Supplementary Table 1. Comparison of participant characteristics and sweet treat index

between children in the present study (‘included’) and the rest of the cohort (‘excluded’) at baseline.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Included (n=4237)** | **Excludeda (n=7170)** | **p** |
| **Sex, n (%)** |  |  |  |
| girl | 2271 (53.6) | 3710 (51.8) | 0.058b |
| boy | 1966 (46.4) | 3457 (48.2) |  |
| data missing, n | 0 | 3 |  |
| **Weight statusc, n (%)** | |  |  |
| thin | 515 (12.2) | 660 (10.3) | <0.001b |
| normal weight | 3154 (74.4) | 4700 (73.3) |  |
| overweight | 568 (13.4) | 1049 (16.4) |  |
| data missing, n | 0 | 761 |  |
| **Central obesityd, n (%)** | |  |  |
| no | 3893 (92.1) | 5757 (88.8) | <0.001b |
| yes | 334 (7.9) | 729 (11.2) |  |
| data missing, n | 10 | 684 |  |
| **Maternal SESe, n (%)** | |  |  |
| upper-level | 1398 (34.5) | 1771 (26.7) | <0.001b |
| lower-level | 1595 (39.4) | 2705 (40.8) |  |
| manual workers | 392 (9.7) | 887 (13.4) |  |
| students | 383 (9.5) | 744 (11.2) |  |
| other | 279 (6.9) | 524 (7.9) |  |
| data missing, n | 190 | 539 |  |
| **Age, mean (SD)** | 11.1 (0.9) | 11.2 (0.8) | <0.001f |
| data missing, n | 0 | 95 |  |
| **Sweet treat index, mean (SD)** | 7.8 (5.4) | 9.8 (9.3) | <0.001f |
| data missing, n | 0 | 2063 |  |

a ‘Excluded’ comprises children who did not participate in the follow-up or were excluded from the present study due to missing values in age, sex, BMI or food consumption frequencies.

bResults from a chi-square test.

cBody mass index (BMI) categorised based on the International Obesity Task Force (IOTF) age- and sex-specific guidelines(29). ‘Overweight’ includes obese individuals.

dCentral obesity estimated as waist–height ratio (WtHR) and categorised as no (WtHR < 0.50) or yes (WtHR ≥ 0.50).

eMaternal occupation at the time of child’s birth as an indicator of socioeconomic status (SES) from the Medical Birth Register from the National Institute for Health and Welfare (THL)(31).

fResults from an independent samples t-test.

Supplementary Table 2. Mean (SD) change in weekly consumption frequencies of STI items and other FFQ items among weight normalisers (girls and boys who were overweight at baseline and normal weight at follow-up; n = 162).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Girls (n = 99)** | | | | | | **Boys (n = 63)** | | | | | | |  |
|  | **Baseline** | | **Follow-up** | |  |  | **Baseline** | | **Follow-up** | |  | |  | **Sex\*time** |
|  | **Mean (±SD)** | | **Mean (±SD)** | | **p*a*** | **Change +/-** | **Mean (±SD)** | | **Mean (±SD)** | | **p*a*** | | **Change +/-** | **p*b*** |
| **STI item** | | |  |  |  |  |  |  |  |  |  | |  |  |
| Chocolate and sweets | 1.1 | (1.0) | 1.3 | (1.0) | 0.213 | 0 | 1.1 | (0.7) | 1.2 | (1.0) | 0.509 | | 0 | 0.711 |
| Sweet pastries | 0.7 | (0.8) | 0.7 | (0.7) | 0.776 | 0 | 1.0 | (1.3) | 0.7 | (0.6) | 0.066 | | 0 | 0.068 |
| Biscuits/cookies | 1.0 | (1.6) | 1.1 | (1.8) | 0.943 | 0 | 1.7 | (2.0) | 1.0 | (1.4) | 0.004 | | – | 0.007 |
| Sugary juice drinks | 1.4 | (1.7) | 1.1 | (1.5) | 0.258 | 0 | 1.8 | (2.1) | 1.5 | (2.2) | 0.279 | | 0 | 0.809 |
| Sugary soft drinks | 1.0 | (1.7) | 0.9 | (0.8) | 0.561 | 0 | 1.3 | (1.3) | 1.5 | (2.0) | 0.372 | | 0 | 0.260 |
| Ice cream | 0.9 | (1.2) | 0.8 | (0.9) | 0.369 | 0 | 0.8 | (1.0) | 0.7 | (0.7) | 0.222 | | 0 | 0.771 |
| **Other FFQ item** |  |  |  |  |  |  |  |  |  |  | |  |  |  |
| Dark bread | 5.3 | (3.7) | 5.4 | (4.2) | 0.758 | 0 | 4.7 | (3.9) | 4.8 | (4.2) | 0.874 | | 0 | 0.858 |
| Pizza | 0.5 | (0.8) | 0.4 | (0.3) | 0.117 | 0 | 0.6 | (0.8) | 0.5 | (0.3) | 0.089 | | 0 | 0.693 |
| Hamburgers or hot dogs | 0.3 | (0.2) | 0.3 | (0.3) | 0.540 | 0 | 0.5 | (0.4) | 0.5 | (0.5) | 0.899 | | 0 | 0.682 |
| Milk | 10.5 | (4.7) | 9.6 | (5.3) | 0.094 | 0 | 10.4 | (5.2) | 11.2 | (4.9) | 0.171 | | 0 | 0.018 |
| Cooked vegetables | 2.5 | (2.8) | 2.7 | (2.7) | 0.598 | 0 | 2.6 | (3.2) | 2.2 | (2.4) | 0.328 | | 0 | 0.373 |
| Fresh vegetables | 6.5 | (4.3) | 7.1 | (4.0) | 0.280 | 0 | 6.0 | (4.5) | 5.4 | (3.9) | 0.245 | | 0 | 0.169 |
| Fruits and berries | 5.6 | (4.4) | 6.0 | (4.4) | 0.383 | 0 | 4.5 | (4.1) | 4.2 | (3.9) | 0.507 | | 0 | 0.344 |
| Fresh juice | 3.2 | (3.3) | 2.7 | (3.6) | 0.265 | 0 | 3.9 | (3.9) | 2.4 | (2.6) | 0.003 | | – | 0.219 |
| Salty snacks | 0.8 | (0.9) | 0.8 | (0.7) | 1.000 | 0 | 0.9 | (0.8) | 0.8 | (0.8) | 0.736 | | 0 | 0.665 |

aResults from a paired samples t-test.

bResults from a two-way mixed ANCOVA (interaction for sex\*time), adjusted for age at baseline and follow-up time.

Abbreviations: STI, sweet treat index; FFQ, food frequency questionnaire; SD, standard deviation.

Supplementary Table 3. Mean (SD) change in weekly consumption frequencies of STI items and other FFQ items among weight gainers (girls and boys who were normal weight at baseline and overweight at follow-up; n = 193).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Girls (n = 105)** | | | | | | **Boys (n = 88)** | | | | | |  |
|  | **Baseline** | | **Follow-up** | |  |  | **Baseline** | | **Follow-up** | |  |  | **Sex\*time** |
|  | **Mean (±SD)** | | **Mean (±SD)** | | **p*a*** | **Change +/-** | **Mean (±SD)** | | **Mean (±SD)** | | **p*a*** | **Change +/-** | **p*b*** |
| **STI item** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Chocolate and sweets | 1.4 | (1.6) | 1.4 | (1.0) | 0.956 | 0 | 1.2 | (1.0) | 1.6 | (1.0) | 0.047 | + | 0.182 |
| Sweet pastries | 0.8 | (0.8) | 0.7 | (0.7) | 0.229 | 0 | 0.9 | (1.1) | 0.8 | (0.9) | 0.472 | 0 | 0.975 |
| Biscuits/cookies | 1.7 | (2.2) | 0.8 | (0.9) | <0.001 | – | 1.9 | (1.9) | 1.2 | (2.0) | 0.008 | – | 0.459 |
| Sugary juice drinks | 1.9 | (2.2) | 1.2 | (1.6) | 0.007 | – | 1.9 | (2.2) | 1.7 | (2.6) | 0.656 | 0 | 0.108 |
| Sugary soft drinks | 1.1 | (1.2) | 0.8 | (1.0) | 0.067 | 0 | 1.6 | (1.7) | 1.7 | (1.6) | 0.724 | 0 | 0.159 |
| Ice cream | 0.8 | (1.1) | 0.8 | (0.9) | 0.683 | 0 | 0.9 | (1.2) | 0.6 | (0.6) | 0.056 | 0 | 0.191 |
| **Other FFQ item** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Dark bread | 4.9 | (4.0) | 4.7 | (3.8) | 0.700 | 0 | 5.6 | (4.4) | 5.2 | (4.2) | 0.362 | 0 | 0.719 |
| Pizza | 0.5 | (0.8) | 0.5 | (0.3) | 0.361 | 0 | 0.7 | (1.1) | 0.5 | (0.5) | 0.265 | 0 | 0.688 |
| Hamburgers or hot dogs | 0.4 | (0.4) | 0.6 | (1.4) | 0.189 | 0 | 0.6 | (0.8) | 0.5 | (0.4) | 0.282 | 0 | 0.106 |
| Milk or buttermilk | 10.5 | (5.3) | 9.0 | (5.8) | 0.003 | – | 11.3 | (4.8) | 10.7 | (5.2) | 0.177 | 0 | 0.259 |
| Cooked vegetables | 3.1 | (3.3) | 2.9 | (3.0) | 0.719 | 0 | 2.4 | (2.3) | 2.2 | (2.5) | 0.639 | 0 | 0.874 |
| Fresh vegetables | 7.2 | (4.5) | 7.7 | (4.7) | 0.364 | 0 | 5.2 | (4.1) | 5.7 | (3.9) | 0.270 | 0 | 0.899 |
| Fruits and berries | 6.0 | (4.5) | 5.9 | (4.6) | 0.789 | 0 | 4.8 | (4.0) | 3.6 | (3.4) | 0.011 | – | 0.151 |
| Fresh juice | 3.6 | (3.7) | 2.1 | (2.5) | <0.001 | – | 3.5 | (3.5) | 2.4 | (3.0) | 0.013 | – | 0.379 |
| Salty snacks | 1.2 | (1.7) | 0.8 | (0.7) | 0.028 | – | 0.9 | (0.8) | 0.9 | (0.7) | 0.869 | 0 | 0.090 |

aResults from a paired samples t-test.

bResults from a two-way mixed ANCOVA (interaction for sex\*time), adjusted for age at baseline and follow-up time.

Abbreviations: STI, sweet treat index; FFQ, food frequency questionnaire; SD, standard deviation.

Supplementary Table 4. Mean (SD) change in weekly consumption frequencies of STI items and other FFQ items among waist normalisers (girls and boys whose WtHR was ≥ 0.50 at baseline and < 0.50 at follow-up; n = 110). Missing values for WtHR n = 21.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Girls (n = 57)** | | | | | | **Boys (n = 53)** | | | | | |  |
|  | **Baseline** | | **Follow-up** | |  |  | **Baseline** | | **Follow-up** | |  |  | **Sex\*time** |
|  | **Mean (±SD)** | | **Mean (±SD)** | | **p*a*** | **Change +/-** | **Mean**  **(±SD)** | | **Mean (±SD)** | | **p*a*** | **Change +/-** | **p*b*** |
| **STI item** | | |  |  |  |  |  |  |  |  |  |  |  |
| Chocolate and sweets | 1.3 | (1.2) | 1.2 | (0.9) | 0.514 | 0 | 1.3 | (1.2) | 1.2 | (0.9) | 0.585 | 0 | 0.714 |
| Sweet pastries | 0.8 | (1.0) | 0.7 | (0.7) | 0.485 | 0 | 0.9 | (1.3) | 0.8 | (0.9) | 0.530 | 0 | 0.943 |
| Biscuits/cookies | 1.4 | (2.1) | 0.8 | (1.1) | 0.037 | – | 1.5 | (1.8) | 1.0 | (1.2) | 0.044 | – | 0.749 |
| Sugary juice drinks | 1.5 | (1.8) | 1.2 | (1.6) | 0.197 | 0 | 1.7 | (2.9) | 1.5 | (1.6) | 0.615 | 0 | 0.864 |
| Sugary soft drinks | 1.1 | (1.9) | 0.9 | (0.9) | 0.603 | 0 | 1.4 | (2.2) | 1.3 | (1.2) | 0.715 | 0 | 0.884 |
| Ice cream | 0.9 | (1.1) | 0.7 | (0.6) | 0.228 | 0 | 0.8 | (0.8) | 0.7 | (0.7) | 0.226 | 0 | 0.779 |
| **Other FFQ item** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Dark bread | 5.1 | (3.9) | 5.3 | (4.3) | 0.748 | 0 | 4.9 | (4.2) | 5.1 | (4.4) | 0.702 | 0 | 0.777 |
| Pizza | 0.5 | (0.4) | 0.5 | (0.8) | 0.815 | 0 | 0.6 | (0.7) | 0.4 | (0.3) | 0.040 | – | 0.162 |
| Hamburgers or hot dogs | 0.4 | (0.3) | 0.4 | (0.7) | 0.642 | 0 | 0.7 | (1.0) | 0.4 | (0.6) | 0.085 | 0 | 0.064 |
| Milk or buttermilk | 10.9 | (4.3) | 9.1 | (5.4) | 0.004 | – | 10.4 | (5.1) | 11.8 | (4.3) | 0.023 | + | <0.001 |
| Cooked vegetables | 2.9 | (3.1) | 2.5 | (3.0) | 0.312 | 0 | 2.3 | (3.3) | 2.3 | (2.6) | 0.969 | 0 | 0.485 |
| Fresh vegetables | 6.3 | (4.3) | 6.3 | (3.7) | 0.968 | 0 | 5.0 | (4.4) | 5.5 | (3.9) | 0.298 | 0 | 0.550 |
| Fruits and berries | 5.7 | (4.0) | 5.0 | (4.1) | 0.149 | 0 | 4.8 | (4.3) | 4.0 | (2.8) | 0.155 | 0 | 0.980 |
| Fresh juice | 3.6 | (4.1) | 2.3 | (2.9) | 0.017 | – | 3.3 | (3.7) | 2.2 | (2.5) | 0.013 | – | 0.666 |
| Salty snacks | 0.8 | (0.7) | 0.7 | (0.6) | 0.578 | 0 | 1.0 | (0.9) | 0.7 | (0.5) | 0.034 | – | 0.245 |

aResults from a paired samples t-test.

bResults from a two-way mixed ANCOVA (interaction for sex\*time), adjusted for age at baseline and follow-up time.

Abbreviations: STI, sweet treat index; FFQ, food frequency questionnaire; SD, standard deviation; WtHR, waist–height ratio.

Supplementary Table 5. Mean (SD) change in weekly consumption frequencies of STI items and other FFQ items among waist gainers (girls and boys whose WtHR was < 0.50 at baseline and ≥ 0.50 at follow-up; n = 199). Missing values for WtHR n = 21.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Girls (n = 81)** | | | | | | **Boys (n = 118)** | | | | | |  |
|  | **Baseline** | | **Follow-up** | |  |  | **Baseline** | | **Follow-up** | |  |  | **Sex\*time** |
|  | **Mean (±SD)** | | **Mean (±SD)** | | **p*a*** | **Change +/-** | **Mean (±SD)** | | **Mean (±SD)** | | **p*a*** | **Change +/-** | **p*b*** |
| **STI item** | | |  |  |  |  |  |  |  |  |  |  |  |
| Chocolate and sweets | 1.3 | (1.6) | 1.3 | (0.9) | 0.900 | 0 | 1.5 | (1.2) | 1.6 | (1.3) | 0.336 | 0 | 0.565 |
| Sweet pastries | 0.7 | (0.9) | 0.7 | (0.9) | 0.955 | 0 | 1.2 | (1.6) | 0.9 | (1.0) | 0.017 | – | 0.097 |
| Biscuits/cookies | 1.4 | (1.8) | 0.7 | (0.8) | <0.001 | – | 2.0 | (2.3) | 1.3 | (1.8) | 0.001 | – | 0.935 |
| Sugary juice drinks | 1.5 | (2.5) | 0.9 | (1.4) | 0.053 | 0 | 1.8 | (2.4) | 1.7 | (2.6) | 0.734 | 0 | 0.304 |
| Sugary soft drinks | 1.0 | (1.2) | 0.8 | (0.9) | 0.101 | 0 | 1.6 | (1.9) | 1.3 | (1.2) | 0.214 | 0 | 0.958 |
| Ice cream | 0.8 | (0.9) | 0.6 | (0.5) | 0.093 | 0 | 1.0 | (1.2) | 0.8 | (1.1) | 0.345 | 0 | 0.571 |
| **Other FFQ item** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Dark bread | 4.6 | (4.4) | 4.4 | (3.6) | 0.707 | 0 | 5.9 | (4.6) | 5.4 | (4.3) | 0.339 | 0 | 0.801 |
| Pizza | 0.7 | (1.3) | 0.4 | (0.4) | 0.091 | 0 | 0.7 | (1.1) | 0.5 | (0.3) | 0.054 | 0 | 0.642 |
| Hamburgers or hot dogs | 0.4 | (0.5) | 0.5 | (0.6) | 0.218 | 0 | 0.6 | (0.7) | 0.5 | (0.5) | 0.787 | 0 | 0.357 |
| Milk or buttermilk | 11.0 | (4.5) | 9.5 | (5.4) | 0.020 | – | 9.6 | (5.5) | 10.7 | (5.1) | 0.011 | + | 0.001 |
| Cooked vegetables | 3.0 | (3.6) | 2.2 | (2.4) | 0.087 | 0 | 2.6 | (3.3) | 2.1 | (2.5) | 0.137 | 0 | 0.445 |
| Fresh vegetables | 6.4 | (4.2) | 7.4 | (4.2) | 0.089 | 0 | 5.0 | (3.8) | 5.8 | (3.9) | 0.040 | + | 0.938 |
| Fruits and berries | 5.9 | (4.5) | 6.0 | (4.7) | 0.888 | 0 | 5.0 | (4.3) | 4.1 | (3.4) | 0.026 | – | 0.216 |
| Fresh juice | 3.6 | (3.9) | 2.4 | (3.0) | 0.018 | – | 3.8 | (3.8) | 2.6 | (3.6) | 0.008 | – | 0.967 |
| Salty snacks | 1.1 | (1.8) | 0.7 | (0.5) | 0.040 | – | 1.1 | (1.0) | 1.0 | (0.7) | 0.324 | 0 | 0.154 |

aResults from a paired samples t-test.

bResults from a two-way mixed ANCOVA (interaction for sex\*time), adjusted for age at baseline and follow-up time.

Abbreviations: STI, sweet treat index; FFQ, food frequency questionnaire; SD, standard deviation; WtHR, waist–height ratio.