**Supplementary material**

Supplementary Figure 1: Distribution of estimated VO2 max

Supplementary Table 1: Distribution of estimated VO2 max (ml O2/min/kg) by sex and ethnic group

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | All children | | | Boys | | | Girls | | |
| Ethnic group or sub-group | | n | Mean | SD | N | Mean | SD | N | Mean | SD |
| All children | | 1625 | 39.4 | 4.5 | 825 | 40.9 | 4.4 | 800 | 37.8 | 4.0 |
| White European | | 424 | 39.6 | 4.6 | 231 | 40.7 | 4.6 | 193 | 38.2 | 4.2 |
|  | |  |  |  |  |  |  |  |  |  |
| South Asian | | 407 | 38.5 | 4.4 | 200 | 39.9 | 4.3 | 207 | 37.1 | 4.1 |
|  | Indian | 111 | 37.6 | 4.8 | 64 | 39.1 | 4.9 | 47 | 35.7 | 4.0 |
|  | Pakistani | 147 | 38.6 | 3.9 | 77 | 39.9 | 3.7 | 70 | 37.1 | 3.6 |
|  | Bangladeshi | 121 | 39.1 | 4.4 | 49 | 41.0 | 4.3 | 72 | 37.8 | 4.0 |
|  | |  |  |  |  |  |  |  |  |  |
| Black African-Caribbean | | 413 | 40.1 | 4.4 | 208 | 41.8 | 4.1 | 205 | 38.3 | 3.9 |
|  | Black African | 230 | 40.4 | 4.5 | 113 | 42.4 | 4.1 | 117 | 38.5 | 4.1 |
|  | Black Caribbean | 148 | 39.7 | 4.1 | 76 | 41.0 | 4.1 | 72 | 38.3 | 3.8 |
|  | |  |  |  |  |  |  |  |  |  |
| Other | | 381 | 39.3 | 4.5 | 186 | 41.0 | 4.4 | 195 | 37.7 | 3.9 |

South Asian other and black other subgroups are not included in the table therefore the numbers in the subgroups do not add up to the main ethnic group totals for South Asians and black African-Caribbeans

Supplementary Table 2: Ethnic differences in physical activity and adiposity

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Mean/geometric mean\* (95% CI), p-value for difference from white Europeans | | | | | | | | | | |
|  | White European | | South Asian | | | Black African-Caribbean | | | Other | | |
| Outcome | (n = 324) | | (n =278) | | | (n = 320) | | | (n = 293) | | |
| Counts | 401,758 | (392,024, 411,491) | 381,981 | (370,884, 393,078) | 0.002 | 414,900 | (405,040, 424,761) | 0.02 | 394,651 | (384,606, 404,696) | 0.22 |
| CPM | 501 | (488, 513) | 459 | (445, 473) | <0.0001 | 500 | (488, 513) | 0.96 | 478 | (465, 491) | 0.002 |
| Steps | 10,356 | (10,144, 10,567) | 9,550 | (9,311, 9,788) | <0.0001 | 9,928 | (9,714, 10,142) | <0.001 | 10,000 | (9,782, 10,217) | 0.002 |
| MVPA (min) | 71 | (68, 74) | 65 | (62, 68) | <0.0001 | 72 | (69, 75) | 0.15 | 69 | (66, 71) | 0.05 |
| FMI (kg/m5)\* | 2.10 | (2.01, 2.18) | 2.19 | (2.09, 2.29) | 0.17 | 1.90 | (1.83, 1.98) | <0.001 | 2.18 | (2.09, 2.27) | 0.20 |

All means are adjusted for sex, age quartiles, month and school (random effect)

Abbreviations: CPM, counts per minute; FMI, fat mass index; MVPA, moderate to vigorous physical activity