**Table 3** Baseline anthropometric measures and lifestyle factors associated with positive deviation from tracking (z-score change >0) over two years in late adolescence. Odds ratios (OR) for femoral neck (FN), total hip (TH) and total body (TB) with confidence intervals (CI)

|  |  |  |
| --- | --- | --- |
|  | Girls | Boys |
|  |  |  |
|   | FN(n=183 vs 167) | TH(n=182 vs 167) | TB(n=170 vs 180) | FN (n=117 vs 123) | TH(n=127 vs 114) | TB(n= 112 vs 129) |
|   | *OR (95 % CI)* | *p* | *OR (95 % CI)* | *p* | *OR (95 % CI)* | *p* | *OR (95 % CI)* | *p* | *OR (95 % CI)* | *p* | *OR (95 % CI)* | *p* |
| Age (year) | .64 (.35,1.16) | .142 | *.43 (.24, .79)* | *.007* | .71 (.39, 1.29) | .265 | a |  | .56 (.23, 1.37) | .205 | .56 (.23, 1.38) | .211 |
| Height (cm) | 1.00 (.96, 1.04) | .855 | 1.01 (.97, 1.04) | .805 | 1.02 (.98, 1.06) | .390 | 1.00 (.95, 1.05) | .988 | 1.00 (.95, 1.05) | .988 | *1.06 (1.01, 1.11)* | *.023* |
| Weight (10 kgb) | 1.00 (.98, 1.03) | .711 | 1.00 (.82, 1.32) | .744 | 1.23 (.93, 1.61) | .143 | a |  | *1.36 (1.05, 1.76)* | *.018* | 1.21 (.94, 1.57) | .141 |
| Z-score at baseline | *.74 (.58, .96)* | *.022* | *.74 (.57, .97)* | *.026* | *.66 (.49, .88)* | *.005* | *.67 (.47, .94)* | *.021* | *.64 (.45, .90)* | *.011* | *.50 (.35, .72)* | *.000* |
| Sexual maturation | Reference: menarche age <12.5 years | Reference: Pubertal development completed |
|  Intermediate/underway | 1.41 (.84, 2.37) | .198 | 1.24 (.73, 2.11) | .420 | 1.28 (.75, 2.18) | .376 | 2.55 (.84, 7.74) | .098 | 1.55 (.56, 4.23) | .399 | 1.09 (.52, 5.87) | .871 |
|  Late/just started | 1.68 (.88, 3.20) | .114 | 1.68 (.87, 3.21) | .120 | *2.05 (1.05, 3.98)* | *.035* | 2.44 (.67, 8.61) | .167 | 1.50 (.46, 4.90) | .502 | 1.74 (.52, 5.87) | .371 |
| Hormonal contraceptives use | Reference: no contraceptives use |  |  |  |  |  |  |
| Oestrogen and progestogen | *.60 (.36, 1.00)* | *.048* |  |  |  |  |  |  |  |  |  |  |
| Progestogen only | .79 (.24, 2.55) | .687 |  |  |  |  |  |  |  |  |  |  |
| Physical activity |  Reference: Sedentary |
|  Moderate | 1.94 (.93, 4.06) | .080 | 1.52 (.72, 3.21) | .278 | 1.78 (.82, 3.86) | .147 | .62 (.27, 1.40) | .276 | .61 (.26, 1.39) | .237 | .53 (.23, 1.20) | .128 |
|  Sports | 1.79 (.82, 3.90) | .143 | 1.64 (.75, 3.61) | .217 | *4.07 (1.78, 9.30)* | *.001* | .56 (.24, 1.30) | .138 | .80 (.34, 1.85) | .594 | .71 (.31, 1.62) | .414 |
|  Competition | 1.95 (.80, 4.72) | .140 | 1.24 (.51, 3.01) | .640 | *3.28 (1.31, 8.20)* | *.011* | .83 (.35, 2.00) | .680 | .70 (.29, 1.73) | .443 | 1.45 (.62, 3.40) | .390 |
| Snuff use c | .93 (.52, 1.66) | .802 | *.50 (.28, .89)* | *.019* | 1.09 (.61, 1.94) | .769 | .77 (.35, 1.68) | .513 | .71 (.32, 1.54) | .384 | .61, (.27, 1.35) | .221 |
| Smoking c | .80 (.42, 1.54) | .510 | 1.03 (.54, 1.99) | .919 | 1.17 (.61, 2.34) | .645 | .53 (.22, 1.30) | .166 | .43 (.18, 1.04) | .062 | .47 (.19, .1.15) | .097 |
| Alcohol consumption c | 1.03 (.60, 1.78) | .913 | 1.24 (.71, 2.15) | .450 | *.45 (.26, .80)* | *.006* | .87 (.45, 1.67) | .674 | .84 (.43, 1.64)  | .611 | 1.55 (.80, 2.99) | .193 |

Reference group were no change or negative deviation from tracking (z-score change ≤ 0). All the variables are mutually adjusted for other variables in the model including time between measurements. P < 0.05 in italics.

a Significant interaction between age and weight p=.022. When stratified by younger/older age <16.66 years: OR for weight were *1.49 (95 % CI 1.02, 2.18) p= .039* n=52 vs 68, age ≥16.67 years: OR for weight 1.03 (.67, 1.58) p= .909 n=71 vs 41.

b Associations with 10 kg change in body weight.

c Yes/no.