

## Online Supplementary Material

Chen et al. **“Accelerometer-Assessed Physical Activity and Incident Diabetes in a Population Covering the Adult Lifespan: the Hispanic Community Health Study/Study of Latinos”**

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**Supplementary Table 1.** Age-adjusted population characteristics according to the status of adherence to the accelerometer wear protocols<sup>1</sup>

|                                  | Adherence status <sup>2</sup> |                   | P value |
|----------------------------------|-------------------------------|-------------------|---------|
|                                  | Non-adherent                  | Adherent          |         |
| Number of participants           | 3665                          | 12,750            |         |
| Age, y                           | 42.4 (41.9, 42.8)             | 46.9 (46.6, 47.1) | <0.001  |
| Male sex, %                      | 51.8 (50.6, 53.0)             | 48.2 (47.0, 49.4) | 0.11    |
| Study field center, %            |                               |                   |         |
| Bronx                            | 28.0 (24.2, 32.2)             | 29.2 (26.4, 32.2) | <0.001  |
| Chicago                          | 12.5 (10.4, 14.9)             | 16.5 (14.5, 18.5) |         |
| Miami                            | 37.1 (32.2, 42.3)             | 28.1 (24.3, 32.3) |         |
| San Diego                        | 22.4 (19.3, 26.1)             | 26.2 (22.9, 29.8) |         |
| Hispanic/Latino background, %    |                               |                   |         |
| Central/South American           | 13.0 (11.3, 14.9)             | 12.1 (10.9, 13.5) | <0.001  |
| Cuban                            | 26.4 (22.7, 30.5)             | 10.4 (9.0, 11.9)  |         |
| Dominican                        | 8.1 (6.6, 9.8)                | 19.4 (16.4, 22.8) |         |
| Mexican                          | 30.1 (26.6, 33.9)             | 38.3 (35.2, 41.5) |         |
| Puerto-Rican                     | 17.7 (15.2, 20.5)             | 16.2 (14.7, 17.9) |         |
| Other/>1 heritage                | 4.7 (3.6, 6.2)                | 3.6 (3.1, 4.1)    |         |
| Above high school education, %   | 39.3 (36.7, 41.9)             | 39.3 (37.6, 41.0) | 0.76    |
| Annual household income, %       |                               |                   |         |
| ≤\$25,000                        | 52.5 (49.9, 55.2)             | 51.6 (49.6, 53.6) | 0.002   |
| >\$25,000                        | 35.6 (33.0, 38.4)             | 39.3 (37.2, 41.4) |         |
| Not reported                     | 11.9 (10.4, 13.5)             | 9.1 (8.3, 10.0)   |         |
| Employment status, %             |                               |                   |         |
| Not employed                     | 56.4 (53.8, 58.9)             | 48.8 (47.5, 50.2) | <0.001  |
| Employed part-time (≤35 h/wk)    | 14.9 (13.5, 16.4)             | 16.9 (16.0, 17.8) |         |
| Employed full-time (>35 h/wk)    | 28.7 (26.6, 30.9)             | 34.3 (33.1, 35.6) |         |
| Smoking status, %                |                               |                   |         |
| Never                            | 57.5 (54.9, 60.1)             | 61.1 (59.8, 62.4) | <0.001  |
| Former                           | 18.3 (16.2, 20.5)             | 18.7 (17.8, 19.1) |         |
| Current                          | 24.3 (22.3, 26.4)             | 20.2 (19.1, 21.4) |         |
| Alcohol consumption, %           |                               |                   |         |
| None                             | 52.2 (49.8, 54.5)             | 48.8 (47.2, 50.3) | <0.001  |
| Light to moderate <sup>3</sup>   | 41.0 (38.8, 43.4)             | 45.8 (44.3, 47.4) |         |
| Heavier                          | 6.8 (5.9, 7.9)                | 5.4 (4.9, 6.0)    |         |
| Total energy intake, kcal/d      | 1967 (1940, 1994)             | 1984 (1966, 2001) | 0.23    |
| AHEI-2010 score                  | 46.5 (46.1, 46.9)             | 47.8 (47.4, 48.1) | <0.001  |
| Accelerometer wearing days       | 1.13 (1.08, 1.18)             | 5.12 (5.09, 5.15) | <0.001  |
| History of CVD, %                | 9.7 (8.3, 11.2)               | 6.8 (6.2, 7.5)    | 0.14    |
| Family history of diabetes, %    | 41.1 (38.3, 44.0)             | 41.4 (40.0, 42.9) | 0.073   |
| Prevalent diabetes               | 19.8 (18.0, 21.6)             | 17.4 (16.6, 18.3) | 0.066   |
| Baseline BMI, kg/m <sup>2</sup>  | 29.9 (29.6, 30.3)             | 29.2 (29.0, 29.4) | <0.001  |
| Baseline waist circumference, cm | 98.8 (97.9, 99.7)             | 96.9 (96.5, 97.3) | <0.001  |
| Baseline body fat mass, kg       | 28.2 (27.4, 28.9)             | 26.4 (26.0, 26.8) | <0.001  |

AHEI, Alternative Healthy Eating Index; BMI, body mass index; CVD, cardiovascular disease; MVPA, moderate-to-vigorous physical activity.

<sup>1</sup>Data are age-adjusted mean (95% CI) for continuous variables or percentage (95% CI) for categorical variables based on the entire study population regardless of follow-up status. All results except for age and number of participants were weighted for survey design.

<sup>2</sup>Individuals who had at least 3 adherent days were considered adherent (an adherent day was defined as at least 10 h of wear time).

<sup>3</sup>Alcohol consumption of ≤1 drink/d in women or ≤2 drinks/d in men.

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**Supplementary Table 2.** Age-specific association between MVPA (quartile) and incident diabetes according to Hispanic/Latino background (Mexican versus others)<sup>1</sup>

|                             | MVPA quartile <sup>2</sup>      |                   |                   |                   | P-trend |
|-----------------------------|---------------------------------|-------------------|-------------------|-------------------|---------|
|                             | Q1                              | Q2                | Q3                | Q4                |         |
|                             | <u>Mexican</u> <sup>3</sup>     |                   |                   |                   |         |
| <b>≤50 y</b>                |                                 |                   |                   |                   |         |
| Cases/participants          | 56/413                          | 52/535            | 48/548            | 57/525            |         |
| Incidence rate <sup>4</sup> | 14.8 (10.0, 19.7)               | 14.9 (8.0, 21.9)  | 11.3 (7.3, 15.3)  | 19.5 (9.2, 29.8)  |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)                | 0.88 (0.51, 1.51) | 0.55 (0.33, 0.91) | 0.92 (0.54, 1.57) | 0.54    |
| Model 2 (RR [95% CI])       | 1.00 (reference)                | 0.89 (0.52, 1.52) | 0.54 (0.32, 0.90) | 0.94 (0.58, 1.51) | 0.47    |
| Model 3 (RR [95% CI])       | 1.00 (reference)                | 0.91 (0.53, 1.57) | 0.55 (0.32, 0.94) | 0.98 (0.53, 1.82) | 0.50    |
| <b>&gt;50 y</b>             |                                 |                   |                   |                   |         |
| Cases/participants          | 86/387                          | 43/260            | 32/258            | 21/179            |         |
| Incidence rate <sup>4</sup> | 40.7 (29.1, 52.4)               | 29.1 (17.9, 40.2) | 20.0 (10.0, 30.1) | 25.2 (14.3, 36.2) |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)                | 0.70 (0.42, 1.17) | 0.45 (0.28, 0.73) | 0.30 (0.16, 0.58) | <0.001  |
| Model 2 (RR [95% CI])       | 1.00 (reference)                | 0.76 (0.49, 1.17) | 0.49 (0.30, 0.80) | 0.39 (0.22, 0.69) | <0.001  |
| Model 3 (RR [95% CI])       | 1.00 (reference)                | 0.74 (0.48, 1.15) | 0.47 (0.27, 0.81) | 0.36 (0.19, 0.67) | <0.001  |
|                             | <u>Non-Mexican</u> <sup>3</sup> |                   |                   |                   |         |
| <b>≤50 y</b>                |                                 |                   |                   |                   |         |
| Cases/participants          | 57/561                          | 55/584            | 46/616            | 47/638            |         |
| Incidence rate <sup>4</sup> | 12.1 (7.9, 16.3)                | 11.5 (7.4, 15.5)  | 15.2 (8.0, 22.5)  | 14.5 (8.8, 20.3)  |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)                | 0.78 (0.47, 1.28) | 0.97 (0.56, 1.69) | 0.93 (0.53, 1.64) | 0.97    |
| Model 2 (RR [95% CI])       | 1.00 (reference)                | 0.80 (0.50, 1.29) | 0.96 (0.57, 1.62) | 0.99 (0.60, 1.64) | 0.84    |
| Model 3 (RR [95% CI])       | 1.00 (reference)                | 0.82 (0.51, 1.33) | 1.00 (0.58, 1.73) | 1.07 (0.62, 1.84) | 0.66    |
| <b>&gt;50 y</b>             |                                 |                   |                   |                   |         |
| Cases/participants          | 121/698                         | 53/404            | 54/376            | 43/298            |         |
| Incidence rate <sup>4</sup> | 32.7 (26.1, 39.3)               | 19.4 (12.6, 26.2) | 23.6 (15.5, 31.8) | 21.3 (13.5, 29.0) |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)                | 0.58 (0.38, 0.90) | 0.60 (0.39, 0.93) | 0.56 (0.37, 0.85) | 0.003   |
| Model 2 (RR [95% CI])       | 1.00 (reference)                | 0.64 (0.43, 0.95) | 0.68 (0.46, 0.99) | 0.63 (0.42, 0.96) | 0.011   |
| Model 3 (RR [95% CI])       | 1.00 (reference)                | 0.67 (0.45, 0.99) | 0.72 (0.48, 1.08) | 0.71 (0.44, 1.13) | 0.075   |

MVPA, moderate-to-vigorous physical activity; Q, quartile.

<sup>1</sup>Results were from multivariable survey Poisson regression models that were weighted for survey design, nonresponse, and noncompliance with accelerometer wear protocols.

<sup>2</sup>Quartiles are sex-specific due to the substantially different MVPA levels in men and women; MVPA ranges across quartiles are ≤12.4, 12.5-25.5, 25.6-47.9, and ≥48.0 min/d in men, and ≤5.7, 5.8-13.9, 14.0-29.1, and ≥29.2 min/d in women, respectively.

<sup>3</sup>P values for interaction between MVPA quartile and age on diabetes risk was 0.017 for Mexican and 0.068 for non-Mexican populations, respectively, after the adjustment for covariates included in the model 3.

<sup>4</sup>Age-adjusted incidence rate per 1000 person-years.

Model 1 included study field center, baseline age, sex, and Hispanic/Latino background (where appropriate).

Model 2 included the covariates in model 1 and additionally included education (no high school; at most high school; greater than high school), annual household income (≤10,000; 10,001-25,000; 25,001-50,000; 50,001-75,000; ≥75,001\$), employment status (retired and not employed; not retired and not employed; part-time employed; full-time employed), smoking (never; former; current ≤10 pack-year; current >10 pack-year), alcohol consumption (never; former; current ≤2 drinks/d in men or ≤1 drink/d in women; current >2 drinks/d in men or >1 drink/d in women), AHEI-2010 score (continuous), total energy (kcal/d), history of CVD (yes; no), number of days wearing accelerometer, and family history of diabetes (yes; no).

Model 3 included the covariates in model 2 and additionally included sedentary time (h/d).

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**Supplementary Table 3.** Age-specific association between MVPA (4 convenient categories) and incident diabetes<sup>1,2</sup>

|                             | MVPA categories, min/d |                   |                   |                   | P-trend |
|-----------------------------|------------------------|-------------------|-------------------|-------------------|---------|
|                             | ≤ 5                    | >5 to ≤15         | >15 to ≤30        | >30               |         |
| <b>≤50 y</b>                |                        |                   |                   |                   |         |
| Cases/participants          | 82/666                 | 116/1187          | 93/1106           | 127/1461          |         |
| Incidence rate <sup>3</sup> | 13.5 (9.7, 17.3)       | 13.6 (10.3, 17.0) | 13.3 (8.7, 18.0)  | 15.5 (11.0, 20.0) |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)       | 0.88 (0.60, 1.30) | 0.79 (0.51, 1.21) | 0.81 (0.56, 1.18) | 0.31    |
| Model 2 (RR [95% CI])       | 1.00 (reference)       | 0.83 (0.58, 1.21) | 0.75 (0.50, 1.14) | 0.80 (0.56, 1.16) | 0.34    |
| Model 3 (RR [95% CI])       | 1.00 (reference)       | 0.84 (0.58, 1.21) | 0.76 (0.50, 1.16) | 0.82 (0.54, 1.24) | 0.46    |
| <b>&gt;50 y</b>             |                        |                   |                   |                   |         |
| Cases/participants          | 158/823                | 125/797           | 84/620            | 86/620            |         |
| Incidence rate <sup>3</sup> | 34.3 (27.5, 41.1)      | 26.9 (21.0, 32.7) | 21.6 (15.2, 28.0) | 21.5 (15.1, 28.0) |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)       | 0.73 (0.54, 0.98) | 0.51 (0.36, 0.72) | 0.43 (0.30, 0.62) | <0.001  |
| Model 2 (RR [95% CI])       | 1.00 (reference)       | 0.73 (0.55, 0.98) | 0.54 (0.38, 0.76) | 0.45 (0.33, 0.63) | <0.001  |
| Model 3 (RR [95% CI])       | 1.00 (reference)       | 0.74 (0.55, 0.99) | 0.54 (0.38, 0.78) | 0.46 (0.32, 0.68) | <0.001  |

MVPA, moderate-to-vigorous physical activity.

<sup>1</sup>Results were from multivariable survey Poisson regression models that were weighted for survey design, nonresponse, and noncompliance with accelerometer wear protocols.

<sup>2</sup>P values for interaction between MVPA categories and age on diabetes risk was 0.028 after the adjustment for covariates included in the model 3.

<sup>3</sup>Age-adjusted incidence rate per 1000 person-years.

Model 1 included study field center, baseline age, sex, and Hispanic/Latino background.

Model 2 included the covariates in model 1 and additionally included education (no high school; at most high school; greater than high school), annual household income (≤10,000; 10,001-25,000; 25,001-50,000; 50,001-75,000; ≥75,001 \$), employment status (retired and not employed; not retired and not employed; part-time employed; full-time employed), smoking (never; former; current ≤10 packing-year; current >10 packing-year), alcohol consumption (never; former; current ≤2 drinks/d in men or ≤1 drink/d in women; current >2 drinks/d in men or >1 drink/d in women), AHEI-2010 score (continuous), total energy intake (kcal/d), history of CVD (yes; no), number of days wearing accelerometer, and family history of diabetes (yes; no).

Model 3 included the covariates in model 2 and additionally included sedentary time (h/d).

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**Supplementary Table 4.** Association between MVPA (quartile) and incident diabetes by 4 age groups<sup>1</sup>

|                             | MVPA quartile <sup>2,3</sup> |                   |                   |                   | P-trend |
|-----------------------------|------------------------------|-------------------|-------------------|-------------------|---------|
|                             | Q1                           | Q2                | Q3                | Q4                |         |
| <b>≤40 y</b>                |                              |                   |                   |                   |         |
| Cases/participants          | 38/424                       | 31/551            | 30/623            | 43/649            |         |
| Incidence rate <sup>4</sup> | 16.2 (7.3, 25.1)             | 7.6 (4.5, 10.7)   | 8.3 (4.2, 12.4)   | 9.8 (5.9, 13.6)   |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)             | 0.82 (0.44, 1.51) | 0.77 (0.42, 1.39) | 0.95 (0.56, 1.61) | 0.92    |
| Model 2 (RR [95% CI])       | 1.00 (reference)             | 0.81 (0.43, 1.50) | 0.75 (0.42, 1.32) | 0.95 (0.58, 1.57) | 0.93    |
| Model 3 (RR [95% CI])       | 1.00 (reference)             | 0.81 (0.44, 1.50) | 0.75 (0.43, 1.32) | 0.97 (0.55, 1.73) | 0.95    |
| <b>41~50 y</b>              |                              |                   |                   |                   |         |
| Cases/participants          | 75/550                       | 76/568            | 64/541            | 61/514            |         |
| Incidence rate <sup>4</sup> | 19.7 (12.3, 27.0)            | 22.7 (16.0, 29.5) | 22.2 (12.2, 32.2) | 24.1 (14.2, 34.0) |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)             | 0.87 (0.56, 1.37) | 0.75 (0.48, 1.19) | 0.88 (0.54, 1.39) | 0.47    |
| Model 2 (RR [95% CI])       | 1.00 (reference)             | 0.93 (0.60, 1.45) | 0.87 (0.58, 1.33) | 0.86 (0.55, 1.35) | 0.49    |
| Model 3 (RR [95% CI])       | 1.00 (reference)             | 0.95 (0.60, 1.50) | 0.91 (0.58, 1.43) | 0.92 (0.54, 1.57) | 0.73    |
| <b>51~60 y</b>              |                              |                   |                   |                   |         |
| Cases/participants          | 124/662                      | 66/450            | 65/459            | 45/358            |         |
| Incidence rate <sup>4</sup> | 28.7 (21.7, 35.8)            | 33.3 (22.2, 44.3) | 20.2 (12.1, 28.3) | 26.6 (12.3, 40.8) |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)             | 0.73 (0.51, 1.06) | 0.65 (0.43, 1.00) | 0.53 (0.34, 0.82) | 0.003   |
| Model 2 (RR [95% CI])       | 1.00 (reference)             | 0.75 (0.52, 1.08) | 0.67 (0.45, 1.01) | 0.54 (0.35, 0.85) | 0.005   |
| Model 3 (RR [95% CI])       | 1.00 (reference)             | 0.74 (0.50, 1.09) | 0.66 (0.43, 1.02) | 0.53 (0.33, 0.85) | 0.008   |
| <b>&gt;60 y</b>             |                              |                   |                   |                   |         |
| Cases/participants          | 83/423                       | 30/214            | 21/175            | 19/119            |         |
| Incidence rate <sup>4</sup> | 39.8 (28.0, 51.5)            | 24.3 (15.4, 33.3) | 20.8 (10.3, 31.3) | 19.6 (9.0, 30.2)  |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)             | 0.52 (0.29, 0.94) | 0.39 (0.20, 0.72) | 0.39 (0.20, 0.74) | <0.001  |
| Model 2 (RR [95% CI])       | 1.00 (reference)             | 0.52 (0.30, 0.89) | 0.39 (0.21, 0.74) | 0.41 (0.23, 0.74) | <0.001  |
| Model 3 (RR [95% CI])       | 1.00 (reference)             | 0.54 (0.31, 0.93) | 0.44 (0.23, 0.87) | 0.49 (0.26, 0.94) | 0.004   |

MVPA, moderate-to-vigorous physical activity; Q, quartile.

<sup>1</sup>Results were from multivariable survey Poisson regression models that were weighted for survey design, nonresponse, and noncompliance with accelerometer wear protocols.

<sup>2</sup>Quartiles are sex-specific due to the substantially different MVPA levels in men and women. MVPA ranges across quartiles are ≤12.4, 12.5-25.5, 25.6-47.9, and ≥48.0 min/d in men, and ≤5.7, 5.8-13.9, 14.0-29.1, and ≥29.2 min/d in women, respectively.

<sup>3</sup>P values for interaction between MVPA quartile and age on diabetes risk was 0.017 after the adjustment for covariates included in the model 3.

<sup>4</sup>Age-adjusted incidence rate per 1000 person-years.

Model 1 included study field center, baseline age, sex, and Hispanic/Latino background.

Model 2 included the covariates in model 1 and additionally included education (no high school; at most high school; greater than high school), annual household income (≤10,000; 10,001-25,000; 25,001-50,000; 50,001-75,000; ≥75,001 \$), employment status (retired and not employed; not retired and not employed; part-time employed; full-time employed), smoking (never; former; current ≤10 packing-year; current >10 packing-year), alcohol consumption (never; former; current ≤2 drinks/d in men or ≤1 drink/d in women; current >2 drinks/d in men or >1 drink/d in women), AHEI-2010 score (continuous), total energy intake (kcal/d), history of CVD (yes; no), number of days wearing accelerometer, and family history of diabetes (yes; no).

Model 3 included the covariates in model 2 and additionally included sedentary time (h/d).

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**Supplementary Table 5.** Age-specific association between MVPA defined by alternate accelerometer counts ( $\geq 1065$  counts/min) and incident diabetes<sup>1</sup>

|                             | Quartile for MVPA <sup>2,3</sup> |                   |                   |                   | P-trend |
|-----------------------------|----------------------------------|-------------------|-------------------|-------------------|---------|
|                             | Q1                               | Q2                | Q3                | Q4                |         |
| <b><i>Men and women</i></b> |                                  |                   |                   |                   |         |
| <b><i>≤50 y</i></b>         |                                  |                   |                   |                   |         |
| Cases/participants          | 106/935                          | 103/1125          | 103/1153          | 106/1207          |         |
| Incidence rate <sup>4</sup> | 12.6 (9.2, 15.9)                 | 13.7 (9.7, 17.6)  | 15.1 (10.3, 20.0) | 15.1 (10.2, 20.1) |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)                 | 1.04 (0.71, 1.52) | 0.87 (0.60, 1.27) | 0.98 (0.68, 1.41) | 0.70    |
| Model 2 (RR [95% CI])       | 1.00 (reference)                 | 0.98 (0.68, 1.41) | 0.86 (0.59, 1.25) | 0.96 (0.67, 1.36) | 0.68    |
| Model 3 (RR [95% CI])       | 1.00 (reference)                 | 1.00 (0.69, 1.43) | 0.89 (0.60, 1.32) | 1.01 (0.66, 1.56) | 0.92    |
| <b><i>&gt;50 y</i></b>      |                                  |                   |                   |                   |         |
| Cases/participants          | 199/1055                         | 101/696           | 85/612            | 68/497            |         |
| Incidence rate <sup>4</sup> | 34.7 (28.8, 40.7)                | 22.7 (16.5, 28.8) | 21.6 (15.0, 28.2) | 21.1 (13.6, 28.7) |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)                 | 0.65 (0.47, 0.90) | 0.54 (0.38, 0.76) | 0.51 (0.36, 0.71) | <0.001  |
| Model 2 (RR [95% CI])       | 1.00 (reference)                 | 0.69 (0.50, 0.94) | 0.57 (0.41, 0.80) | 0.52 (0.37, 0.72) | <0.001  |
| Model 3 (RR [95% CI])       | 1.00 (reference)                 | 0.69 (0.50, 0.96) | 0.58 (0.41, 0.82) | 0.53 (0.35, 0.79) | <0.001  |
| <b><i>Men</i></b>           |                                  |                   |                   |                   |         |
| <b><i>≤50 y</i></b>         |                                  |                   |                   |                   |         |
| Cases/participants          | 40/375                           | 40/415            | 38/430            | 48/457            |         |
| Incidence rate <sup>4</sup> | 12.6 (7.4, 17.8)                 | 13.9 (8.0, 19.8)  | 17.1 (8.8, 25.5)  | 20.4 (11.6, 29.2) |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)                 | 1.17 (0.65, 2.08) | 0.76 (0.43, 1.34) | 1.15 (0.64, 2.05) | 0.94    |
| Model 2 (RR [95% CI])       | 1.00 (reference)                 | 1.10 (0.63, 1.92) | 0.80 (0.47, 1.38) | 1.15 (0.67, 1.96) | 0.82    |
| Model 3 (RR [95% CI])       | 1.00 (reference)                 | 1.10 (0.63, 1.91) | 0.80 (0.44, 1.47) | 1.14 (0.55, 2.34) | 0.93    |
| <b><i>&gt;50 y</i></b>      |                                  |                   |                   |                   |         |
| Cases/participants          | 78/395                           | 37/230            | 32/216            | 26/185            |         |
| Incidence rate <sup>4</sup> | 40.7 (31.0, 50.5)                | 25.5 (14.9, 36.0) | 20.9 (11.2, 30.6) | 26.4 (13.3, 39.6) |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)                 | 0.64 (0.40, 1.01) | 0.44 (0.26, 0.75) | 0.51 (0.30, 0.85) | 0.002   |
| Model 2 (RR [95% CI])       | 1.00 (reference)                 | 0.66 (0.43, 1.02) | 0.48 (0.29, 0.79) | 0.52 (0.30, 0.89) | 0.002   |
| Model 3 (RR [95% CI])       | 1.00 (reference)                 | 0.64 (0.40, 1.01) | 0.45 (0.27, 0.76) | 0.46 (0.24, 0.88) | 0.003   |
| <b><i>Women</i></b>         |                                  |                   |                   |                   |         |
| <b><i>≤50 y</i></b>         |                                  |                   |                   |                   |         |
| Cases/participants          | 66/560                           | 63/710            | 65/723            | 58/750            |         |
| Incidence rate <sup>4</sup> | 12.6 (8.2, 17.1)                 | 12.9 (8.8, 17.0)  | 13.4 (8.9, 18.0)  | 10.6 (6.5, 14.7)  |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)                 | 0.94 (0.57, 1.53) | 0.97 (0.60, 1.59) | 0.76 (0.47, 1.24) | 0.32    |
| Model 2 (RR [95% CI])       | 1.00 (reference)                 | 0.91 (0.57, 1.46) | 0.93 (0.56, 1.53) | 0.72 (0.45, 1.13) | 0.19    |
| Model 3 (RR [95% CI])       | 1.00 (reference)                 | 0.94 (0.59, 1.50) | 0.98 (0.59, 1.62) | 0.79 (0.44, 1.42) | 0.50    |
| <b><i>&gt;50 y</i></b>      |                                  |                   |                   |                   |         |
| Cases/participants          | 121/660                          | 64/466            | 53/396            | 42/312            |         |
| Incidence rate <sup>4</sup> | 30.0 (22.9, 37.2)                | 20.7 (13.8, 27.5) | 23.4 (15.2, 31.5) | 15.8 (9.7, 21.8)  |         |
| Model 1 (RR [95% CI])       | 1.00 (reference)                 | 0.69 (0.45, 1.05) | 0.64 (0.42, 0.97) | 0.50 (0.31, 0.80) | 0.003   |
| Model 2 (RR [95% CI])       | 1.00 (reference)                 | 0.68 (0.45, 1.03) | 0.63 (0.43, 0.92) | 0.48 (0.30, 0.76) | 0.001   |
| Model 3 (RR [95% CI])       | 1.00 (reference)                 | 0.72 (0.47, 1.11) | 0.69 (0.46, 1.03) | 0.56 (0.33, 0.95) | 0.022   |

MVPA, moderate-to-vigorous physical activity; Q, quartile.

<sup>1</sup>Results were from multivariable survey Poisson regression models that were weighted for survey design, nonresponse, and noncompliance with accelerometer wear protocols.

<sup>2</sup>Quartiles are sex-specific due to the substantially different MVPA levels in men and women. MVPA ranges across quartiles are  $\leq 24.0$ , 24.1-43.3, 43.4-70.2, and  $\geq 70.3$  min/d in men, and  $\leq 12.4$ , 12.5-24.8, 24.9-43.5, and  $\geq 43.6$  min/d in women, respectively.

<sup>3</sup>P values for interaction between MVPA quartile and age on diabetes risk were 0.006 for the whole study population, 0.008 for men, and 0.32 for women based on model 3.

<sup>4</sup>Age-adjusted incidence rate per 1000 person-years.

**Model 1** included study field center, baseline age, sex (where appropriate), and Hispanic/Latino background.

**Model 2** included the covariates in model 1 and additionally included education (no high school; at most high school; greater than high school), annual household income ( $\leq 10,000$ ; 10,001-25,000; 25,001-50,000; 50,001-75,000;  $\geq 75,001$  \$), employment status (retired and not employed; not retired and not employed; part-time employed; full-time employed), smoking (never; former; current  $\leq 10$  pack-year; current  $>10$  pack-year), alcohol consumption (never; former; current  $\leq 2$  drinks/d in men or  $\leq 1$  drink/d in women; current  $>2$  drinks/d in

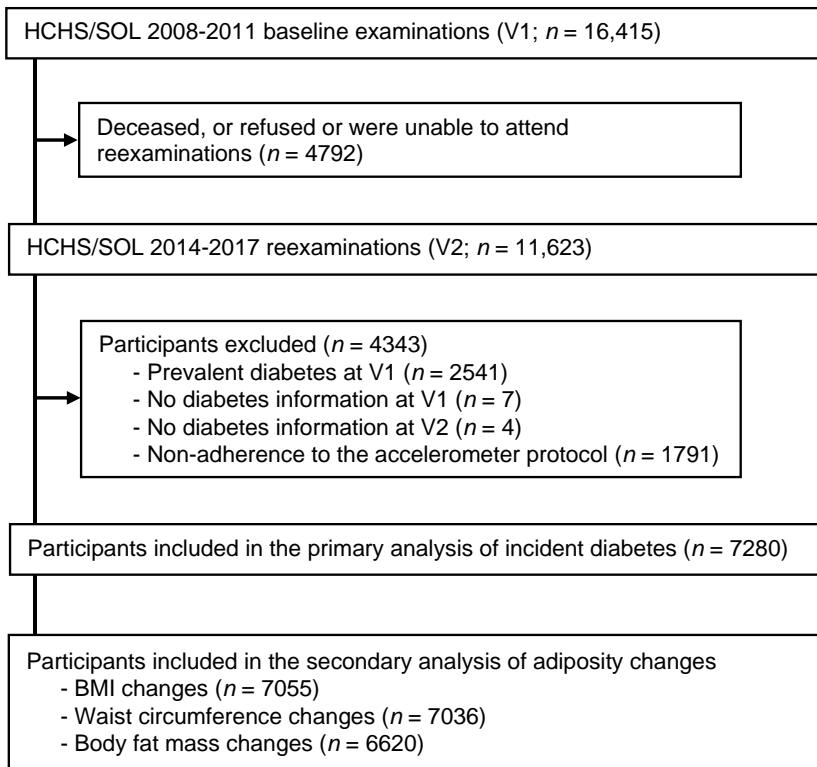
## Online Supplementary Material

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men or >1 drink/d in women), AHEI-2010 score (continuous), total energy intake (kcal/d), history of CVD (yes; no), number of days wearing accelerometer, and family history of diabetes (yes; no).

Model 3 included the covariates in model 2 and additionally included sedentary time (h/d).

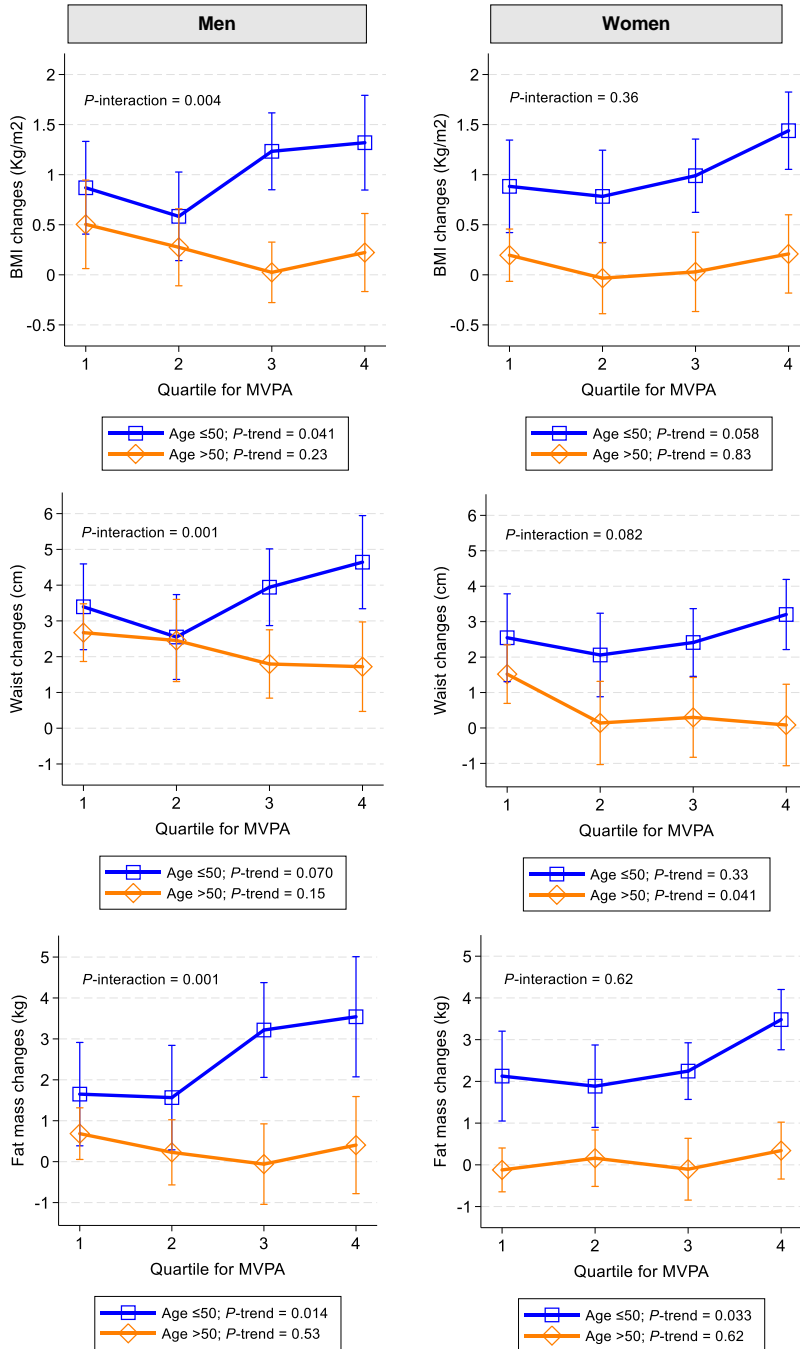
**Supplementary Figure 1. Flow chart of participant selection**





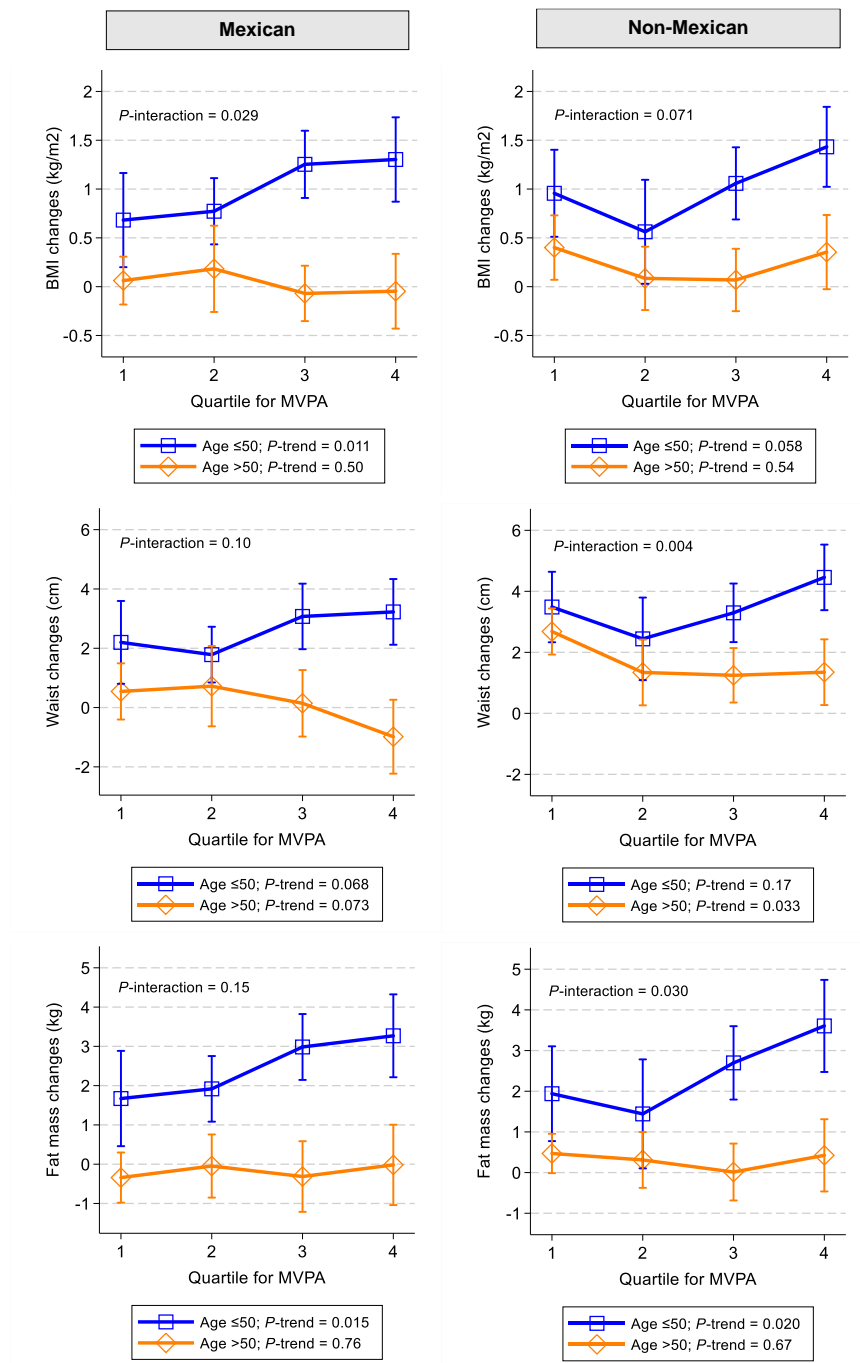
**Supplementary Figure 2. Age-specific association between moderate-to-vigorous physical activity (MVPA) and changes in adiposity in men and women.**

Results were from multivariable survey linear regression models that were weighted for survey design, nonresponse, and noncompliance with accelerometer wear protocols. In addition to the covariates listed in the model 3 of Table 2 in the article, results were further adjusted for lag time between the two study visits and baseline level of the examined adiposity measure. The number of men by age groups ( $\leq 50$ / $>50$  y) were 1629/995 (BMI changes), 1625/990 (waist changes), or 1525/899 (fat mass changes); and the number of women by age groups ( $\leq 50$ / $>50$  y) were 2643/1788 (BMI changes), 2636/1785 (waist changes), or 2552/1644 (fat mass changes).



**Supplementary Figure 3. Age-specific association between moderate-to-vigorous physical activity (MVPA) and changes in adiposity in Mexican and non-Mexican population.**

Results were from multivariable survey linear regression models that were weighted for survey design, nonresponse, and noncompliance with accelerometer wear protocols. In addition to the covariates listed in the model 3 of Table 2 in the article, results were further adjusted for lag time between the two study visits and baseline level of the examined adiposity measure. The number of Mexicans by age groups ( $\leq 50$ / $>50$  y) were 1964/1057 (BMI changes), 1959/1056 (waist changes), or 1898/996 (fat mass changes); and the number of non-Mexicans by age groups ( $\leq 50$ / $>50$  y) were 2308/1726 (BMI changes), 2302/1719 (waist changes), or 2179/1547 (fat mass changes).



**Supplementary Figure 4. Association between moderate-to-vigorous physical activity (MVPA) and changes in adiposity by 4 age groups.**

Results were from multivariable survey linear regression models that were weighted for survey design, nonresponse, and noncompliance with accelerometer wear protocols. In addition to the covariates listed in the model 3 of Table 2 in the article, results were further adjusted for lag time between the two study visits and baseline level of the examined adiposity measure. The number of participants by 4 age groups ( $\leq 40/41-50/51-60/>60$  y) were 2140/2132/1885/898 (BMI changes), 2137/2124/1882/893 (waist changes), or 2064/2013/1737/806 (fat mass changes).

