**SUPPLEMENTARY MATERIAL**

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| **Supplementary Table 1. Tests of independent associations of physical activity (PA) minutes paired with vascular and cardiometabolic risk factors with incident all-cause dementia** |
|  | Model 1 | Model 2 | Model 3 |
| Variables | HR | 95% CI | HR | 95% CI | HR | 95% CI |
| ***APOE\*4*/PAa**  |  |  |  |  |  |  |  |  |  |
| *APOE\*4* | **2.04** | **1.35** | **3.08** | **2.56** | **1.67** | **3.93** | **2.63** | **1.71** | **4.03** |
| PA | **0.66** | **0.48** | **0.92** | 0.77 | 0.56 | 1.05 | 0.77 | 0.57 | 1.05 |
| **Stroke/PAb** |  |  |  |  |  |  |  |
| Stroke | **9.26** | **4.44** | **19.29** | **8.91** | **3.80** | **20.87** | **8.61** | **3.66** | **20.26** |
| PA | **0.66** | **0.48** | **0.91** | 0.78 | 0.57 | 1.07 | 0.78 | 0.57 | 1.05 |
| **CHF/PAc** |  |  |  |  |  |  |
| CHF | **2.78** | **1.52** | **5.07** | **2.33** | **1.27** | **4.30** | **2.18** | **1.18** | **4.03** |
| PA | **0.66** | **0.48** | **0.91** | 0.76 | 0.56 | 1.05 | 0.78 | 0.57 | 1.06 |

Model 1: variables of interest

Model 2: Model 1 + non-modifiable factors (baseline age, sex, race, education, *APOE\*4*)

Model 3: Model 2 + vascular and cardiometabolic risk factors and behavioral factors that are confounders as follows:

 a current drinking

 b hypertension, current drinking

 c depression, HTN, high cholesterol, current drinking

Note: CHF=congestive heart failure.