# Supplemental Material

**Table S1. Adjusted Hazard Ratios and 95% CI for Incident Heart Failure Associated with Higher Category of Physical Activity, Overall, Among Participants with or Without ASCVD, Excluding Heart Failure Events in The First 2 Years of Follow Up[†]**

| | Physical activity category | | | p for interaction |
| --- | --- | --- | --- | --- |
| | **Poor** | **Intermediate** | **Recommended** | |
| **Overall (n=13,736)** | Reference (1) | 0.87 (0.79-0.95) | 0.78 (0.71-0.85) | |
| **No ASCVD[*] (n=12,513)** | Reference (1) | 0.87 (0.79-0.97) | 0.74 (0.67-0.82) | 0.01 |
| **ASCVD[*] (n=1,223)** | Reference (1) | 0.82 (0.63-1.06) | 0.94 (0.76-1.17) | |

[*] ASCVD = atherosclerotic cardiovascular disease

[†] Adjusted for age, sex, race, smoking status, and alcohol intake

**Table S2. Characteristics of the Study Population at Visit 1 (1987-1989) by ASCVD Status and Physical Activity Category.**

|  | No ASCVD | | | ASCVD | | |
|---|---|---|---|---|---|---|
|  | **Poor** | **Intermediate** | **Recommended** | **Poor** | **Intermediate** | **Recommended** |
| **Number** | 4618 (36.8%) | 3121 (24.8%) | 4820 (38.4%) | 466 (37.2%) | 290 (23.2%) | 495 (39.6%) |
| **Age, years** | 54.2 (5.6) | 54.2 (5.7) | 54.6 (5.8) | 56.6 (5.8) | 56.0 (5.5) | 57.2 (5.6) |
| **Black** | 1824 (39.5%) | 684 (21.9%) | 725 (15.0%) | 191 (41.0%) | 66 (22.8%) | 81 (16.4%) |
| **Female** | 2697 (58.4%) | 1858 (59.5%) | 2385 (49.5%) | 234 (50.2%) | 143 (49.3%) | 174 (35.2%) |
| **BMI, kg/m$^2$** | 28.5 (5.6) | 27.4 (5.1) | 26.7 (4.3) | 28.6 (6.0) | 28.0 (5.0) | 27.5 (4.8) |
| **Smoking Status** | | | | | | |
| **Never Smoker** | 1934 (41.9%) | 1431 (45.9%) | 2092 (43.4%) | 141 (30.3%) | 79 (27.2%) | 140 (28.3%) |
| **Former Smoker** | 1265 (27.4%) | 955 (30.6%) | 1790 (37.2%) | 126 (27.1%) | 119 (41.0%) | 238 (48.1%) |
| **Current Smoker** | 1415 (30.7%) | 734 (23.5%) | 936 (19.4%) | 198 (42.6%) | 92 (31.7%) | 117 (23.6%) |
| **Alcohol Intake, g/week** | 40.9 (106.1) | 38.8 (85.5) | 45.8 (86.1) | 47.8 (119.8) | 47.9 (106.0) | 37.4 (76.7) |
| **Diabetes** | 596 (12.9%) | 307 (9.8%) | 390 (8.1%) | 120 (25.8%) | 42 (14.5%) | 82 (16.6%) |
| **Anti-Hypertensive** | 1347 (29.2%) | 752 (24.1%) | 1015 (21.1%) | 241 (51.7%) | 141 (48.6%) | 275 (55.6%) |
| **SBP, mmHg** | 123.0 (19.4) | 119.8 (17.8) | 118.9 (17.3) | 127.7 (23.2) | 122.0 (20.0) | 122.3 (19.4) |
| **HDL-c, mg/dl** | 51.6 (17.1) | 52.1 (16.4) | 52.7 (17.3) | 47.5 (16.5) | 48.8 (16.9) | 45.5 (15.7) |
| **LDL-c, mg/dl** | 137.3 (39.7) | 136.9 (38.6) | 136.0 (37.9) | 149.3 (41.8) | 147.2 (39.7) | 147.4 (40.3) |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Triglycerides, mg/dl (IQR)** | 110 [79-155] | 108 [78-152] | 105 [75-151] | 128 [87-184] | 125 [91-184] | 129 [92-182] |
| **eGFR, ml/min/1.73$^2$(median, IQR)** | 106 [97-115] | 103 [95-111] | 102 [94-109] | 102 [90-113] | 99 [92-108] | 99 [89-107] |
| **Elevated hs-cTnT (≥ 14 ng/L)** | 201 (5.2%) | 93 (3.4%) | 139 (3.3%) | 49 (13.7%) | 27 (11.2%) | 61 (14.7%) |
| **Elevated NT-proBNP (≥ 100 pg/ml)** | 841 (21.6%) | 604 (22.0%) | 818 (19.4%) | 144 (40.0%) | 110 (45.6%) | 200 (48.0%) |

* ASCVD = atherosclerotic cardiovascular disease; BMI = body mass index; SBP = systolic blood pressure; HDL-c = HDL cholesterol; LDL-c =

LDL cholesterol; eGFR = estimated glomerular filtration rate; IQR = interquartile range; hs-cTnT = high sensitivity cardiac Troponin T; NT-

proBNP = N-Terminal pro Brain Natriuretic Peptide

† Values are means and standard deviations, or number and proportion, except where indicated

**Table S3. Adjusted Hazard Ratios and 95% CI for Incident Heart Failure Associated with Higher Category of Physical Activity Among Participants with and Without CHD at Visit 1.**

| | Physical activity category | | | p for interaction |
|---|---|---|---|---|
| | **Poor** | **Intermediate** | **Recommended** | |
| **No CHD*** **(n=13,220)** | Reference (1) | 0.85 (0.77-0.94) | 0.75 (0.68-0.82) | 0.24 |
| **CHD*** **(n=590)** | Reference (1) | 0.86 (0.62-1.20) | 0.91 (0.69-1.20) | |

* CHD = coronary heart disease

† Adjusted for age, sex, race, smoking status, and alcohol intake

**Table S4. Adjusted Hazard Ratios and 95% CI for Incident Heart Failure Associated with Cross-Categories of Physical Activity at Visit 1 and Visit 3[†]**

| | Cross-category of physical activity | | | p for interaction |
|---|---|---|---|---|
| | **Poor-Poor** | **Other[‡]** | **Recommended-Recommended** | |
| **No CHD[*] (n=10,572)** | Reference (1) | 0.81 (0.72-0.91) | 0.69 (0.60-0.79) | 0.95 |
| **CHD[*] (n=673)** | Reference (1) | 0.86 (0.64-1.17) | 0.75 (0.53-1.06) | |

* CHD = coronary heart disease

† Adjusted for age, sex, race, smoking status, and alcohol intake at Visit 1 and Visit 3

‡ Other longitudinal physical activity patterns from Visit 1 to Visit 3: poor-intermediate, poor-recommended, intermediate-poor, intermediate-intermediate, intermediate-recommended, recommended-poor, and recommended-intermediate.

**Figure S1. A. Continuous Association of Increasing Levels of PA with Incident HF, Among Participants Without ASCVD at Visit 1.**
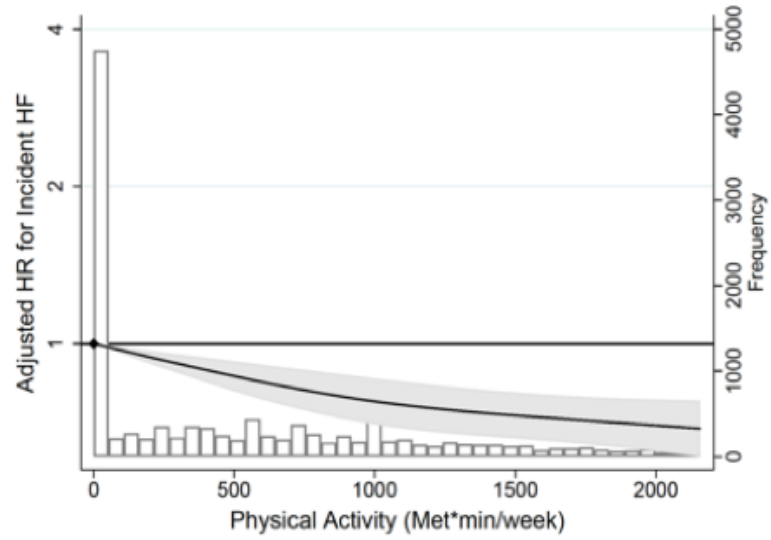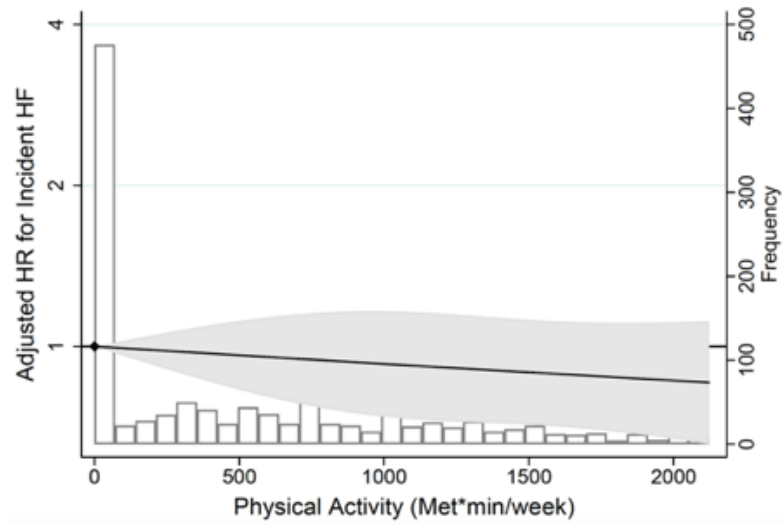
**Figure S1B.  Continuous Association of Increasing Levels of PA with Incident HF, Among Participants with ASCVD at Visit 1.**



\* Adjusted for age, sex, race, smoking status, and alcohol intake