

Supplementary table S1 Characteristics of the study included in the meta-analysis on physical activity and cancer mortality

	Author (year) & Country ^{ref}	Study name	Gender	Age(y) at recruitment	No. death	No. case	No. cohort	Median follow-up(years or person-years)	Cancer type	Type of physical activity	Main results	Adjustment factors
1	Arraiz (1992) Canada ¹	A population-based cohort study	Both	30-69	229		12218	7	All	Total physical activity	Very active: 1.00 Active: 1.40 (0.80-2.30) Moderate: 0.80 (0.40-1.40) Inactive: 1.20 (0.70-1.90) (Mean ± SD)s	Age, sex, smoking and alcohol consumption
2	Kampert (1996) USA ²	A prospective observational study	Both	20-88	223		25341	8	All	Recreational physical activity	Male Q1(622±151s): 1.00 Q2(817±125s): 0.55 (0.44, 0.7) Q3(950±122s): 0.61 (0.48, 0.78) Q4(1097±133s): 0.52 (0.41, 0.66) Q5(1407±189s): 0.49 (0.37, 0.64) Female Q1(377±109s): 1.00 Q2(536±107s): 0.53 (0.30, 0.95) Q3(628±116s): 0.56 (0.31, 1.01) Q4(763±129s): 0.22 (0.10, 0.49) Q5(1040±215s): 0.37 (0.19, 0.72)	Baseline differences in age, examination year, cigarette smoking, chronic illnesses, and electrocardiogram abnormalities
3	Rosengren (1997) Sweden ³	The Multifactor Primary Prevention Study	Male	47-55	723		7142	20	All	Recreational physical activity	Sedentary, moderately active, regular exercise, athletic sports. Two most active groups compared to the sedentary group: 0.78 (0.62, 0.99) Inactive: 1.28 (1.1, 1.6) Moderately active: 1.13 (0.9, 1.4) Active: 1.00 Active group compared to inactive group with crude HR: 0.65 (0.53, 0.80)	Age, serum cholesterol. Smoking, alcohol abuse, and manual versus nonmanual occupational class
4	Smith (2000) UK ⁴	The Whitehall Study	Male	40-64	832		6702	25	All	Recreational physical activity	Inactive: 1.28 (1.1, 1.6) Moderately active: 1.13 (0.9, 1.4) Active: 1.00 Active group compared to inactive group with crude HR: 0.65 (0.53, 0.80)	Age, employment grade, BMI, smoking
5	Batty (2001) UK ⁵	The Whitehall Study	Male	40-64	1151		18403	25	All	Travel activity Walking or bicycling on the way to work	(Min/day) 0-9: 1.00 10-19: 1.05 (0.90, 1.20) ≥20: 0.99 (0.90, 1.10)	Age, employment grade, BMI, smoking,
6	Kilander (2001) Sweden ⁶	A cohort study in Sweden	Male	48.6-51.1	216		2301	25.7	All	Recreational physical activity	Low: 1.09 (0.73, 1.64) Medium: 0.96 (0.70, 1.33) High: 1.00	Age, body height, diastolic blood pressure, systolic blood pressure, b-glucose, BMI, s-triglycerides, s-cholesterol

7	Lee (2002) Korea ⁷	The Korea Medical Insurance Corporation (KMIC)	Male	35-64	883	452645	5	Lung cancer	Recreational activity	physical	No: 1.00 Yes: 0.80 (0.70, 0.90)	Age
8	Lee (2003) USA ⁸	The College Alumni Health Study	Both	47.1 (mean age)	212	32687	5	Pancreatic cancer	Recreational activity	physical	(KJ/wk) < 2100: 1.00 2100-4199: 0.98 (0.65, 1.49) 4200-10499: 0.92 (0.62, 1.35) ≥10500: 1.31 (0.69, 1.92)	Age (single years), sex, cigarette smoking, diabetes mellitus
9	Hu (2005) Finland ⁹	Prospective follow-up study	Both	25-64	7394	47212	17.7	All	Total physical activity		Male Low: 1.00 Moderate: 0.83 (0.69, 1.00) High: 0.79 (0.65, 0.96) Female Low: 1.00 Moderate: 0.85 (0.71, 1.01) High: 0.73 (0.60, 0.88)	Age, study year, education, smoking status, systolic blood pressure, cholesterol, BMI
10	Nilson (2006) Norway ¹⁰	The HUNT study	Male	41-100	276	29110	17.5	Prostate cancer	Recreational activity	physical	No: 1.00 Low: 0.71 (0.50, 1.02) Medium: 0.81 (0.60, 1.10) High: 0.67 (0.78, 0.94)	Age, BMI, marital status, education, alcohol consumption, smoking status
11	Schnohr (2006) Denmark ¹¹	The Copenhagen City Heart Study	Both	20-93	632	4894	20	All	Recreational activity	physical	(h/wk) <2: 1.00 2-4: 0.77 (0.61-0.97) >4: 0.73 (0.56-0.95)	Age, sex, smoking, total-cholesterol, high-density lipoprotein-cholesterol, systolic blood pressure/antihypertensive drugs, diabetes, alcohol consumption, body mass index, education, income and forced respiratory volume in the first second of expiration (FEV1), measured at the second examination
12	Huxley (2007) Asia-Pacific region ¹²	The Asia Pacific Cohort Studies Collaboration (APCSC)	Both	47	751	539201	6.8	Colorectal cancer	Total physical activity		No: 1.00 Yes: 0.77 (0.60, 0.98)	Smoking, diabetes, and alcohol
13	Lin (2007) Japan ¹³	The Japanese Collaborative Cohort study for Evaluation	Both	40-79	402	110792	13	Pancreatic cancer	Recreational activity	physical	Walking (min/day) Male <30: 1.00 30: 0.84 (0.46, 1.50)	Age, BMI, cigarette smoking

		of Cancer Risk (JACC)										
											31-59: 0.68 (0.37, 1.24) ≥60: 0.85 (0.51, 1.41)	
											Female	
											<30: 1.00	
											30: 1.17 (0.62, 2.22)	
											31-59: 0.77 (0.40, 1.50)	
											≥60: 1.04 (0.59, 1.84)	
											Sports (h/wk)	
											Male	
											<1: 1.00	
											1-2: 0.74 (0.46, 1.19)	
											3-4: 0.82 (0.45, 1.49)	
											≥5: 1.04 (0.63, 1.72)	
											Female	
											<1: 1.00	
											1-2: 0.72 (0.42, 1.22)	
											3-4: 0.76 (0.37, 1.55)	
											≥5: 0.88 (0.44, 1.74)	
14	Matthews (2007) China ¹⁴	Shanghai Women's Health Study	Female	40-70	537	67143	5.7	All	Recreational physical activity	(MET-h/wk)	≤9.9: 1.00 10.0-13.6: 1.03 (0.81, 1.32) 13.7-18.0: 0.84 (0.65, 1.08) ≥18.1: 0.77 (0.61, 1.00)	Age, marital status, education, household income, smoking, alcohol drinking, number of pregnancies, oral contraceptive use, menopausal status, other types of physical activity, hypertension, respiratory disease, and chronic hepatitis
15	Orsini (2008) Sweden ¹⁵	The Cohort of Swedish Men (COSM)	Male	45-79	901	37663	9.7	All	Total physical activity	(MET-h/wk)	BMI<25 Low (<39): 1.00 Medium(39-44):2.11(1.04, 4.27) High (>44): 2.48 (1.20, 5.12) BMI>25 Low (<39): 1.83 (0.84, 3.99) Medium(39-44):1.90(0.92, 3.94) High (>44): 2.02 (0.98, 4.17)	Age, alcohol consumption, educational level, and parental history with respect to coronary heart disease and cancer
16	Van Dam (2008) USA ¹⁶	The nurses' health study	Female	34-59	4527	77782	24	All	Total physical activity	(h/wk)	0-0.4: 1.00 0.5-1.9: 0.88 (0.79-0.97) 2.0-3.4: 0.83 (0.75-0.93) 3.5-5.4: 0.82 (0.72-0.94) ≥5.5: 0.73 (0.64-0.84)	Age, time period, cigarette smoking, alcohol consumption(g/day), healthy diet score, BMI

17	Orsini (2009) Sweden ¹⁷	A population-based cohort of Swedish men	Male	45-79	199	45887	9	Prostate cancer	Total physical activity	(MET-h/wk)		Age, waist – hip ratio, height, diabetes, alcohol consumption, smoking status, years of education, total energy intake, consumption of dairy product and red meat and parental history with respect to prostate cancer.
												37(<39): 1.00 41(39-42.2): 0.96 (0.53-1.75) 44(42.5-46): 1.02 (0.55-1.87) 48(>46): 0.98 (0.53-1.83)
18	Stevens (2009) UK ¹⁸	Million Women Study	Female	55.9±4.5	1710	130000	8.9	Pancreatic cancer	Recreational physical activity	(Time/wk)		Age, region, socioeconomic status, smoking, BMI and height
						0						<1: 1.0 1: 0.87 2-3: 1.03 ≥4: 1.01
19	Autenrieth (2011) Germany ¹⁹	The second MONICA/KORA Augsburg survey	Both	25-74	326	4672	17.8	All	Recreational physical activity	(MET-h/wk)		Sex, BMI, systolic blood pressure, total-to-HDL cholesterol ratio, education, smoking status, alcohol consumption, myocardial infarction, stroke, diabetes, cancer, self-reported limited physical activity due to health problems, and other domains of physical activity
												0: 1.00 <3: 0.58 (0.42-0.80) 3-6: 0.56 (0.40-0.77) >6: 0.36 (0.23-0.59)
20	Batty (2011) UK ²⁰	The Whitehall study	Male	40-69	578	17934	40	Prostate cancer	Recreational physical activity	Recreational physical activity		Age at risk, BMI, plasma cholesterol, socio-economic status, diabetes/blood glucose, marital status, FEV1, height, smoking, and diastolic and systolic blood pressure
												Low: 1.00 Middle: 1.24 (0.88-1.73) High: 1.12(0.76-1.64) Travel activity (Min/day) 0-9: 1.00 10-19: 1.24 (0.88-1.73) 20-29: 1.26 (0.92-1.72) 30-39: 1.3 (0.86-1.97) ≥40: 1.65 (0.87-3.15)
21	Borch (2011) Norway ²¹	The Norwegian Women and Cancer (NOWAC) Study	Female	30-70	1584	66136	12	All	Recreational physical activity	physical activity	Ten levels	BMI, height, smoking status, years of smoking, amount of smoking, alcohol intake, menopausal status, age at first birth, parity, hormone therapy use, cardiovascular disease diabetes mellitus and
												1: 1.32 (0.96-1.81) 2: 1.48 (1.19-1.84) 3: 1.26 (1.06-1.5) 4: 1.07 (0.91-1.25) 5: 1.00 6: 0.88 (0.75-1.03) 7: 0.90 (0.76-1.07) 8: 0.92 (0.74-1.13)

22	Laukkanen (2011) Finland ²²	An eastern Finnish follow-up study	Male	42.0-61.3	181	2560	16.7	All	Recreational activity	physical	9: 0.84 (0.60-1.170) 10: 0.75 (0.49-1.15) (MET-h/wk) <3.7: 1.00 3.7-4.4: 0.99 (0.68-1.46) 4.5-5.2: 0.95 (0.64-1.41) >5.2: 0.64 (0.40-1.00)	prevalent cancer Age, examination year, cigarette smoking, alcohol consumption, BMI, caloric, fiber and fat intake.
23	McCullough (2011) USA ²³	The Cancer Prevention Study-II Nutrition Cohort (The CPS-II Nutrition Cohort)	Both	50-74	5874	111966	14	All	Recreational activity	physical	(MET-h/wk) Male <8.75: 1.00 8.75-17.5: 1.00 (0.91-1.09) >17.5: 1.00 (0.92-1.08) Female <8.75: 1.00 8.75-17.5: 0.97 (0.88-1.08) >17.5: 0.99 (0.89-1.09)	Age, smoking status, education, BMI, alcohol intake, health diet score
24	Morrison (2011) England ²⁴	The Whitehall I study	Male	40-69	329	17949	40	Colorectal cancer	Recreational activity	physical	(Min/day) Colon cancer 0-9: 1.00 10-19: 1.09 (0.92-1.28) ≥20: 0.88 (0.61-1.26) Rectal cancer 0-9: 1.00 10-19: 0.91 (0.71-1.16) ≥20: 0.74 (0.43-1.26)	Age, height, BMI, plasma cholesterol, diabetes, socioeconomic, smoking
25	Nakamura (2011) Japan ²⁵	A population-based prospective study	Both	54.7±12.4 (Male) 55.8±13.2 (Female)	51	30826	212247 (person-years)	Pancreatic cancer	Recreational activity	physical	Male Low: 1.00 Middle: 1.13 (0.48-2.67) High: 1.03 (0.41-2.60) Female Low: 1.00 Middle: 1.56 (0.44-5.56) High: 3.29 (0.96-11.2)	Age, smoking status, BMI, history of diabetes mellitus
26	Wen (2011) China ²⁶	A historically prospective cohort study	Both	≥20	4722	11802	8.05	All	Recreational activity	physical	(MET-h/wk) Overall <3.75: 1.00 3.75-7.49: 0.90 (0.83-0.99) 7.50-16.49: 0.85 (0.77-0.93) 16.50-25.49: 0.85 (0.75-0.97) ≥25.5: 0.78 (0.69-0.88) Colorectal cancer <3.75: 1.00 3.75-7.49: 1.08 (0.83-1.41) 7.50-16.49: 0.71 (0.52-0.96) 16.50-25.49: 0.84 (0.56-1.25) ≥25.5: 0.77 (0.53-1.12)	Age, sex, education, activity at work, smoking, drinking, fasting blood glucose, systolic blood pressure, body mass index, diabetes history, and hypertension history

											<p>Liver cancer</p> <p><3.75: 1.00</p> <p>3.75-7.49: 0.97 (0.80-1.41)</p> <p>7.50-16.49: 0.92 (0.75-1.12)</p> <p>16.50-25.49: 0.80 (0.60-1.07)</p> <p>≥25.5: 0.65 (0.49-0.86)</p> <p>Breast cancer</p> <p><3.75: 1.00</p> <p>3.75-7.49: 0.99 (0.64-1.52)</p> <p>7.50-16.49: 1.40 (0.89-2.21)</p> <p>16.50-25.49: 1.73 (0.96-3.11)</p> <p>≥25.5: 0.86 (0.37-2.01)</p> <p>Lung cancer</p> <p><3.75: 1.00</p> <p>3.75-7.49: 0.73 (0.59-0.90)</p> <p>7.50-16.49: 0.93 (0.77-1.14)</p> <p>16.50-25.49: 0.78 (0.59-1.04)</p> <p>≥25.5: 0.79 (0.61-1.02)</p>		
27	Mok (2012) Korea ²⁷	A cohort study in Korea	Both	30-93	1060	59636	10.3	Colorectal cancer	Recreational activity	physical	(MET-min/wk)	<p>Male</p> <p>0: 1.00</p> <p>3.5-10000: 0.66 (0.53-0.81)</p> <p>>1000: 0.79 (0.64-0.96)</p> <p>Female</p> <p>0: 1.00</p> <p>3.5-1000: 0.62 (0.41-0.92)</p> <p>>1000: 0.66 (0.42-1.06)</p>	Age, smoking status, alcohol intake, body mass index, hypertension, total cholesterol, and diabetes
28	Parekh (2012) USA ²⁸	The NHANES III (Third National Health and Nutrition Examination Survey)	Both	20-89	860	15535	18	All	Recreational activity	physical	(MET-min/wk)	<p><1.16: 1.00</p> <p>1.16-10.47: 0.85 (0.67-1.08)</p> <p>10.48-32: 0.74 (0.56-0.98)</p> <p>>48.33: 0.89 (0.68-1.16)</p>	Age, race, sex, and smoking
29	Sahlqvist (2013) England ²⁹	EPIC-Norfolk cohort	Both	40-79	700	13346	11.5	All	Recreational activity	physical	(Min/wk)	<p>0: 1.00</p> <p>1-59: 0.95 (0.71-1.25)</p> <p>≥60: 1.12 (0.80-1.58)</p>	Age, sex, education level, social class, smoking status, family history of cancer or cardiovascular disease, all other physical activity
30	Vergnaud (2013) Europe ³⁰	The European Prospective Investigation into Cancer and Nutrition	Both	25-70	9388	378864	12.8	All	Total physical activity			<p>HR of cancer death per 1-unit increase of each World Cancer Research Fund (WCRF)/ (>0.5 points) AICR score component: 0.90 (0.86-0.94)</p>	sex, age at recruitment, and center and adjusted for educational level, smoking status and intensity of smoking, and

study (EPIC)											menopause status and all WCRF/AICR components were mutually adjusted. Age, educational level, income, occupation, alcohol consumption, pack-years of smoking, daily intake of energy, red meat, fruits, and vegetables, daily physical activity other than exercise, body mass index, and history of cardiovascular disease, diabetes, hypertension, chronic liver disease, or pulmonary disease
31	Wang (2013) China ³¹	The Shanghai Men's Health Study (SMHS)	Male	40-74	1053	61477	5.48	All	Total physical activity	(MET-h/wk) No regular exercise: 1.00 <13.9: 0.81 (0.68-0.96) ≥13.9: 0.81 (0.86-0.94)	Follow-up age, race, menopause, oral contraceptive and estrogen/progesterone use, BMI
32	Williams (2013) USA ³²	The National Walkers' and Runners' Health Studies	Female	/	101	79124	11.0	Breast cancer	Running and Walking	(MET-h/wk) <13.9: 1.00 7.5-12.5: 0.47 (0.21-0.97) ≥12.5: 0.61 (0.38-1.01)	Age, education level, Hong Kong ladder, total energy intake, DQI, smoking, and alcohol use, BMI, frailty index, living arrangement, and level of leisure time physical activity/housework
33	Yu (2013) China ³³	A cohort study on osteoporosis and general health in Hong Kong	Both	≥65	452	2867	9.2	All	Recreational physical activity	Male Light Inactive: 1.00 Active: 1.01 (0.70-1.46) Moderate Inactive: 1.00 Active: 1.18 (0.79-1.77) Strenous/muscle-conditioning Inactive: 1.00 Active: 0.89 (0.57-1.39) Female Light Inactive: 1.00 Active: 0.70 (0.41-1.21) Moderate Inactive: 1.00 Active: 0.38 (0.14-1.07) Strenous/muscle-conditioning Inactive: 1.00 Active: 0.93 (0.29-2.95)	
34	Arem (2014) USA ³⁴	The NIH-AARP	Both	50-71	15001	293511	12.1	All	Recreational physical activity	(h/wk) All cancers	Sex, BMI, education, race, alcohol, healthy

Diet and
Health Study

Never: 1.00
<1: 0.95 (0.89-1.01)
1-3: 0.93 (0.88-0.98)
4-7: 0.90 (0.85-0.95)
>7: 0.89 (0.84-0.94)

Lymphocytic leukemia
Never: 1.00
<1: 0.96 (0.48-1.89)
1-3: 1.3 (0.76-2.21)
4-7: 0.65 (0.35-1.19)
>7: 0.68 (0.37-1.25)

Colon
Never: 1.00
<1: 0.80 (0.63-1.01)
1-3: 0.85 (0.70-1.02)
4-7: 0.79 (0.65-0.96)
>7: 0.70 (0.57-0.85)

Liver
Never: 1.00
<1: 0.79 (0.54-1.14)
1-3: 0.90 (0.68-1.21)
4-7: 0.64 (0.47-0.88)
>7: 0.71 (0.52-0.98)

Oral cavity and pharynx
Never: 1.00
<1: 0.83 (0.48-1.44)
1-3: 0.79 (0.51-1.24)
4-7: 0.76 (0.48-1.21)
>7: 0.75 (0.47-1.20)

Non-Hodgkins lymphoma
Never: 1.00
<1: 1.19 (0.90-1.58)
1-3: 0.76 (0.58-0.98)
4-7: 0.83 (0.64-1.06)
>7: 0.80 (0.62-1.04)

Esophagus
Never: 1.00
<1: 0.92 (0.65-1.29)
1-3: 0.91 (0.69-1.20)
4-7: 0.96 (0.73-1.27)
>7: 0.80 (0.60-1.08)

Myeloma
Never: 1.00
<1: 0.75 (0.49-1.14)
1-3: 0.56 (0.40-0.81)
4-7: 0.77 (0.55-1.07)

eating index 2010 score,
calories, marriage status,
diabetes and smoke level

>7: 0.84 (0.77-0.92)

Lung

Never: 1.00

<1: 0.85 (0.76-0.95)

1-3: 0.92 (0.84-1.00)

4-7: 0.82 (0.75-0.90)

>7: 0.84 (0.77-0.92)

Myeloid/monocytic

Never: 1.00

<1: 1.27 (0.86-1.86)

1-3: 0.85 (0.60-1.21)

4-7: 1.10 (0.79-1.54)

>7: 0.86 (0.60-1.22)

Stomach

Never: 1.00

<1: 1.00 (0.65-1.56)

1-3: 0.99 (0.69-1.42)

4-7: 0.97 (0.67-1.40)

>7: 0.90 (0.61-1.31)

Ovarian

Never: 1.00

<1: 0.92 (0.62-1.36)

1-3: 0.83 (0.59-1.150)

4-7: 0.87 (0.63-1.21)

>7: 0.91 (0.65-1.31)

Prostate

Never: 1.00

<1: 0.97 (0.69-1.37)

1-3: 0.79 (0.59-1.06)

4-7: 1.03 (0.78-1.37)

>7: 0.93 (0.69-1.240)

Bladder

Never: 1.00

<1: 1.25 (0.84-1.86)

1-3: 0.97 (0.68-1.38)

4-7: 0.95 (0.67-1.36)

>7: 1.03 (0.72-1.46)

Breast

Never: 1.00

<1: 1.21 (0.82-1.80)

1-3: 0.92 (0.65-1.29)

4-7: 0.97 (0.68-1.37)

>7: 1.08 (0.76-1.53)

Brain

Never: 1.00

<1: 1.14 (0.78-1.66)

											<p>1-3: 1.03 (0.75-1.42) 4-7: 0.91 (0.65-1.26) >7: 1.14 (0.82-1.56)</p> <p>Endometrial Never: 1.00 <1: 1.52 (0.85-2.69) 1-3: 0.79 (0.45-1.38) 4-7: 1.13 (0.66-1.93) >7: 1.21 (0.70-2.08)</p> <p>Pancreas Never: 1.00 <1: 1.35 (1.07-1.70) 1-3: 1.14 (0.80-1.64) 4-7: 1.28 (1.05-1.56) >7: 1.25 (1.03-1.53)</p> <p>Kidney Never: 1.00 <1: 1.10 (0.71-1.70) 1-3: 1.14 (0.80-1.64) 4-7: 1.47 (1.03-2.09) >7: 1.42 (0.98-2.03)</p> <p>Rectum Never: 1.00 <1: 1.26 (0.64-2.48) 1-3: 1.57 (0.90-2.71) 4-7: 1.27 (0.72-2.25) >7: 1.63 (0.93-2.84)</p>	
35	Hastert (2014) USA ³⁵	Vitamins and Lifestyle (VITAL) cohort	Both	50-76	1595	57841	7.7	All	Recreational physical activity	<p><30 min/day or <5 day/wk or <7 of the previous 10 years of moderate or fast walking and/or moderate or strenuous activity: 1.00 >30 minutes/day of moderate or fast walking and/or moderate or strenuous activity on at least 5 days/wk in at least 7 of the past 10 years: 0.91 (0.79-1.04)</p>	Age, sex, education, race/ethnicity, marital status, PSA screening in previous 2 years, colonoscopy or sigmoidoscopy in previous 10 years, cancers diagnosed in first-degree relatives, non-steroidal anti-inflammatory medication and regular or low-dose aspirin use, pack-years of smoking, and kilocalories of average daily energy intake. Several additional reproductive factors were included for women, including age at	

36	Wanner (2014) Switzerland ³⁶	The National Research Program 1A and Swiss MONICA study	Both	16-92	1351	17663	20.2	All	Recreational activity	physical	Female and Male Low: 1.00 Moderate: 0.92 (0.82-1.04) High: 0.69 (0.54-0.90) Male Low: 1.00 Moderate: 0.91 (0.77-1.06) High: 0.63 (0.47-0.86) Female Low: 1.00 Moderate: 0.91 (0.76-1.09) High: 1.04 (0.66-1.660)	menarche, age at birth of first child, years of estrogen-only, and of combined estrogen plus progestin hormone therapy use, hysterectomy, and age at menopause Age, educational level, marital status, survey, smoking and nutrition
37	Rohan (1995) Austria ³⁷	A population-based cohort of breast cancer patients	Female	20-74	112	411	5.5	Breast cancer	Recreational activity	physical	(Kcal/wk) 0: 1.00 0-2000: 1.42 (0.78-2.60) 2000-4000: 0.73 (0.37-1.42) >4000: 0.98 (0.50-1.94)r	Age, ER and PR status, tumour diameter, years of education, history of benign breast disease, age at menarche, age at first live birth, height, Quetelet's index, energy intake and menopausal status Age, stage at diagnosis and BMI
38	Enger (2004) USA ³⁸	A population-based case-control study	Female	21-40	251	717	10.4	Breast cancer	Recreational activity	physical	(h/wk) 0: 1.00 0.1-3.7: 0.86 (0.61-1.21) >3.8: 1.34 (0.72-2.47)	Age, stage at diagnosis and BMI
39	Borugian (2004) Canada ³⁹	A cohort study from the Vancouver Cancer Centre (VCC) of the British Columbia Cancer Agency	Female	19-75	112	603	10	Breast cancer	Total physical activity		Pre-diagnosis Climbing (Flight) None: 1.00 1-4: 1.20 (0.70-2.20) 5-8: 1.40 (0.80-2.60) >9: 1.10 (0.50-2.20) Walking (Block) None: 1.00 1-4: 1.10 (0.60-1.90) 5-8: 1.00 (0.50-1.90) >9: 1.00 (0.50-1.90) Sports	Total caloric intake, age, stage at diagnosis

											<p>None: 1.00 A few time/year: 1.10(0.60-2.00) A few time/month:1.20(0.40-2.60) 1 time/wk: 0.70 (0.30-1.70) >1 time/wk: 1.00 (0.50-1.90)</p> <p>Exercise</p> <p>None: 1.00 A few time/year: 1.10 (0.60-2.00) A few time/month: 1.20 (0.40-2.60) 1 time/wk: 0.70 (0.30-1.70) >1 time/wk: 1.00 (0.50-3.20)</p> <p>Jogging</p> <p>None: 1.00 A few time/year: 1.50 (0.50-4.10) A few time/month: 1.90 (0.70-5.40) 1 time/wk: 1.80 (0.40-7.50) >1 time/wk: 1.80 (0.40-7.50)</p> <p>Swimming</p> <p>None: 1.00 A few time/year: 1.20 (0.60-2.400) A few time/month: 1.00 (0.50-2.00) 1 time/wk: 1.20 (0.70-2.30) >1 time/wk: 0.90 (0.50-1.50)</p> <p>Gardening</p> <p>None: 1.00 A few time/year: 1.00 (0.60-1.80) A few time/month: 1.60 (0.90-2.70) 1 time/wk: 1.00 (0.60-1.70) >1 time/wk: 0.80 (0.50-1.40)</p> <p>(MET-h/wk)</p> <p>Post-diagnosis</p> <p><3: 1.00 3-8.9: 0.80 (0.60-1.06) 9-14.9: 0.50 (0.31-0.82) 15-23.9: 0.56 (0.38-0.84) ≥24: 0.60 (0.40-0.89)</p> <p>Pre-diagnosis (BMI<25)</p> <p><3: 1.00 3-8.9: 0.65 (0.43-0.97) 9-14.9: 0.35 (0.18-0.68) 15-23.9: 0.63 (0.39-1.04) ≥24: 0.61 (0.37-0.99)</p> <p>Pre-diagnosis (BMI≥25)</p> <p><3: 1.00 3-8.9: 1.01 (0.66-1.55) 9-14.9: 0.81 (0.38-1.72)</p>	
40	Holmes (2005) USA ⁴⁰	The Nurses' Health Study (NHS) cohort	Female	30-55	463	2987	8.0	Breast cancer	Recreational activity	physical	Age, interval between diagnosis and physical activity assessment, body mass index, menopausal status and hormone therapy use, age at first birth and parity, oral contraceptive use, disease stage, radiation treatment, chemotherapy, and tamoxifen treatment,	

41	Abrahamson (2006) USA ⁴¹	A follow-up study	Female	20-54	212	1264	8.5	Breast cancer	Recreational activity	physical	15-23.9: 0.44 (0.21-0.93) ≥24: 0.52 (0.26-1.06) (MET-h/wk) Pre-diagnosis 1.6-16.6: 1.00 16.7-29.4: 0.74 (0.50-1.11) 29.5-43.0: 0.97 (0.66-1.41) 43.1-98.0: 1.12 (0.78-1.62)	Stage and income
42	Haydon (2006) Australia ⁴²	The Melbourne Collaborative Cohort Study (MCCS)	Both	25-75	181	526	5.5	Colorectal cancer	Recreational activity	physical	Pre-diagnosis No exercise: 1.00 Exercise: 0.73 (0.54-1.00)	Age, sex, stage
43	Meyerhardt (2006) USA ⁴³	The Nurses' Health Study (NHS) cohort	Female	20-54	72	554	9.6	Colorectal cancer	Recreational activity	physical	(MET-h/wk) Post-diagnosis <3: 1.00 3-8.9: 0.92 (0.50-1.69) 9-17.9: 0.57 (0.27-1.20) ≥18: 0.39 (0.18-0.82) Pre-diagnosis <3: 1.00 3-8.9: 0.83 (0.45-1.53) 9-17.9: 1.05 (0.56-1.99) ≥18: 0.86 (0.44-1.67)	BMI, stage of disease, grade of tumor differentiation, colon or rectal primary, age at diagnosis, year of diagnosis, receipt of chemotherapy, time from diagnosis to physical activity measurement, change in body mass index before and after diagnosis, smoking status
44	Holick (2008) USA ⁴⁴	Collaborative Women's Longevity Study (CWLS)	Female	20-79	109	4482	5.6	Breast cancer	Recreational activity	physical	(MET-h/wk) Post-diagnosis Overall <2.8: 1.00 2.8-7.9: 0.62 (0.37-1.03) 8.0-20.9: 0.53 (0.31-0.88) ≥21.0: 0.44 (0.25-0.76) Moderate <2.0: 1.00 2.0-3.9: 0.69 (0.43-1.12) 4.0-10.2: 0.47 (0.27-0.83) ≥10.3: 0.41 (0.24-0.73) Vigorous 0: 1.00 0.1-5.9: 0.94 (0.55-1.61) 6.0-15.0: 1.07 (0.65-1.76) ≥15.1: 0.90 (0.47-1.72)	Age at diagnosis, stage of disease at diagnosis, state of residence at diagnosis, and interval between diagnosis and physical activity assessment
45	Sundelof (2008) Sweden ⁴⁵	Swedish Oesophageal and Cardia Cancer study	Both	/	510	580	10	Oesophageal adenocarcinoma, Oesophageal	Recreational activity	physical	Pre-diagnosis Oesophageal adenocarcinoma 1 st (low): 1.00 2 nd : 0.90 (0.50-1.50)	Age, sex, education, symptomatic gastroesophageal reflux, BMI, tobacco smoking.

		(SECC study)						squamous-cell carcinoma, Gastric cardia adenocarcinoma			3 rd : 0.70 (0.40-1.20) 4 th (high): 0.90 (0.50-1.50)	Oesophageal squamous-cell carcinoma	alcohol intake, tumour stage and oesophagectomy
											1 st (low): 1.00 2 nd : 1.00 (0.60-1.70) 3 rd : 0.90 (0.50-1.60) 4 th (high): 0.80 (0.40-1.50)	Gastric cardia adenocarcinoma	
46	Yang (2008) Sweden ⁴⁶	A prospective follow-up study	Female	50-74	396	635	8.0	Ovarian cancer	Recreational activity	physical	(h/wk) Pre-diagnosis None: 1.00 <1: 1.23 (0.87-1.75) 1-2: 1.15 (0.85-1.57) >2: 1.18 (0.87-1.61)		Age at diagnosis, epithelial ovarian cancer FIGO stage and WHO grade of differentiation
47	Dal Maso (2008) Italy ⁴⁷	A follow-up study carried out in 6 Italian areas	Female	23-47	398	1453	12.6	Breast cancer	Recreational activity	physical	(h/wk) Pre-diagnosis <2: 1.00 ≥2: 0.85 (0.68-1.07)		Region of residence, age at diagnosis, year of diagnosis, TNM stage and ER/PR status
48	Duffy (2009) USA ⁴⁸	A prospective cohort study	Both	>18	166	504	2.74	Head and Neck Squamous Cell Carcinoma	Total physical activity		PASE physical activity score (per 10 points): 0.98 (0.95-1.00)		Age, marital status, education, smoking status, alcohol problem, fruit intake, BMI
49	Meyerhardt (2009) USA ⁴⁹	The Health Professional Follow-up Study (HPFS) cohort	Male	/	88	668	7.8	Colorectal cancer	Recreational activity	physical	(MET-h/wk) Post-diagnosis 0.0-3.0: 1.00 3.1-9.0: 1.06 (0.55-2.08) 9.1-18.0: 1.30 (0.65-2.59) 18.1-27.0: 0.76 (0.33-1.77) >27: 0.47 (0.24-0.92)		Age at diagnosis, stage of disease, grade of tumor differentiation, colon or rectal primary, year of diagnosis, body mass index at diagnosis, time from diagnosis to physical activity measurement, change in body mass index prior and after diagnosis, smoking status
50	Sternfeld (2009) USA ⁵⁰	The life after Cancer Epidemiology (LACE) study	Female	18-79	102	1868	7.25	Breast cancer	Total physical activity		Post-diagnosis Total (MET-h/wk) <29: 1.00 29-44: 1.01 (0.57-1.78) 44-62: 0.70 (0.38-1.29) >62: 0.87 (0.48-1.59)		Age, stage, weigh at 18y, type of treatment, type of surgery

												<p>Moderate-vigorous <5.3: 1.00 5.3-15: 0.77 (0.44-1.34) 15-27: 0.47 (0.24-0.91) >27: 0.90 (0.51-1.58) Moderate (h/wk) <1: 1.00 1-3: 0.65 (0.36-1.26) 3-6: 0.69 (0.40-1.19) >6: 0.73 (0.40-1.33) Vigorous (h/wk) 0: 1.00 0-1: 0.79 (0.42-1.48) >1: 1.10 (0.68-1.80)</p>	
51	West-Wright (2009) USA ⁵¹	The California Teachers Study	Female	18-54	221	3539	9	Breast cancer	Recreational activity	physical	<p>Pre-diagnosis ≤0.5 h/wk/y of any activity: 1.00 0.51-3.0 h/wk/y of moderate or strenuous activity: 0.65 (0.45-0.93) >3.0 h/wk/y either activity type: 0.53 (0.35-0.80)</p>	Race, BMI, total caloric intake, number of comorbid conditions, and estrogen receptor status	
52	Friedenreich (2009) Canada ⁵²	A prospective cohort study	Female	/	223	1231	10.3	Breast cancer	Recreational activity	physical	<p>(MET-h/wk) Recreational ≤5: 1.00 5-10: 0.68 (0.47-0.98) 10-19: 0.65 (0.45-0.94) >19: 0.54 (0.36-0.79) Total ≤95: 1.00 95-120: 0.70 (0.47-1.04) 120-150: 0.81 (0.56-1.18) >151: 0.79 (0.53-1.17) Household ≤5: 1.00 5-10: 0.70 (0.47-1.04) 10-19: 0.81 (0.56-1.18) >19: 0.79 (0.53-1.17) Moderate 0-1.4: 1.00 1.4-3.9: 0.67 (0.50-0.91) ≥3.9: 0.56 (0.38-0.82) Vigorous <0.03: 1.00 ≥0.03: 0.74 (0.56-0.98)</p>	Age, tumor stage, treatment (chemotherapy, hormone therapy and radiation therapy), SBR grade, BMI and other comorbidity conditions	
53	Hellmann (2010) Denmark ⁵³	Copenhagen City Heart Study(CCHS)	Female	/	323	528	7.8	Breast cancer	Recreational activity	physical	<p>Pre-diagnosis (h/wk) Inactive <2: 1.00</p>	Alcohol, smoking, physical activity, body mass index, hormone	

												Moderate 2-4: 0.83 (0.55-1.87) High >4: 1.01 (0.62-1.63)	replacement therapy, age, disease stage, menopausal status, parity, education, and adjuvant treatment
54	Keegan (2010) USA ⁵⁴	A population-based follow-up study	Female	18-69	605	3833	7.8	Breast cancer	Recreational activity	physical	Pre-diagnosis (MET-h/wk) ≤6.7: 1.00 6.8-16.3: 0.86 (0.67-1.11) 16.4-26.1: 0.84 (0.64-1.10) 26.2-46.0: 0.88 (0.68-1.14) >46.0: 0.93 (0.72-1.21)	Study center, age of diagnosis, race/ethnicity, number of affected nodes, BMI, time since last full term pregnancy, ER status, PR status, tumor grade, tumor size, and tumor type	
55	Emaus (2010) Norway ⁵⁵	Norwegian Counties Study	Female	27-79	355	1364	8.2	Breast cancer	Recreational activity	physical	Pre-diagnosis Sedentary: 1.00 Moderate: 0.92 (0.71-1.19) Hard: 0.75 (0.49-1.15)	Age at diagnosis, pre-diagnostic observation time, tumor stage, region of residence (strata), year at diagnosis before and after 1995 (strata), and BMI	
56	Baade (2011) Australia ⁵⁶	A longitudinal study	Both	21-82	345	1825	4.9	Colorectal cancer	Recreational activity	physical	Post-diagnosis (Min/wk) 0: 1.00 1-149: 0.90 (0.69-1.17) ≥150: 0.88 (0.68-1.15)	Sex, age, BMI, smoking status, marital status, education level, private health insurance, site, stage of disease, treatment, comorbidities	
57	Irwin (2011) USA ⁵⁷	The Women's Health Initiative (WHI)	Female	50-79	194	4646	6	Breast cancer	Recreational activity	physical	(MET-h/wk) Pre-diagnosis Moderate-vigorous 0: 1.00 0.1-3.0: 0.83 (0.51-1.37) 3.1-8.9: 0.82 (0.55-1.22) ≥9: 0.71 (0.49-1.03) Moderate 0: 1.00 0.1-3.0: 0.91 (0.58-1.41); 3.1-8.9: 0.87 (0.60-1.25) ≥9: 0.60 (0.40-0.90) Post-diagnosis Moderate-vigorous 0: 1.00 0.1-3.0: 0.30 (0.09-0.99) 3.1-8.9: 0.77 (0.43-1.38) ≥9: 0.61 (0.35-0.99) Moderate 0: 1.00 0.1-3.0: 0.37 (0.15-0.94)	Age, ethnicity, stage, WHI study arm, previous hormone therapy use, BMI, diabetes, alcohol, smoke, total calories, percentage calories from fat, and servings of fruit and vegetables	

58	Kenfield (2011) USA ⁵⁸	The Health Professionals Follow-Up Study	Male	/	112	2705	9.7	Prostate cancer	Recreational physical activity	3.1-8.9: 0.71 (0.42-1.20) ≥9: 0.51 (0.30-0.87)	Post-diagnosis Total (MET-h/wk) <3: 1.00 3-9: 0.91 (0.48-1.73) 9-24: 0.60 (0.32-1.11) 24-48: 0.83 (0.44-1.55) ≥48: 0.42 (0.20-0.88) Vigorous (h/wk) 1: 1.00 1-3: 1.13 (0.70-1.83) ≥3: 0.39 (0.18-0.84)	Age at diagnosis, months since diagnosis, clinical stage, Gleason score, treatment, and post-diagnosis body mass index, pre-diagnosis physical activity
59	Morikawa (2011) USA ⁵⁹	The Nurses' Health Study and the Health Professionals Follow-up Study	Both	/	68	955	11.8	Colorectal cancer	Recreational activity	Post-diagnosis (MET-h/wk) Negative Nuclear CTNNB1 Status <18: 1.00 ≥18: 0.33 (0.13-0.81) Positive Nuclear CTNNB1 Status <18: 1.00 ≥18: 1.07 (0.50-2.30)	The CTNNB1 variable, age, sex, body mass index, tumor location, tumor differentiation, family history of colorectal cancer in any first-degree relative, microsatellite instability, CpG island methylator phenotype, mutations in KRAS, BRAF, or PIK3CA, level of long interspersed nucleotide element 1 methylation, and tumor protein p53	
60	Beasley (2012) USA, China ⁶⁰	LACE (the Life After Cancer Epidemiology), NHS (Nurses' Health Study), SBCSS(Shanghai Breast Cancer Survival Study), WHEL(Women's Healthy Eating and Living)	Female	/	971	1128 2		Breast cancer	Recreational physical activity	Post-diagnosis (MET-h/wk) 0-0.2: 1.00 2.3-4.9: 1.00 (0.71-1.06) 8.0-11.9: 0.87 (0.60-0.91) 16.2-21.4: 0.74 (0.59-0.91) 29.7-48.0: 0.73 (0.59-0.91)	Age at diagnosis, race, menopausal status, TNM stage, hormone receptor status, treatment, post-diagnosis body mass index, and smoking status	

61	Cleveland (2012) USA ⁶¹	The Long Island Breast Cancer Study Project	Female	/	120	1273	5.56	Breast cancer	Recreational activity	physical	Pre-diagnosis (MET-h/wk) Total 0: 1.00 0-9: 0.61 (0.40-0.92) ≥9: 0.66 (0.42-1.06) Moderate 0: 1.00 0-9: 0.60 (0.39-0.91) ≥9: 0.73 (0.44-1.20) Vigorous 0: 1.00 0-9: 1.61 (0.75-1.79) ≥9: 0.83 (0.59-0.91)	Age at diagnosis, body mass index and menopausal status
62	Kuiper (2012) USA ⁶²	WHI(The Women's Health Initiative)	Female	50-79	171	1339	11.9	Colorectal cancer	Recreational activity	physical	(MET-h/wk) Pre-diagnosis 0: 1.00 0-2.9: 0.98 (0.58-1.66) 3.0-8.9: 1.01 (0.65-1.57) 9.0-17.9: 0.74 (0.46-1.20) ≥18.0: 0.68 (0.41-1.13) Post-diagnosis 0: 1.00 0-2.9: 0.49 (0.21-1.14) 3.0-8.9: 0.30 (0.12-0.73) 9.0-17.9: 0.53 (0.22-1.25) ≥18.0: 0.29 (0.11-0.77)	Age at diagnosis, study arm, BMI, tumor stage, ethnicity, education, alcohol, smoking, and hormone therapy use
63	Arem (2013) USA ⁶³	WHI(The Women's Health Initiative)	Female	50-79	66	983	5.3	Endometrial cancer	Recreational activity	physical	Pre-diagnosis (MET-h/wk) 0: 1.00 0-11.26: 0.51 (0.26-1.01) ≥11.26: 1.05 (0.79-1.38)	Age, BMI, tumor grade, tumor stage, and age at menarche, and lag time from baseline measure to endometrial cancer diagnosis
64	Arem (2013) USA ⁶⁴	The NIH-AARP Diet and Health Study	Female	50-71	133	1400	13	Endometrial cancer	Recreational activity	physical	Pre-diagnosis (h/wk) Moderate-vigorous Never/rarely: 1.00 <1: 1.26 (0.59-2.70) 1-3: 0.45 (0.19-1.04) 4-7: 0.96 (0.46-2.03) >7: 0.91 (0.43-1.93)	Tumor grade, tumor stage, surgery, chemotherapy, race, family history of breast cancer, diabetes, smoking status, and continuous body mass index
65	Campbell (2013) USA ⁶⁵	CPS-II	Both	/	379	2293	8.1	Colorectal cancer	Recreational activity	physical	(MET-h/wk) Pre-diagnosis <3.5: 1.00	Age at diagnosis, sex, smoking status, body mass index, red meat

												3.5-8.75: 0.68 (0.49-0.95) ≥8.75: 0.78 (0.57-1.08) Post-diagnosis <3.5: 1.00 3.5-8.75: 1.00 (0.64-1.56) ≥8.75: 0.87 (0.61-1.24) Post-diagnosis (MET-h/wk) <3: 1.00 3-17.9: 0.85 (0.58-1.23) ≥18: 0.71 (0.46-1.11)	intake, Surveillance, Epidemiology, and End Results (SEER) summary stage at diagnosis, leisure-time spent sitting, and education Sex, age, body mass index (BMI), depth of invasion through bowel wall, number of positive lymph nodes, baseline performance status, and treatment group
66	Jeon (2013) National ⁶⁶	GALGB	Female	/	169	237	7.3	Colorectal cancer	Recreational activity	physical			
67	Schmidt (2013) Germany ⁶⁷	MARIE study	Female	50-74	367	3393	5.6	Breast cancer	Recreational activity	physical	Pre-diagnosis (MET-h/week) None: 1.00 <12: 0.74 (0.51-1.08) 12-24: 0.82 (0.55-1.22) 24-42: 0.97 (0.65-1.44) ≥42: 0.80 (0.53-1.21)	Tumor size, nodal status, tumor grading, ER/PR status, radiotherapy, screening-detected tumor, HT use at diagnosis, age at diagnosis, BMI pre-diagnosis, smoking status and pack years and pre-existing angina pectoris. In addition, models for overall mortality and for other deaths were adjusted for pre-existing hypertension, previous stroke and use of insulin	
68	Tao (2013) USA ⁶⁸	WEB study	Female	35-79	170	1170	7.28	Breast cancer	Total physical activity		Pre-diagnosis (h/wk) <3: 1.00 3-6: 0.64 (0.36-1.13) >6: 0.62 (0.34-1.11)	Age at diagnosis, education, BMI, menopausalstatus, TNM, radiotherapy, chemotherapy, hormonal therapy, p53 mutation, HER2 status,ER status, and PR status	
69	Bradshaw (2014) USA ⁶⁹	The Long Island Breast Cancer Study Project	Female	25-91	195	1436	12.7	Breast cancer	Recreational activity	physical	Post-diagnosis (MET-h/wk) 0: 1.00 0.1-9: 0.24 (0.07-0.65) >9: 0.27 (0.15-0.46)	Age, pre-diagnosis BMI, chemotherapy treatment, tumor size	
70	Pelser (2014) USA ⁷⁰	NIH-AARP Diet and Health Study	Both	50-71	856	5727	5	Colorectal cancer	Recreational activity	physical	Pre-diagnosis Colon Never or rarely: 1.00 1-3 time/month: 0.96 (0.76-1.22)	Lag time, sex, education, family history of colon cancer, cancer stage, first course of treatment, and	

											1-2 time/wk: 0.89 (0.72-1.11) 3-5 time/wk: 0.98 (0.79-1.21) >5 times/wk: 1.16 (0.93-1.45)	also mutually adjusted for quintiles of HEI-2005 scores, BMI, physical activity, alcohol, and smoking history
											Rectal Never or rarely: 1.00 1-3 time/month: 1.23(0.84-1.80) 1-2 time/wk: 0.92 (0.64-1.31) 3-5 time/wk: 0.95 (0.66-1.37) >5 times/wk: 0.78 (0.53-1.15)	
71	Zhou (2014) USA ⁷¹	The Women's Health Initiative (WHI)Study	Female	50-79	301	600	10.9	Ovarian cancer	Recreational activity	physical	Pre-diagnosis (MET-h/wk) Vigorous 0: 1.00 >0: 0.74 (0.56-0.98) Moderate-vigorous: 0: 1.00 0-9: 1.07 (0.79-1.44) 9-15: 0.68 (0.45-1.03) >15: 0.89 (0.65-1.23)	Age, stage, histology, time from study enrollment to ovarian cancer diagnosis, BMI, hormone therapy use, smoking, history of diabetes and status in calcium and vitamin D trial, diet modification trial, hormone therapy trial and observational study

Abbreviations: MET=Metabolic equivalents of task; BMI=body mass index

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