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Supplementary Methods: Assessment of cardiovascular health

Information on the LS7 metrics were collected from study participants at baseline. Based on AHA guidelines, ideal CVH is achieved if the following criteria are met for the LS7 metrics: non-smoking, physical activity at goal levels, BMI $<25kg/m^2$ and a healthy diet consistent with guidelines, total cholesterol <200mg/dL (not on lipid lowering medications), blood pressure <120/<80mmHg (not on anti-hypertensive medications), and fasting blood glucose <100mg/dL (not on diabetes medications) [1]. Smoking status was assessed by self-report and categorized as; 1) participants who never smoked or quit more than 12 months (non-smokers), 2) participants who quit within 12 months (former smokers) and 3) current smokers [1]. Physical activity was evaluated using a self-report survey instrument adapted from the Cross-Cultural Activity Participation Study [2] containing 28 questions on time and frequency of activities during a week in the previous month. The total minutes of moderate and vigorous exercise in metabolic equivalents of task (MET/min) were estimated and used for our analyses [3].

BMI (kg/m^2) was calculated using the weight and height measurements. Dietary habits were evaluated using a 120-item validated food frequency questionnaire modified from the Insulin Resistance Atherosclerosis Study instrument [4, 5]. Based on recommended dietary guidelines, a healthy diet was made up of fruits and vegetables, fish, whole grains and intake of sodium <1500mg per day and sugar-sweetened beverages ≤450 kcal (36 oz.) per week [1]. For blood pressure, with participants in a seated position, 3 measurements were obtained after resting for 5 minutes and the average values of the last two readings were recorded. For total cholesterol (mg/dL)

and blood glucose (mg/dL) measurements, blood samples were collected following a 12

hour fast.

Table S1 - Baseline categories of income and education, N=5,379					
	Income			Education	
1	< $5,000	131 (2%)	1	NO SCHOOLING	60 (1%)
2	$5,000-$7,999	214 (4%)	2	GRADES 1-8	558 (10%)
3	$8,000-$11,999	310 (6%)	3	GRADES 9-11	367 (7%)
4	$12,000-$15,999	399 (7%)	4	COMPLETED HIGH SCHOOL/GED	950 (18%)
5	$16,000-$19,999	275 (5%)	5	SOME COLLEGE BUT NO DEGREE	855 (16%)
6	$20,000-$24,999	404 (8%)	6	TECHNICAL SCHOOL CERTIFICATE	385 (7%)
7	$25,000-$29,999	311 (6%)	7	ASSOCIATE DEGREE	275 (5%)
8	$30,000-$34,999	374 (7%)	8	BACHELOR'S DEGREE	951 (18%)
9	$35,000-$39,999	313 (6%)	9	GRADUATE OR PROFESSIONAL SCHOOL	978 (18%)
10	$40,000-$49,999	517 (10%)			
11	$50,000-$74,999	883 (16%)			
12	$75,000-$99,999	483 (9%)			
13	$100,000+	765 (14%)			
% are rounded to whole numbers					

Table S2 – Definition of the Life's Simple 7 metrics

LS7 Metrics	Score	Definition
Smoking	0	Current smoker
	1	Former smoker, quit ≤12 months ago
	2	Never smoker or quit >12 months ago
Body Mass Index	0	≥30 kg/m^2
	1	25.0–29.99 kg/m^2
	2	<25.0 kg/m^2
Physical Activity	0	No exercise
	1	1–149 min of moderate exercise or 1–74 min of vigorous exercise/week
	2	150+ min of moderate exercise or 75+ min of vigorous exercise/week
Diet	0	0–1 components of healthy diet
	1	2–3 components of healthy diet
	2	4–5 components of healthy diet
Total Cholesterol	0	≥240 mg/dL
	1	200–239 mg/dL or treated to <200mg/dL
	2	<200 mg/dL, unmedicated
Blood Pressure	0	SBP ≥140 mmHg or DBP ≥90 mmHg
	1	SBP 120–139 mmHg or DBP 80–89 mmHg or treated to <120/80 mm Hg
	2	<120/80 mm Hg, unmedicated
Blood Glucose	0	≥126 mg/dL fasting
	1	100–125 mg/dL fasting or treated to <100 mg/dL
	2	<100 mg/dL fasting, unmedicated

Adapted from Lloyd Jones et al[1] and Unger et al[3], LS7 indicates Life's Simple 7; DBP, diastolic blood pressure, and SBP, systolic blood pressure. Poor=0 points; Intermediate=1 point; ideal =2 points. *When combining vigorous and moderate exercise, vigorous exercise was weighted double.

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Table S3 - Distribution of Life's Simple 7 Metrics by Sex

	Total (N=5,379)	Women (n= 2,775)	Men (n= 2,604)	P value
Total CVH score, mean (SD)	8.6 (2.2)	8.6 (2.3)	8.6 (2.1)	0.85
LS7 metrics, n (%)				
Smoking				
Poor	671 (12)	303 (11)	368 (14)	
Intermediate	68 (1)	27 (1)	41 (2)	<0.001
Ideal	4640 (86)	2445 (88)	2195 (84)	
Body mass index				
Poor	1657 (31)	958 (35)	699 (27)	
Intermediate	2127 (40)	936 (34)	1191 (46)	<0.001
Ideal	1595 (30)	881 (32)	714 (28)	
Physical activity				
Poor	1231 (23)	684 (25)	547 (21)	
Intermediate	909 (17)	529 (19)	380 (15)	<0.001
Ideal	3239 (60)	1562 (56)	1677 (64)	
Diet				
Poor	2425 (45)	1029 (37)	1396 (54)	
Intermediate	2898 (54)	1699 (61)	1199 (46)	<0.001
Ideal	56 (1)	47 (2)	9 (0.4)	
Total Cholesterol				
Poor	729 (14)	466 (17)	263 (10)	
Intermediate	2107 (39)	1143 (41)	964 (37)	<0.001
Ideal	2543 (47)	1166 (42)	1377 (53)	
Blood pressure				
Poor	1996 (37)	1085 (39)	911 (35)	
Intermediate	1505 (28)	695 (25)	810 (31)	<0.001
Ideal	1878 (35)	995 (36)	883 (34)	
Blood glucose				
Poor	572 (11)	275 (10)	297 (11)	
Intermediate	846 (16)	359 (13)	487 (19)	<0.001
Ideal	3961 (74)	2141 (77)	1820 (70)	

Abbreviations: CVH indicates cardiovascular health; SD, standard deviation; LS7, Life's Simple 7; percentages were rounded up to whole numbers

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Table S4 - The associations between CVH score and CVD-related biomarkers by Race/Ethnicity for Women

	hsCRP (mg/L)	D-dimer (µg/mL)	Fibrinogen (mg/dL)	Homocysteine (µmol/L)	hs-cTnT (ng/L)	NT-ProBNP (pg/mL)	IL-6[†] (pg/mL)
White, n=1,092							
Model 1	**-0.18** **(-0.21, -0.15)**	**-0.06** **(-0.08, -0.04)**	**-0.03** **(-0.04, -0.03)**	**-0.02** **(-0.03, -0.01)**	**-0.05** **(-0.06, -0.04)**	0.01 (-0.01, 0.04)	**-0.10** **(-0.12, -0.08)**
Model 2	**-0.19** **(-0.23,-0.16)**	**-0.04** **(-0.07, -0.02)**	**-0.03** **(-0.04, -0.02)**	**-0.01** **(-0.02, -0.002)**	**-0.03** **(-0.04, -0.02)**	**0.05** **(0.03, 0.07)**	**-0.09** **(-0.11, -0.07)**
Chinese-American, n=372							
Model 1	**-0.11** **(-0.17, -0.06)**	**-0.08** **(-0.13, -0.04)**	**-0.02** **(-0.02, -0.01)**	**-0.03** **(-0.04, -0.02)**	**-0.05** **(-0.07, -0.03)**	-0.01 (-0.06, 0.05)	**-0.07** **(-0.10, -0.04)**
Model 2	**-0.13** **(-0.18, -0.07)**	-0.04 (-0.09, 0.01)	**-0.01** **(-0.02, -0.004)**	**-0.01** **(-0.03, -0.00)**	**-0.03** **(-0.005, -0.01)**	**0.07** **(0.02, 0.12)**	**-0.06** **(-0.10, -0.03)**
Black, n=681							
Model 1	**-0.15** **(-0.19, -0.11)**	**-0.06** **(-0.09, -0.03)**	**-0.03** **(-0.03, -0.02)**	**-0.02** **(-0.03, -0.01)**	**-0.04** **(-0.06, -0.02)**	-0.02 (-0.06, 0.02)	**-0.09** **(-0.11, -0.07)**
Model 2	**-0.15** **(-0.19, -0.10)**	**-0.05** **(-0.08, -0.02)**	**-0.02** **(-0.03, -0.02)**	**-0.01** **(-0.02, -0.004)**	**-0.03** **(-0.05, -0.01)**	0.005 (-0.03, 0.04)	**-0.08** **(-0.11, -0.06)**
Hispanic, n= 630							
Model 1	**-0.13** **(-0.17, -0.10)**	**-0.03** **(-0.07, -0.003)**	**-0.01** **(-0.02, -0.01)**	**-0.02** **(-0.03, -0.01)**	**-0.04** **(-0.05, -0.02)**	**-0.04** **(-0.07, -0.003)**	**-0.09** **(-0.11, -0.07)**
Model 2	**-0.14** **(-0.18, -0.10)**	-0.004 (-0.04, 0.03)	**-0.01** **(-0.02, -0.005)**	**-0.01** **(-0.02, -0.002)**	**-0.02** **(-0.04, -0.005)**	0.01 (-0.03, 0.04)	**-0.08** **(-0.10, -0.06)**

Abbreviations: CVH, cardiovascular health; CVD, cardiovascular disease; hsCRP; High-sensitivity C-reactive protein; hs-cTnT, high-sensitivity cardiac troponin T; NT-ProBNP, N-terminal pro B-type natriuretic peptide; IL-6, interleukin 6.
*All biomarkers were log-transformed; CVH was assessed as a continuous variable. Results are presented as beta-coefficients (95% CI) from multivariable adjusted linear regression. Model 1 was unadjusted; Model 2 was adjusted for age, education, income, and health insurance status. Interpretation: For example, a 1-unit increment in the CVH score in White women corresponds to a 0.18 mg/L lower logCRP concentration. † For IL-6, Women: White, n=1,080; Chinese-American, n=371; Black, n=664; Hispanic, n=618

Table S5 - The associations between CVH score and CVD-related biomarkers by Race/Ethnicity for Men

	hsCRP (mg/L)	D-dimer (µg/mL)	Fibrinogen (mg/dL)	Homocysteine (µmol/L)	hs-cTnT (ng/L)	NT-ProBNP (pg/mL)	IL-6[†] (pg/mL)
White, n=1,058							
Model 1	**-0.15** **(-0.18, -0.12)**	-0.02 (-0.05, 0.004)	**-0.02** **(-0.02, -0.01)**	**-0.02** **(-0.02, -0.01)**	**-0.04** **(-0.06, -0.02)**	0.002 (-0.03,0.03)	**-0.08** **(-0.10,-0.06)**
Model 2	**-0.14** **(-0.17, -0.11)**	-0.02 (-0.05, 0.005)	**-0.02** **(-0.02, -0.01)**	**-0.02** **(-0.02, -0.01)**	**-0.04** **(-0.06, -0.03)**	0.01 (-0.02, 0.04)	**-0.07** **(-0.09, -0.05)**
Chinese-American, n= 361							
Model 1	**-0.09** **(-0.15, -0.04)**	-0.01 (-0.06, 0.04)	**-0.01** **(-0.02, -0.01)**	**-0.02** **(-0.03, -0.001)**	**-0.06** **(-0.08, -0.03)**	0.04 (-0.02, 0.11)	-0.04 (-0.07, 0.0002)
Model 2	**-0.11** **(-0.17, -0.05)**	0.001 (-0.05, 0.05)	**-0.02** **(-0.03, -0.01)**	**-0.02** **(-0.03, -0.002)**	**-0.06** **(-0.09, -0.04)**	0.02 (-0.03, 0.07)	-0.03 (-0.07, 0.004)
Black, n= 572							
Model 1	**-0.07** **(-0.12, -0.03)**	**-0.05** **(-0.09, -0.01)**	**-0.02** **(-0.03, -0.01)**	**-0.01** **(-0.02, -0.001)**	**-0.09** **(-0.11, -0.06)**	-0.03 (-0.08, 0.02)	**-0.04** **(-0.07, -0.02)**
Model 2	**-0.06** **(-0.11, -0.02)**	-0.02 (-0.06, 0.01)	**-0.01** **(-0.02, -0.01)**	-0.01 (-0.02, 0.003)	**-0.07** **(-0.09, -0.05)**	0.02 (-0.03, 0.06)	**-0.03** **(-0.06, -0.01)**
Hispanic, n=613							
Model 1	**-0.08** **(-0.12, -0.04)**	-0.03 (-0.06, 0.01)	**-0.02** **(-0.03, -0.01)**	-0.001 (-0.01, 0.01)	**-0.08** **(-0.11, -0.06)**	**-0.06** **(-0.11, -0.01)**	**-0.06** **(-0.08, -0.03)**
Model 2	**-0.08** **(-0.12, -0.04)**	-0.01 (-0.04, 0.02)	**-0.02** **(-0.02, -0.01)**	0.003 (-0.01, 0.01)	**-0.08** **(-0.10, -0.05)**	-0.03 (-0.07, 0.02)	**-0.05** **(-0.07, -0.02)**

Abbreviations: CVH, cardiovascular health; CVD, cardiovascular disease; hsCRP; High-sensitivity C-reactive protein; hs-cTnT, high-sensitivity cardiac troponin T; NT-proBNP, N-terminal pro B-type natriuretic peptide; IL-6, interleukin 6.

*All biomarkers were log-transformed; CVH was assessed as a continuous variable. Results are presented as beta-coefficients (95% CI) from multivariable adjusted linear regression. Model 1 was unadjusted; Model 2 was adjusted for age, education, income, and health insurance status. Interpretation: For example, a 1-unit increment in the CVH score in White men corresponds to a 0.15mg/L lower logCRP concentration.

† For IL-6, Men: White, n=1,042; Chinese American, n=355; Black, n=554; Hispanic, n=595

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Table S6 - The associations between CVH score and CVD-related biomarkers by Age for Women

	hsCRP (mg/L)	D-dimer (µg/mL)	Fibrinogen (mg/dL)	Homocysteine (µmol/L)	hs-cTnT (ng/L)	NT-proBNP (pg/mL)	IL-6[†] (pg/mL)
Age <65 years, n=1,559							
Model 1	**-0.22** **(0.24, -0.19)**	**-0.07** **(-0.09, -0.05)**	**-0.03** **(-0.04, -0.03)**	**-0.02** **(-0.02, -0.01)**	**-0.03** **(-0.03, -0.02)**	**0.03** **(0.01, 0.06)**	**-0.11** **(-0.13, -0.10)**
Model 2	**-0.19** **(-0.21, -0.16)**	**-0.04** **(-0.06, -0.02)**	**-0.03** **(-0.03, -0.02)**	**-0.01** **(-0.02, -0.01)**	**-0.02** **(-0.03, -0.01)**	**0.03** **(0.004, 0.05)**	**-0.09** **(-0.10, -0.07)**
Age ≥ 65 years, n= 1,216							
Model 1	**-0.14** **(-0.17, -0.11)**	**-0.06** **(-0.08, -0.04)**	**-0.02** **(-0.03, -0.02)**	**-0.02** **(-0.02, -0.01)**	**-0.05** **(-0.07, -0.04)**	0.02 (-0.01, 0.04)	**-0.09** **(-0.11, -0.07)**
Model 2	**-0.12** **(-0.15, -0.09)**	**-0.03** **(-0.06, -0.01)**	**-0.02** **(-0.02, -0.01)**	**-0.01** **(-0.02, -0.01)**	**-0.05** **(-0.06, -0.03)**	0.01 (-0.02, 0.03)	**-0.07** **(-0.09, -0.06)**

Abbreviations: CVH, cardiovascular health; CVD, cardiovascular disease; hsCRP; High-sensitivity C-reactive protein; hs-cTnT, high-sensitivity cardiac troponin T; NT-proBNP, N-terminal pro B-type natriuretic peptide; IL-6, interleukin 6.

*All biomarkers were log-transformed; CVH was assessed as a continuous variable. Results are presented as beta-coefficients (95% CI) from multivariable adjusted linear regression. Model 1 was unadjusted; Model 2 was adjusted for race/ethnicity, education, income, and health insurance status. Interpretation: For example, a 1-unit increment in the CVH score in women <65 years corresponds to a 0.22mg/L lower logCRP concentration. † For IL-6, Women: Age <65, n=1,539 Age ≥ 65 years, n=1,194

Table S7 - The associations between CVH score and CVD-related biomarkers by Age for Men

	hsCRP (mg/L)	D-dimer (µg/mL)	Fibrinogen (mg/dL)	Homocysteine (µmol/L)	hs-cTnT (ng/L)	NT-proBNP (pg/mL)	IL-6[†] (pg/mL)
Age <65 years, n= 1,454							
Model 1	**-0.14** **(-0.17, -0.12)**	**-0.02** **(-0.05, -0.003)**	**-0.02** **(-0.03, -0.02)**	**-0.01** **(-0.01, -0.001)**	**-0.07** **(-0.08, -0.06)**	-0.02 (-0.04, 0.01)	**-0.07** **(-0.09, -0.06)**
Model 2	**-0.12** **(-0.15, -0.10)**	-0.02 (-0.04, 0.007)	**-0.02** **(-0.02, -0.01)**	**-0.01** **(-0.01, -0.00)**	**-0.07** **(-0.08, -0.05)**	-0.01 (-0.04, 0.02)	**-0.06** **(-0.08, -0.04)**
Age ≥ 65 years, n= 1,150							
Model 1	**-0.11** **(-0.14, -0.08)**	**-0.05** **(-0.07, -0.02)**	**-0.02** **(-0.02, -0.01)**	**-0.02** **(-0.02, -0.01)**	**-0.06** **(-0.08, -0.04)**	0.01 (-0.02, 0.04)	**-0.06** **(-0.08, -0.04)**
Model 2	**-0.07** **(-0.10, -0.04)**	**-0.03** **(-0.05, -0.001)**	**-0.01** **(-0.02, -0.01)**	**-0.02** **(-0.02, -0.01)**	**-0.05** **(-0.07, -0.03)**	0.01 (-0.02, 0.05)	**-0.04** **(-0.06, -0.02)**

Abbreviations: CVH, cardiovascular health; CVD, cardiovascular disease; hsCRP; High-sensitivity C-reactive protein; hs-cTnT, high-sensitivity cardiac troponin T; NT-proBNP, N-terminal pro B-type natriuretic peptide; IL-6, interleukin 6.
*All biomarkers were log-transformed; CVH was assessed as a continuous variable. Results are presented as beta-coefficients (95% CI) from multivariable adjusted linear regression. Model 1 was unadjusted; Model 2 was adjusted for race/ethnicity, education, income, and health insurance status. Interpretation: For example, a 1-unit increment in the CVH score in men <65 years corresponds to a 0.14mg/L lower logCRP concentration. † For IL-6, Men: Age <65, n=1,425; Age ≥ 65 years, n=1,121

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References for Supplementary Material

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