Supplemental Table 1: Individual urinary metabolites for fireground intervention (geometric means and standard deviations, ng/L).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Metabolite | Baseline | | | Pre-intervention | | | Post-intervention | | |  |
|  | n (% ND) | mean | SD | n (% ND) | mean | SD | n (% ND) | mean | SD | % Change (95% CI)\* |
| 1 Naphthol | | | |  | | |  | | |  |
| Engineer | 39 (20.5%) | 563.2 | 3.3 | 24 (0%) | 2527.8 | 4.0 | 13 (15.4%) | 488.0 | 3.1 | **-79.5 (-91.1, -52.7)** |
| Firefighter | 82 (30.5%) | 415.2 | 3.8 | 57 (1.8%) | 2800.0 | 4.2 | 30 (3.3%) | 1569.9 | 3.2 | **-42.8 (-66.9, -1.1)** |
| Captain | 66 (30.3%) | 430.0 | 3.9 | 33 (3.0%) | 1723.0 | 3.1 | 17 (0%) | 1516.7 | 2.7 | -15.6 (-50.7, 44.5) |
| 2 Naphthol | | | |  | | |  | | |  |
| Engineer | 39 (0%) | 5916.9 | 2.1 | 24 (0%) | 11284.1 | 2.6 | 13 (0%) | 7797.7 | 2.2 | -26.4 (-54.8, 19.6) |
| Firefighter | 82 (2.4%) | 5656.0 | 3.6 | 57 (0%) | 14946.7 | 2.7 | 30 (0%) | 9721.7 | 3.0 | -35.0 (-61.5, 9.9) |
| Captain | 66 (3.0%) | 4951.8 | 3.4 | 33 (0%) | 9994.3 | 2.7 | 17 (0%) | 8478.5 | 3.0 | -15.2 (-54.3, 57.5) |
| 2 Fluorenol | | | |  | | |  | | |  |
| Engineer | 39 (84.6%) | 64.0 | 1.9 | 24 (45.8%) | 180.9 | 3.4 | 13 (46.2%) | 98.9 | 2.0 | -55.7 (-90.3, 102.4) |
| Firefighter | 82 (75.6%) | 70.9 | 1.9 | 57 (36.8%) | 252.5 | 3.7 | 30 (43.3%) | 158.2 | 3.4 | -46.4 (-76.6, 22.7) |
| Captain | 66 (87.9%) | 60.4 | 1.7 | 33 (60.6%) | 115.4 | 2.6 | 17 (64.7%) | 111.1 | 3.2 | -16.4 (-76.9, 201.8) |
| 3 Fluorenol | | | |  | | |  | | |  |
| Engineer | 39 (84.6%) | 61.8 | 1.7 | 24 (66.7%) | 103.0 | 2.9 | 13 (38.5%) | 99.9 | 1.9 | 48.1 (-78.1, 899.8) |
| Firefighter | 82 (80.5%) | 65.4 | 1.8 | 57 (50.9%) | 162.6 | 3.1 | 30 (36.7%) | 141.1 | 2.7 | -8.1 (-60.2, 111.8) |
| Captain | 66 (84.8%) | 63.1 | 1.9 | 33 (63.6%) | 93.9 | 2.2 | 17 (41.2%) | 132.7 | 2.9 | 99.6 (-35.9, 521.2) |
| 9 Fluorenol | | | |  | | |  | | |  |
| Engineer | 39 (92.3%) | 59.8 | 1.9 | 24 (62.5%) | 155.7 | 4.2 | 13 (84.6%) | 59.1 | 1.5 | **-94.7 (-99.6, -21.0)** |
| Firefighter | 78 (89.7%) | 58.5 | 1.7 | 56 (35.7%) | 250.1 | 3.5 | 30 (50.0%) | 130.7 | 3.2 | **-63.3 (-84.4, -13.9)** |
| Captain | 66 (89.4%) | 59.8 | 1.7 | 33 (75.8%) | 107.6 | 3.2 | 17 (58.8%) | 121.7 | 3.2 | 44.9 (-73.2, 683.7) |
| 1&3 Phenanthrol | | | |  | | |  | | |  |
| Engineer | 39 (43.6%) | 243.3 | 1.9 | 24 (20.8%) | 491.6 | 2.8 | 13 (38.5%) | 201.4 | 1.5 | **-67.3 (-86.6, -20.4)** |
| Firefighter | 82 (50%) | 215.0 | 1.6 | 56 (12.5%) | 664.4 | 2.6 | 30 (40.0%) | 280.8 | 2.3 | **-63.7 (-75.8, -45.6)** |
| Captain | 66 (62.1%) | 220.9 | 1.8 | 33 (42.4%) | 401.5 | 2.5 | 17 (41.2%) | 281.0 | 2.4 | -36.3 (-67.8, 26.0) |
| 2 Phenanthrol | | | |  | | |  | | |  |
| Engineer | 39 (66.7%) | 123.9 | 2.2 | 24 (25.0%) | 445.5 | 3.7 | 13 (46.2%) | 139.8 | 2.0 | **-79.3 (-94.2, -26.4)** |
| Firefighter | 82 (58.5%) | 142.6 | 2.4 | 56 (16.1%) | 604.0 | 3.2 | 30 (36.7%) | 242.6 | 3.1 | **-67.8 (-83.1, -38.8)** |
| Captain | 66 (74.2%) | 112.9 | 2.1 | 33 (36.4%) | 350.4 | 3.2 | 17 (41.2%) | 195.0 | 2.6 | -52.7 (-82.0, 23.9) |
| 4 Phenanthrol | | | |  | | |  | | |  |
| Engineer | 39 (94.9%) | 79.2 | 1.3 | 24 (83.3%) | 118.3 | 2.6 | 13 (100%) | 66.7 | 1.4 | CI not valid |
| Firefighter | 82 (95.1%) | 80.8 | 1.5 | 56 (73.2%) | 130.0 | 2.5 | 30 (86.7%) | 76.9 | 1.7 | **-84.2 (-96.2, -33.7)** |
| Captain | 66 (100%) | 75.0 | 1.0 | 33 (84.8%) | 91.6 | 1.7 | 17 (94.1%) | 74.1 | 1.4 | CI not valid |
| 1 Hydroxypyrene | | | |  | | |  | | |  |
| Engineer | 39 (76.9%) | 152.0 | 2.4 | 24 (58.3%) | 241.8 | 3.1 | 13 (61.5%) | 211.0 | 3.2 | -32.2 (-88.8, 311.3) |
| Firefighter | 82 (79.3%) | 141.8 | 2.1 | 57 (56.1%) | 296.6 | 3.3 | 30 (46.7%) | 319.4 | 3.7 | 13.0 (-57.7, 201.8) |
| Captain | 66 (87.9%) | 125.8 | 2.0 | 33 (60.6%) | 226.6 | 2.8 | 17 (58.8%) | 276.8 | 5.0 | -4.1 (-81.0, 385.2) |

ND = non-detectable; SD = standard deviation; CI = confidence interval; \* Comparing pre- and post-intervention means