long-term PA Change (MET-hrs)	N_{deaths} (N_{total})	$N_{CVD\ deaths}$	All-Cause Mortality HR (95% CI)	CVD Mortality HR (95% CI)
Low- Low; Weight loss, no improved diet	77 (109)	42	**1.54 (1.04, 2.27)**	1.54 (0.89, 2.68)
Low- Low; Weight loss, improved diet	15 (32)	6	1.22 (0.71, 2.25)	0.87 (0.34, 2.32)
Low- Low; No weight loss	46 (100)	21	1	1
Low- High; Weight loss, no improved diet	59 (996)	29	0.99 (0.66, 1.49)	0.98 (0.54, 1.76)
Low- High; Weight loss, improved diet	26 (57)	15	1.08 (0.66, 1.78)	1.26 (0.63, 2.49)
Low- High; No weight loss	36 (116)	18	0.79 (0.50, 1.24)	0.67 (0.35, 1.30)
High- Low; Weight loss, no improved diet	29 (49)	10	1.43 (0.88, 2.32)	1.01 (0.46, 2.21)
High- Low; Weight loss, improved diet	8 (12)	4	0.68 (0.31, 1.48)	0.66 (0.21, 2.03)
High- Low; No weight loss	33 (76)	14	0.99 (0.62, 1.58)	0.94 (0.47, 1.90)
High- High; Weight loss, no improved diet	151 (306)	69	0.91 (0.64, 1.30)	0.87 (0.52, 1.46)
High- High; Weight loss, improved diet	48 (150)	18	**0.61 (0.40, 0.94)**	**0.48 (0.25, 0.92)**
High- High; No weight loss	120 (435)	48	0.78 (0.54, 1.11)	0.71 (0.42, 1.22)

Supplemental Table 5: Multivariate adjusted Hazard Ratios (95% CI) of all-cause and CVD mortality according to moderate to vigorous intensity physical activity categories after MI, and the change from before to after MI, after further adjusting for MI severity during hospital admission.

After MI diagnosis	All-Cause Mortality RR (95% CI)	CVD mortality RR (95% CI)
Mod-vig PA after MI (MET-hours/day)		
≤ 1.5	Reference	
1.6-7.4	0.80 (0.62, 1.02)	0.78 (0.54, 1.12)
7.5-20.9	0.92 (0.73, 1.16)	0.82 (0.59, 1.15)
≥ 21	**0.75 (0.60, 0.93)**	**0.71 (0.52, 0.97)**
$P_{nonlinearity}$	0.97	0.50
Mod-vig PA Change (MET-hrs)		
Low- Low (N=322)	1	1
Low-High (N=303)	0.93 (0.74, 1.18)	1.06 (0.76, 1.50)
High-Low (N=201)	**0.74 (0.57, 0.96)**	0.87 (0.60, 1.27)
High-High (N=825)	**0.76 (0.62, 0.93)**	**0.70 (0.52, 0.94)**
Mod-vig PA Change* (MET-hrs)		
Low- Low (N=252)	1	1
Low-High (N=281)	**0.75 (0.58, 0.96)**	0.75 (0.51, 1.05)
High-Low (N=152)	0.82 (0.61, 1.09)	0.67 (0.43, 1.04)
High-High (N=966)	**0.62 (0.50, 0.76)**	**0.54 (0.40, 0.72)**
Mod-vig PA Change$^{\Psi}$ (MET-hrs)		
Low- Low (N=234)	1	1
Low-High (N=286)	**0.71 (0.55, 0.91)**	**0.70 (0.49, 1.00)**
High-Low (N=137)	**0.72 (0.53, 0.97)**	**0.64 (0.41, 0.99)**
High-High (N=971)	**0.61 (0.50, 0.75)**	**0.52 (0.38, 0.71)**

* Using cumulative average before and after MI

Ψ Using cumulative average before and stopping to update the data after reporting physical activity impairment during the follow-up after MI.

∀Adjusted for age, race, family history of myocardial infarction, cancer, and diabetes, smoking, marital status, alcohol consumption, alternate healthy eating index score, year of MI diagnosis, and aspirin use, heart failure during hospital admission, peak enzyme levels of troponin or CKMB, LV dysfunction, and incidence of stroke and cancer after MI diagnosis.

Supplemental Table 6: Multivariate adjusted Hazard Ratios (95% CI) of all-cause and CVD mortality, according to MET-hours/week of moderate to vigorous physical activity before and after MI diagnosis, stratified by smoking status (N=1651).

Moderate to vigorous PA (MET-hours/week)	Non-smoker (N=549)		Ever smoker (N=1102)	
	$N_{events}(N_{total})$	RR (95% CI) [Ψ]	$N_{events}(N_{total})$	RR (95% CI) [Ψ]
Before MI diagnosis				
All-cause mortality				
≤ 1.5	59 (96)	1	109 (242)	1
1.6-7.4	40 (110)	**0.47 (0.31, 0.73)**	91 (177)	0.98 (0.74, 1.32)
7.5-20	46 (144)	**0.41 (0.27, 0.62)**	112 (260)	0.89 (0.67, 1.18)
> 20	60 (199)	**0.50 (0.34, 0.74)**	161 (423)	0.85 (0.66, 1.10)
$P_{nonlinearity}$		**0.03**		0.25
P_{trend}		**0.04**		0.19
CVD mortality				
≤ 1.5	30 (96)	1	57 (242)	1
1.6-7.4	20 (110)	**0.50 (0.27, 0.92)**	36 (177)	0.69 (0.44, 1.06)
7.5-20	24 (144)	**0.43 (0.24, 0.77)**	45 (260)	0.67 (0.44, 1.01)
> 20	20 (199)	**0.34 (0.18, 0.61)**	75 (423)	0.77 (0.53, 1.11)
$P_{nonlinearity}$		**0.009**		0.06
P_{trend}		**0.004**		0.67
After MI diagnosis				
All-cause mortality				
≤ 1.5	51 (87)	1	96 (193)	1
1.6-7.4	32 (82)	**0.42 (0.27, 0.68)**	81 (161)	0.98 (0.72, 1.33)
7.5-20	44 (128)	**0.48 (0.31, 0.74)**	132 (287)	1.10 (0.83, 1.45)
> 20	78 (252)	**0.51 (0.35, 0.75)**	164 (461)	0.81 (0.62, 1.07)
$P_{nonlinearity}$		0.97		0.90
P_{trend}		0.16		0.04
CVD mortality				
≤ 1.5	29 (87)	1	43 (193)	1
1.6-7.4	14 (82)	**0.33 (0.17, 0.66)**	38 (161)	1.05 (0.67, 1.69)
7.5-20	20 (128)	**0.38 (0.20, 0.70)**	55 (287)	1.04 (0.68, 1.58)
> 20	31 (252)	**0.36 (0.20, 0.62)**	77 (461)	0.96 (0.64, 1.44)
$P_{nonlinearity}$		0.28		0.91
P_{trend}		**0.02**		0.68

[Ψ]: Adjusted for age, race, family history of myocardial infarction, cancer, and diabetes, smoking, marital status, alcohol consumption, alternate healthy eating index score, year of MI diagnosis, and aspirin use. Models using PA after MI diagnosis were further adjusted for heart failure during hospital admission and incidence of stroke and cancer after MI diagnosis.

Supplemental Table 7: Hazard Ratios (95% CI) for all-cause mortality associated with walking and walking pace before and after MI diagnosis.

All-cause Mortality	$N_{events}(N_{total})$	Age adjusted	Multivariate Adjusted *	Multivariate Adjusted $^{\Psi}$	Multivariate Adjusted$^{\forall}$
Before MI diagnosis					
Walking (hrs/week)					
<0.5	208 (505)	1	1	1	1
0.5-1	71 (163)	0.89 (0.68, 1.16)	0.87 (0.66, 1.15)	0.88 (0.66, 1.16)	0.85 (0.64, 1.13)
1-2.5	77 (200)	0.78 (0.60, 1.01)	0.79 (0.61, 1.04)	0.83 (0.63, 1.09)	0.82 (0.62, 1.07)
2.5-5	206 (536)	**0.80 (0.66, 0.97)**	0.82 (0.67, 1.003)	0.85 (0.70, 1.05)	0.84 (0.69, 1.04)
>5	116 (247)	0.87 (0.69, 1.10)	0.90 (0.71, 1.14)	0.95 (0.74, 1.21)	0.96 (0.75, 1.23)
$P_{nonlinearity}$		0.10	0.20	0.34	0.44
Pace of Walking					
<2 mph	52 (94)	1	1	1	---
2-3 mph	365 (833)	**0.66 (0.50, 0.89)**	**0.67 (0.50, 0.91)**	**0.69 (0.51, 0.93)**	---
≥ 3 mph	222 (617)	**0.59 (0.44, 0.80)**	**0.62 (0.45, 0.84)**	**0.64 (0.47, 0.88)**	---
After MI diagnosis					
Walking (hrs/week)					
<0.5	194 (473)	1	1	1	1
0.5-1	63 (156)	0.84 (0.63, 1.12)	0.79 (0.59, 1.06)	0.79 (0.59, 1.07)	0.81 (0.60, 1.09)
1-2.5	60 (163)	0.84 (0.63, 1.12)	0.76 (0.56, 1.02)	0.76 (0.56, 1.02)	0.78 (0.58, 1.06)
2.5-5	257 (607)	**0.74 (0.62, 0.90)**	**0.71 (0.58, 0.87)**	**0.72 (0.59, 0.88)**	**0.74 (0.60, 0.90)**
>5	104 (250)	**0.64 (0.50, 0.82)**	**0.66 (0.51, 0.84)**	**0.66 (0.52, 0.85)**	**0.66 (0.51, 0.85)**
$P_{nonlinearity}$		**0.001**	**<0.001**	**0.002**	**0.004**
After MI diagnosis					
<2 mph	50 (101)	1	1	1	---
2-3 mph	391 (819)	0.89 (0.66, 1.19)	0.78 (0.57, 1.05)	0.80 (0.59, 1.08)	---
≥ 3 mph	232 (678)	**0.70 (0.52, 0.96)**	**0.67 (0.49, 0.92)**	**0.71 (0.51, 0.97)**	---

* Adjusted for age, race, family history of myocardial infarction, cancer, and diabetes, smoking, marital status, alcohol consumption, alternate healthy eating index score, year of MI diagnosis, and aspirin use. Models using PA after MI diagnosis were further adjusted for heart failure during hospital admission and incidence of stroke and cancer after MI diagnosis. Ψ: Adjusted for the same variables as in model *, with simultaneous adjustment for walking in hours/week and walking pace in the model. ∀ Adjusted for the same variables as in model *, with simultaneous adjustment for walking before and after MI diagnosis.

Supplemental Table 8: Hazard Ratios (95% CI) for CVD mortality associated with walking and walking pace before and after MI diagnosis.

CVD Mortality	$N_{events}(N_{total})$	Age adjusted	Multivariate Adjusted [*]	Multivariate Adjusted [Ψ]	Multivariate Adjusted[∀]
Before MI diagnosis					
Walking (hrs/week)					
<0.5	98 (505)	1	1	1	1
0.5-1	27 (163)	0.71 (0.47, 1.10)	0.71 (0.46, 1.09)	0.72 (0.46, 1.11)	0.70 (0.45, 1.09)
1-2.5	29 (200)	**0.62 (0.41, 0.94)**	**0.65 (0.42, 0.99)**	0.69 (0.45, 1.06)	0.67 (0.43, 1.03)
2.5-5	104 (536)	0.87 (0.66, 1.14)	0.89 (0.67, 1.18)	0.93 (0.73, 1.25)	0.94 (0.69, 1.27)
>5	49 (247)	0.78 (0.55, 1.11)	0.80 (0.56, 1.15)	0.86 (0.60, 1.24)	0.74 (0.50, 1.09)
$p_{nonlinearity}$		0.62	0.67	0.87	
Pace of Walking					
<2 mph	26 (94)	1	1	1	---
2-3 mph	167 (833)	**0.59 (0.39, 0.89)**	**0.65 (0.42, 0.99)**	0.67 (0.43, 1.02)	---
≥ 3 mph	95 (617)	**0.50 (0.32, 0.78)**	**0.55 (0.35, 0.86)**	**0.57 (0.36, 0.89)**	---
After MI diagnosis					
Walking (hrs/week)					
<0.5	78 (473)	1	1	1	1
0.5-1	26 (156)	0.88 (0.56, 1.39)	0.83 (0.52, 1.33)	0.85 (0.53, 1.37)	0.86 (0.54, 1.36)
1-2.5	30 (163)	1.16 (0.75, 1.77)	0.99 (0.64, 1.55)	0.99 (0.64, 1.56)	1.01 (0.65, 1.59)
2.5-5	122 (609)	0.95 (0.71, 1.27)	0.86 (0.63, 1.17)	0.89 (0.65, 1.20)	0.88 (0.64, 1.20)
>5	51 (250)	0.87 (0.60, 1.24)	0.86 (0.59, 1.24)	0.88 (0.61, 1.29)	0.90 (0.61, 1.31)
$p_{nonlinearity}$		0.29	0.22	0.28	0.32
After MI diagnosis					
<2 mph	24 (101)	1	1	1	---
2-3 mph	186 (819)	0.83 (0.54, 1.27)	0.77 (0.50, 1.20)	0.77 (0.49, 1.20)	---
≥ 3 mph	95 (678)	**0.57 (0.36, 0.90)**	**0.59 (0.37, 0.94)**	**0.60 (0.38, 0.96)**	---

* Adjusted for age, race, family history of myocardial infarction, cancer, and diabetes, smoking, marital status, alcohol consumption, alternate healthy eating index score, year of MI diagnosis, and aspirin use. Models using PA after MI diagnosis were further adjusted for heart failure during hospital admission and incidence of stroke and cancer after MI diagnosis.

Ψ: Adjusted for the same variables as in model *, with simultaneous adjustment for walking in hours/week and walking pace in the model.
∀ Adjusted for the same variables as in model *, with simultaneous adjustment for walking before and after MI diagnosis.

Supplemental Table 9: Multivariate Hazard Ratios (95% CI) for all-cause and CVD mortality for the joint association between walking and walking pace before and after MI diagnosis.

	N_{deaths}	$N_{CVDdeaths}$	Multivariate Adjusted $^\Psi$ all-cause mortality	Multivariate Adjusted $^\Psi$ CVD mortality	Multivariate Adjusted $^\Delta$ all-cause mortality	Multivariate Adjusted $^\Delta$ CVD mortality
Walking Before MI (hrs/week)						
Pace < 3 mph						
≤ 1 hour/week (N=422)	190	85	Reference	Reference	Reference	Reference
1-2.4 hours/week (N=114)	48	18	0.91 (0.66, 1.26)	0.79 (0.49, 1.31)	1.01 (0.73, 1.40)	0.76 (0.45, 1.28)
≥ 2.5 hours/week (N=406)	179	90	0.85 (0.69, 1.06)	0.96 (0.70, 1.30)	0.89 (0.71, 1.10)	0.92 (0.67, 1.26)
Pace ≥ 3 mph						
≤ 1 hour/week (N=202)	69	29	0.87 (0.66, 1.15)	0.78 (0.51, 1.19)	0.89 (0.66, 1.20)	0.79 (0.50, 1.25)
1-2.4 hours/week (N=75)	25	10	**0.64 (0.42, 0.98)**	0.58 (0.30, 1.13)	0.65 (0.42, 1.01)	0.61 (0.30, 1.22)
≥ 2.5 hours/week (N=343)	128	56	0.83 (0.66, 1.04)	0.82 (0.58, 1.16)	0.88 (0.68, 1.14)	0.86 (0.58, 1.26)
Walking after MI (hrs/week)						
Pace < 3 mph						
≤ 1 hour/week (N=394)	178	71	Reference	Reference	Reference	Reference
1-2.4 hours/week (N=100)	42	22	0.73 (0.52, 1.04)	0.96 (0.60, 1.58)	0.71 (0.49, 1.02)	0.98 (0.60, 1.67)
≥ 2.5 hours/week (N=445)	221	117	**0.73 (0.59, 0.89)**	0.97 (0.72, 1.33)	**0.75 (0.60, 0.93)**	0.98 (0.71, 1.36)
Pace ≥ 3 mph						
≤ 1 hour/week (N=216)	79	33	0.84 (0.64, 1.10)	0.87 (0.57, 1.32)	0.88 (0.65, 1.19)	0.91 (0.57, 1.45)
1-2.4 hours/week (N=60)	18	8	0.78 (0.47, 1.29)	0.86 (0.41, 1.83)	0.83 (0.49, 1.42)	0.90 (0.39, 2.04)
≥ 2.5 hours/week (N=403)	135	54	**0.62 (0.49, 0.78)**	**0.62 (0.43, 0.89)**	**0.67 (0.51, 0.86)**	0.65 (0.43, 0.98)

Ψ: Adjusted for age, race, family history of myocardial infarction, cancer, and diabetes, smoking, marital status, alcohol consumption, alternate healthy eating index score, year of MI diagnosis, and aspirin use. Models using data after MI diagnosis were further adjusted for heart failure during hospital admission and incidence of stroke and cancer after MI diagnosis.

$^\Delta$ Adjusted for the same variables as in model Ψ, with simultaneous adjustment for walking and walking pace before and after MI, in the model.

Supplemental Table 10: Multivariate Hazard Ratios (95% CI) of all-cause mortality by subtypes of physical activity before MI diagnosis

Activity	Duration of activity before MI, hr/week		
	0	**≤1**	**>1**
Jogging			
$N_{events}(N_{total})$	559 (1355)	53 (139)	19 (79)
Age adjusted	Ref	1.00 (0.75-1.33)	0.80 (0.51-1.27)
Multivariate$^{\Psi}$	Ref	1.00 (0.75-1.34)	0.87 (0.54-1.38)
Multivariate$^{\forall}$	Ref	1.08 (0.77-1.51)	0.96 (0.58-1.59)
Running			
$N_{events}(N_{total})$	592 (1460)	24 (67)	15 (42)
Age adjusted	Ref	0.88 (0.59-1.33)	1.17 (0.70-1.96)
Multivariate$^{\Psi}$	Ref	0.88 (0.58-1.33)	1.33 (0.79-2.25)
Multivariate$^{\forall}$	Ref	0.94 (0.58-1.51)	1.50 (0.80-2.81)
Rowing			
$N_{events}(N_{total})$	459 (1158)	122 (268)	55 (154)
Age adjusted	Ref	1.04 (0.85-1.27)	0.84 (0.64-1.11)
Multivariate$^{\Psi}$	Ref	0.99 (0.80-1.21)	0.89 (0.67-1.18)
Multivariate$^{\forall}$	Ref	1.07 (0.85-1.34)	0.95 (0.69-1.29)
Biking			
$N_{events}(N_{total})$	450 (1122)	120 (274)	69 (190)
Age adjusted	Ref	0.91 (0.74-1.11)	0.86 (0.67-1.11)
Multivariate$^{\Psi}$	Ref	0.92 (0.75-1.13)	0.89 (0.69-1.15)
Multivariate$^{\forall}$	Ref	0.97 (0.78-1.21)	0.93 (0.71-1.22)
Moderate to heavy outdoor			
$N_{events}(N_{total})$	230 (520)	127 (412)	162 (454)
Age adjusted	Ref	**0.69 (0.55-0.86)**	0.88 (0.72-1.08)
Multivariate$^{\Psi}$	Ref	**0.71 (0.57-0.88)**	0.89 (0.72-1.10)
Multivariate$^{\forall}$	Ref	**0.72 (0.58-0.91)**	0.90 (0.73-1.12)
Weight Training			
$N_{events}(N_{total})$	362 (970)	36 (143)	24 (128)
Age adjusted	Ref	0.78 (0.56-1.11)	0.75 (0.50-1.14)
Multivariate$^{\Psi}$	Ref	0.82 (0.58-1.16)	0.81 (0.53-1.24)
Multivariate$^{\forall}$	Ref	0.93 (0.64-1.33)	0.92 (0.58-1.45)
Swimming			
$N_{events}(N_{total})$	575 (1438)	37 (94)	15 (41)
Age adjusted	Ref	0.82 (0.59-1.15)	0.81 (0.49-1.36)
Multivariate$^{\Psi}$	Ref	0.84 (0.60-1.18)	0.85 (0.51-1.43)
Multivariate$^{\forall}$	Ref	0.85 (0.60-1.21)	0.90 (0.53-1.54)
Racquet sports			
$N_{events}(N_{total})$	563 (1380)	18 (52)	42 (130)
Age adjusted	Ref	0.85 (0.53-1.36)	**0.64 (0.47-0.87)**
Multivariate$^{\Psi}$	Ref	0.90 (0.55-1.45)	**0.65 (0.47-0.89)**
Multivariate$^{\forall}$	Ref	0.92 (0.57-1.50)	**0.64 (0.46-0.89)**

Ψ: Adjusted for age, race, family history of myocardial infarction, cancer, and diabetes, smoking, marital status, alcohol consumption, alternate healthy eating index score, year of MI diagnosis, aspirin use, heart failure during hospital admission, and incidence of stroke and cancer after MI diagnosis.

$\forall$: Adjusted for the same variables in model Ψ, in addition to other types of activity in this table plus walking

Supplemental Table 11: Multivariate Hazard Ratios (95% CI) of CVD mortality by subtypes of physical activity before MI diagnosis

Activity	Duration of activity before MI, hr/week		
	0	≤1	>1
Jogging			
$N_{events}(N_{total})$	252 (1355)	22 (139)	10 (79)
Age adjusted	Ref	0.89 (0.58, 1.39)	0.94 (0.50, 1.78)
Multivariate$^{\Psi}$	Ref	0.86 (0.55, 1.35)	1.15 (0.60, 2.19)
Multivariate$^{\forall}$	Ref	0.98 (0.59, 1.67)	1.31 (0.65, 2.65)
Running			
$N_{events}(N_{total})$	268 (1460)	13 (67)	7 (42)
Age adjusted	Ref	1.02 (0.58, 1.80)	1.15 (0.54, 1.80)
Multivariate$^{\Psi}$	Ref	0.99 (0.59, 1.76)	1.28 (0.59, 2.76)
Multivariate$^{\forall}$	Ref	1.15 (0.59, 2.24)	0.98 (0.35, 2.75)
Rowing			
$N_{events}(N_{total})$	205 (1158)	54 (268)	29 (154)
Age adjusted	Ref	1.02 (0.76, 1.38)	0.99 (0.67, 1.47)
Multivariate$^{\Psi}$	Ref	0.93 (0.68, 1.26)	1.14 (0.76, 1.70)
Multivariate$^{\forall}$	Ref	1.03 (0.73, 1.46)	1.29 (0.83, 2.00)
Biking			
$N_{events}(N_{total})$	211 (1122)	47 (274)	29 (190)
Age adjusted	Ref	0.78 (0.57, 1.07)	0.78 (0.53, 1.16)
Multivariate$^{\Psi}$	Ref	0.75 (0.54, 1.04)	0.83 (0.56, 1.24)
Multivariate$^{\forall}$	Ref	0.84 (0.60, 1.19)	0.86 (0.57, 1.30)
Moderate-heavy outdoor			
$N_{events}(N_{total})$	113 (520)	52 (412)	60 (470)
Age adjusted	Ref	**0.58 (0.42, 0.80)**	**0.65 (0.47, 0.89)**
Multivariate$^{\Psi}$	Ref	**0.58 (0.41, 0.80)**	**0.66 (0.48, 0.92)**
Multivariate$^{\forall}$	Ref	**0.61 (0.43, 0.86)**	**0.67 (0.48, 0.94)**
Weight Training			
$N_{events}(N_{total})$	155 (970)	14 (143)	9 (128)
Age adjusted	Ref	0.71 (0.41, 1.24)	0.65 (0.33, 1.28)
Multivariate$^{\Psi}$	Ref	0.77 (0.44, 1.35)	0.74 (0.37, 1.48)
Multivariate$^{\forall}$	Ref	0.94 (0.52, 1.68)	0.73 (0.35, 1.55)
Swimming			
$N_{events}(N_{total})$	256 (1438)	19 (94)	9 (41)
Age adjusted	Ref	0.98 (0.61, 1.57)	1.13 (0.58, 2.20)
Multivariate$^{\Psi}$	Ref	0.92 (0.57, 1.50)	1.19 (0.61, 2.35)
Multivariate$^{\forall}$	Ref	0.94 (0.57, 1.56)	1.18 (0.59, 2.38)
Racquet sports			
$N_{events}(N_{total})$	255 (1380)	7 (52)	20 (130)
Age adjusted	Ref	0.70 (0.33, 1.48)	0.69 (0.44, 1.09)
Multivariate$^{\Psi}$	Ref	0.73 (0.34, 1.57)	0.67 (0.42, 1.07)
Multivariate$^{\forall}$	Ref	0.80 (0.37, 1.73)	0.71 (0.44, 1.15)

Ψ: Adjusted for age, race, family history of myocardial infarction, cancer, and diabetes, smoking, marital status, alcohol consumption, alternate healthy eating index score, year of MI diagnosis, aspirin use, heart failure during hospital admission, and incidence of stroke and cancer after MI diagnosis.

$\forall$: Adjusted for the same variables in model Ψ, in addition to other types of activity in this table plus walking

Supplemental Table 12: Multivariate Hazard Ratios (95% CI) of all-cause mortality by subtypes of physical activity after MI diagnosis

Activity	Duration of activity after MI, hr/week		
	0	**≤1**	**>1**
Jogging			
$N_{events}(N_{total})$	548 (1331)	39 (125)	34 (89)
Age adjusted	Ref	0.83 (0.59-1.15)	0.99 (0.69-1.40)
Multivariate$^\Psi$	Ref	0.86 (0.62-1.20)	1.06 (0.75-1.52)
Multivariate$^\forall$	Ref	0.97 (0.67-1.40)	1.11 (0.75-1.63)
Running			
$N_{events}(N_{total})$	594 (1457)	14 (55)	7 (27)
Age adjusted	Ref	0.78 (0.46-1.32)	0.85 (0.40-1.80)
Multivariate$^\Psi$	Ref	0.73 (0.42-1.25)	0.96 (0.45-2.07)
Multivariate$^\forall$	Ref	0.77 (0.42-1.39)	0.84 (0.40-1.98)
Rowing			
$N_{events}(N_{total})$	430 (990)	108 (246)	68 (173)
Age adjusted	Ref	1.05 (0.85-1.30)	0.91 (0.71-1.18)
Multivariate$^\Psi$	Ref	0.99 (0.79-1.23)	0.95 (0.73-1.24)
Multivariate$^\forall$	Ref	0.97 (0.77-1.23)	1.00 (0.76-1.33)
Biking			
$N_{events}(N_{total})$	377 (968)	153 (370)	105 (235)
Age adjusted	Ref	1.01 (0.84-1.22)	1.17 (0.94-1.46)
Multivariate$^\Psi$	Ref	1.04 (0.86-1.26)	1.22 (0.98-1.53)
Multivariate$^\forall$	Ref	1.02 (0.83-1.27)	**1.29 (1.02-1.64)**
Mod-heavy outdoor			
$N_{events}(N_{total})$	317 (664)	155 (403)	166 (514)
Age adjusted	Ref	0.93 (0.77-1.13)	**0.79 (0.66-0.97)**
Multivariate$^\Psi$	Ref	0.98 (0.79-1.19)	0.88 (0.72-1.08)
Multivariate$^\forall$	Ref	0.98 (0.80-1.21)	0.84 (0.68-1.04)
Weight Training			
$N_{events}(N_{total})$	493 (1126)	93 (273)	36 (157)
Age adjusted	Ref	0.92 (0.73-1.15)	0.74 (0.52-1.03)
Multivariate$^\Psi$	Ref	0.96 (0.76-1.21)	0.86 (0.61-1.22)
Multivariate$^\forall$	Ref	0.99 (0.77-1.27)	0.79 (0.54-1.16)
Swimming			
$N_{events}(N_{total})$	580 (1429)	31 (83)	13 (36)
Age adjusted	Ref	0.76 (0.53-1.10)	0.70 (0.41-1.22)
Multivariate$^\Psi$	Ref	0.74 (0.51-1.07)	0.72 (0.41-1.26)
Multivariate$^\forall$	Ref	0.77 (0.53-1.12)	0.70 (0.39-1.25)
Racquet sports			
$N_{events}(N_{total})$	582 (1415)	10 (29)	28 (84)
Age adjusted	Ref	1.39 (0.74-2.61)	**0.58 (0.40-0.85)**
Multivariate$^\Psi$	Ref	1.68 (0.88-3.20)	**0.64 (0.43-0.94)**
Multivariate$^\forall$	Ref	1.63 (0.85-3.14)	**0.64 (0.43-0.96)**

Ψ: Adjusted for age, race, family history of myocardial infarction, cancer, and diabetes, smoking, marital status, alcohol consumption, alternate healthy eating index score, year of MI diagnosis, aspirin use, heart failure during hospital admission, and incidence of stroke and cancer after MI diagnosis.

∀: Adjusted for the same variables in model Ψ, in addition to other types of activity in this table plus walking

Supplemental Table 13: Multivariate Hazard Ratios (95% CI) of CVD mortality by subtypes of physical activity after MI diagnosis

Activity	Duration of activity after MI, hr/week		
	0	**≤1**	**>1**
Jogging			
$N_{events}(N_{total})$	253 (1331)	11 (125)	14 (89)
Age adjusted	Ref	**0.48 (0.26, 0.88)**	0.86 (0.50, 1.47)
Multivariate$^{\Psi}$	Ref	**0.52 (0.28, 0.96)**	0.92 (0.53, 1.59)
Multivariate$^{\forall}$	Ref	0.53 (0.27, 1.03)	0.99 (0.54, 1.81)
Running			
$N_{events}(N_{total})$	268 (1457)	6 (55)	2 (27)
Age adjusted	Ref	0.72 (0.32, 1.62)	0.48 (0.12, 1.96)
Multivariate$^{\Psi}$	Ref	0.65 (0.28, 1.50)	0.60 (0.16, 2.48)
Multivariate$^{\forall}$	Ref	0.88 (0.35, 2.22)	0.80 (0.19, 3.41)
Rowing			
$N_{events}(N_{total})$	186 (968)	47 (246)	41 (173)
Age adjusted	Ref	1.04 (0.75, 1.43)	1.25 (0.89, 1.75)
Multivariate$^{\Psi}$	Ref	0.89 (0.64, 1.25)	1.28 (0.90, 1.82)
Multivariate$^{\forall}$	Ref	0.89 (0.63, 1.28)	**1.49 (1.01, 2.20)**
Biking			
$N_{events}(N_{total})$	157 (968)	78 (370)	54 (235)
Age adjusted	Ref	1.24 (0.95, 1.63)	**1.46 (1.07, 1.99)**
Multivariate$^{\Psi}$	Ref	1.23 (0.93, 1.63)	**1.43 (1.04, 1.97)**
Multivariate$^{\forall}$	Ref	1.24 (0.91, 1.69)	**1.42 (1.00, 2.01)**
Mod-heavy outdoor			
$N_{events}(N_{total})$	152 (664)	68 (403)	69 (514)
Age adjusted	Ref	0.83 (0.62, 1.11)	**0.67 (0.50, 0.90)**
Multivariate$^{\Psi}$	Ref	0.90 (0.67, 1.21)	0.81 (0.60, 1.10)
Multivariate$^{\forall}$	Ref	0.88 (0.65, 1.19)	0.81 (0.60, 1.12)
Weight Training			
$N_{events}(N_{total})$	222 (1126)	49 (273)	14 (157)
Age adjusted	Ref	1.06 (0.78, 1.45)	0.60 (0.35, 1.03)
Multivariate$^{\Psi}$	Ref	1.20 (0.86, 1.65)	0.76 (0.44, 1.32)
Multivariate$^{\forall}$	Ref	1.12 (0.77, 1.62)	0.57 (0.31, 1.05)
Swimming			
$N_{events}(N_{total})$	261 (1429)	18 (83)	4 (36)
Age adjusted	Ref	1.01 (0.63, 1.64)	0.51 (0.19, 1.37)
Multivariate$^{\Psi}$	Ref	0.93 (0.57, 1.52)	0.38 (0.14, 1.05)
Multivariate$^{\forall}$	Ref	0.95 (0.57, 1.59)	0.34 (0.11, 1.01)
Racquet sports			
$N_{events}(N_{total})$	266 (1415)	5 (29)	12 (84)
Age adjusted	Ref	1.50 (0.62, 3.66)	0.57 (0.32, 1.02)
Multivariate$^{\Psi}$	Ref	1.77 (0.71, 4.40)	0.60 (0.33, 1.08)
Multivariate$^{\forall}$	Ref	1.70 (0.67, 4.36)	0.56 (0.30, 1.04)

Ψ: Adjusted for age, race, family history of myocardial infarction, cancer, and diabetes, smoking, marital status, alcohol consumption, alternate healthy eating index score, year of MI diagnosis, aspirin use, heart failure during hospital admission, and incidence of stroke and cancer after MI diagnosis.

∀: Adjusted for the same variables in model Ψ, in addition to other types of activity in this table plus walking

Supplemental Table 14: Moderate to vigorous physical activity (MET-hours/week) before MI in relation to all-cause and CVD mortality among all 3419 men with MI, including those who did not survive up to the post-MI questionnaire cycle or had missing post-MI PA data.

Moderate-vigorous Physical Activity (MET-hours/week)	N_{events} (N_{total})	Age adjusted	Multivariate Adjusted $^\Psi$
All-cause mortality			
≤ 1.5	749 (933)	1	1
1.6-7.4	438 (611)	**0.84 (0.75, 0.95)**	**0.87 (0.77, 0.98)**
7.5-20.9	506 (782)	**0.75 (0.67, 0.84)**	**0.79 (0.71, 0.89)**
≥ 21	654 (1093)	**0.74 (0.66, 0.82)**	**0.78 (0.70, 0.87)**
$P_{nonlinearity}$		**<0.001**	**<0.001**
CVD mortality			
≤ 1.5	512 (933)	1	1
1.6-7.4	285 (611)	**0.83 (0.72, 0.96)**	**0.84 (0.72, 0.97)**
7.5-20.9	313 (782)	**0.72 (0.63, 0.83)**	**0.75 (0.65, 0.86)**
≥ 21	386 (1093)	**0.69 (0.60, 0.78)**	**0.70 (0.61, 0.80)**
$p_{nonlinearity}$		**<0.001**	**<0.001**

Adjusted for age, race, family history of myocardial infarction, cancer, and diabetes, marital status, smoking, alcohol consumption, alternate healthy eating index score, year of MI diagnosis, and aspirin use.

Supplemental Figure 1: Multivariate adjusted Hazard Ratios of all-cause and CVD mortality for the joint association between walking and pace of walking after MI diagnosis, among men who reported less than 1 hour of weekly vigorous exercise (<6 MET-hour/week, n=961).
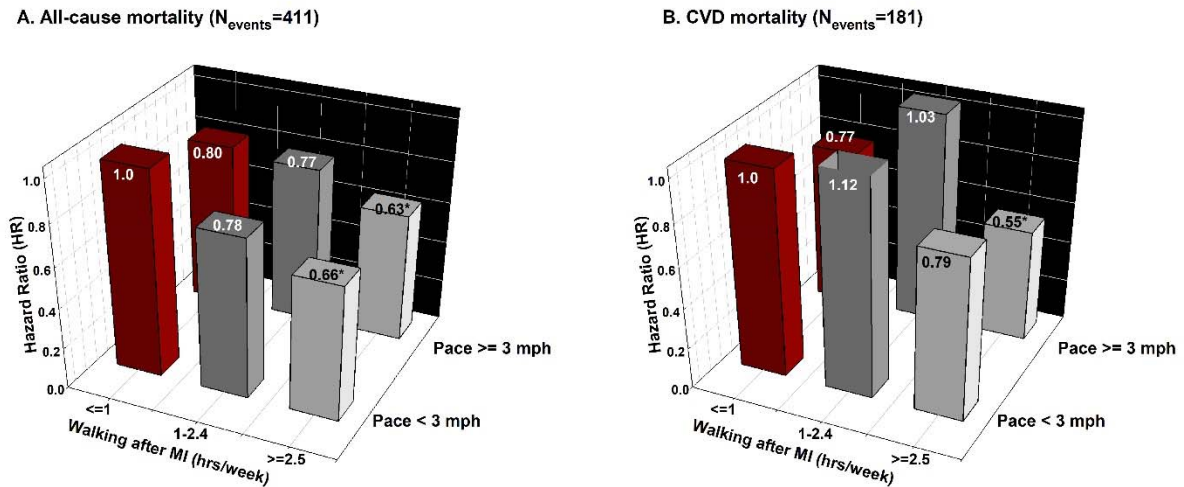
Adjusted for age, race, family history of myocardial infarction, cancer, and diabetes, smoking, marital status, alcohol consumption, alternate healthy eating index score, year of MI diagnosis, aspirin use, heart failure during hospital admission, and incidence of cancer and stroke after MI. * represents statistical significance