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Supplementary Figure 20. Mean frequency % of HI risk classification in Rural residents (N=88), Urban residents (N=57), and Urban OutWor (N=32). The 95% confidence intervals were shown. tiff
All WS data in AL

Distance to participant home address calculation

Shortest distance to a specific participant?

Yes

Hourly average temperature, relative humidity, wind speed, rain (yes or no)

No

Discard WS

Missing data?

Yes

Replace missing data (N=124, 3.7%) with data at the same time from a 2nd nearest WS to the participant

No

Keep the data

Combine

Hourly WS heat index calculation from WS temperature and relative humidity

Daily mean and max WS heat index, wind speed, daily rain (yes or no)

WS daily mean and max heat index/wind speed, daily rain (yes or no)
N=43 neighborhood monitor data in AL

Distance to participant home address calculation

Shortest distance to a specific participant?

Yes

Relative humidity >100%

N=4389 keep the data

No

Combine

N=431 Replace with 100%

Hourly average temperature, relative humidity

Hourly neighborhood heat index calculation from neighborhood temperature and relative humidity

Neighborhood hourly mean heat index
1st day recorded in daily logs is the same date as check in date?

- Yes: Start time = check in date and time
- No: Start time = 1st day in daily logs, 0:00 (HH:MM)

Last day recorded in daily logs is the same date as check out date?

- Yes: End time = check out date and time
- No: End time = Last day in daily logs, 23:29 (HH:MM)
Participants with 5-min temperatures
Measurement time ≥ starting time? Yes Discard
Measurement time ≤ ending time? Yes Discard
N of not wearing? Yes Discard
N of participants: 336601 five-min temperatures

Exclusion criteria met? Yes exclude N=1 participant 3228 temperatures
N=179 participants

N=88 Rural participants
N=89 Urban participants
Outdoor worker? N=32 Urban residents
N=0 Rural residents

5-min upper outliers? Yes Exclude 754 temperatures
No

Hourly upper outliers? Yes Exclude 32 person-hours
No

Exclude 466 temperatures
N=177 participants
N=329202 temperatures

5-min upper outliers? Yes Exclude 1294 temperatures
No

Hourly upper outliers? Yes Exclude 48 person-hours
No

Exclude 17 person-hours
N=175 participants
N=327446 temperatures

Add matched WS relative humidity
Hourly heat index calculation

Temp data in 5am-midnight? Yes
Temp [bias corrected] = Temp [original] - 0.5 °C

Restrictive Dataset (N=27278 person-hours)
Temp [bias corrected] = Temp [original] - 0.5 °C

Restrictive2 Dataset (N=27548 person-hours)

Complete Dataset (N=28016 person-hours)

Td ≥ 1 °C
Discard N=1191 person-hours

Td ≥ 2 °C
Discard N=1132 person-hours

Temp [bias corrected] = Temp [original] - 0.5 °C

Bias Corrected Dataset (N=27470 person-hours)
Enrollment

Assessed for eligibility (n=180)

Excluded (n=0)
Not meeting inclusion criteria (n=0)
Declined to participate (n=0)
Other reasons (n=0)

Allocation

Allocated to intervention (n=180)
Received allocated intervention (n=180)
Did not receive allocated intervention (n=0)

Follow-Up

Lost to follow-up (n=0)
Discontinued intervention (n=0)

Analysis

Primary Analysis (n=177)
Excluded from analysis (missing data) (n=2)
Excluded from analysis (non-compliance with study protocol) (n=1)
87x49mm (300 x 300 DPI)
179x79mm (300 x 300 DPI)
87x39mm (300 x 300 DPI)
179x79mm (300 x 300 DPI)
179x79mm (300 x 300 DPI)
179x79mm (300 x 300 DPI)
Supplementary Table 1. Linear mixed model fixed effect predictors of individually experienced *temperatures* in 24 hours.

| Population                        | All          | Rural residents | Urban residents | Urban OutWor |
|-----------------------------------|--------------|-----------------|-----------------|--------------|
| HI[neighborhood], HI[WS] AIC      | 124753.2     | 59132.5         | 40395           | 24161.3      |
| HI[WS] only AIC                   | 125046       | 59251.7         | 40479.2         | 24187.8      |
| HI[neighborhood] only AIC         | 124781.5     | 59139.6         | 40401.4         | 24247.5      |
| Model pick                        | Both         | Both            | Both            | Both         |
| Fixed effects                     | β (95% CI)   | β (95% CI)      | β (95% CI)      | β (95% CI)   |
| Intercept                         | 16.45 (11.50, 21.39) | 17.89 (10.37, 25.42) | 14.75 (6.47, 23.04) | 7.30 (-2.67, 17.25) |
| Temperature[neighborhood] (°C)    | 0.20 (0.18, 0.22)* | 0.17 (0.14, 0.20)* | 0.19 (0.15, 0.23)* | 0.17 (0.11, 0.23)* |
| Temperature [WS] (°C)             | 0.11 (0.07, 0.14)* | 0.09 (0.03, 0.15)* | 0.09 (0.03, 0.16)* | 0.45 (0.36, 0.54)* |
| Age                               | 0.01 (-0.01, 0.03) | 0.01 (-0.02, 0.03) | 0.02 (-0.01, 0.05) | -0.01 (-0.06, 0.04) |
| Education ≥high school            | -0.10 (-0.56, 0.35) | -0.38 (-1.07, 0.31) | 0.04 (-0.75, 0.84) | 0.51 (-0.36, 1.39) |
| Annual household income ≥$20K     | -0.30 (-0.80, 0.20) | -0.06 (-0.83, 0.71) | -0.09 (-1.01, 0.83) | -0.77 (-1.77, 0.24) |
| Weekend                           | -0.31 (-0.39, -0.24)* | -0.25 (-0.35, -0.15)* | 0.04 (-0.09, 0.17) | -0.92 (-1.12, -0.72)* |
| Body fat (%)                      | -0.02 (-0.06, 0.02) | 0.02 (-0.04, 0.08) | -0.04 (-0.10, 0.03) | -0.06 (-0.12, -0.0003)* |
| Non-rest time (5am–midnight)     | 0.70 (0.61, 0.78)* | 0.32 (0.20, 0.44)* | 0.73 (0.59, 0.87)* | 1.42 (1.21, 1.62)* |
| WS relative humidity (%)          | -0.02 (-0.03, -0.01)* | -0.02 (-0.03, -0.01)* | -0.02 (-0.04, -0.01)* | 0.00 (-0.01, 0.02) |
| WS wind speed (m/s)               | 0.13 (0.10, 0.15)* | 0.15 (0.11, 0.18)* | 0.15 (0.11, 0.19)* | 0.12 (0.06, 0.18)* |
| Intervention                      | -0.13 (-0.21, -0.06)* | -0.18 (-0.28, -0.08)* | -0.04 (-0.17, 0.09) | -0.36 (-0.55, -0.17)* |
| log(mean daily steps)             | 0.37 (-0.12, 0.85) | 0.20 (-0.51, 0.91) | 0.59 (-0.26, 1.43) | 0.59 (-0.41, 1.58) |
| Employed                          | 0.02 (-0.50, 0.54) | -0.37 (-1.09, 0.35) | 0.57 (-0.24, 1.39) | NA           |
| Rural residenta                   | 0.27 (-0.26, 0.80) | NA              | NA              | NA           |
| Outdoor workera                   | 0.61 (-0.07, 1.29) | NA              | NA              | NA           |

Note: *Compared to Urban resident. ** denotes a β estimates with a 95% confidence interval did not contain 0. NA not applicable.
### Supplementary Table 2. Linear mixed model fixed effect predictors of individually experienced temperatures in non-rest time (5am-midnight).

| Population                      | All       | Rural residents | Urban residents | Urban OutWor |
|---------------------------------|-----------|-----------------|-----------------|--------------|
| HI[neighborhood], HI[WS] AIC    | 94859.2   | 45307.9         | 30655.7         | 18300        |
| HI[WS] only AIC                 | 95073.5   | 45410.1         | 30714.6         | 18323        |
| HI[neighborhood] only AIC       | 94875.1   | 45316.5         | 30656.1         | 18349.4      |
| Model pick                      | Both      | Both            | HI[neighborhood] only | Both |
| Fixed effects                   | β (95% CI)| β (95% CI)      | β (95% CI)      | β (95% CI)     |
| Intercept                       | 17.33 (12.52, 22.14) | 16.11 (8.88, 23.35) | 19.27 (11.64, 26.91) | 7.51 (-2.44, 17.43) |
| Temperature[neighborhood] (°C)  | 0.19 (0.16, 0.21)* | 0.17 (0.14, 0.20)* | 0.19 (0.15, 0.23)* | 0.18 (0.11, 0.25)* |
| Temperature[WS] (°C)            | 0.10 (0.05, 0.15)* | 0.12 (0.05, 0.19)* | NA              | 0.43 (0.31, 0.55)* |
| Age                             | 0.01 (-0.01, 0.03) | 0.01 (-0.02, 0.03) | 0.02 (-0.01, 0.05) | -0.01 (-0.05, 0.03) |
| Education ≥ high school         | -0.10 (-0.52, 0.33) | -0.30 (-0.94, 0.34) | 0.09 (-0.66, 0.84) | 0.42 (-0.41, 1.25) |
| Annual household income ≥ $20K  | -0.36 (-0.83, 0.11) | -0.12 (-0.83, 0.58) | -0.31 (-1.17, 0.55) | -0.54 (-1.49, 0.42) |
| Weekend                         | -0.38 (-0.47, -0.29)* | -0.24 (-0.36, -0.12)* | 0.07 (-0.09, 0.23) | -1.34 (-1.59, -1.10)* |
| Body fat (%)                    | -0.03 (-0.06, 0.01) | 0.02 (-0.03, 0.07) | -0.04 (-0.11, 0.02) | -0.07 (-0.12, -0.01)* |
| WS relative humidity (%)        | -0.03 (-0.04, -0.02)* | -0.01 (-0.03, 0.003) | -0.04 (-0.05, -0.03)* | 0.00 (-0.02, 0.02) |
| WS wind speed (m/s)             | 0.15 (0.12, 0.17)* | 0.15 (0.11, 0.19)* | 0.17 (0.12, 0.22)* | 0.14 (0.07, 0.21)* |
| Intervention                    | -0.19 (-0.28, -0.10)* | -0.22 (-0.34, -0.10)* | -0.11 (-0.26, 0.05) | -0.38 (-0.61, -0.15)* |
| log(mean daily steps)           | 0.48 (0.03, 0.93)* | 0.31 (-0.34, 0.96) | 0.63 (-0.16, 1.42) | 0.81 (-0.13, 1.75) |
| Employed                        | 0.13 (-0.36, 0.61) | -0.36 (-1.02, 0.30) | 0.83 (0.07, 1.59)* | NA            |
| Rural resident⁴                 | 0.14 (-0.35, 0.63) | NA              | NA              | NA            |
| Outdoor worker⁴                 | 0.91 (0.27, 1.54)* | NA              | NA              | NA            |

Note: *Compared to Urban resident. ** denotes a β estimates with a 95% confidence interval did not contain 0. NA not applicable. NA in Temperature[WS] indicated that Temperature[WS] was not included in model selection based on AIC.
## Supplementary Table 3. Linear mixed model fixed effect predictors of individually experienced temperatures in rest time (midnight-5am).

| Population | All          | Rural residents | Urban residents | Urban OutWor |
|------------|--------------|-----------------|-----------------|--------------|
| HI[neighborhood], HI[WS] AIC | 25667.5 | 12240.7 | 8448.3 | 4966.3 |
| HI[WS] only AIC | 25694.4 | 12265.4 | 8449.2 | 4964.5 |
| HI[neighborhood] only AIC | 25667.5 | 12238.9 | 8450.3 | 4970.7 |

### Model pick
- Both
- HI[neighborhood] only
- Both HI[WS] only

### Fixed effects

|                | β (95% CI) | β (95% CI) | β (95% CI) | β (95% CI) |
|----------------|------------|------------|------------|------------|
| Intercept      | 18.75 (11.46, 26.04) | 22.02 (11.05, 33.00) | 14.75 (2.25, 27.25) | 21.10 (5.58, 36.61) |
| Temperature[neighborhood] (°C) | 0.17 (0.11, 0.23)* | 0.23 (0.14, 0.31)* | 0.10 (-0.01, 0.22) | NA |
| Temperature[WS] (°C) | 0.05 (-0.02, 0.11) | NA | 0.12 (0.002, 0.23)* | 0.25 (0.14, 0.37)* |
| Age            | 0.01 (-0.02, 0.04) | 0.01 (-0.03, 0.04) | 0.02 (-0.02, 0.07) | -0.01 (-0.09, 0.06) |
| Education ≥high school | -0.12 (-0.80, 0.56) | -0.62 (-1.65, 0.40) | -0.10 (-1.33, 1.12) | 0.78 (-0.62, 2.19) |
| Annual household income ≥$20K | -0.16 (-0.90, 0.59) | 0.09 (-1.05, 1.23) | 0.55 (0.86, 1.95) | -1.50 (-3.11, 0.11) |
| Weekend        | -0.12 (-0.21, -0.03)* | -0.26 (-0.39, -0.13)* | -0.06 (-0.23, 0.10) | 0.07 (-0.15, 0.30) |
| Body fat (%)   | 0.00 (-0.06, 0.05) | 0.03 (-0.06, 0.12) | -0.02 (-0.12, 0.08) | -0.04 (-0.13, 0.06) |
| WS relative humidity (%) | -0.01 (-0.01, 0.004) | -0.04 (-0.05, -0.02)* | 0.00 (-0.01, 0.02) | 0.00 (-0.02, 0.02) |
| WS wind speed (m/s) | 0.04 (-0.02, 0.09) | 0.13 (0.03, 0.24)* | -0.06 (-0.13, 0.02) | -0.02 (-0.12, 0.08) |
| Intervention   | 0.01 (-0.08, 0.11) | -0.08 (-0.23, 0.07) | 0.08 (-0.08, 0.25) | -0.06 (-0.29, 0.18) |
| log(mean daily steps) | 0.06 (-0.66, 0.79) | -0.07 (-1.12, 0.99) | 0.41 (-0.88, 1.71) | -0.07 (-1.66, 1.52) |
| Employed       | -0.26 (-1.04, 0.52) | -0.35 (-1.42, 0.72) | -0.18 (-1.43, 1.07) | NA |
| Rural residenta | 0.61 (-0.18, 1.40) | NA | NA | NA |
| Outdoor workera | -0.22 (-1.23, 0.80) | NA | NA | NA |

Note: aCompared to Urban resident. * denotes a β estimates with a 95% confidence interval did not contain 0. NA not applicable. NA in Temperature[WS] or Temperature[neighborhood] indicated that Temperature[WS] or Temperature[neighborhood] was not included in model selection based on AIC.
Supplementary Table 4. Bias correction effect on risk classification based of individually experienced HI.

| HII(individual) data | Bias corrected | Not bias corrected |
|---------------------|----------------|--------------------|
| Person-hours        | Number (%)     | Number (%)         |
| Safe                | 13977 (51%)    | 12871 (47%)        |
| Caution             | 8471 (31%)     | 7729 (28%)         |
| Extreme Caution     | 3828 (14%)     | 4698 (17%)         |
| Danger              | 1099 (4%)      | 1888 (7%)          |
| Extreme Danger      | 95 (0.3%)      | 284 (1%)           |
Supplementary Table 5. Linear mixed model fixed effect predictors of individually experienced HI after bias correction in 24 hours.

| Population                              | All                | Rural residents | Urban residents | Urban OutWor |
|------------------------------------------|--------------------|-----------------|-----------------|--------------|
| HI[neighborhood], HI[WS] AIC             | 158288.8           | 74927.8         | 51119.2         | 30939.3      |
| HI[WS] only AIC                          | 158462.9           | 75005.2         | 51172.3         | 30957.5      |
| HI[neighborhood] only AIC                | 158289             | 74947.5         | 51117.6         | 30975.8      |
| Model pick                               | Both               | Both            | HI[neighborhood] only | Both         |

| Fixed effects                           | β (95% CI)         | β (95% CI)       | β (95% CI)       | β (95% CI)   |
|------------------------------------------|--------------------|-----------------|-----------------|--------------|
| Intercept                               | 19.05 (10.41, 27.69) | 20.86 (8.05, 33.67) | 16.56 (1.40, 31.72) | 13.85 (-2.84, 30.57) |
| HI[neighborhood] (°C)                    | 0.18 (0.15, 0.20)* | 0.15 (0.11, 0.18)* | 0.16 (0.14, 0.19)* | 0.18 (0.10, 0.26)* |
| HI[WS] (°C)                              | -0.02 (-0.05, 0.01) | -0.09 (-0.13, -0.05)* | NA             | 0.29 (0.20, 0.39)* |
| Age                                      | 0.01 (-0.02, 0.04)  | -0.01 (-0.05, 0.04) | 0.04 (-0.02, 0.09) | -0.01 (-0.09, 0.07) |
| Education ≥high school                   | -0.19 (-1.03, 0.64) | -0.68 (-1.93, 0.57) | -0.10 (-1.62, 1.42) | 1.06 (-0.49, 2.60) |
| Annual household income ≥$20K            | -0.59 (-1.50, 0.33) | -0.09 (-1.48, 1.29) | -0.26 (-2.02, 1.49) | -1.53 (-3.31, 0.25) |
| Weekend                                  | -0.55 (-0.69, -0.41)* | -0.31 (-0.49, -0.13)* | -0.02 (-0.26, 0.22) | -1.66 (-2.04, -1.27)* |
| Body fat (%)                             | -0.05 (-0.11, 0.02) | 0.05 (-0.05, 0.15)  | -0.09 (-0.22, 0.03) | -0.14 (-0.25, -0.04)* |
| Non-rest time (5am–midnight)            | 1.09 (0.93, 1.25)*  | 0.42 (0.20, 0.64)* | 1.22 (0.96, 1.47)* | 2.21 (1.80, 2.63)* |
| WS wind speed (m/s)                      | 0.23 (0.18, 0.27)*  | 0.31 (0.24, 0.37)* | 0.24 (0.17, 0.32)* | 0.19 (0.07, 0.31)* |
| Intervention                             | -0.25 (-0.39, -0.11)* | -0.29 (-0.48, -0.10)* | -0.11 (-0.35, 0.12) | -0.66 (-1.03, -0.29)* |
| log(mean daily steps)                    | 0.64 (-0.25, 1.52)  | 0.44 (-0.84, 1.72)  | 0.84 (-0.77, 2.45)  | 0.84 (-0.91, 2.59)  |
| Employed                                 | -0.09 (-1.04, 0.86) | -0.81 (-2.11, 0.48) | 0.83 (-0.73, 2.38) | NA           |
| Rural resident                           | 0.50 (-0.47, 1.47)  | NA              | NA             | NA           |
| Outdoor worker                           | 1.18 (-0.06, 2.43)  | NA              | NA             | NA           |

Note: *Compared to Urban resident. ** denotes a β estimates with a 95% confidence interval did not contain 0. NA not applicable. NA in HI[WS] indicated that HI[WS] was not included in model selection based on AIC.
Supplementary Table 6. Linear mixed model fixed effect predictors of individually experienced HI after bias correction in non-rest time (5am-midnight).

| Population                          | All          | Rural residents | Urban residents | Urban OutWor |
|-------------------------------------|--------------|----------------|----------------|--------------|
| HI[neighborhood], HI[WS] AIC        | 119647.5     | 56670.8        | 38573.9        | 23448.7      |
| HI[WS] only AIC                     | 119794.4     | 56740          | 38613.5        | 23464.5      |
| HI[neighborhood] only AIC           | 119646.8     | 56689.9        | 38572.3        | 23472.7      |
| Model pick                          | HI[neighborhood] only | Both          | HI[neighborhood] only | Both |

| Fixed effects                       | β (95% CI)   | β (95% CI)     | β (95% CI)     | β (95% CI)  |
|-------------------------------------|--------------|----------------|----------------|--------------|
| Intercept                           | 18.93 (10.83, 27.04) | 20.47 (8.76, 32.18) | 17.66 (3.34, 31.98) | 12.19 (-4.28, 28.71) |
| HI[neighborhood] (^C)               | 0.16 (0.14, 0.17)* | 0.14 (0.11, 0.18)* | 0.16 (0.13, 0.18)* | 0.19 (0.10, 0.27)* |
| HI[WS] (^C)                          | NA           | -0.09 (-0.13, -0.05)* | NA              | 0.27 (0.17, 0.37)* |
| Age                                 | 0.01 (-0.02, 0.04) | 0.00 (-0.04, 0.04) | 0.03 (-0.02, 0.08) | -0.02 (-0.10, 0.07) |
| Education ≥high school               | -0.15 (-0.94, 0.63) | -0.47 (-1.61, 0.68) | 0.01 (-1.43, 1.44) | 0.92 (-0.60, 2.44) |
| Annual household income ≥$20K       | -0.72 (-1.58, 0.14) | -0.17 (-1.44, 1.10) | -0.74 (-2.40, 0.91) | -1.08 (-2.83, 0.69) |
| Weekend                              | -0.65 (-0.82, -0.48)* | -0.32 (-0.53, -0.10)* | 0.07 (-0.23, 0.37) | -2.34 (-2.82, -1.85)* |
| Body fat (%)                        | -0.06 (-0.12, 0.005) | 0.04 (-0.05, 0.14) | -0.10 (-0.22, 0.02) | -0.15 (-0.26, -0.05)* |
| WS wind speed (m/s)                 | 0.27 (0.22, 0.32)* | 0.31 (0.24, 0.39)* | 0.30 (0.21, 0.39)* | 0.21 (0.07, 0.35)* |
| Intervention                        | -0.41 (-0.58, -0.24)* | -0.41 (-0.63, -0.19)* | -0.26 (-0.55, 0.03) | -0.85 (-1.31, -0.38)* |
| log(mean daily steps)               | 0.84 (0.002, 1.67)* | 0.58 (-0.59, 2.46) | 0.94 (-0.59, 2.46) | 1.44 (-0.29, 3.16) |
| Employed                            | 0.11 (-0.78, 1.01) | -0.80 (-1.98, 0.39) | 1.36 (-0.11, 2.82) | NA           |
| Rural resident^a                    | 0.20 (-0.72, 1.11) | NA              | NA              | NA           |
| Outdoor worker^a                    | 1.65 (0.48, 2.82)* | NA              | NA              | NA           |

Note: "Compared to Urban resident. **" denotes a β estimates with a 95% confidence interval did not contain 0. NA not applicable. NA in HI[WS] indicated that HI[WS] was not included in model selection based on AIC.
Supplementary Table 7. Linear mixed model fixed effect predictors of individually experienced HI after bias correction in rest-time (midnight-5am).

| Population | All AIC | Rural residents AIC | Urban residents AIC | Urban OutW AIC |
|------------|--------|---------------------|---------------------|----------------|
| HI[neighborhood], HI[WS] | 34925.5 | 17118.3 | 11224 | 6456.1 |
| HI[WS] only | 34979.1 | 17162.3 | 11228.2 | 6455.7 |
| HI[neighborhood] only | 34925.2 | 17117.5 | 11222.1 | 6456 |
| Model pick | HI[neighborhood] only | HI[neighborhood] only | HI[neighborhood] only | HI[WS] only |

Fixed effects

| Variable | All | Rural residents | Urban residents | Urban OutW |
|----------|-----|----------------|----------------|-------------|
| Intercept | 16.43 (3.22, 29.64) | 10.78 (-9.14, 30.68) | 15.38 (-8.12, 38.89) | 30.26 (4.69, 55.84) |
| HI[neighborhood] (°C) | 0.36 (0.28, 0.44)* | 0.51 (0.37, 0.65)* | 0.28 (0.15, 0.41)* | NA |
| HI[WS] (°C) | NA | NA | NA | 0.30 (0.15, 0.46)* |
| Age | 0.01 (-0.04, 0.06) | -0.01 (-0.09, 0.06) | 0.05 (-0.03, 0.14) | 0.01 (-0.11, 0.14) |
| Education ≥ high school | -0.30 (-1.57, 0.97) | -1.35 (-3.26, 0.57) | -0.38 (-2.72, 1.96) | 1.44 (-0.91, 3.78) |
| Annual household income ≥$20K | -0.23 (-1.61, 1.15) | 0.07 (-2.04, 2.19) | 1.17 (-1.53, 3.86) | 2.90 (-5.59, -0.21)* |
| Weekend | -0.20 (-0.38, -0.02)* | -0.41 (-0.68, -0.13)* | -0.23 (-0.52, 0.05) | 0.16 (-0.22, 0.54) |
| Body fat (%) | -0.01 (-0.11, 0.09) | 0.09 (-0.07, 0.25) | -0.08 (-0.28, 0.11) | -0.11 (-0.27, 0.05) |
| WS wind speed (m/s) | 0.05 (-0.05, 0.15) | 0.18 (-0.05, 0.41) | -0.07 (-0.20, 0.06) | -0.06 (-0.24, 0.12) |
| Intervention | 0.17 (-0.01, 0.36) | -0.05 (-0.38, 0.27) | 0.46 (0.18, 0.75)* | 0.15 (-0.23, 0.54) |
| log(mean daily steps) | 0.12 (-1.23, 1.46) | 0.17 (-1.78, 2.13) | 0.51 (-1.97, 2.99) | -0.86 (-3.52, 1.80) |
| Employed | -0.69 (-2.14, 0.75) | -0.83 (-2.81, 1.15) | -0.78 (-3.17, 1.61) | NA |
| Rural resident | 1.22 (-0.25, 2.69) | NA | NA | NA |
| Outdoor worker | -0.18 (-2.07, 1.71) | NA | NA | NA |

Note: *Compared to Urban resident. ** denotes a β estimates with a 95% confidence interval did not contain 0. NA not applicable. NA in HI[WS] or HI[neighborhood] indicated that HI[WS] or HI[neighborhood] was not included in model selection based on AIC.
Supplementary Table 8. Linear mixed model fixed effect predictors of individually experienced HI in the Complete, Restrictive1 and Restrictive2 datasets in 24 hours.

| Source                     | Complete            | Restrictive1        | Restrictive2        |
|----------------------------|---------------------|---------------------|---------------------|
| Population                 | All                 | All                 | All                 |
| Person-hours observation N | 28016               | 27278               | 27146               |
| HI[neighborhood], HI[WS] AIC | 170864.9           | 158661.9            | 157958.7            |
| HI[WS] only AIC            | 171046.4            | 158885.1            | 158182.1            |
| HI[neighborhood] only AIC  | 170863.1            | 158664.1            | 157961.1            |
| Model pick HI[neighborhood] only | Both             | Both                |                     |

**Fixed effects**

| Source                     | β (95% CI)          | β (95% CI)          | β (95% CI)          |
|----------------------------|---------------------|---------------------|---------------------|
| Intercept                  | 18.42 (8.95, 27.88) | 16.94 (8.06, 25.81) | 16.89 (8.03, 25.75) |
| HI[neighborhood] (°C)      | 0.22 (0.21, 0.24)*  | 0.20 (0.18, 0.23)*  | 0.21 (0.18, 0.23)*  |
| HI[WS] (°C)                | NA                  | 0.03 (0.001, 0.06)* | 0.03 (0.002, 0.06)* |
| Age                        | 0.00 (-0.03, 0.04)  | 0.01 (-0.03, 0.04)  | 0.01 (-0.03, 0.04)  |
| Education ≥high school     | -0.20 (-1.12, 0.72) | -0.17 (-1.03, 0.70) | -0.16 (-1.03, 0.70) |
| Annual household income ≥$20K | -0.68 (-1.68, 0.33) | -0.58 (-1.52, 0.36) | -0.58 (-1.52, 0.36) |
| Weekend                    | -0.51 (-0.68, -0.34)* | -0.46 (-0.61, -0.32)* | -0.45 (-0.60, -0.31)* |
| Body fat (%)               | -0.06 (-0.13, 0.02) | -0.05 (-0.12, 0.02) | -0.05 (-0.12, 0.02) |
| Non-rest time (5am–midnight) | 1.44 (1.25, 1.63)* | 1.01 (0.83, 1.19)* | 1.02 (0.84, 1.20)* |
| WS wind speed (m/s)        | 0.25 (0.19, 0.31)*  | 0.25 (0.20, 0.30)*  | 0.25 (0.20, 0.30)*  |
| Intervention               | -0.13 (-0.30, 0.05) | -0.28 (-0.43, -0.14)* | -0.29 (-0.43, -0.14)* |
| log(mean daily steps)      | 0.58 (0.40, 1.55)   | 0.66 (0.25, 1.57)   | 0.66 (0.26, 1.57)   |
| Employed                   | 0.27 (-0.79, 1.34)  | 0.43 (-0.57, 1.43)  | 0.42 (-0.58, 1.41)  |
| Rural resident*            | 0.83 (-0.53, 2.20)  | 1.22 (-0.07, 2.50)  | 1.21 (-0.07, 2.49)  |
| Outdoor worker*            | 0.09 (-0.95, 1.14)  | -0.09 (-1.07, 0.89) | -0.09 (-1.07, 0.89) |

Note: *Compared to Urban resident. ** denotes a β estimates with a 95% confidence interval did not contain 0. NA not applicable. NA in HI[WS] indicated that HI[WS] was not included in model selection based on AIC.
### Supplementary Table 9. Linear mixed model fixed effect predictors of individually experienced HI in 24 hours where daily steps were calculated without cutoffs <1,000 or ≥25,000.

| Population                | All                     | Rural residents | Urban residents | Urban OutWor |
|---------------------------|-------------------------|-----------------|-----------------|--------------|
| **Model pick**            | HI[neighborhood] only   | Both            | HI[neighborhood] only | Both         |
| Fixed effects             | β (95%CI)               | β (95%CI)       | β (95%CI)       | β (95%CI)    |
| Intercept                 | 26.03 (20.08, 31.99)    | 30.00 (22.06, 37.94) | 19.34 (6.47, 32.21) | 16.25 (4.44, 28.08)* |
| HI[neighborhood] (°C)     | 0.2 (0.19, 0.22)*       | 0.17 (0.13, 0.2)* | 0.21 (0.18, 0.23)* | 0.2 (0.12, 0.28)* |
| HI[WS] (°C)               | NA                      | -0.06 (-0.1, -0.02)* | NA               | 0.33 (0.23, 0.42)* |
| Age                       | 0.01 (-0.02, 0.05)      | 0 (-0.05, 0.04)   | 0.04 (-0.01, 0.1) | -0.01 (-0.09, 0.08) |
| Education ≥high school     | -0.23 (-1.1, 0.63)      | -0.78 (-2.03, 0.47) | -0.21 (-1.81, 1.38) | 1.02 (-0.57, 2.6) |
| Annual household income ≥$20K | -0.72 (-1.66, 0.21) | -0.02 (-1.4, 1.37) | -0.38 (-2.23, 1.47) | -1.61 (-3.43, 0.22) |
| Weekend                   | -0.51 (-0.65, -0.36)*  | -0.29 (-0.47, -0.1)* | 0.08 (-0.17, 0.34) | -1.63 (-2.03, -1.23)* |
| Body fat (%)              | -0.07 (-0.14, 0)*      | 0.03 (-0.08, 0.13) | -0.1 (-0.23, 0.03) | -0.15 (-0.26, -0.04)* |
| Non-rest time (5am-midnight) | 1.38 (1.22, 1.54)* | 0.65 (0.42, 0.87)* | 1.58 (1.31, 1.85)* | 2.55 (2.12, 2.98)* |
| WS wind speed (m/s)       | 0.25 (0.2, 0.3)*       | 0.3 (0.23, 0.38)* | 0.28 (0.2, 0.36)* | 0.23 (0.11, 0.36)* |
| Intervention              | -0.22 (-0.37, -0.08)*  | -0.3 (-0.5, -0.11)* | 0 (-0.25, 0.24) | -0.7 (-1.09, -0.31)* |
| log(mean daily steps) from Inclusive (INCL.) without cutoffs | -0.26 (-0.82, 0.3) | -0.72 (-1.43, -0.02)* | 0.39 (-0.91, 1.69) | 0.46 (-0.75, 1.66) |
| Employed                  | 0.02 (-0.96, 1.01)     | -0.68 (-1.97, 0.62) | 0.83 (-0.85, 2.5) | NA           |
| Rural resident*           | 0.36 (-0.64, 1.37)     | NA              | NA              | NA           |
| Outdoor worker*           | 1.33 (0.05, 2.6)*      | NA              | NA              | NA           |

*Compared to Urban resident. **' denotes a β estimates with a 95% confidence interval did not contain 0. NA not applicable. NA in HI[WS] indicated that HI[WS] was not included in model selection based on AIC.
Reporting Checklist

This checklist is used to ensure good reporting standards and to improve the reproducibility of published results. Please respond completely to all questions relevant to your manuscript. For more information, please read the journal's Guide to Authors.

☐ Check here to confirm that the following information is available in the Material & Methods section:

- the exact sample size \(n\) for each experimental group/condition, given as a number, not a range;
- a description of the sample collection allowing the reader to understand whether the samples represent technical or biological replicates (including how many animals, litters, culture, etc.);
- a statement of how many times the experiment shown was replicated in the laboratory;
- definitions of statistical methods and measures: (For small sample sizes \((n<5)\) descriptive statistics are not appropriate, instead plot individual data points)
  - very common tests, such as t-test, simple \(\chi^2\) tests, Wilcoxon and Mann-Whitney tests, can be unambiguously identified by name only, but more complex techniques should be described in the methods section;
  - are tests one-sided or two-sided?
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  - statistical test results, e.g., \(P\) values;
  - definition of ‘center values’ as median or mean;
  - definition of error bars as s.d. or s.e.m. or c.i.

Please ensure that the answers to the following questions are reported in the manuscript itself. We encourage you to include a specific subsection in the methods section for statistics, reagents and animal models. Below, provide the page number or section and paragraph number.

**Statistics and general methods**

1. How was the sample size chosen to ensure adequate power to detect a pre-specified effect size? (Give section/paragraph or page #)

   For animal studies, include a statement about sample size estimate even if no statistical methods were used.

2. Describe inclusion/exclusion criteria if samples or animals were excluded from the analysis. Were the criteria pre-established? (Give section/paragraph or page #)

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3. If a method of randomization was used to determine how samples/animals were allocated to experimental groups and processed, describe it. (Give section/paragraph or page #)

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| Reported in section/paragraph or page # |
|----------------------------------------|
| Methods/page number 6.                 |
| Not applicable.                        |
| Methods/page 6                         |
| Results/ Supplementary Figure 6.       |
| Not applicable.                        |
| Not applicable.                        |
4. If the investigator was blinded to the group allocation during the experiment and/or when assessing the outcome, state the extent of blinding. (Give section/paragraph or page #)

Not applicable, no blinding.

For animal studies, include a statement about blinding even if no blinding was done.

Not applicable.

5. For every figure, are statistical tests justified as appropriate?

Yes, mean and 95% confidence intervals were presented. Manuscript/page 30

Do the data meet the assumptions of the tests (e.g., normal distribution)?

Yes. Results/ Figure 1

Is there an estimate of variation within each group of data?

Yes. Results/Figure 1-3

Is the variance similar between the groups that are being statistically compared? (Give section/paragraph or page #)

Yes. Results/Figure 1-3, Table 1, 3-5 Results/page 14-16

Reagents

6. Report the source of antibodies (vendor and catalog number)

Not applicable.

7. Identify the source of cell lines and report if they were recently authenticated (e.g., by STR profiling) and tested for mycoplasma contamination

Not applicable.

Animal Models

8. Report species, strain, sex and age of animals

Not applicable.

9. For experiments involving live vertebrates, include a statement of compliance with ethical regulations and identify the committee(s) approving the experiments.

Not applicable.

10. We recommend consulting the ARRIVE guidelines (PLoS Biol. 8(6), e1000412, 2010) to ensure that other relevant aspects of animal studies are adequately reported.
### Human subjects

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| 11. | Identify the committee(s) approving the study protocol. | Methods/page 7 |
| 12. | Include a statement confirming that informed consent was obtained from all subjects. | Methods/Page 7 |
| 13. | For publication of patient photos, include a statement confirming that consent to publish was obtained. | Not applicable. |
| 14. | Report the clinical trial registration number (at ClinicalTrials.gov or equivalent). | Methods/Page 7 |

15. For phase II and III randomized controlled trials, please refer to the CONSORT statement and submit the CONSORT checklist with your submission.

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|   | Reported in section/paragraph or page # |
|---|----------------------------------------|
| 17. | Provide accession codes for deposited data. Data deposition in a public repository is mandatory for: a. Protein, DNA and RNA sequences b. Macromolecular structures c. Crystallographic data for small molecules d. Microarray data | Not applicable. |

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18. If computer code was used to generate results that are central to the paper’s conclusions, include a statement in the Methods section under “Code availability” to indicate whether and how the code can be accessed. Include version information as necessary and any restrictions on availability. | Not applicable. |