**SUPPLEMENT TABLE 1.** Results from mixed models evaluating effects of extreme heat wear time on permethrin dose

|  |  |  |
| --- | --- | --- |
|  | **LN(*cis-*DCCA)**  **β (p-value)** | **LN(*trans-*DCCA)**  **β (p-value)** |
| **Model 1 (expeditionary conditions-33h consecutive; comparing heat (Group 1) to ambient, control (Group 3) conditions)** | | |
| Group 1  Group 3 | 0.617 (0.0001)  Reference | 0.549 (<0.0001)  Reference |
| Creatinine (mg/dL) | 0.007 (<0.0001) | 0.007 (<0.0001) |
| % Body Fat | -0.017 (0.162) | 0.010 (0.338) |
| **Model 2 (garrison conditions-8h/day over 3 days; comparing heat (Group 2) to ambient, control (Group 4) conditions)** | | |
| Group 2  Group 4 | 0.419 (0.0004)  Reference | 0.550 (0.0002)  Reference |
| Creatinine (mg/dL) | 0.009 (<0.0001) | 0.009 (<0.0001) |
| % Body Fat | -0.046 (0.004) | -0.021 (0.205) |
| **Model 3 (in heat conditions; comparing 33h consecutive (Group 1) 8h/day over 3 days (Group 2) wear-time durations)** | | |
| Group 1  Group 2 | 0.518 (<0.0001)  Reference | 0.217 (0.0004)  Reference |
| Creatinine (mg/dL) | 0.009 (<0.0001) | 0.009 (<0.0001) |
| % Body Fat | 0.022 (0.08) | 0.052 (<0.0001) |
| **Model 4 (in control conditions; comparing 33h consecutive (Group 3) 8h/day over 3 days (Group 4) wear-time durations)** | | |
| Group 3  Group 4 | 0.208 (0.173)  Reference | -0.040 (0.686)  Reference |
| Creatinine | 0.008 (<0.0001) | 0.007 (<0.0001) |
| % Body Fat | -0.026 (0.112) | -0.002 (0.820) |
| Smoker  Non-smoker | 0.180 (0.236)  Reference | 0.036 (0.722)  Reference |

**SUPPLEMENT TABLE 2.** Summary of creatinine-adjusted median and 95th percentile concentrations compared to the U.S. general population

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Median, 95th Percentile Concentrations (µg/g creatinine) | | | |
|  | 3-PBA | *trans-*DCCA | *cis-*DCCA | ∑DCCA |
| **Group 1**  U2 (Day 1 afternoon, following work week)  U4 (Day 4 morning, following weekend)  U12 (12 hours after removing treated study uniform, Day 6 morning)  U19 (Day 8 afternoon, following study week)  U21 (End of study, following weekend, Day 11 morning) | 16.10, 61.49  9.41, 35.37  95.01, 180.63  23.0, 56.33  12.99, 40.60 | 25.64, 57.19  11.44, 37.80  132.68, 174.23  23.79, 48.03  15.58, 38.28 | 9.41, 29.29  5.61, 17.65  44.71, 74.33  10.71, 19.54  6.08, 17.10 | 35.53, 86.48  16.98, 52.78  190.85, 248.56  34.49, 64.70  21.66, 53.49 |
| **Group 2**  U2 (Day 1 afternoon, following work week)  U4 (Day 4 morning, following weekend)  U16 (12 hours after removing treated study uniform, Day 7 morning)  U19 (Day 8 afternoon, following study week)  U21 (End of study, following weekend, Day 11 morning) | 18.80, 41.0  12.05, 18.98  60.06, 143.63  24.40, 52.81  16.39, 35.86 | 25.20, 59.35  14.44, 18.08  61.14, 144.62  27.57, 52.75  16.51, 35.17 | 10.67, 20.18  6.41, 9.28  23.65, 66.14  15.58, 18.29  7.37, 13.07 | 38.26, 79.53  20.85, 27.36  84.76, 210.76  43.97, 70.06  25.41, 48.24 |
| **Group 3**  U2 (Day 1 afternoon, following work week)  U4 (Day 4 morning, following weekend)  U12 (12 hours after removing treated study uniform, Day 6 morning)  U19 (Day 8 afternoon, following study week)  U21 (End of study, following weekend, Day 11 morning) | 16.81, 43.47  10.50, 20.35  38.13, 54.34  24.28, 32.56  12.90, 19.86 | 18.95, 58.30  11.33, 18.58  56.64, 64.84  33.66, 44.12  13.56, 15.78 | 7.66, 17.61  5.91, 10.62  23.06, 30.63  12.0, 24.08  7.97, 11.17 | 26.09, 75.91  17.57, 28.13  77.0, 94.94  44.58, 67.80  22.61, 26.26 |
| **Group 4**  U2 (Day 1 afternoon, following work week)  U4 (Day 4 morning, following weekend)  U16 (12 hours after removing treated study uniform, Day 7 morning)  U19 (Day 8 afternoon, following study week)  U21 (End of study, following weekend, Day 11 morning) | 19.97, 44.56  8.16, 30.52  49.85, 42.27  39.55, 58.64  15.94, 19.47 | 32.35, 46.90  11.13, 29.35  50.56, 91.18  41.34, 43.76  15.15, 31.36 | 14.34, 21.02  5.06, 14.38  26.04, 88.03  23.08, 51.79  8.15, 36.07 | 46.88, 68.43  15.94, 42.52  76.56, 130.42  65.60, 105.17  23.23, 55.24 |
| **Adult US Population, aged 20-59 (NHANES 2009-2010)6** | 0.365, 4.72 | <LOD, 4.37 | <LOD, <LOD | NA |

U = Urine collection time point; LOD = Limit of detection (LOD for *trans*-DCCA and *cis*-DCCA=0.6 µg/L)

3-PBA = 3-phenoxybenzoic acid

*trans-*DCCA *= trans*-3-(2,2-dichlorovinyl)-2,2-dimethyl-cyclopropane-1-carboxylic acid

*cis-*DCCA *= cis*-3-(2,2-dichlorovinyl)-2,2-dimethyl-cyclopropane-1-carboxylic acid

∑DCCA= sum of *trans-*DCCA+ *cis-*DCCA