# Sensitivity Analysis 1: Without BMI and Diabetes - Stroke

|  | **Vector Magnitude (ENMO)** | **Random Forest and HMM** | **Activity Count** |
| --- | --- | --- | --- |
| **Characteristic** | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 |
| **MVPA Quartile** |  |  |  |
| [0.917,320] | — |  |  |
| (320,464] | 0.66 (0.58 to 0.75) |  |  |
| (464,642] | 0.63 (0.55 to 0.72) |  |  |
| (642,2.39e+03] | 0.53 (0.46 to 0.62) |  |  |
| **MVPA Quartile** |  |  |  |
| [0,115] |  | — |  |
| (115,234] |  | 0.69 (0.60 to 0.79) |  |
| (234,404] |  | 0.64 (0.56 to 0.74) |  |
| (404,2.47e+03] |  | 0.54 (0.47 to 0.63) |  |
| **MVPA Quartile** |  |  |  |
| [3.16,1.56e+03] |  |  | — |
| (1.56e+03,1.95e+03] |  |  | 0.82 (0.72 to 0.94) |
| (1.95e+03,2.37e+03] |  |  | 0.78 (0.68 to 0.89) |
| (2.37e+03,5.46e+03] |  |  | 0.69 (0.59 to 0.81) |
| 1HR = Hazard Ratio, CI = Confidence Interval | | | |

No Mediator , withoubt BMI and Diabetes (Stroke)

# Sensitivity Analysis 1: Without BMI and Diabetes - MI

|  | **Vector Magnitude (ENMO)** | **Random Forest and HMM** | **Activity Count** |
| --- | --- | --- | --- |
| **Characteristic** | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 |
| **MVPA Quartile** |  |  |  |
| [0.917,320] | — |  |  |
| (320,464] | 0.80 (0.68 to 0.94) |  |  |
| (464,642] | 0.73 (0.61 to 0.87) |  |  |
| (642,2.39e+03] | 0.64 (0.53 to 0.78) |  |  |
| **MVPA Quartile** |  |  |  |
| [0,115] |  | — |  |
| (115,234] |  | 0.76 (0.64 to 0.90) |  |
| (234,404] |  | 0.80 (0.67 to 0.95) |  |
| (404,2.47e+03] |  | 0.68 (0.56 to 0.82) |  |
| **MVPA Quartile** |  |  |  |
| [3.16,1.56e+03] |  |  | — |
| (1.56e+03,1.95e+03] |  |  | 0.74 (0.63 to 0.88) |
| (1.95e+03,2.37e+03] |  |  | 0.67 (0.56 to 0.80) |
| (2.37e+03,5.46e+03] |  |  | 0.74 (0.62 to 0.89) |
| 1HR = Hazard Ratio, CI = Confidence Interval | | | |

No Mediator , withoubt BMI and Diabetes (MI)

# Sensitivity Analysis 2: Hazard ratios for incidence Stroke, truncated MVPA

|  | **Vector Magnitude (ENMO)** | **Random Forest and HMM** | **Activity Count** |
| --- | --- | --- | --- |
| **Characteristic** | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 |
| **MVPA Quartile** |  |  |  |
| [0.917,318] | — |  |  |
| (318,461] | 0.71 (0.62 to 0.81) |  |  |
| (461,634] | 0.70 (0.61 to 0.81) |  |  |
| (634,1.25e+03] | 0.59 (0.50 to 0.69) |  |  |
| **MVPA Quartile** |  |  |  |
| [0,114] |  | — |  |
| (114,233] |  | 0.75 (0.65 to 0.86) |  |
| (233,401] |  | 0.70 (0.61 to 0.81) |  |
| (401,1.25e+03] |  | 0.63 (0.54 to 0.73) |  |
| **MVPA Quartile** |  |  |  |
| [3.16,881] |  |  | — |
| (881,1.05e+03] |  |  | 0.63 (0.46 to 0.88) |
| (1.05e+03,1.16e+03] |  |  | 0.77 (0.56 to 1.06) |
| (1.16e+03,1.25e+03] |  |  | 0.79 (0.57 to 1.08) |
| 1HR = Hazard Ratio, CI = Confidence Interval | | | |

Removed people with huge duration (>1200min) of MVPA, Stroke

# Sensitivity Analysis 2: Hazard ratios for incidence MI, truncated MVPA

|  | **Vector Magnitude (ENMO)** | **Random Forest and HMM** | **Activity Count** |
| --- | --- | --- | --- |
| **Characteristic** | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 |
| **MVPA Quartile** |  |  |  |
| [0.917,318] | — |  |  |
| (318,461] | 0.80 (0.68 to 0.94) |  |  |
| (461,634] | 0.74 (0.62 to 0.89) |  |  |
| (634,1.25e+03] | 0.65 (0.53 to 0.80) |  |  |
| **MVPA Quartile** |  |  |  |
| [0,114] |  | — |  |
| (114,233] |  | 0.76 (0.64 to 0.91) |  |
| (233,401] |  | 0.82 (0.68 to 0.98) |  |
| (401,1.25e+03] |  | 0.73 (0.60 to 0.88) |  |
| **MVPA Quartile** |  |  |  |
| [3.16,881] |  |  | — |
| (881,1.05e+03] |  |  | 0.71 (0.48 to 1.06) |
| (1.05e+03,1.16e+03] |  |  | 0.55 (0.36 to 0.86) |
| (1.16e+03,1.25e+03] |  |  | 0.76 (0.51 to 1.14) |
| 1HR = Hazard Ratio, CI = Confidence Interval | | | |

Removed people with huge duration (>1200min) of MVPA, MI

# Sensitivity Analysis 3: Female - Hazard ratios for incidence Stroke

|  | **Vector Magnitude (ENMO)** | **Random Forest and HMM** | **Activity Count** |
| --- | --- | --- | --- |
| **Characteristic** | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 |
| **MVPA Quartile\_trucated** |  |  |  |
| [0.917,318] | — |  |  |
| (318,461] | 0.76 (0.61 to 0.95) |  |  |
| (461,634] | 0.68 (0.53 to 0.87) |  |  |
| (634,1.25e+03] | 0.40 (0.29 to 0.56) |  |  |
| **MVPA Quartile** |  |  |  |
| [0,115] |  | — |  |
| (115,234] |  | 0.74 (0.60 to 0.93) |  |
| (234,404] |  | 0.75 (0.59 to 0.96) |  |
| (404,2.47e+03] |  | 0.50 (0.36 to 0.70) |  |
| **MVPA Quartile** |  |  |  |
| [3.16,1.56e+03] |  |  | — |
| (1.56e+03,1.95e+03] |  |  | 0.93 (0.73 to 1.18) |
| (1.95e+03,2.37e+03] |  |  | 0.81 (0.63 to 1.04) |
| (2.37e+03,5.46e+03] |  |  | 0.61 (0.47 to 0.80) |
| 1HR = Hazard Ratio, CI = Confidence Interval | | | |

Male and Female separate (Stroke)

# Sensitivity Analysis 3: Male - Hazard ratios for incidence Stroke

|  | **Vector Magnitude (ENMO)** | **Random Forest and HMM** | **Activity Count** |
| --- | --- | --- | --- |
| **Characteristic** | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 |
| **MVPA Quartile** |  |  |  |
| [0.917,320] | — |  |  |
| (320,464] | 0.68 (0.58 to 0.80) |  |  |
| (464,642] | 0.71 (0.60 to 0.84) |  |  |
| (642,2.39e+03] | 0.72 (0.59 to 0.86) |  |  |
| **MVPA Quartile** |  |  |  |
| [0,115] |  | — |  |
| (115,234] |  | 0.75 (0.63 to 0.89) |  |
| (234,404] |  | 0.71 (0.60 to 0.85) |  |
| (404,2.47e+03] |  | 0.65 (0.55 to 0.78) |  |
| **MVPA Quartile** |  |  |  |
| [3.16,1.56e+03] |  |  | — |
| (1.56e+03,1.95e+03] |  |  | 0.82 (0.70 to 0.95) |
| (1.95e+03,2.37e+03] |  |  | 0.84 (0.71 to 1.00) |
| (2.37e+03,5.46e+03] |  |  | 0.95 (0.79 to 1.15) |
| 1HR = Hazard Ratio, CI = Confidence Interval | | | |

Male and Female separate (MI)

# Sensitivity Analysis 3: Female - Hazard ratios for incidence MI

|  | **Vector Magnitude (ENMO)** | **Random Forest and HMM** | **Activity Count** |
| --- | --- | --- | --- |
| **Characteristic** | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 |
| **MVPA Quartile** |  |  |  |
| [0.917,320] | — |  |  |
| (320,464] | 0.72 (0.56 to 0.91) |  |  |
| (464,642] | 0.78 (0.61 to 1.01) |  |  |
| (642,2.39e+03] | 0.63 (0.47 to 0.84) |  |  |
| **MVPA Quartile** |  |  |  |
| [0,115] |  | — |  |
| (115,234] |  | 0.84 (0.66 to 1.06) |  |
| (234,404] |  | 0.76 (0.58 to 0.99) |  |
| (404,2.47e+03] |  | 0.81 (0.60 to 1.09) |  |
| **MVPA Quartile** |  |  |  |
| [3.16,1.56e+03] |  |  | — |
| (1.56e+03,1.95e+03] |  |  | 0.67 (0.52 to 0.88) |
| (1.95e+03,2.37e+03] |  |  | 0.61 (0.47 to 0.80) |
| (2.37e+03,5.46e+03] |  |  | 0.69 (0.54 to 0.90) |
| 1HR = Hazard Ratio, CI = Confidence Interval | | | |

Male and Female separate (MI)

# Sensitivity Analysis 3: Male - Hazard ratios for incidence MI

|  | **Vector Magnitude (ENMO)** | **Random Forest and HMM** | **Activity Count** |
| --- | --- | --- | --- |
| **Characteristic** | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 | **HR** **(95% CI)**1 |
| **MVPA Quartile** |  |  |  |
| [0.917,320] | — |  |  |
| (320,464] | 0.90 (0.72 to 1.13) |  |  |
| (464,642] | 0.72 (0.56 to 0.92) |  |  |
| (642,2.39e+03] | 0.69 (0.53 to 0.91) |  |  |
| **MVPA Quartile** |  |  |  |
| [0,115] |  | — |  |
| (115,234] |  | 0.71 (0.55 to 0.92) |  |
| (234,404] |  | 0.86 (0.67 to 1.10) |  |
| (404,2.47e+03] |  | 0.65 (0.50 to 0.84) |  |
| **MVPA Quartile** |  |  |  |
| [3.16,1.56e+03] |  |  | — |
| (1.56e+03,1.95e+03] |  |  | 0.80 (0.64 to 0.99) |
| (1.95e+03,2.37e+03] |  |  | 0.73 (0.57 to 0.94) |
| (2.37e+03,5.46e+03] |  |  | 0.82 (0.62 to 1.09) |
| 1HR = Hazard Ratio, CI = Confidence Interval | | | |

Male and Female separate (MI)

# Sensitivity Analysis 4: Hazard ratios for incidence Stroke - 2 years Stroke survival

|  | **Vector Magnitude (ENMO)** | | **Random Forest and HMM** | |
| --- | --- | --- | --- | --- |
| **Characteristic** | **HR** **(95% CI)**1 | **p-value** | **HR** **(95% CI)**1 | **p-value** |
| MVPA Quartile |  |  |  |  |
| [0.917,320] | — |  |  |  |
| (320,464] | 0.71 (0.62 to 0.81) | <0.001 |  |  |
| (464,642] | 0.70 (0.61 to 0.80) | <0.001 |  |  |
| (642,2.39e+03] | 0.62 (0.53 to 0.72) | <0.001 |  |  |
| MVPA Quartile |  |  |  |  |
| [0,115] |  |  | — |  |
| (115,234] |  |  | 0.74 (0.64 to 0.84) | <0.001 |
| (234,404] |  |  | 0.71 (0.62 to 0.82) | <0.001 |
| (404,2.47e+03] |  |  | 0.62 (0.54 to 0.73) | <0.001 |
| 1HR = Hazard Ratio, CI = Confidence Interval | | | | |

Removed people who have had a Stroke within 2 years following end of accelerometer following

# Sensitivity Analysis 4: Hazard ratios for incidence MI - 2 years MI survival

|  | **Vector Magnitude (ENMO)** | | **Random Forest and HMM** | |
| --- | --- | --- | --- | --- |
| **Characteristic** | **HR** **(95% CI)**1 | **p-value** | **HR** **(95% CI)**1 | **p-value** |
| MVPA Quartile |  |  |  |  |
| [0.917,318] | — |  |  |  |
| (318,461] | 0.80 (0.68 to 0.94) | 0.008 |  |  |
| (461,634] | 0.74 (0.62 to 0.89) | 0.001 |  |  |
| (634,1.25e+03] | 0.65 (0.53 to 0.80) | <0.001 |  |  |
| MVPA Quartile |  |  |  |  |
| [0,114] |  |  | — |  |
| (114,233] |  |  | 0.76 (0.64 to 0.91) | 0.002 |
| (233,401] |  |  | 0.82 (0.68 to 0.98) | 0.026 |
| (401,1.25e+03] |  |  | 0.73 (0.60 to 0.88) | 0.001 |
| 1HR = Hazard Ratio, CI = Confidence Interval | | | | |

Removed people who have had a MI within 2 years following end of accelerometer following