SUPPLEMENTAL MATERIAL

Table S1. Baseline characteristics stratified by quartiles of sedentary time.

	Quartiles of sedentary time (minutes)				
	Q1 N= 314	**Q2 N= 349**	**Q3 N=375**	**Q4 N=330**	**P value**
Age (years)	49.0 (9.8)	49.3 (10.1)	49.2 (10.6)	49.3 (10.1)	0.75
Male (%)	39.1	41.0	41.1	39.7	0.90
Race/ethnicity (%)					
White	38.9	38.1	37.3	38.5	0.87
Black	47.5	43.8	40.8	45.2	0.42
Hispanic	14.3	15.5	16.9	15.2	0.66
Education, years	12.3 (2.4)	12.9 (2.1)	13.0 (2.3)	13.0 (2.0)	<0.01
Smoking (%)	19.6	18.3	19.0	22.7	0.30
History of HTN (%)	42.0	40.1	41.3	40.3	0.76
History of DM (%)	37.9	44.1	42.1	42.1	0.42
Family history of CAD (%)	64.0	67.6	65.3	67.9	0.46
Cardiometabolic parameters					
Systolic BP, mm Hg	130.1 (17.2)	130.1 (18.5)	130.0 (18.7)	127.8 (15.7)	0.14
Hs-CRP	3.6 (5.2)	3.7 (7.2)	4.7 (10.0)	6.6 (41.0)	0.12
LDL, mg/dL	119.4 (37.5)	117.3 (35.5)	120.3 (33.9)	116.3 (33.6)	0.63
HDL, mg/dL	55.0 (16.5)	54.3 (15.2)	54.3 (16.2)	52.2 (14.4)	0.08
TG, mg/dL	118.2 (74.6)	119.0 (87.7)	117.4 (76.9)	133.2 (115.7)	0.03
Glucose, mg/dL	99.2 (34.9)	97.2 (26.1)	98.5 (31.4)	101.6 (35.3)	0.55
Hemoglobin A1c, %	5.6 (1.0)	5.6 (1.0)	5.6 (1.1)	5.7 (1.0)	0.08
HOMA- IR	3.3 (3.0)	3.6 (3.6)	3.6 (3.3)	3.9 (3.6)	<0.01
BMI, kg/m^2	29.0 (5.3)	29.0 (5.5)	29.4 (5.5)	29.4 (5.5)	0.22
Whole body fat, %	36.2 (9.0)	36.5 (8.5)	36.8 (8.6)	36.9 (8.9)	0.42
Waist circumference, cm	92.4 (12.4)	93.0 (13.1)	93.5 (13.0)	94.0 (12.7)	0.13
Sedentary time and fitness parameters					
Sedentary time, min/day	180.9 (45.1)	258.6 (43.3)	319.4 (45.1)	413.1 (63.1)	<0.01
Moderate physical activity, min/day	57.4 (38.1, 94.3)	37.5 (24.3, 58.7)	28.1 (16.7, 43.0)	15.7 (7.9, 27.8)	<0.01
Moderate physical activity, MET-min/day	258.2 (171.6, 424.1)	168.8 (109.1, 264.2)	126.6 (75.2, 193.5)	70.7 (35.4, 124.9)	<0.01
Vigorous physical activity, min/day	1.0 (0.3, 2.4)	0.8 (0.3, 1.9)	0.4 (0.0, 1.4)	0.1 (0.0, 0.9)	<0.01
Vigorous physical activity, MET-min/day	9.0 (2.3, 21.9)	6.8 (2.3, 16.7)	3.9 (0.0, 12.9)	1.3 (0.0, 7.7)	<0.01
Peak VO_2, ml/kg/min	29.1 (10.6)	28.8 (10.0)	28.4 (10.4)	27.8 (9.7)	0.11
Cardiac MRI Parameters					
Stroke volume, mL	81.4 (16.6)	81.3 (16.1)	80.5 (16.8)	80.1 (15.4)	0.30

LA maximum volume, mL	62.4 (21.2)	63.3 (22.3)	60.6 (21.5)	62.9 (20.9)	0.90
Peak systolic strain, sec^{-1}	-14.5 (2.8)	-14.7 (2.6)	-14.7 (2.9)	-14.6 (2.8)	0.65
Effective arterial elastance, mmHg/mL	1.52 (0.4)	1.52 (0.4)	1.54 (0.4)	1.51 (0.32)	0.72
LV mass indexed to BSA, g/m^2	64.4 (14.0)	64.1 (13.8)	64.2 (14.2)	63.3 (15.8)	0.15
LVEDV indexed to BSA, mL/m^2	61.7 (12.2)	61.1 (10.8)	59.6 (11.1)	60.2 (10.7)	0.05

Data presented as mean (standard deviation) for continuous variables (except physical activity parameters which are reported as median (interquartile range), and proportions for categorical variables

: BP: Blood pressure; HTN: Hypertension; DM: diabetes mellitus; hs-CRP: High sensitivity C- reactive protein; LDL-C: Low density lipoprotein; HDL: High density lipoprotein; TG: Triglycerides; HOMA-IR: homeostatic model assessment of insulin resistance; CAD: Coronary artery disease; BMI: Body mass index; Peak VO_2: Peak oxygen consumption uptake; LV: Left ventricle; BSA: Body surface area; LVEDV: Left ventricular end-diastolic volume; LA: Left atrium

Table S2. Association between moderate physical activity, vigorous physical activity, sedentary time and CRF with measures of cardiac structure and function (Model 2 + body fat composition).

CMR outcome	Cardiorespiratory fitness		Vigorous physical activity		Moderate physical activity		Sedentary time	
	Std. ß (95% CI)	P value	Std. ß (95% CI)	P value	Std. ß (95% CI)	P value	Std. ß (95% CI)	P value
Stroke volume	0.20 (0.14, 0.25)	<0.01	0.06 (0.01, 0.11)	0.02	0.03 (-0.03, 0.09)	0.31	-0.004 (-0.06, 0.05)	0.90
LA maximum volume	0.15 (0.07, 0.22)	<0.01	-0.003 (-0.06, 0.06)	0.93	0.03 (-0.05, 0.11)	0.41	-0.03 (-0.11, 0.04)	0.38
Peak systolic strain	-0.19 (-0.26, -0.11)	<0.01	-0.02 (-0.08, 0.05)	0.57	0.03 (-0.05, 0.11)	0.50	-0.01 (-0.01, 0.07)	0.85
Effective arterial elastance	-0.16 (-0.21, -0.11)	<0.01	-0.04 (-0.09, 0.01)	0.09	-0.02 (-0.07, 0.04)	0.54	0.004 (-0.05, 0.06)	0.89
LV mass indexed to BSA	0.08 (0.03, 0.12)	<0.01	0.06 (0.02, 0.10)	<0.01	0.04 (-0.01, 0.09)	0.11	0.03 (-0.02, 0.08)	0.24
LVEDV indexed to BSA	0.16 (0.11, 0.22)	<0.01	0.06 (0.01, 0.11)	0.01	0.05 (-0.003, 0.11)	0.06	0.02 (-0.03, 0.07)	0.48

This model was adjusted for baseline age, sex, race/ethnicity, education level, income, lean body mass, percent fat mass, smoking status, systolic blood pressure, history of diabetes, history of hypertension, blood glucose levels, serum LDL-C, and family history of coronary artery disease, moderate PA, vigorous PA, CRF, and sedentary time levels (all in the same model).

*Std. ß estimate for the association between exposure of interest (CRF, vigorous physical activity, moderate physical activity, sedentary time) and each CMR outcome represents the number of standard deviations the outcome will change per 1 standard deviation higher exposure variable keeping other covariates fixed.

LA: left atrial; LV: left ventricular; BSA: body surface area; LVEDV: left ventricular end-diastolic volume

Table S3. Sex- stratified associations between moderate physical activity, vigorous physical activity, sedentary time and CRF with measures of cardiac structure and function.

Female								
CMR outcome	**Cardiorespiratory fitness**		**Vigorous physical activity**		**Moderate physical activity**		**Sedentary time**	
	Std. ß (95% CI)	**P value**	**Std. ß (95% CI)**	**P value**	**Std. ß (95% CI)**	**P value**	**Std. ß (95% CI)**	**P value**
Stroke volume	0.19 (0.13, 0.26)	<0.01	0.06 (-0.01, 0.13)	0.11	-0.03 (-0.11, 0.06)	0.54	-0.06 (-0.13, 0.02)	0.13
LA maximum volume	0.11 (0.03, 0.20)	0.01	-0.02 (-0.10, 0.06)	0.60	-0.01 (-0.11, 0.09)	0.87	0.03 (-0.06, 0.12)	0.47
Peak systolic strain	-0.14 (-0.22, -0.06)	<0.01	-0.04 (-0.12, 0.04)	0.31	0.06 (-0.04, 0.10)	0.23	0.03 (-0.06, 0.11)	0.52
Effective arterial elastance	-0.16 (-0.22, -0.10)	<0.01	-0.04 (-0.10, 0.02)	0.15	0.04 (-0.03, 0.11)	0.30	0.05 (-0.02, 0.11)	0.15
LV mass indexed to BSA	0.11 (0.04, 0.17)	0.002	0.01 (-0.06, 0.08)	0.81	-0.01 (-0.09, 0.07)	0.78	-0.01 (-0.08, 0.06)	0.72
LVEDV indexed to BSA	0.19 (0.12, 0.26)	<0.01	0.02 (-0.05, 0.09)	0.50	0.01 (-0.07, 0.09)	0.88	-0.03 (-0.10, 0.05)	0.45
Male								
CMR outcome	**Cardiorespiratory fitness**		**Vigorous physical activity**		**Moderate physical activity**		**Sedentary time**	
	Std. ß (95% CI)	**P value**	**Std. ß (95% CI)**	**P value**	**Std. ß (95% CI)**	**P value**	**Std. ß (95% CI)**	**P value**
Stroke volume	0.34 (0.26, 0.44)	<0.01	0.13 (0,04, 0.21)	<0.01	0.02 (-0.07, 0.12)	0.64	0.02 (-0.07, 0.12)	0.67
LA maximum volume	0.25 (0.15, 0.36)	<0.01	0.02 (-0.06, 0.11)	0.60	0.03 (-0.09, 0.14)	0.67	-0.11 (-0.22, 0.01)	0.06
Peak systolic strain	-0.15 (-0.25, -0.06)	<0.01	0.01 (-0.08, 0.10)	0.88	0.003 (-0.11, 0.11)	0.95	0.003 (-0.10, 0.11)	0.96
Effective arterial elastance	-0.30 (-0.38, -0.21)	<0.01	-0.11 (-0.18, -0.03)	0.01	-0.03 (-0.122, 0.10)	0.49	-0.03 (-0.12, 0.06)	0.49
LV mass indexed to BSA	0.25 (0.16, 0.33)	<0.01	0.19 (0.12, 0.26)	<0.01	-0.002 (-0.09, 0.09)	0.96	0.04 (-0.04, 0.13)	0.33
LVEDV indexed to BSA	0.31 (0.22, 0.40)	<0.01	0.14 (0.06, 0.22)	<0.01	0.02 (-0.08, 0.12)	0.69	0.01 (-0.08, 0.10)	0.85

This model was adjusted for baseline age, sex, race/ethnicity, education level, income, BMI, smoking status, systolic blood pressure, history of diabetes, history of hypertension, blood glucose levels, serum LDL-C, and family history of coronary artery disease, moderate PA, vigorous PA, CRF, and sedentary time levels (all in the same model).

*Std. ß estimate for the association between exposure of interest (CRF, vigorous physical activity, moderate physical activity, sedentary time) and each CMR outcome represents the number of standard deviations the outcome will change per 1 standard deviation higher exposure variable keeping other covariates fixed.

LA: left atrial; LV: left ventricular; BSA: body surface area; LVEDV: left ventricular end-diastolic volume

Table S4. Obesity - stratified associations between moderate physical activity, vigorous physical activity, sedentary time and CRF with measures of cardiac structure and function.

Obese								
CMR outcome	**Cardiorespiratory fitness**		**Vigorous physical activity**		**Moderate physical activity**		**Sedentary time**	
	Std. ß (95% CI)	**P value**	**Std. ß (95% CI)**	**P value**	**Std. ß (95% CI)**	**P value**	**Std. ß (95% CI)**	**P value**
Stroke volume	0.27 (0.18, 0.37)	<0.01	0.04 (-0.04, 0.12)	0.30	-0.03 (-0.12, 0.08)	0.61	-0.07 (-0.16, 0.02)	0.15
LA maximum volume	0.23 (0.12, 0.34)	<0.01	-0.03 (-0.13, 0.07)	0.61	-0.05 (-0.18, 0.07)	0.42	-0.07 (-0.18, 0.04)	0.22
Peak systolic strain	-0.13 (-0.22, -0.03)	0.01	-0.01 (-0.10, 0.08)	0.79	0.11 (0.01, 0.22)	0.04	0.06 (-0.04, 0.16)	0.26
Effective arterial elastance	-0.21 (-0.29, -0.13)	<0.01	0.01 (-0.06, 0.08)	0.81	0.03 (-0.06, 0.11)	0.56	0.07 (-0.01, 0.15)	0.08
LV mass indexed to BSA	0.11 (0.03, 0.18)	<0.01	-0.003 (-0.07, 0.06)	0.91	0.03 (-0.04, 0.11)	0.39	-0.03 (-0.10, 0.04)	0.41
LVEDV indexed to BSA	0.24 (0.15, 0.33)	<0.01	0.04 (-0.04, 0.12)	0.33	-0.002 (-0.10, 0.09)	0.97	-0.06 (-0.14, 0.03)	0.22
Non-obese								
CMR outcome	**Cardiorespiratory fitness**		**Vigorous physical activity**		**Moderate physical activity**		**Sedentary time**	
	Std. ß (95% CI)	**P value**	**Std. ß (95% CI)**	**P value**	**Std. ß (95% CI)**	**P value**	**Std. ß (95% CI)**	**P value**
Stroke volume	0.26 (0.19, 0.33)	<0.01	0.11 (0.04, 017)	<0.01	0.02 (-0.06, 0.10)	0.61	0.01 (-0.06, 0.09)	0.72
LA maximum volume	0.17 (0.08, 0.26)	<0.01	0.02 (-0.06, 0.09)	0.62	0.05 (-0.05, 0.15)	0.29	0.01 (-0.09, 0.10)	0.89
Peak systolic strain	-0.16 (-0.24, -0.08)	<0.01	-0.01 (-0.08, 0.07)	0.83	-0.03 (-0.13, 0.06)	0.46	-0.02 (-0.1, 0.07)	0.69
Effective arterial elastance	-0.21 (-0.27, -0.14)	<0.01	-0.10 (-0.16, -0.04)	<0.01	-0.01 (-0.08, 0.06)	0.82	-0.02 (-0.09, 0.05)	0.56
LV mass indexed to BSA	0.17 (0.11, 0.23)	<0.01	0.13 (0.08, 0.19)	<0.01	-0.04 (-0.10, 0.03)	0.29	0.03 (-0.03, 0.09)	0.32
LVEDV indexed to BSA	0.24 (0.17, 0.30)	<0.01	0.10 (0.04, 0.16)	<0.01	0.02 (-0.05, 0.10)	0.54	0.02 (-0.05, 0.09)	0.58

This model was adjusted for baseline age, sex, race/ethnicity, education level, income, BMI, smoking status, systolic blood pressure, history of diabetes, history of hypertension, blood glucose levels, serum LDL-C, and family history of coronary artery disease, moderate PA, vigorous PA, CRF, and sedentary time levels (all in the same model).
*Std. ß estimate for the association between exposure of interest (CRF, vigorous physical activity, moderate physical activity, sedentary time) and each CMR outcome represents the number of standard deviations the outcome will change per 1 standard deviation higher exposure variable keeping other covariates fixed.
LA: left atrial; LV: left ventricular; BSA: body surface area; LVEDV: left ventricular end-diastolic volume

Figure S1. Cohort derivation for the study.