**Supplementary Table 2 –** Mean (95%CI)\* usual intake**†** ofenergy and nutrient according to age and sex specific quintiles of %energy from added sugars – participants aged 8 years or below only

|  | **%Energy from added sugars** | | | | | | | | | |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Nutrient** | **Q1** | | **Q2** | | **Q3** | | **Q4** | | **Q5** | | **β**‡ |  |  | ***p*trend**‡ |
| **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **SE** | ***R2*** |
| **Added sugars (g)** | 28.4 | 27.8, 29.0 | 37.2 | 36.6, 37.8 | 44.9 | 44.3, 45.5 | 52.6 | 52.0, 53.2 | 67.0 | 66.4, 67.6 |  |  |  |  |
| *From core foods****§*** *(g)* | 8.0 | 7.5, 8.5 | 10.7 | 10.1, 11.2 | 12.3 | 11.7, 12.8 | 12.2 | 11.7, 12.8 | 13.3 | 12.7, 13.8 | 0.5 | 0.0 | 0.136 | <0.001 |
| *From extra foods****§*** *(g)* | 21.0 | 20.2, 21.7 | 27.2 | 26.4, 28.0 | 333.4 | 32.6, 34.2 | 40.8 | 40.0, 41.6 | 53.9 | 53.1, 54.7 | 3.4 | 0.0 | 0.840 | <0.001 |
| **%E added sugars** | 6.3 | 6.2, 6.4 | 8.7 | 8.6, 8.8 | 10.6 | 10.5, 10.8 | 12.6 | 12.5, 12.8 | 16.2 | 16.1, 16.3 | - | - | - | - |
| *From core foods****§*** | 1.9 | 1.7, 2.0 | 2.5 | 2.4, 2.7 | 2.9 | 2.8, 3.1 | 2.9 | 2.8, 3.0 | 3.2 | 3.0, 3.3 | 0.1 | 0.0 | 0.106 | <0.001 |
| *From extra foods****§*** | 4.6 | 4.4, 4.8 | 6.3 | 6.1, 6.5 | 7.8 | 7.6, 8.0 | 9.7 | 9.5, 9.9 | 12.9 | 12.7, 13.1 | 0.9 | 0.0 | 0.825 | <0.001 |
| **Energy (kJ)** | 6821.4 | 6713.0, 6929.7 | 6987.0 | 6875.3, 7098.6 | 7023.5 | 6912.7, 7134.2 | 6963.2 | 6853.4, 7073.1 | 7075.9 | 6965.5, 7186.3 | 7.1 | 5.7 | 0.406 | 0.210 |
| **Protein (g)** | 70.9 | 70.1, 71.6 | 69.4 | 68.6, 70.1 | 68.6 | 67.8, 69.3 | 66.7 | 66.0, 67.5 | 63.6 | 62.8, 64.3 | -0.8 | 0.0 | 0.663 | <0.001 |
| **%E protein** | 17.2 | 17.1, 17.4 | 16.9 | 16.8, 17.1 | 16.7 | 16.6, 16.9 | 16.3 | 16.2, 16.5 | 15.6 | 15.5, 15.8 | -0.2 | 0.0 | 0.145 | <0.001 |
| **Total fat (g)** | 59.3 | 58.7, 59.9 | 58.3 | 57.7, 58.9 | 58.2 | 57.6, 58.8 | 58.4 | 57.8, 59.0 | 57.0 | 56.4, 57.6 | -0.2 | 0.0 | 0.737 | <0.001 |
| **%E total fat** | 30.9 | 30.6, 31.2 | 30.3 | 30.0, 30.7 | 30.3 | 30.0, 30.6 | 30.4 | 30.1, 30.7 | 29.6 | 29.3, 29.9 | -0.1 | 0.0 | 0.062 | <0.001 |
| **Saturated fat (g)** | 26.7 | 26.3, 27.0 | 26.8 | 26.4, 27.2 | 26.7 | 26.3, 27.1 | 26.8 | 26.4, 27.2 | 26.5 | 26.1, 26.9 | -0.0 | 0.0 | 0.585 | 0.247 |
| **%E saturated fat** | 13.9 | 13.7, 14.1 | 13.9 | 13.7, 14.1 | 13.9 | 13.7, 14.1 | 14.0 | 13.8, 14.2 | 13.7 | 13.5, 13.9 | -0.0 | 0.0 | 0.041 | 0.086 |
| **MUFA (g)** | 20.5 | 20.3, 20.8 | 19.9 | 19.6, 20.1 | 19.9 | 19.7, 20.2 | 20.0 | 19.8, 20.3 | 19.5 | 19.3, 19.8 | -0.1 | 0.0 | 0.668 | <0.001 |
| **PUFA (g)** | 7.7 | 7.5, 7.8 | 7.4 | 7.3, 7.5 | 7.5 | 7.3, 7.6 | 7.4 | 7.3, 7.5 | 7.1 | 6.9, 7.2 | -0.1 | 0.0 | 0.443 | <0.001 |
| **LCn3PUFA (mg)** | 115.6 | 111.0, 120.2 | 105.9 | 101.2, 110.6 | 105.4 | 100.7, 110.1 | 95.7 | 91.1, 100.4 | 92.5 | 87.9, 97.2 | -2.4 | 0.3 | 0.092 | <0.001 |
| **Total carbohydrate (g)** | 205.1 | 203.5, 206.7 | 210.0 | 208.4, 211.7 | 212.0 | 210.4, 213.5 | 214.3 | 212.7, 215.9 | 222.2 | 220.6, 223.8 | 1.8 | 0.1 | 0.813 | <0.001 |
| **%E carbohydrates** | 50.5 | 50.2, 50.9 | 51.6 | 51.3, 51.9 | 51.9 | 51.6, 52.3 | 52.4 | 52.1, 52.8 | 54.2 | 53.8, 54.5 | 0.4 | 0.0 | 0.155 | <0.001 |
| **Total sugars (g)** | 94.2 | 92.8, 95.7 | 102.3 | 100.9, 103.8 | 108.6 | 107.1, 110.1 | 110.9 | 109.5, 112.4 | 123.3 | 121.8, 124.7 | 3.0 | 0.1 | 0.644 | <0.001 |
| **%E total sugars** | 23.3 | 23.0, 23.7 | 25.3 | 24.9, 25.6 | 26.7 | 26.3, 27.0 | 27.2 | 26.8, 27.5 | 30.1 | 29.7, 30.4 | 0.7 | 0.0 | 0.368 | <0.001 |
| **Starch (g)** | 108.7 | 107.3, 110.1 | 106.4 | 104.9, 107.8 | 102.2 | 100.8, 103.6 | 102.2 | 100.8, 103.7 | 97.8 | 96.4, 99.2 | -1.1 | 0.1 | 0.596 | <0.001 |
| **%E starch** | 26.5 | 26.1, 26.8 | 25.9 | 25.5, 26.2 | 24.8 | 24.5, 25.2 | 24.9 | 24.5, 25.2 | 23.8 | 23.5, 24.2 | -0.3 | 0.0 | 0.108 | <0.001 |
| **Fibre (g)** | 19.7 | 19.4, 20.0 | 19.1 | 18.8, 19.4 | 18.3 | 18.0, 18.6 | 17.4 | 17.1, 17.7 | 16.0 | 15.7, 16.3 | -0.4 | 0.0 | 0.383 | <0.001 |
| **Calcium (mg)** | 808.1 | 790.7, 825.6 | 843.8 | 825.9, 861.7 | 831.3 | 813.5, 849.1 | 791.2 | 773.6, 808.9 | 759.5 | 741.7, 777.2 | -6.4 | 1.1 | 0.325 | <0.001 |
| **Iron (mg)** | 9.7 | 9.5, 9.8 | 9.5 | 9.3, 9.7 | 9.5 | 9.3, 9.6 | 9.3 | 9.1, 9.4 | 8.9 | 8.7, 9.1 | -0.1 | 0.0 | 0.452 | <0.001 |
| **Thiamin (mg)** | 1.7 | 1.6, 1.7 | 1.7 | 1.7, 1.8 | 1.6 | 1.6, 1.7 | 1.6 | 1.5, 1.6 | 1.5 | 1.5, 1.5 | -0.0 | 0.0 | 0.182 | <0.001 |
| **Vitamin C (mg)** | 103.9 | 99.5, 108.3 | 104.2 | 99.7, 108.7 | 99.5 | 95.0, 104.0 | 94.3 | 89.9, 98.7 | 87.1 | 82.7, 91.6 | -1.8 | 0.3 | 0.083 | <0.001 |
| **Vitamin A RE (µg)** | 754.6 | 734.9, 774.2 | 724.4 | 704.2, 744.6 | 713.8 | 693.8, 733.9 | 674.7 | 654.9, 694.6 | 648.9 | 629.0, 668.9 | -11.4 | 1.3 | 0.191 | <0.001 |
| **Riboflavin (mg)** | 2.4 | 2.3, 2.4 | 2.6 | 2.5, 2.6 | 2.4 | 2.4, 2.5 | 2.3 | 2.2, 2.3 | 2.2 | 2.2, 2.2 | -0.0 | 0.0 | 0.223 | <0.001 |
| **DFE (µg)** | 476.0 | 461.0, 491.0 | 491.5 | 476.1, 506.9 | 461.4 | 446.0, 476.7 | 432.2 | 417.1, 447.4 | 406.2 | 390.9, 421.5 | -7.9 | 1.0 | 0.120 | <0.001 |
| **Vitamin D (µg)** | 3.2 | 3.1, 3.3 | 3.2 | 3.1, 3.3 | 3.1 | 3.0, 3.2 | 2.9 | 2.8, 3.0 | 2.7 | 2.6, 2.8 | -0.1 | 0.0 | 0.267 | <0.001 |
| **Vitamin E (mg)** | 5.3 | 5.2, 5.4 | 4.0 | 4.9, 5.1 | 4.9 | 4.8, 5.0 | 4.9 | 4.8, 5.0 | 4.5 | 4.4, 4.6 | -0.1 | 0.0 | 0.368 | <0.001 |
| **Phosphorus (mg)** | 1238.0 | 1224.7, 1251.4 | 1242.4 | 1228.7, 1256.1 | 1214.5 | 1200.9, 1228.1 | 1183.4 | 1169.9, 1196.8 | 1121.9 | 1108.4, 1135.5 | -12.5 | 0.9 | 0.652 | <0.001 |
| **Magnesium (mg)** | 260.6 | 257.5, 263.7 | 257.8 | 254.6, 261.0 | 251.0 | 247.8, 254.2 | 239.2 | 236.0, 242.3 | 227.9 | 224.7, 231.1 | -3.5 | 0.2 | 0.577 | <0.001 |
| **Zinc (mg)** | 9.2 | 9.0, 9.3 | 9.0 | 8.9, 9.1 | 8.8 | 8.7, 8.9 | 8.5 | 8.4, 8.7 | 8.2 | 8.1, 8.3 | -0.1 | 0.0 | 0.543 | <0.001 |
| **Potassium (mg)** | 2312.3 | 2481.7, 2542.9 | 2471.9 | 2440.5, 2503.3 | 2438.0 | 2406.8, 2469.2 | 2334.1 | 2303.2, 2365.0 | 2233.4 | 2202.3, 2264.5 | -29.4 | 2.0 | 0.523 | <0.001 |
| **Iodine (µg)** | 126.5 | 123.2, 129.9 | 129.3 | 125.9, 132.8 | 124.3 | 120.9, 127.7 | 118.2 | 114.9, 121.6 | 114.9 | 111.5, 118.2 | -1.4 | 0.2 | 0.261 | <0.001 |
| **Sodium (mg)** | 2071.3 | 2043.0, 2099.7 | 2042.6 | 2013.5, 2071.7 | 1999.5 | 1970.6, 2028.4 | 2020.7 | 1992.1, 2049.3 | 1952.9 | 1924.1, 1981.7 | -10.8 | 1.8 | 0.545 | <0.001 |

95%CI, 95% Confidence Intervals; %E, percentage energy; MUFA, monounsaturated fat; PUFA, polyunsaturated fat; LCn3PUFA, long chain omega-3 polyunsaturated fats; RE, retinol equivalents; DFE, dietary folate equivalents

\*Values are estimated marginal means (95%CI) calculated by ANCOVA, with total energy intake and BMI *z*-scores as covariates except for energy, where only BMI z-score was included as a covariate.

†Usual intake calculated using the Multiple Source Method ([27](#_ENREF_27)). Due to the transformation, the sum of added sugars from core foods and extra foods is slightly different to total usual added sugars intake.

‡β (SE) and *p*trend calculated using linear regression with nutrient as the dependent variable, %E from added sugars as a continuous independent variable, and age, sex, total energy intake and BMI z-scores as covariates.

**§**’Core’ and ‘extra’ foods as defined by Rangan et al ([30](#_ENREF_30); [31](#_ENREF_31)).

**Supplementary Table 3 –** Mean (95%CI)\* usual intake**†** ofenergy and nutrient according to age and sex specific quintiles of %energy from added sugars – participants aged 9 years or above only

|  | **%Energy from added sugars** | | | | | | | | | |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Nutrient** | **Q1** | | **Q2** | | **Q3** | | **Q4** | | **Q5** | | **β**‡ |  |  | ***p*trend**‡ |
| **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **SE** | ***R2*** |
| **Added sugars (g)** | 43.4 | 42.5, 44.0 | 57.2 | 56.4, 58.0 | 66.9 | 66.2, 67.7 | 78.2 | 77.4, 78.9 | 98.1 | 97.4, 98.9 |  |  |  |  |
| *From core foods****§*** *(g)* | 9.8 | 9.1, 10.4 | 11.9 | 11.3, 12.5 | 12.3 | 11.7, 13.0 | 12.5 | 11.9, 13.1 | 13.1 | 12.5, 13.8 | 0.3 | 0.0 | 0.101 | <0.001 |
| *From extra foods****§*** *(g)* | 33.5 | 32.4, 34.6 | 46.1 | 45.0, 47.2 | 54.2 | 53.1, 55.3 | 65.5 | 64.4, 66.6 | 84.2 | 83.1, 85.3 | 4.8 | 0.1 | 0.838 | <0.001 |
| **%E added sugars** | 7.5 | 7.4, 7.6 | 10.4 | 10.3, 10.5 | 12.3 | 12.1, 12.4 | 14.4 | 14.2, 14.5 | 18.2 | 18.1, 18.4 | - | - | - | - |
| *From core foods****§*** | 1.9 | 1.8, 2.0 | 2.3 | 2.2, 2.4 | 2.4 | 2.3, 2.5 | 2.4 | 2.3, 2.5 | 2.5 | 2.4, 2.6 | 0.1 | 0.0 | 0.045 | <0.001 |
| *From extra foods****§*** | 5.7 | 5.5, 5.9 | 8.2 | 8.1, 8.4 | 9.9 | 9.7, 10.1 | 12.0 | 11.8, 12.2 | 15.6 | 15.4, 15.8 | 0.9 | 0.0 | 0.839 | <0.001 |
| **Energy (kJ)** | 8931.4 | 8758.9, 9103.9 | 9165.2 | 8995.6, 9334.8 | 9346.5 | 9177.0, 9516.2 | 9424.2 | 9255.4, 9593.0 | 9360.9 | 9193.1, 9528.8 | 26.0 | 7.7 | 0.406 | <0.001 |
| **Protein (g)** | 98.4 | 97.3, 99.5 | 94.0 | 92.9, 95.1 | 92.4 | 91.3, 93.5 | 88.6 | 87.5, 89.7 | 84.1 | 83.0, 85.2 | -1.3 | 0.1 | 0.742 | <0.001 |
| **%E protein** | 18.1 | 17.9, 18.2 | 17.2 | 17.2, 17.5 | 17.1 | 16.9, 17.2 | 16.4 | 16.3, 16.6 | 15.7 | 15.5, 15.9 | -0.2 | 0.0 | 0.229 | <0.001 |
| **Total fat (g)** | 78.6 | 77.9, 79.4 | 78.4 | 77.6, 79.2 | 78.2 | 77.3, 78.9 | 78.0 | 77.2, 78.8 | 75.8 | 75.1, 76.6 | -0.3 | 0.0 | 0.771 | <0.001 |
| **%E total fat** | 31.2 | 30.9, 31.5 | 31.0 | 30.7, 31.3 | 30.9 | 30.6, 31.2 | 30.8 | 30.5, 31.1 | 30.1 | 29.8, 30.4 | -0.1 | 0.0 | 0.032 | <0.001 |
| **Saturated fat (g)** | 34.2 | 33.7, 34.7 | 32.6 | 34.1, 35.1 | 35.0 | 34.5, 35.5 | 35.0 | 34.6, 35.5 | 34.3 | 33.8, 34.8 | -0.0 | 0.0 | 0.647 | 0.536 |
| **%E saturated fat** | 13.6 | 13.4, 13.8 | 13.6 | 13.4, 13.8 | 13.8 | 13.6, 14.0 | 13.8 | 13.6, 14.0 | 13.6 | 13.4, 13.8 | -0.0 | 0.0 | 0.019 | 0.674 |
| **MUFA (g)** | 28.0 | 27.6, 28.3 | 27.7 | 27.3, 28.0 | 27.4 | 27.0, 27.7 | 27.3 | 27.0, 27.6 | 26.5 | 26.2, 26.8 | -0.1 | 0.0 | 0.700 | <0.001 |
| **PUFA (g)** | 10.4 | 10.2, 10.5 | 10.2 | 10.1, 10.4 | 10.0 | 9.8, 10.2 | 9.9 | 9.7, 10.0 | 9.5 | 9.3, 9.7 | -0.1 | 0.0 | 0.481 | <0.001 |
| **LCn3PUFA (mg)** | 140.5 | 134.1, 146.0 | 135.5 | 130.2, 140.9 | 135.3 | 129.9, 140.6 | 125.7 | 120.3, 131.0 | 115.0 | 109.7, 12-/3 | -2.7 | 0.3 | 0.130 | <0.001 |
| **Total carbohydrate (g)** | 265.2 | 263.1, 267.4 | 272.1 | 270.0, 274.2 | 275.2 | 273.1, 277.3 | 281.5 | 279.4, 283.5 | 292.3 | 290.2, 294.3 | 2.5 | 0.1 | 0.852 | <0.001 |
| **%E carbohydrates** | 49.3 | 49.0, 49.6 | 50.5 | 50.2, 50.9 | 51.0 | 50.7, 51.3 | 52.0 | 51.6, 52.3 | 53.6 | 53.3, 53.9 | 0.4 | 0.0 | 0.200 | <0.001 |
| **Total sugars (g)** | 110.6 | 108.7, 112.5 | 123.3 | 121.5, 125.1 | 130.0 | 128.2, 131.9 | 138.9 | 137.1, 140.7 | 156.0 | 154.2, 157.8 | 4.2 | 0.1 | 0.723 | <0.001 |
| **%E total sugars** | 20.6 | 20.3, 20.9 | 22.9 | 22.6, 23.2 | 24.1 | 23.8, 24.4 | 25.6 | 25.3, 25.9 | 28.6 | 28.3, 28.9 | 0.7 | 0.0 | 0.483 | <0.001 |
| **Starch (g)** | 150.5 | 148.6, 152.4 | 145.5 | 143.6, 147.4 | 142.6 | 140.7, 144.5 | 140.0 | 138.1, 141.9 | 133.4 | 131.6, 135.3 | -1.6 | 0.1 | 0.647 | <0.001 |
| **%E starch** | 28.0 | 27.6, 28..3 | 27.1 | 26.8, 27.5 | 26.5 | 26.1, 26.8 | 26.0 | 25.7, 26.4 | 24.7 | 24.4, 25.1 | -0.3 | 0.0 | 0.104 | <0.001 |
| **Fibre (g)** | 25.0 | 24.5, 25.4 | 23.9 | 23.4, 24.3 | 22.8 | 22.3, 23.3 | 21.3 | 20.9, 21.8 | 19.8 | 19.4, 20.3 | -0.5 | 0.0 | 0.458 | <0.001 |
| **Calcium (mg)** | 942.0 | 920.8. 963.1 | 960.5 | 939.7, 981.2 | 922.1 | 901.4, 942.9 | 897.8 | 877.1, 918.4 | 833.9 | 813.3, 854.4 | -10.6 | 1.2 | 0.441 | <0.001 |
| **Iron (mg)** | 13.3 | 13.1, 13.5 | 13.0 | 12.8, 13.3 | 12.6 | 12.3, 12.8 | 12.4 | 12.1, 12.6 | 11.8 | 11.6, 12.0 | -0.1 | 0.0 | 0.551 | <0.001 |
| **Thiamin (mg)** | 2.2 | 2.1, 2.2 | 2.1 | 2.0, 2.1 | 2.0 | 1.9, 2.0 | 1.9 | 1.8, 1.9 | 1.8 | 1.7, 1.8 | -0.0 | 0.0 | 0.302 | <0.001 |
| **Vitamin C (mg)** | 127.5 | 121.0, 134.0 | 125.7 | 119.4, 132.1 | 121.7 | 115.4, 128.1 | 110.4 | 104.1, 116.7 | 106.2 | 99.9, 112.5 | -2.4 | 0.4 | 0.072 | <0.001 |
| **Vitamin A RE (µg)** | 838.6 | 812.6, 864.5 | 801.6 | 776.1, 827.0 | 805.7 | 780.3, 831.2 | 764.6 | 739.2, 789.9 | 715.4 | 690.2, 740.6 | -11.6 | 1.5 | 0.191 | <0.001 |
| **Riboflavin (mg)** | 2.8 | 2.7, 2.9 | 2.8 | 2.7, 2.9 | 2.7 | 2.6, 2.8 | 2.6 | 2.5, 2.7 | 2.5 | 2.4, 2.6 | -0.0 | 0.0 | 0.312 | <0.001 |
| **DFE (µg)** | 543.6 | 525.5, 561.7 | 522.6 | 504.9, 540.4 | 511.3 | 493.6, 529.0 | 464.3 | 446.7, 482.0 | 442.5 | 424.9, 460.0 | -9.7 | 1.0 | 0.152 | <0.001 |
| **Vitamin D (µg)** | 3.4 | 3.3, 3.5 | 3.4 | 3.3, 3.5 | 3.2 | 3.1, 3.3 | 3.1 | 3.0, 3.2 | 2.8 | 2.7, 2.9 | -0.1 | 0.0 | 0.329 | <0.001 |
| **Vitamin E (mg)** | 7.0 | 6.8, 7.1 | 6.7 | 6.6, 6.9 | 6.6 | 6.5, 6.8 | 6.3 | 6.1, 6.4 | 5.9 | 5.8, 6.0 | -0.1 | 0.0 | 0.409 | <0.001 |
| **Phosphorus (mg)** | 1598.5 | 1581.1, 1615.9 | 1561.8 | 1544.8, 1578.9 | 1527.2 | 1510.2, 1544.3 | 1475.2 | 1458.2, 1492.2 | 1387.2 | 1370.3, 1404.1 | -19.5 | 1.0 | 0.759 | <0.001 |
| **Magnesium (mg)** | 335.2 | 331.0, 339.5 | 324.2 | 320.0, 328.4 | 311.1 | 306.9, 315.3 | 299.7 | 295.5, 303.8 | 280.6 | 276.5, 284.8 | -5.1 | 0.2 | 0.659 | <0.001 |
| **Zinc (mg)** | 12.4 | 12.2, 12.6 | 11.9 | 11.8, 12.1 | 11.4 | 11.3, 11.6 | 11.1 | 10.9, 11.3 | 10.6 | 10.4, 10.8 | -0.2 | 0.0 | 0.635 | <0.001 |
| **Potassium (mg)** | 3152.3 | 3108.8, 3195.7 | 3039.8 | 2997.1, 3082.3 | 2961.9 | 2919.3, 3004.5 | 2981.6 | 2849.2, 2934.1 | 2709.1 | 2667.0, 2751.4 | -40.8 | 2.5 | 0.597 | <0.001 |
| **Iodine (µg)** | 143.1 | 139.3, 146.8 | 142.8 | 139.2, 146.5 | 138.9 | 135.2, 142.5 | 137.7 | 134.1, 141.4 | 128.9 | 125.2, 132.5 | -1.3 | 0.2 | 0.374 | <0.001 |
| **Sodium (mg)** | 2914.9 | 2872.0, 2957.9 | 2832.6 | 2790.5, 2874.8 | 2823.8 | 2781.7, 2865.9 | 2782.5 | 2740.6, 2824.5 | 2731.2 | 2689.5, 2772.9 | -13.4 | 2.4 | 0.576 | <0.001 |

95%CI, 95% Confidence Intervals; %E, percentage energy; MUFA, monounsaturated fat; PUFA, polyunsaturated fat; LCn3PUFA, long chain omega-3 polyunsaturated fats; RE, retinol equivalents; DFE, dietary folate equivalents

\*Values are estimated marginal means (95%CI) calculated by ANCOVA, with total energy intake and BMI *z*-scores as covariates except for energy, where only BMI z-score was included as a covariate.

†Usual intake calculated using the Multiple Source Method ([27](#_ENREF_27)). Due to the transformation, the sum of added sugars from core foods and extra foods is slightly different to total usual added sugars intake.

‡β (SE) and *p*trend calculated using linear regression with nutrient as the dependent variable, %E from added sugars as a continuous independent variable, and age, sex, total energy intake and BMI z-scores as covariates.

**§**’Core’ and ‘extra’ foods as defined by Rangan et al ([30](#_ENREF_30); [31](#_ENREF_31)).

**Supplementary Table 4 –** Mean (95%CI)\* usual intake† ofenergy and nutrient according to age and sex specific quintiles of %energy from total sugars - participants aged 8 years or below only

| **Nutrient** | **%Energy from total sugars** | | | | | | | | | | | | |  |  |  | ***p*trend‡** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Q1** | | | **Q2** | | **Q3** | | | **Q4** | | | **Q5** | | **β‡** |  |  |
| **Mean** | **95%CI** | | **Mean** | **95%CI** | **Mean** | | **95%CI** | **Mean** | | **95%CI** | **Mean** | **95%CI** | **SE** | ***R2*** |
| **Total sugars (g)** | 82.6 | 81.9, 83.3 | | 99.0 | 98.4, 99.7 | 108.3 | | 107.6, 109.0 | 118.1 | | 117.4, 118.9 | 131.6 | 130.9, 132.3 | 4.3 | 0.0 | 0.976 | <0.001 |
| **%E total sugars** | 20.6 | 20.5, 20.8 | | 24.4 | 24.3, 24.6 | 26.5 | | 26.4, 26.7 | 28.7 | | 28.6, 28.9 | 32.2 | 32.1, 32.4 | - | - | - | - |
| **Energy (kJ)** | 6983.0 | 6873.2, 7092.8 | | 7052.4 | 6943.1, 7161.7 | 7032.1 | | 6922.5, 7147.7 | 7034.5 | | 6923.9, 7145.2 | 6758.9 | 6648.4, 6869.4 | -4.9 | 4.9 | 0..406 | 0.315 |
| **Protein (g)** | 71.7 | 70.9, 72.4 | | 68.8 | 68.1, 69.6 | 67.8 | | 67.9, 68.5 | 66.4 | | 65.7, 67.2 | 64.4 | 63.7, 65.2 | -0.6 | 0.0 | 0.654 | <0.001 |
| **%E protein** | 17.4 | 17.2, 17.5 | | 16.8 | 16.6, 17.0 | 16.6 | | 16.4, 16.8 | 16.3 | | 16.1, 16.4 | 15.8 | 15.6, 16.0 | -0.1 | 0.0 | 0.117 | <0.001 |
| **Total fat (g)** | 61.3 | 60.8, 61.8 | | 60.0 | 59.5, 60.6 | 58.9 | | 58.4, 59.4 | 56.5 | | 56.0, 57.1 | 54.4 | 53.9, 54.9 | -0.6 | 0.0 | 0.782 | <0.001 |
| **%E total fat** | 32.0 | 31.7, 32.2 | | 31.2 | 30.9, 31.5 | 30.7 | | 30.4, 30.9 | 29.5 | | 29.2, 29.8 | 28.3 | 28.0, 28.5 | -0.3 | 0.0 | 0.236 | <0.001 |
| **Saturated fat (g)** | 27.1 | 26.7, 27.5 | | 27.1 | 26.8, 27.5 | 27.3 | | 26.9, 27.7 | 26.3 | | 25.9, 26.7 | 25.6 | 25.2, 26.0 | -0.2 | 0.0 | 0.596 | <0.001 |
| **%E saturated fat** | 14.1 | 13.9, 14.3 | | 14.1 | 13.9, 14.3 | 14.2 | | 14.0, 14.4 | 13.7 | | 13.5, 13.9 | 13.3 | 13.1, 13.5 | -0.1 | 0.0 | 0.069 | <0.001 |
| **MUFA (g)** | 21.5 | 21.2, 21.7 | | 20.8 | 20.5, 21.0 | 20.1 | | 19.9, 20.3 | 19.2 | | 19.0, 19.4 | 18.3 | 18.1, 18.5 | -0.3 | 0.0 | 0.736 | <0.001 |
| **PUFA (g)** | 8.2 | 8.1, 8.3 | | 7.8 | 7.6, 7.9 | 7.4 | | 7.2, 7.5 | 7.0 | | 6.9, 7.1 | 6.6 | 6.5, 6.8 | -0.1 | 0.0 | 0.526 | <0.001 |
| **LCn3PUFA (mg)** | 120.9 | 116.3, 125.5 | | 106.6 | 102.0, 111.2 | 100.9 | | 96.3, 105.5 | 95.1 | | 90.5, 99.8 | 91.8 | 81.7, 96.4 | -2.6 | 0.3 | 0.106 | <0.001 |
| **Total carbohydrate (g)** | 199.8 | 198.4, 201.2 | | 207.0 | 205.6, 208.4 | 211.4 | | 209.9, 212.9 | 219.0 | | 217.5, 220.5 | 226.7 | 225.3, 228.1 | 2.4 | 0.1 | 0.855 | <0.001 |
| **%E carbohydrates** | 49.4 | 49.1, 49.7 | | 50.9 | 50.6, 51.2 | 51.8 | | 51.5, 52.1 | 53.4 | | 53.1, 53.7 | 55.2 | 54.9, 55.5 | 0.5 | 0.0 | 0.361 | <0.001 |
| **Added sugars (g)** | 34.9 | 33.7, 36.1 | | 41.1 | 39.9, 42.3 | 46.4 | | 45.2, 47.6 | 50.0 | | 48.8, 51.2 | 57.6 | 56.4, 58.8 | 2.0 | 0.1 | 0.541 | <0.001 |
| *From core foods****§*** *(g)* | 9.3 | 8.7, 9.8 | 10.1 | | 9.6, 10.7 | 11.6 | 11.1, 12.1 | | | 12.5 | 11.9, 13.9 | 12.9 | 12.4, 13.5 | 0.4 | 0.0 | 0.109 | <0.001 | |
| *From extra foods****§*** *(g)* | 26.3 | 25.1, 27.5 | 31.7 | | 30.5, 32.9 | 35.2 | 34.0, 36.4 | | | 37.8 | 36.6, 39.1 | 45.1 | 43.9, 46.4 | 1.6 | 0.1 | 0.456 | <0.001 | |
| **%E added sugars** | 8.1 | 7.8, 8.4 | | 9.6 | 9.4, 9.9 | 10.9 | | 10.6, 11.2 | 11.8 | | 11.5, 12.1 | 13.9 | 13.6, 14.2 | 0.5 | 0.0 | 0.375 | <0.001 |
| *From core foods****§*** | 2.2 | 2.1, 2.3 | 2.4 | | 2.3, 2.5 | 2.7 | 2.6, 2.9 | | | 2.9 | 2.8, 3.1 | 3.1 | 2.9, 3.2 | 0.1 | 0.0 | 0.076 | <0.001 | |
| *From extra foods****§*** | 6.0 | 5.7, 6.3 | 7.3 | | 7.1, 7.6 | 8.2 | 7.9, 8.5 | | | 8.9 | 8.6, 9.2 | 10.8 | 10.5, 11.1 | 0.4 | 0.0 | 0.304 | <0.001 | |
| **Starch (g)** | 114.3 | 112.9, 115.6 | | 106.4 | 105.1, 107.8 | 102.1 | | 100.8, 103.4 | 100.0 | | 98.7, 101.3 | 94.4 | 93.1, 95.7 | -1.6 | 0.1 | 0.656 | <0.001 |
| **%E starch** | 27.9 | 27.5, 28.2 | | 26.0 | 25.6. 26.3 | 24.8 | | 24.5, 25.2 | 24.4 | | 24.0, 24.7 | 22.9 | 22.6, 23.2 | -0.4 | 0.0 | 0.253 | <0.001 |
| **Fibre (g)** | 18.1 | 17.8, 18.5 | | 18.3 | 18.0, 18.7 | 18.0 | | 17.6, 18.4 | 18.2 | | 17.9, 18.6 | 17.8 | 17.4, 18.2 | -0.0 | 0.0 | 0.293 | <0.001 |
| **Calcium (mg)** | 704.9 | 723.3, 758.4 | | 804.7 | 787.2, 822.2 | 818.1 | | 800.6, 835.7 | 835.9 | | 818.2, 853.6 | 834.3 | 816.5, 852.0 | 7.3 | 1.0 | 0.334 | <0.001 |
| **Iron (mg)** | 9.5 | 9.3, 9.7 | | 9.5 | 9.3, 9.6 | 9.2 | | 9.0, 9.4 | 9.5 | | 9.3, 9.7 | 9.1 | 9.0, 9.3 | -0.0 | 0.0 | 0.442 | 0.007 |
| **Thiamin (mg)** | 1.7 | 1.6, 1.7 | | 1.6 | 1.6, 1.7 | 1.6 | | 1.6, 1.7 | 1.6 | | 1.6, 1.6 | 1.5 | 1.5, 1.6 | -0.0 | 0.0 | 0.167 | <0.001 |
| **Vitamin C (mg)** | 79.9 | 75.5, 84.2 | | 97.2 | 92.8, 101.5 | 92.7 | | 88.3, 97.0 | 109.5 | | 105.1, 113.9 | 110.3 | 105.9, 114.7 | 2.8 | 0.3 | 0.122 | <0.001 |
| **Vitamin A RE (µg)** | 674.1 | 654.0, 694.3 | | 713.8 | 693.8, 733.9 | 704.8 | | 684.7, 724.9 | 713.1 | | 692.8, 733.4 | 712.0 | 691.6. 732.3 | 2.3 | 1.1 | 0..161 | <0.001 |
| **Riboflavin (mg)** | 2.2 | 2.1, 2.3 | | 2.4 | 2.3, 2.4 | 2.5 | | 2.4, 2.5 | 2.4 | | 2.4, 2.5 | 2.4 | 2.4, 2.5 | 0.0 | 0.0 | 0.223 | <0.001 |
| **DFE (µg)** | 427.5 | 412.1, 443.0 | | 448.7 | 433.3, 464.0 | 461.8 | | 446.4, 477.2 | 46.8.8 | | 453.2, 484.4 | 460.7 | 445.1, 476.3 | 3.1 | 0.9 | 0.097 | <0.001 |
| **Vitamin D (µg)** | 2.9 | 2.8, 3.0 | | 3.1 | 3.0, 3.2 | 3.1 | | 3.0, 3.2 | 3.1 | | 3.0, 3.2 | 2.9 | 2.8, 3.0 | -0.0 | 0.0 | 0.230 | 0.389 |
| **Vitamin E (mg)** | 5.3 | 5.2, 5.4 | | 5.0 | 4.9, 5.1 | 4.8 | | 4.7, 4.9 | 4.8 | | 4.7, 4.9 | 4.6 | 4.5, 4.6 | -0.1 | 0.0 | 0.371 | <0.001 |
| **Phosphorus (mg)** | 1119.7 | 1185.6, 1213.8 | | 1219.9 | 1205.9, 1234.0 | 1205.1 | | 1191.0, 1219.1 | 1194.8 | | 1180.6, 1209.0 | 1180.5 | 1166.2, 1194.7 | -2.7 | 0.8 | 0.617 | <0.001 |
| **Magnesium (mg)** | 245.1 | 241.7, 248.4 | | 251.6 | 248.2, 254.9 | 246.2 | | 242.9, 249.6 | 248.4 | | 245.0, 251.7 | 245.4 | 242.0, 248.7 | -0.1 | 0.2 | 0.516 | 0.729 |
| **Zinc (mg)** | 9.0 | 8.9, 9.2 | | 8.9 | 8.8, 9.0 | 8.7 | | 8.5, 8.8 | 8.6 | | 8.5, 8.7 | 8.5 | 8.4, 8.6 | -0.0 | 0.0 | 0.519 | <0.001 |
| **Potassium (mg)** | 2267.4 | 2235.8, 2299.0 | | 2373.1 | 2341.7, 2404.6 | 2402.6 | | 2371.1, 2434.2 | 2361.0 | | 2429.1, 2492.8 | 2490.2 | 2458.3, 2522.1 | 19.8 | 1.8 | 0.503 | <0.001 |
| **Iodine (µg)** | 108.6 | 105.3, 111.9 | | 123.0 | 119.7, 126.3 | 123.2 | | 119.9, 126.5 | 127.4 | | 124.0, 130.7 | 131.3 | 127.9, 134.6 | 1.7 | 0.2 | 0.278 | <0.001 |
| **Sodium (mg)** | 2160.3 | 2132.6, 2188.1 | | 2040.9 | 2013.2, 2068.5 | 2014.5 | | 1986.8, 2042.2 | 1966.1 | | 1938.1, 1994.1 | 1903.9 | 1875.9, 1931.9 | -22.1 | 1.5 | 0.581 | <0.001 |

95%CI, 95% Confidence Intervals; %E, percentage energy; MUFA, monounsaturated fat; PUFA, polyunsaturated fat; LCn3PUFA, long chain omega-3 polyunsaturated fats; RE, retinol equivalents; DFE, dietary folate equivalents

\*Values are estimated marginal means (95%CI) calculated by ANCOVA, with total energy intake and BMI *z*-scores as covariates except for energy, where only BMI z-score was included as a covariate.

†Usual intake calculated using the Multiple Source Method ([27](#_ENREF_27)). Due to the transformation, the sum of added sugars from core foods and extra foods is slightly different to total usual added sugars intake.

‡β (SE), *R*2 and *p*trend calculated using linear regression with nutrient as the dependent variable, %E from added sugars as a continuous independent variable, and age, sex, total energy intake and BMI z-scores as covariates.

**§**’Core’ and ‘extra’ foods as defined by Rangan *et al*([30](#_ENREF_30); [31](#_ENREF_31)).

**Supplementary Table 5 –** Mean (95%CI)\* usual intake† ofenergy and nutrient according to age and sex specific quintiles of %energy from total sugars - participants aged 9 years or above only

| **Nutrient** | **%Energy from total sugars** | | | | | | | | | | | | |  |  |  | ***p*trend‡** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Q1** | | | **Q2** | | **Q3** | | | **Q4** | | | **Q5** | | **β‡** |  |  |
| **Mean** | **95%CI** | | **Mean** | **95%CI** | **Mean** | | **95%CI** | **Mean** | | **95%CI** | **Mean** | **95%CI** | **SE** | ***R2*** |
| **Total sugars (g)** | 98.6 | 97.7, 99.6 | | 118.7 | 117.8, 119.7 | 132.3 | | 131.3, 133.2 | 144.9 | | 143.9, 145.8 | 164.6 | 163.6, 165.5 | 5.7 | 0.0 | 0.971 | <0.001 |
| **%E total sugars** | 18.5 | 18.3, 18.6 | | 22.2 | 22.0, 22.3 | 24.5 | | 24.4, 24.6 | 26.6 | | 26.5, 26.8 | 30.2 | 30.0, 30.3 | - | - | - | - |
| **Energy (kJ)** | 9000.9 | 8828.1, 9173.1 | | 9249.2 | 9079.2, 9419.3 | 9337.4 | | 9208.4, 9546.5 | 9303.6 | | 9135.0, 9472.2 | 9302.4 | 9132.0, 9472.9 | 14.2 | 7.1 | 0.404 | 0.047 |
| **Protein (g)** | 97.0 | 95.8, 98.2 | | 94.0 | 92.9, 95.1 | 90.7 | | 89.5, 91.8 | 90.1 | | 89.0, 91.3 | 85.4 | 84.3, 86.6 | -1.0 | 0.1 | 0.725 | <0.001 |
| **%E protein** | 17.8 | 17.6, 18.0 | | 17.3 | 17.1, 17.5 | 16.8 | | 16.6, 17.0 | 16.7 | | 16.5, 16.9 | 15.9 | 15.7, 16.2 | -0.2 | 0.0 | 0.178 | <0.001 |
| **Total fat (g)** | 81.7 | 81.0, 82.5 | | 79.6 | 78.9, 80.3 | 78.6 | | 77.9, 79.4 | 76.2 | | 75.5, 77.0 | 72.9 | 72.2, 73.6 | -0.8 | 0.0 | 0.802 | <0.001 |
| **%E total fat** | 32.4 | 32.1, 32.7 | | 31.4 | 31.2, 31.7 | 31.2 | | 30.9, 31.4 | 30.2 | | 29.9, 30.5 | 28.9 | 28.6, 29.2 | -0.3 | 0.0 | 0.170 | <0.001 |
| **Saturated fat (g)** | 35.1 | 34.6, 35.6 | | 35.0 | 34.5, 35.5 | 35.1 | | 34.6, 35.6 | 34.4 | | 33.9. 34.9 | 33.6 | 33.1, 34.1 | -0.2 | 0.0 | 0.652 | <0.001 |
| **%E saturated fat** | 13.9 | 13.7, 14.1 | | 13.8 | 13.6, 14.0 | 13.9 | | 13.7, 14.1 | 13.6 | | 13.4, 13.8 | 13.3 | 13.1, 13.4 | -0.1 | 0.0 | 0.035 | <0.001 |
| **MUFA (g)** | 29.4 | 29.1, 29.7 | | 28.1 | 27.8, 28.4 | 27.7 | | 27.4, 28.0 | 26.6 | | 26.3, 26.9 | 25.1 | 24.8, 25.4 | -0.4 | 0.0 | 0.754 | <0.001 |
| **PUFA (g)** | 10.9 | 10.7, 11.1 | | 10.4 | 10.3, 10.6 | 10.0 | | 9.9, 10.2 | 9.7 | | 9.5, 9.8 | 8.9 | 8.8, 9.1 | -0.2 | 0.0 | 0.542 | <0.001 |
| **LCn3PUFA (mg)** | 148.7 | 143.2, 154.1 | | 134.5 | 129.2, 139.8 | 127.9 | | 122.6, 133.2 | 125.1 | | 119.8, 130.4 | 115.6 | 110.3, 120.9 | -2.9 | 0.3 | 0.142 | <0.001 |
| **Total carbohydrate (g)** | 259.9 | 258.0, 261.9 | | 269.5 | 267.6, 271.4 | 276.5 | | 274.6, 278.4 | 283.5 | | 281.6, 285.4 | 297.1 | 295.2, 299.0 | 3.2 | 0.1 | 0.878 | <0.001 |
| **%E carbohydrates** | 48.5 | 48.2, 48.8 | | 50.1 | 49.8, 50.4 | 51.1 | | 50.8, 51.4 | 52.2 | | 52.0, 52.5 | 54.5 | 54.2, 54.8 | 0.5 | 0.0 | 0.346 | <0.001 |
| **Added sugars (g)** | 50.9 | 49.4, 52.5 | | 60.9 | 59.4, 62.5 | 69.3 | | 67.8, 70.8 | 74.7 | | 73.2, 76.2 | 88.8 | 87.3, 90.3 | 3.3 | 0.1 | 0.615 | <0.001 |
| *From core foods****§*** *(g)* | 9.5 | 8.9, 10.1 | 11.3 | | 10.7, 12.0 | 11.8 | 11.1, 12.4 | | | 13.3 | 12.7, 14.0 | 13.7 | 13.1, 14.3 | 0.4 | 0.0 | 0.126 | <0.001 | |
| *From extra foods****§*** *(g)* | 41.5 | 39.8, 43.2 | 49.6 | | 47.9, 51.2 | 57.2 | 55.6, 58.9 | | | 61.8 | 60.2, 63.5 | 74.4 | 72.7, 76.0 | 2.8 | 0.1 | 0.489 | <0.001 | |
| **%E added sugars** | 9.1 | 8.8, 9.4 | | 11.1 | 10.8, 11.4 | 12.7 | | 12.4, 12.9 | 13.7 | | 13.5, 14.0 | 16.4 | 16.1, 16.7 | 0.6 | 0.0 | 0.473 | <0.001 |
| *From core foods****§*** | 1.8 | 1.7, 1.9 | 2.2 | | 2.1, 2.3 | 2.3 | 2.2, 2.4 | | | 2.6 | 2.4, 2.7 | 2.6 | 2.5, 2.7 | 0.1 | 0.0 | 0.073 | <0.001 | |
| *From extra foods****§*** | 7.3 | 7.0, 7.7 | 9.0 | | 8.7, 9.3 | 10.4 | 10.1, 10.7 | | | 11.3 | 11.0, 11.6 | 13.7 | 13.4, 14.0 | 0.5 | 0.0 | 0.351 | <0.001 | |
| **Starch (g)** | 156.2 | 154.4, 158.0 | | 147.7 | 146.0, 149.5 | 141.7 | | 139.9, 143.5 | 136.4 | | 134.6, 138.2 | 130.0 | 128.2, 131.8 | -2.3 | 0.1 | 0.695 | <0.001 |
| **%E starch** | 29.1 | 28.8, 29.4 | | 27.4 | 27.1, 27.8 | 26.3 | | 25.9, 26.6 | 25.3 | | 25.0, 25.7 | 24.2 | 23.9, 24.5 | -0.4 | 0.0 | 0.231 | <0.001 |
| **Fibre (g)** | 22.8 | 22.3, 23.2 | | 23.0 | 22.6, 23.5 | 22.5 | | 22.2, 23.1 | 22.6 | | 22.2, 23.1 | 21.7 | 21.3, 22.2 | -0.1 | 0.0 | 0.363 | 0.003 |
| **Calcium (mg)** | 827.7 | 806.6, 848.8 | | 904.6 | 883.9, 925.3 | 918.6 | | 898.0, 939.2 | 955.5 | | 934.9, 976.0 | 943.8 | 923.0, 964.6 | 8.9 | 1.1 | 0.438 | <0.001 |
| **Iron (mg)** | 12.6 | 12.4, 12.9 | | 12.8 | 12.5, 13.0 | 12.8 | | 12.5, 13.0 | 12.8 | | 12.5, 13.0 | 12.0 | 11.8, 12.3 | -0.0 | 0.0 | 0.531 | 0.009 |
| **Thiamin (mg)** | 2.0 | 1.9, 2.0 | | 2.0 | 2.0, 2.1 | 2.0 | | 1.9, 2.0 | 2.0 | | 1.9, 2.1 | 1.9 | 1.8, 1.9 | -0.0 | 0.0 | 0.271 | 0.080 |
| **Vitamin C (mg)** | 93.7 | 87.4, 100.0 | | 108.2 | 101.9, 114.4 | 118.2 | | 112.1, 124.4 | 127.3 | | 121.2, 133.5 | 142.7 | 136.5, 148.9 | 4.5 | 0.3 | 0.127 | <0.001 |
| **Vitamin A RE (µg)** | 722.1 | 696.1, 748.2 | | 784.5 | 758.9, 810.1 | 804.1 | | 788.6, 829.5 | 814.3 | | 788.9, 839.7 | 794.8 | 769.2, 820.5 | 6.1 | 1.4 | 0.175 | <0.001 |
| **Riboflavin (mg)** | 2.4 | 2.3, 2.5 | | 2.7 | 2.6, 2.8 | 2.7 | | 2.6, 2.7 | 2.8 | | 2.7, 2.9 | 2.7 | 2.6, 2.8 | 0.0 | 0.0 | 0.310 | <0.001 |
| **DFE (µg)** | 449.94 | 431.2, 467.7 | | 502.3 | 484.4, 520.2 | 498.2 | | 480.4, 516.0 | 528..1 | | 510.4, 545.9 | 501.3 | 483.4, 519.2 | 4.6 | 1.0 | 0.127 | <0.001 |
| **Vitamin D (µg)** | 3.1 | 3.0, 3.2 | | 3.2 | 3.1, 3.3 | 3.2 | | 3.1, 3.3 | 3.2 | | 3.1, 3.3 | 3.0 | 2.9, 3.1 | -0.0 | 0.0 | 0.297 | 0.108 |
| **Vitamin E (mg)** | 6.9 | 6.8, 7.1 | | 6.7 | 6.8, 6.8 | 6.5 | | 6.3, 6.6 | 6.4 | | 6.3, 6.5 | 6.0 | 5.8, 6.1 | -0.1 | 0.0 | 0.396 | <0.001 |
| **Phosphorus (mg)** | 1521.5 | 1502.9, 1540.1 | | 1538.2 | 1519.9, 1556.5 | 1514.1 | | 1496.0, 1532.3 | 1514.9 | | 1496.8, 1533.0 | 1455.2 | 1436.9, 1473.6 | -6.2 | 1.0 | 0.721 | <0.001 |
| **Magnesium (mg)** | 309.5 | 304.9, 314.2 | | 312.9 | 308.3, 317.4 | 308.7 | | 304.2, 313.3 | 314.6 | | 310.1, 319.1 | 303.4 | 298.8, 307.9 | -0.3 | 0.2 | 0.590 | 0.192 |
| **Zinc (mg)** | 12.0 | 11.8, 12.2 | | 11.8 | 11.7, 12.0 | 11.5 | | 11.3, 11.7 | 11.3 | | 11.1, 11.5 | 10.8 | 10.6, 11.0 | -0.1 | 0.0 | 0.607 | <0.001 |
| **Potassium (mg)** | 2823.9 | 2778.9, 2869.0 | | 2908.5 | 2864.2, 2952.8 | 2946.7 | | 2902.6, 2990.7 | 3054.2 | | 3010.3, 3098.2 | 3003.5 | 2959.1, 3047.9 | 18.1 | 2.4 | 0.558 | <0.001 |
| **Iodine (µg)** | 123.5 | 119.9, 127.2 | | 137.2 | 133.6, 140.8 | 136.6 | | 133.0, 140.1 | 145.5 | | 141.9, 149.1 | 147.7 | 144.1, 151.3 | 1.9 | 0.2 | 0.391 | <0.001 |
| **Sodium (mg)** | 3000.3 | 2958.8, 3041.9 | | 2888.8 | 2848.0, 2929.6 | 2824.1 | | 2783.5, 2864.7 | 2741.3 | | 2700.8, 2781.8 | 2630.8 | 2589.9, 2671.7 | -31.0 | 2.2 | 0.607 | <0.001 |

95%CI, 95% Confidence Intervals; %E, percentage energy; MUFA, monounsaturated fat; PUFA, polyunsaturated fat; LCn3PUFA, long chain omega-3 polyunsaturated fats; RE, retinol equivalents; DFE, dietary folate equivalents

\*Values are estimated marginal means (95%CI) calculated by ANCOVA, with total energy intake and BMI *z*-scores as covariates except for energy, where only BMI z-score was included as a covariate.

†Usual intake calculated using the Multiple Source Method ([27](#_ENREF_27)). Due to the transformation, the sum of added sugars from core foods and extra foods is slightly different to total usual added sugars intake.

‡β (SE), *R*2 and *p*trend calculated using linear regression with nutrient as the dependent variable, %E from added sugars as a continuous independent variable, and age, sex, total energy intake and BMI z-scores as covariates.

**§**’Core’ and ‘extra’ foods as defined by Rangan *et al*([30](#_ENREF_30); [31](#_ENREF_31)).

**Supplementary table 6 –** Percentage of subjects **NOT** meeting Nutrient Reference Values (NRVs) for Australia and New Zealand\* according to age and sex specific quintiles of %energy from added sugars, stratified by source - participants aged 8 years or below only

|  |  | **%Energy from added sugars** | | | | |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Nutrient** | **Source of added sugars†** | **Q1** | **Q2** | **Q3** | **Q4** | **Q5** | **χ2** | ***p* value‡** | **OR§** | **95%CI** | ***R2*** | ***p*trend§** |
| **Saturated fat** | All foods | 93.5 | 96.0 | 95.5 | 97.0 | 96.4 | 7.1 | 0.131 | 1.05 | 0.98, 1.11 | 0.029 | 0.147 |
|  | From core foods only | 96.0 | 96.7 | 96.0 | 95.5 | 94.1 | 3.5 | 0.481 | 0.86 | 0.74, 0.99 | 0.033 | 0.032 |
|  | From extra foods only | 93.7 | 94.2 | 95.7 | 98.0 | 97.0 | 12.6 | 0.014 | 1.10 | 1.03, 1.18 | 0.038 | 0.007 |
| **LCn3PUFA** | All foods | 1.8 | 0.5 | 1.3 | 3.5 | 3.1 | 12.6 | 0.014 | 1.13 | 1.05, 1.23 | 0.096 | 0.002 |
|  | From core foods only | 1.3 | 1.8 | 2.3 | 2.5 | 2.3 | 2.0 | 0.727 | 1.16 | 0.95, 1.43 | 0.077 | 0.148 |
|  | From extra foods only | 1.5 | 1.3 | 2.0 | 2.3 | 3.0 | 3.9 | 0.418 | 1.12 | 1.03, 1.21 | 0.089 | 0.009 |
| **Fibre** | All foods | 30.3 | 31.8 | 40.3 | 47.1 | 56.6 | 78.3 | <0.001 | 1.17 | 1.14, 1.21 | 0.239 | <0.001 |
|  | From core foods only | 44.3 | 37.1 | 39.2 | 40.1 | 45.3 | 7.9 | 0.094 | 1.07 | 1.00, 1.14 | 0.171 | 0.068 |
|  | From extra foods only | 32.2 | 34.7 | 39.2 | 43.5 | 56.6 | 60.2 | <0.001 | 1.17 | 1.14, 1.21 | 0.232 | <0.001 |
| **Calcium** | All foods | 8.1 | 1.5 | 3.8 | 5.3 | 9.6 | 31.8 | <0.001 | 1.11 | 1.05, 1.17 | 0.206 | <0.001 |
|  | From core foods only | 11.1 | 6.3 | 6.3 | 1.8 | 2.3 | 43.0 | <0.001 | 0.57 | 0.46, 0.69 | 0.238 | <0.001 |
|  | From extra foods only | 5.8 | 3.3 | 1.3 | 5.8 | 11.9 | 48.3 | <0.001 | 1.19 | 1.12, 1.26 | 0.236 | <0.001 |
| **Iron** | All foods | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
|  | From core foods only | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
|  | From extra foods only | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
| **Thiamin** | All foods | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
|  | From core foods only | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
|  | From extra foods only | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
| **Vitamin C** | All foods | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.405 | 0.37 | 0.05, 2.55 | 0.403 | 0.315 |
|  | From core foods only | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.408 | # | # | # | # |
|  | From extra foods only | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.407 | 0.58 | 0.13, 2.49 | 0.275 | 0.459 |
| **Vitamin A RE** | All foods | 1.0 | 0.5 | 0.0 | 1.0 | 0.8 | 4.3 | 0.362 | 1.01 | 0.87, 1.18 | 0.321 | 0.890 |
|  | From core foods only | 2.0 | 0.0 | 0.0 | 0.8 | 0.5 | 16.7 | 0.002 | 0.80 | 0.49, 1.29 | 0.327 | 0.356 |
|  | From extra foods only | 1.5 | 0.5 | 0.0 | 0.0 | 1.3 | 12.2 | 0.016 | 1.04 | 0.89, 1.22 | 0.323 | 0.609 |
| **Riboflavin** | All foods | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
|  | From core foods only | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
|  | From extra foods only | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
| **DFE** | All foods | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 4.0 | 0.401 | # | # | # | # |
|  | From core foods only | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.408 | # | # | # | # |
|  | From extra foods only | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 4.0 | 0.401 | # | # | # | # |
| **Vitamin D** | All foods | 92.9 | 95.2 | 94.0 | 98.7 | 99.0 | 31.4 | <0.001 | 1.26 | 1.16, 1.36 | 0.213 | <0.001 |
|  | From core foods only | 94.7 | 94.7 | 96.5 | 98.0 | 95.9 | 7.72 | 0.102 | 1.15 | 0.96, 1.37 | 0.155 | 0.139 |
|  | From extra foods only | 92.9 | 95.0 | 95.2 | 97.5 | 99.5 | 26.2 | <0.001 | 1.27 | 1.16, 1.39 | 0.206 | <0.001 |
| **Vitamin E** | All foods | 68.7 | 75.9 | 75.6 | 79.2 | 87.6 | 42.4 | <0.001 | 1.18 | 1.13, 1.22 | 0.244 | <0.001 |
|  | From core foods only | 75.3 | 72.5 | 74.4 | 80.9 | 83.5 | 19.6 | <0.001 | 1.16 | 1.07, 1.27 | 0.196 | <0.001 |
|  | From extra foods only | 69.1 | 75.9 | 79.9 | 76.3 | 85.8 | 33.7 | <0.001 | 1.16 | 1.12, 1.21 | 0.232 | <0.001 |
| **Phosphorus** | All foods | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
|  | From core foods only | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
|  | From extra foods only | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
| **Magnesium** | All foods | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
|  | From core foods only | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
|  | From extra foods only | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
| **Zinc** | All foods | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
|  | From core foods only | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
|  | From extra foods only | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
| **Potassium** | All foods | 31.8 | 27.6 | 30.2 | 39.6 | 46.4 | 41.5 | <0.001 | 1.16 | 1.12, 1.20 | 0.418 | <0.001 |
|  | From core foods only | 43.3 | 31.3 | 35.0 | 34.4 | 31.5 | 16.6 | 0.002 | 0.88 | 0.81, 0.95 | 0.382 | 0.002 |
|  | From extra foods only | 29.2 | 28.4 | 33.4 | 35.7 | 49.0 | 47.8 | <0.001 | 1.21 | 1.17, 1.26 | 0.437 | <0.001 |
| **Iodine** | All foods | 5.5 | 2.5 | 3.8 | 4.3 | 5.8 | 7.0 | 0.137 | 1.04 | 0.98, 1.10 | 0.161 | 0.217 |
|  | From core foods only | 9.1 | 4.0 | 3.8 | 1.5 | 3.3 | 30.4 | <0.001 | 0.69 | 0.57, 0.84 | 0.184 | <0.001 |
|  | From extra foods only | 4.8 | 3.8 | 2.5 | 4.0 | 6.9 | 9.7 | 0.045 | 1.09 | 1.02, 1.16 | 0.170 | 0.006 |
| **Sodium** | All foods | 98.5 | 98.5 | 98.7 | 98.5 | 99.5 | 2.4 | 0.666 | 1.02 | 0.91, 1.14 | 0.170 | 0.700 |
|  | From core foods only | 98.5 | 99.7 | 98.0 | 99.5 | 98.0 | 9.0 | 0.062 | 0.93 | 0.72, 1.21 | 0.171 | 0.586 |
|  | From extra foods only | 98.2 | 97.0 | 100.0 | 98.5 | 99.7 | 18.4 | 0.001 | 1.04 | 0.92, 1.18 | 0.172 | 0.499 |

OR, odds ratio; 95%CI, 95% confidence intervals; LCn3PUFA, long chain omega-3 polyunsaturated fats; RE, retinol equivalents; DFE, dietary folate equivalents.

\*For calcium, iron, iodine, zinc, magnesium, phosphorus, vitamin A RE, thiamin, riboflavin, DFE and vitamin C, intakes lower than the Estimated Average Requirement (EAR) were considered not meeting the NRV; for potassium, LCn3PUFA, dietary fibre, vitamin D and vitamin E, intakes lower than the Adequate Intake (AI) were considered not meeting the NRV; for sodium, intakes higher than the Upper Level (UL) were considered not meeting the NRV; for saturated fat, %E > 10% was considered not meeting the NRV.

†’Core’ and ‘extra’ foods as defined by Rangan *et al*([30](#_ENREF_30); [31](#_ENREF_31)).

‡*p* value tested using Pearson χ2 test.

**§**Odds ratio (95%CI) and *p*trend calculated using logistic regression with %E from added sugars as a continuous independent variable, and age, sex, total energy intake and BMI *z*-scores as covariates.

**Supplementary table 7 –** Percentage of subjects **NOT** meeting Nutrient Reference Values (NRVs) for Australia and New Zealand\* according to age and sex specific quintiles of %energy from added sugars, stratified by source - participants aged 9 years or above only

|  |  | **%Energy from added sugars** | | | | |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Nutrient** | **Source of added sugars†** | **Q1** | **Q2** | **Q3** | **Q4** | **Q5** | **χ2** | ***p* value‡** | **OR§** | **95%CI** | ***R2*** | ***p*trend§** |
| **Saturated fat** | All foods | 94.9 | 96.5 | 98.1 | 98.1 | 97.0 | 10.5 | 0.032 | 1.03 | 0.97, 1.10 | 0.053 | 0.330 |
|  | From core foods only | 97.0 | 98.4 | 97.4 | 97.5 | 94.2 | 14.6 | 0.006 | 0.79 | 0.67, 0.95 | 0.062 | 0.010 |
|  | From extra foods only | 93.3 | 98.8 | 96.8 | 99.3 | 96.5 | 33.4 | <0.001 | 1.07 | 1.01, 1.15 | 0.060 | 0.034 |
| **LCn3PUFA** | All foods | 13.5 | 16.5 | 11.4 | 13.4 | 17.6 | 8.9 | 0.063 | 1.03 | 1.00, 1.06 | 0.156 | 0.092 |
|  | From core foods only | 15.1 | 13.4 | 13.3 | 13.6 | 17.2 | 3.9 | 0.417 | 1.07 | 0.97, 1.19 | 0.156 | 0.180 |
|  | From extra foods only | 15.8 | 14.8 | 12.5 | 14.1 | 15.3 | 2.3 | 0.675 | 1.01 | 0.98, 1.04 | 0.155 | 0.526 |
| **Fibre** | All foods | 45.5 | 52.5 | 52.5 | 63.1 | 75.9 | 99/4 | <0.001 | 1.20 | 1.17, 1.23 | 0.305 | <0.001 |
|  | From core foods only | 63.5 | 55.9 | 54.8 | 54.6 | 61.1 | 11.6 | 0.020 | 1.01 | 0.93, 1.09 | 0.215 | 0.895 |
|  | From extra foods only | 44.4 | 55.7 | 51.9 | 61.6 | 76.0 | 99.9 | <0.001 | 1.19 | 1.16, 1.23 | 0.304 | <0.001 |
| **Calcium** | All foods | 59.9 | 49.7 | 53.9 | 56.8 | 69.1 | 38.0 | <0.001 | 1.10 | 1.07, 1.13 | 0.409 | <0.001 |
|  | From core foods only | 69.9 | 63.5 | 57.3 | 49.3 | 49.4 | 56.9 | <0.001 | 0.73 | 0.67, 0.80 | 0.412 | <0.001 |
|  | From extra foods only | 53.8 | 52.4 | 52.7 | 57.9 | 72.6 | 50.9 | <0.001 | 1.14 | 1.11, 1.18 | 0.427 | <0.001 |
| **Iron** | All foods | 0.5 | 1.6 | 1.4 | 1.6 | 2.6 | 6.4 | 0.173 | 1.24 | 1.13, 1.36 | 0.477 | <0.001 |
|  | From core foods only | 2.6 | 1.2 | 1.2 | 1.2 | 1.6 | 4.2 | 0.375 | 1.01 | 0.74, 1.36 | 0.410 | 0.975 |
|  | From extra foods only | 0.9 | 0.5 | 1.6 | 2.1 | 2.3 | 7.2 | 0.128 | 1.20 | 1.09, 1.31 | 0.456 | <0.001 |
| **Thiamin** | All foods | 0.2 | 0.5 | 0.5 | 0.9 | 1.6 | 7.2 | 0.125 | 1.28 | 1.15, 1.43 | 0.318 | <0.001 |
|  | From core foods only | 1.6 | 0.7 | 0.0 | 1.4 | 0.2 | 11.0 | 0.027 | 0.79 | 0.50, 1.27 | 0.210 | 0.340 |
|  | From extra foods only | 0.2 | 0.5 | 0.2 | 0.9 | 1.9 | 11.0 | 0.026 | 1.27 | 1.14, 1.42 | 0.301 | <0.001 |
| **Vitamin C** | All foods | 1.2 | 0.5 | 0.5 | 0.0 | 0.5 | 5.9 | 0.210 | 0.89 | 0.76, 1.04 | 0.070 | 0.142 |
|  | From core foods only | 2.1 | 0.0 | 0.5 | 0.5 | 0.0 | 21.4 | <0.001 | 0.39 | 0.18, 0.84 | 0.109 | 0.017 |
|  | From extra foods only | 0.7 | 0.7 | 0.5 | 0.5 | 0.5 | 0.5 | 0.973 | 0.97 | 0.84, 1.12 | 0.055 | 0.705 |
| **Vitamin A RE** | All foods | 10.5 | 10.2 | 8.8 | 10.9 | 20.0 | 32.8 | <0.001 | 1.12 | 1.08, 1.15 | 0.186 | <0.001 |
|  | From core foods only | 15.4 | 13.9 | 9.8 | 7.1 | 14.4 | 19.9 | <0.001 | 0.95 | 0.85, 1.06 | 0.154 | 0.377 |
|  | From extra foods only | 11.4 | 8.8 | 10.0 | 10.2 | 20.2 | 34.6 | <0.001 | 1.11 | 1.08, 1.15 | 0.185 | <0.001 |
| **Riboflavin** | All foods | 0.0 | 0.0 | 0.9 | 0.0 | 0.9 | 12.0 | 0.017 | 1.48 | 1.18, 1.85 | 0.606 | <0.001 |
|  | From core foods only | 0.7 | 0.5 | 0.2 | 0.0 | 0.5 | 3.3 | 0.511 | 0.50 | 0.20, 1.22 | 0.478 | 0.129 |
|  | From extra foods only | 0.0 | 0.0 | 0.7 | 0.2 | 0.9 | 8.3 | 0.082 | 1.61 | 1.21, 2.15 | 0.635 | <0.001 |
| **DFE** | All foods | 6.0 | 5.6 | 7.4 | 10.2 | 17.0 | 45.0 | <0.001 | 1.18 | 1.13, 1.22 | 0.265 | <0.001 |
|  | From core foods only | 15.9 | 9.9 | 8.4 | 6.7 | 5.4 | 34.1 | <0.001 | 0.69 | 0.60, 0.81 | 0.225 | <0.001 |
|  | From extra foods only | 5.3 | 4.6 | 7.6 | 10.9 | 17.9 | 59.6 | <0.001 | 1.20 | 1.16, 1.25 | 0.282 | <0.001 |
| **Vitamin D** | All foods | 88.9 | 88.9 | 89.6 | 92.6 | 96.3 | 22.2 | <0.001 | 1.16 | 1.10, 1.22 | 0.288 | <0.001 |
|  | From core foods only | 92.3 | 91.9 | 90.0 | 90.1 | 92.1 | 2.8 | 0.587 | 0.96 | 0.84, 1.11 | 0.253 | 0.577 |
|  | From extra foods only | 87.9 | 87.2 | 92.1 | 93.3 | 95.6 | 27.5 | <0.001 | 1.17 | 1.11, 1.22 | 0.291 | <0.001 |
| **Vitamin E** | All foods | 85.2 | 88.2 | 87.0 | 94.4 | 94.2 | 34.3 | <0.001 | 1.17 | 1.12, 1.23 | 0.242 | <0.001 |
|  | From core foods only | 90.7 | 90.5 | 90.0 | 89.2 | 88.6 | 1.5 | 0.826 | 0.94 | 0.83, 1.07 | 0.197 | 0.376 |
|  | From extra foods only | 85.8 | 85.6 | 91.0 | 91.0 | 95.3 | 31.2 | <0.001 | 1.18 | 1.13, 1.24 | 0.248 | <0.001 |
| **Phosphorus** | All foods | 8.4 | 5.8 | 4.6 | 6.3 | 10.7 | 14.8 | 0.005 | 1.16 | 1.11, 1.23 | 0.539 | <0.001 |
|  | From core foods only | 10.5 | 6.9 | 6.3 | 7.1 | 5.1 | 10.2 | 0.036 | 0.79 | 0.65, 0.95 | 0.517 | 0.012 |
|  | From extra foods only | 6.0 | 7.9 | 5.8 | 5.1 | 10.9 | 14.4 | 0.006 | 1.16 | 1.10, 1.22 | 0.538 | <0..001 |
| **Magnesium** | All foods | 15.1 | 16.7 | 16.7 | 20.2 | 31.4 | 47.3 | <0.001 | 1.19 | 1.15, 1.23 | 0.531 | <0.001 |
|  | From core foods only | 22.8 | 18.9 | 20.7 | 18.2 | 19.3 | 3.6 | 0.461 | 0.89 | 0.79, 0.99 | 0.486 | 0.032 |
|  | From extra foods only | 14.4 | 17.2 | 16.7 | 20.3 | 31.2 | 47.5 | <0.001 | 1.20 | 1.16, 1.25 | 0.537 | <0.001 |
| **Zinc** | All foods | 1.2 | 1.4 | 2.3 | 1.6 | 4.7 | 16.0 | 0.003 | 1.17 | 1.08, 1.26 | 0.480 | <0.001 |
|  | From core foods only | 1.2 | 2.8 | 2.1 | 3.0 | 2.1 | 4.1 | 0.398 | 1.05 | 0.82, 1.34 | 0.444 | 0.708 |
|  | From extra foods only | 1.9 | 0.9 | 1.2 | 2.8 | 4.2 | 14.3 | 0.006 | 1.14 | 1.05, 1.23 | 0.469 | <0.001 |
| **Potassium** | All foods | 41.6 | 44.4 | 41.0 | 48.4 | 63.1 | 57.1 | <0.001 | 1.16 | 1.12, 1.19 | 0.386 | <0.001 |
|  | From core foods only | 56.6 | 50.5 | 44.5 | 42.4 | 44.4 | 23.6 | <0.001 | 0.84 | 0.77, 0.91 | 0.343 | <0.001 |
|  | From extra foods only | 39.3 | 44.1 | 44.2 | 46.0 | 65.1 | 69.3 | <0.001 | 1.18 | 1.14, 1.21 | 0.399 | <0.001 |
| **Iodine** | All foods | 11.4 | 8.6 | 8.8 | 7.6 | 13.7 | 11.7 | 0.020 | 1.05 | 1.01, 1.09 | 0.236 | 0.007 |
|  | From core foods only | 15.2 | 10.9 | 9.1 | 8.3 | 6.5 | 20.6 | <0.001 | 0.73 | 0.63, 0.84 | 0.247 | <0.001 |
|  | From extra foods only | 9.3 | 8.4 | 8.8 | 9.0 | 14.5 | 12.2 | 0.016 | 1.08 | 1.04, 1.12 | 0.243 | <0.001 |
| **Sodium** | All foods | 89.8 | 88.9 | 91.2 | 90.7 | 89.5 | 1.7 | 0.790 | 0.96 | 0.92, 1.00 | 0.312 | 0.043 |
|  | From core foods only | 87.4 | 93.1 | 90.2 | 90.6 | 89.0 | 8.4 | 0.079 | 1.03 | 0.90, 1.17 | 0.309 | 0.699 |
|  | From extra foods only | 89.8 | 90.3 | 90.0 | 90.5 | 89.5 | 0.285 | 0.991 | 0.96 | 0.93, 1.00 | 0.312 | 0.048 |

OR, odds ratio; 95%CI, 95% confidence intervals; LCn3PUFA, long chain omega-3 polyunsaturated fats; RE, retinol equivalents; DFE, dietary folate equivalents.

\*For calcium, iron, iodine, zinc, magnesium, phosphorus, vitamin A RE, thiamin, riboflavin, DFE and vitamin C, intakes lower than the Estimated Average Requirement (EAR) were considered not meeting the NRV; for potassium, LCn3PUFA, dietary fibre, vitamin D and vitamin E, intakes lower than the Adequate Intake (AI) were considered not meeting the NRV; for sodium, intakes higher than the Upper Level (UL) were considered not meeting the NRV; for saturated fat, %E > 10% was considered not meeting the NRV.

†’Core’ and ‘extra’ foods as defined by Rangan *et al*([30](#_ENREF_30); [31](#_ENREF_31)).

‡*p* value tested using Pearson χ2 test.

**§**Odds ratio (95%CI) and *p*trend calculated using logistic regression with %E from added sugars as a continuous independent variable, and age, sex, total energy intake and BMI *z*-scores as covariates.

**Supplementary Table 8 –** Percentage of subjects **NOT** meeting Nutrient Reference Values (NRVs) for Australia and New Zealand\* according to age and sex specific quintiles of %energy from total sugars - participants aged 8 years or below only

|  | **%Energy from total sugars** | | | | |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Nutrient** | **Q1** | **Q2** | **Q3** | **Q4** | **Q5** | **χ2** | ***p* value†** | **OR‡** | **95%CI** | ***R2*** | ***p*trend‡** |
| **Saturated fat** | 95.7 | 94.7 | 96.7 | 97.2 | 93.9 | 7.3 | 0.119 | 0.99 | 0.94, 1.04 | 0.025 | 0.800 |
| **LCn3PUFA** | 0.8 | 0.8 | 0.8 | 3.0 | 4.8 | 27.3 | <0.001 | 1.15 | 1.06, 1.24 | 0.108 | <0.001 |
| **Fibre** | 43.3 | 37.8 | 41.3 | 38.3 | 45.4 | 6.9 | 0.141 | 0.99 | 0.97, 1.01 | 0.170 | 0.415 |
| **Calcium** | 9.3 | 6.0 | 3.5 | 1.8 | 7.1 | 26.8 | <0.001 | 0.95 | 0.91, 0.99 | 0.194 | 0.024 |
| **Iron** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
| **Thiamin** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
| **Vitamin C** | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 0.407 | 0.00 | 0.00, 4.83 | 0.771 | 0.873 |
| **Vitamin A RE** | 1.5 | 1.0 | 0.8 | 0.0 | 0.0 | 10.5 | 0.033 | 0.82 | 0.73, 0.94 | 0.382 | 0.003 |
| **Riboflavin** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
| **DFE** | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 4.0 | 0.401 | # | # | # | # |
| **Vitamin D** | 96.0 | 94.2 | 96.7 | 96.2 | 97.2 | 5.5 | 0.240 | 1.04 | 0.98, 1.11 | 0.155 | 0.176 |
| **Vitamin E** | 65.1 | 72.3 | 80.4 | 79.5 | 89.8 | 78.3 | <0.001 | 1.15 | 1.11, 1.18 | 0.243 | <0.001 |
| **Phosphorus** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
| **Magnesium** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
| **Zinc** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | - | - | - | - | - |
| **Potassium** | 46.5 | 35.0 | 34.8 | 27.8 | 32.0 | 33.6 | <0.001 | 0.90 | 0.87, 0.92 | 0.408 | <0.001 |
| **Iodine** | 7.5 | 3.5 | 3.5 | 4.3 | 2.8 | 13.4 | 0.010 | 0.92 | 0.87, 0.96 | 0.177 | <0.001 |
| **Sodium** | 100.0 | 99.2 | 98.2 | 99.0 | 92.7 | 14.4 | 0.006 | 0.87 | 0.79, 0.95 | 0.207 | 0.002 |

OR, odds ratio; 95%CI, 95% confidence intervals; LCn3PUFA, long chain omega-3 polyunsaturated fats; RE, retinol equivalents; DFE, dietary folate equivalents.

\*For calcium, iron, iodine, zinc, magnesium, phosphorus, vitamin A RE, thiamin, riboflavin, DFE and vitamin C, intakes lower than the Estimated Average Requirement (EAR) were considered not meeting the NRV; for potassium, LCn3PUFA, dietary fibre, vitamin D and vitamin E, intakes lower than the Adequate Intake (AI) were considered not meeting the NRV; for sodium, intakes higher than the Upper Level (UL) were considered not meeting the NRV; for saturated fat, %E > 10% was considered not meeting the NRV.

†*p* value tested using Pearson χ2 test.

‡Odds ratio and *p*trend calculated using logistic regression with %E from total sugars as a continuous independent variable, and age, sex, total energy intake and BMI *z*-scores as covariates.

**Supplementary Table 9 –** Percentage of subjects **NOT** meeting Nutrient Reference Values (NRVs) for Australia and New Zealand\* according to age and sex specific quintiles of %energy from total sugars - participants aged 9 years or above only

|  | **%Energy from total sugars** | | | | |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Nutrient** | **Q1** | **Q2** | **Q3** | **Q4** | **Q5** | **χ2** | ***p* value†** | **OR‡** | **95%CI** | ***R2*** | ***p*trend‡** |
| **Saturated fat** | 96.3 | 97.5 | 98.4 | 96.5 | 95.6 | 6.7 | 0.154 | 0.96 | 0.91, 1.02 | 0.054 | 0.174 |
| **LCn3PUFA** | 10.5 | 15.9 | 10.9 | 15.4 | 19.8 | 20.8 | <0.001 | 1.06 | 1.03, 1.09 | 0.165 | <0.001 |
| **Fibre** | 58.8 | 60.6 | 52.1 | 55.1 | 63.0 | 13.5 | 0.009 | 1.01 | 0.99, 1.04 | 0.216 | 0.327 |
| **Calcium** | 70.9 | 62.1 | 52.4 | 50.7 | 53.4 | 51.2 | <0.001 | 0.93 | 0.91, 0.95 | 0.404 | <0.001 |
| **Iron** | 1.4 | 0.9 | 0.9 | 1.2 | 3.0 | 9.2 | 0.057 | 1.15 | 1.06, 1.25 | 0.444 | <0.001 |
| **Thiamin** | 0.9 | 0.5 | 0.5 | 0.7 | 1.4 | 3.3 | 0.501 | 1.13 | 1.01, 1.25 | 0.230 | 0.027 |
| **Vitamin C** | 2.1 | 0.2 | 0.5 | 0.2 | 0.0 | 20.7 | <0.001 | 0.73 | 0.63, 0.85 | 0.176 | <0.001 |
| **Vitamin A RE** | 17.2 | 9.5 | 10.7 | 8.8 | 14.5 | 20.9 | <0.001 | 0.98 | 0.95, 1.01 | 0.154 | 0.231 |
| **Riboflavin** | 0.5 | 0.0 | 0.5 | 0.5 | 0.5 | 2.0 | 0.732 | 1.22 | 1.02, 1.44 | 0.502 | 0.026 |
| **DFE** | 15.4 | 6.5 | 7.4 | 9.0 | 8.1 | 25.5 | <0.001 | 0.95 | 0.92, 0.99 | 0.208 | 0.012 |
| **Vitamin D** | 92.8 | 90.1 | 89.7 | 90.3 | 93.3 | 5.9 | 0.208 | 1.02 | 0.98, 1.06 | 0.253 | 0.357 |
| **Vitamin E** | 86.3 | 86.6 | 91.8 | 89.9 | 94.6 | 23.7 | <0.001 | 1.11 | 1.06, 1.15 | 0.220 | <0.001 |
| **Phosphorus** | 9.1 | 6.7 | 5.4 | 6.5 | 8.4 | 5.9 | 0.209 | 1.06 | 1.01, 1.11 | 0.516 | 0.015 |
| **Magnesium** | 20.9 | 18.0 | 17.9 | 19.1 | 24.2 | 7.4 | 0.117 | 1.02 | 0.99, 1.05 | 0.484 | 0.247 |
| **Zinc** | 2.3 | 0.9 | 1.6 | 2.5 | 3.5 | 7.6 | 0.108 | 1.09 | 1.10, 1.18 | 0.455 | 0.027 |
| **Potassium** | 61.5 | 48.5 | 46.9 | 37.8 | 44.1 | 52.5 | <0.001 | 0.93 | 0.91, 0.95 | 0.351 | <0.001 |
| **Iodine** | 15.6 | 9.2 | 11.0 | 7.8 | 6.5 | 23.6 | <0.001 | 0.93 | 0.89, 0.96 | 0.245 | <0.001 |
| **Sodium** | 93.7 | 89.4 | 91.6 | 88.0 | 87.6 | 12.7 | 0.013 | 0.92 | 0.88, 0.95 | 0.327 | <0.001 |

OR, odds ratio; 95%CI, 95% confidence intervals; LCn3PUFA, long chain omega-3 polyunsaturated fats; RE, retinol equivalents; DFE, dietary folate equivalents.

\*For calcium, iron, iodine, zinc, magnesium, phosphorus, vitamin A RE, thiamin, riboflavin, DFE and vitamin C, intakes lower than the Estimated Average Requirement (EAR) were considered not meeting the NRV; for potassium, LCn3PUFA, dietary fibre, vitamin D and vitamin E, intakes lower than the Adequate Intake (AI) were considered not meeting the NRV; for sodium, intakes higher than the Upper Level (UL) were considered not meeting the NRV; for saturated fat, %E > 10% was considered not meeting the NRV.

†*p* value tested using Pearson χ2 test.

‡Odds ratio and *p*trend calculated using logistic regression with %E from total sugars as a continuous independent variable, and age, sex, total energy intake and BMI *z*-scores as covariates.

**Supplementary Table 10 –** Mean (95%CI) consumption level of various food groups according to age and sex specific quintiles of usual\* %energy from added sugars - participants aged 8 years or below only

|  | **%Energy from added sugars** | | | | | | | | | | |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Food group** | **Q1** | | **Q2** | | **Q3** | | **Q4** | | **Q5** | | | **β†** | **SE** |  | ***p*trend†** |
| **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | | **Mean** | **95%CI** | ***R2*** |
| ***‘Core’ food*** |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |
| **Non-alcoholic beverages (g)‡** | 958.3 | 912.9, 1003.6 | 970.3 | 923.7, 1016.9 | 912.5 | 866.2, 958.7 | 840.0 | 794.1, 885.8 | | 892..1 | 846.0, 938.2 | -11.4 | 0.3 | 0.098 | <0.001 |
| *Fruit and vegetable juices (g)* | 162.3 | 144.6, 180.0 | 141.9 | 123.8, 160.1 | 139.0 | 121.0, 157.0 | 125.1 | 107.2, 143.0 | | 113.6 | 95.6, 131.6 | -4.1 | 1.2 | 0.033 | <0.001 |
| **Cereal grains and products (g)§** | 329.9 | 315.5, 344.3 | 300.9 | 286.1, 315.7 | 263.5 | 248.8, 278.1 | 257.9 | 243.4, 272.4 | | 215.7 | 201.1, 230.4 | -11.4 | 1.0 | 0.154 | <0.001 |
| **Cereal-based products (g)||** | 38.1 | 29.5, 46.7 | 61.4 | 52.5, 70.3 | 37.4 | 28.6, 46.2 | 60.6 | 51.8, 69.3 | | 43.1 | 34.3, 51.9 | 0.5 | 0.6 | 0.013 | 0.429 |
| **Fish, sea foods and products (g)** | 30.5 | 25.2, 35.9 | 24.1 | 18.6, 29.6 | 26.4 | 21.0, 31.9 | 15.8 | 10.4, 21.2 | | 19.6 | 14.2, 25.0 | -1.4 | 0.4 | 0.011 | <0.001 |
| **Fruits and fruit-based products (g)** | 308.8 | 291.5, 326.0 | 309.7 | 292.0, 327.4 | 289.1 | 271.5, 306.7 | 249.1 | 231.7, 266.6 | | 208.2 | 190.6, 225.7 | -11.4 | 1.1 | 0.076 | <0.001 |
| **Eggs and egg-based products (g)** | 16.6 | 13.7, 19.6 | 15.0 | 12.0, 18.0 | 12.1 | 9.1, 15.1 | 12.4 | 9.4, 15.4 | | 10.3 | 7.3, 13.3 | -0.8 | 0.2 | 0.018 | <0.001 |
| **Meat, poultry and game and their products (g)** | 144.8 | 134.6, 155.0 | 139.6 | 129.1, 150.1 | 147.9 | 137.5, 158.3 | 142.4 | 132.0, 152.7 | | 133.1 | 122.7, 143.5 | -1.4 | 0.7 | 0.128 | 0.044 |
| **Dairy products (g)¶** | 445.5 | 417.5, 473.5 | 499.3 | 470.5, 528.1 | 462.8 | 434.2, 491.3 | 448.5 | 420.2, 476.8 | | 413.5 | 385.0, 441.9 | -4.8 | 1.8 | 0.121 | 0.008 |
| **Dairy products (serves)¶** | 1.2 | 1.1, 1.3 | 1.3 | 1.3, 1.4 | 1.3 | 1.3, 1.4 | 1.3 | 1.2, 1.4 | | 1.2 | 1.1, 1.3 | -0.0 | 0.0 | 0.134 | 0.773 |
| **Dairy alternatives (g)** | 9.0 | -1.0, 18.9 | 13.9 | 3.7, 24.2 | 26.2 | 16.1, 36.4 | 24.0 | 13.9, 34.1 | | 15.7 | 5.6, 25.8 | 0.7 | 0.6 | 0.009 | 0.269 |
| **Soups (g)** | 46.1 | 36.4, 55.9 | 41.0 | 31.0, 51.0 | 27.1 | 17.2, 37.0 | 24.7 | 14.9, 34.6 | | 15.7 | 5.8, 25.6 | -2.8 | 0.7 | 0.015 | <0.001 |
| **Seeds and nuts and their products (g)** | 6.1 | 5.0, 7.3 | 4.7 | 3.5, 5.9 | 4.7 | 3.5, 5.9 | 4.2 | 3.0, 5.3 | | 2.3 | 1.1, 3.5 | -0.3 | 0.1 | 0.027 | <0.001 |
| **Sauces (g)\*\*** | 19.0 | 15.6, 22.4 | 16.0 | 12.5, 19.5 | 15.6 | 12.2, 19.1 | 17.5 | 14.1, 20.9 | | 15.0 | 11.6, 18.5 | -0.2 | 0.2 | 0.005 | 0.482 |
| **Vegetables (g)††** | 208.7 | 195.9, 221.4 | 186.2 | 173.1, 199.3 | 169.4 | 156.4, 182.4 | 154.2 | 141.3, 167.1 | | 148.4 | 135.4, 161.4 | -5.9 | 0.9 | 0.051 | <0.001 |
| **Legumes and legume-based products (g)** | 17.2 | 12.8, 21.6 | 12.9 | 8.3, 17.4 | 13.3 | 8.8, 17.7 | 11.1 | 6.6, 15.5 | | 9.4 | 4.9, 13.9 | -0.7 | 0.3 | 0.006 | 0.014 |
| ***‘Extra’ foods*** |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |
| **Non-alcoholic beverages (g)‡** | 59.7 | 39.7, 79.6 | 95.2 | 74.6, 115.7 | 130.3 | 109.9, 150.7 | 236.3 | 216.1, 256.5 | | 339.1 | 318.8, 359.4 | 30.0 | 1.3 | 0.279 | <0.001 |
| *Tea and coffee (g)* | 9.4 | 3.5, 15.3 | 14.3 | 8.3, 20.3 | 9.9 | 4.0, 15.9 | 16..0 | 10.1, 21.9 | | 13.9 | 8.0, 19.9 | 0.1 | 0.4 | 0.019 | 0.764 |
| *Sugar sweetened beverages (g)* | 37.2 | 19.3, 55.0 | 70.6 | 52.2, 88.9 | 105.7 | 87.5, 123.9 | 207.0 | 189.0, 225.1 | | 302.4 | 284.2, 320.5 | 29.1 | 1.2 | 0.285 | <0.001 |
| *Intensely sweetened beverages (g)* | 13.1 | 6.3, 19.6 | 10.3 | 3.5, 17.0 | 14.6 | 8.0, 21.3 | 13.3 | 6.6, 19.9 | | 22.8 | 16.1, 29.5 | 0.8 | 0.4 | 0.023 | 0.066 |
| **Cereal grains and products (g)§** | 3.1 | 1.9, 4.4 | 3.3 | 2.0, 4.6 | 2.4 | 1.1, 3.7 | 3.1 | 1.8, 4.4 | | 3.0 | 1.7, 4.2 | -0.1 | 0.1 | 0.009 | 0.306 |
| **Cereal-based products (g)||** | 79.6 | 70.8, 88.4 | 86.7 | 77.6, 95.8 | 91.6 | 82.7, 100.6 | 96.5 | 87.6, 10.54 | | 101.1 | 92.1, 110.0 | 2.0 | 0.6 | 0.103 | <0.001 |
| **Fats and oils (g)** | 12.7 | 11.7, 13.7 | 11.3 | 10.3, 12.4 | 10.9 | 9.9, 12.0 | 11.7 | 10.7, 12.8 | | 10.7 | 9.7, 11.7 | -0.2 | 0.1 | 0.041 | 0.010 |
| **Meat, poultry and game and their products (g)** | 1.3 | 0.7, 1.9 | 1.2 | 0.5, 1.8 | 1.1 | 0.5, 1.8 | 1.5 | 0.9, 2.2 | | 1.0 | 0.3, 1.6 | -0.0 | 0.0 | 0.008 | 0.537 |
| **Dairy products (g)¶** | 18.1 | 10.3, 25.9 | 35.8 | 27.7, 43.8 | 55.1 | 47.1, 63.1 | 54.7 | 46.8, 62.6 | | 73.7 | 65.8, 81.7 | 5.0 | 0.5 | 0.097 | <0.001 |
| **Sauces (g)\*\*** | 10.8 | 8.4, 13.2 | 7.3 | 4.8, 9.8 | 12.6 | 10.2, 15.1 | 11.4 | 8.9, 13.9 | | 9.9 | 7.5, 12.4 | 0.1 | 0.2 | 0.007 | 0.697 |
| **Vegetables (g)††** | 27.0 | 22.3, 31.8 | 21.6 | 16.8, 26.5 | 24.7 | 19.8, 29.5 | 24.3 | 19.5, 29.1 | | 29.7 | 24.9, 34.6 | 0.2 | 0.3 | 0.025 | 0.562 |
| **Savoury snacks (g)** | 12.3 | 10.0, 14.6 | 11.8 | 9.5, 14.2 | 14.7 | 12.4, 17.0 | 16.1 | 13.8, 18.4 | | 14.9 | 12.6, 17.2 | 0.5 | 0.2 | 0.063 | 0.002 |
| **Sugars (g)** | 10.9 | 6.2, 15.6 | 22.5 | 17.7, 27.4 | 26.8 | 22.0, 31.6 | 34.4 | 29.7, 39.1 | | 48.0 | 43.2, 52.7 | 3.6 | 0.3 | 0.087 | <0.001 |
| **Confectionery (g)** | 10.9 | 7.8, 14.0 | 15.1 | 11.9, 18.3 | 21.5 | 18.4, 24.7 | 29.9 | 26.8, 33.0 | | 45.8 | 42.6, 49.0 | 3.4 | 0.2 | 0.178 | <0.001 |

Values are estimated marginal means (95% CI) calculated by ANCOVA, with total energy intake and BMI z-scores as covariates except for energy, where only BMI *z*-score was included as a covariate.

\*Usual intake calculated using the Multiple Source Method([27](#_ENREF_27)).

**†**β (SE), *R*2 and *p*trend calculated using linear regression with the food group intake as the dependent variable, %E from added sugars as a continuous independent variable, and age, sex, total energy intake and BMI *z*-scores as covariates.

**‡**‘Core’ non-alcoholic beverages include: fruit and vegetable juices, plain or mineral water, and beverage flavourings made up with milk; ‘extra’ non-alcoholic beverages include: tea and coffee, fruit drinks, cordial/mixers, carbonated soft drinks, flavoured water, electrolyte drinks, energy drinks, and beverage flavourings (dry or made up with water).

**§**‘Core’ cereal grains and products include: plain grains, plain breads, low fat filled/topped bread, low sugar sweet buns/scrolls, flat breads, low fat tortilla, and all breakfast cereals; ‘extra’ cereal grains and products include: higher fat filled/topped breads, higher sugar sweet buns/scrolls, higher fat tortilla/taco, high fat noodles.

**||**‘Core’ cereal-based products include: low fat savoury biscuits, rice and corn crackers/cakes, low sugar scones, low fat sandwiches, pasta or noodle dishes, low sugar/fat waffles and batter based products, crumpet; ‘extra’ cereal-based products include: sweet biscuits, high fat savoury biscuits, cakes and slices, higher sugar scones, cereal-based desserts, pastries, pizza, higher fat sandwiches, hamburgers, taco/tortilla based dishes, savoury dumplings, higher sugar/fat batter-based products, doughnuts.

**¶**‘Core’ dairy products include: fluid milk including lower fat/sugar flavoured milk, yoghurts, cheese, lower fat ice-creams, lower-fat custard; ‘extra’ dairy products include: condensed milk, cream, higher fat ice-creams, frozen yoghurts, higher fat custards, dairy desserts, higher fat/sugar flavoured milk; dairy servings defined as follows: 250 g milk (including flavoured milk); 200 g yoghurt or custards; 40 g cheese; 100 g ice cream.

\*\*‘Core’ sauces include: lower salt savoury/pasta sauces, and fruit/vegetable-based pickles/chutney; ‘extra’ sauces include: gravies, higher salt savoury/pasta sauces, mayonnaise, oil-based salad dressing, bread-based stuffing.

**††**‘Core’ vegetables include: lower fat potatoes and potato products, lower fat carrot and similar root vegetables, all other vegetables; ‘extra’ vegetables include: higher fat potatoes and potato products, higher fat carrot and similar root vegetables.

**Supplementary Table 11 –** Mean (95%CI) consumption level of various food groups according to age and sex specific quintiles of usual\* %energy from added sugars - participants aged 9 years or above only

|  | **%Energy from added sugars** | | | | | | | | | | |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Food group** | **Q1** | | **Q2** | | **Q3** | | **Q4** | | **Q5** | | | **β†** | **SE** |  | ***p*trend†** |
| **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | | **Mean** | **95%CI** | ***R2*** |
| ***‘Core’ food*** |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |
| **Non-alcoholic beverages (g)‡** | 1351.6 | 1284.8, 1418.4 | 1330.9 | 1265.4, 1396.4 | 1309.3 | 1243.8, 1374.8 | 1261.1 | 1195.9, 1326.3 | | 1085.4 | 1020.6, 1150.2 | -25.2 | 3.9 | 0.071 | <0.001 |
| *Fruit and vegetable juices (g)* | 190.8 | 167.3, 214.4 | 201.4 | 178.3, 224.4 | 186.8 | 163.7, 209.8 | 159.2 | 136.2, 182.1 | | 158.6 | 135.8, 181.5 | -4.8 | 1.3 | 0.017 | <0.001 |
| **Cereal grains and products (g)§** | 424.1 | 403.6, 444.7 | 373.4 | 353.3, 393.5 | 371.7 | 351.6, 391.9 | 325.4 | 305.4, 345.4 | | 272.4 | 252.5, 292.3 | -14.4 | 1.2 | 0.183 | <0.001 |
| **Cereal-based products (g)||** | 76.4 | 61.4, 91.5 | 82.7 | 67.9, 97.4 | 88.1 | 73.4, 102.9 | 86.3 | 71.6, 101.0 | | 92.3 | 77.7, 106.9 | 0.7 | 0.9 | 0.016 | 0.428 |
| **Fish, sea foods and products (g)** | 30.7 | 24.2, 37.1 | 27.2 | 20.8, 33.5 | 31.5 | 25.1, 37.8 | 21.9 | 15.5, 28.2 | | 15.6 | 9.3, 21.9 | -1.4 | 0.4 | 0.017 | <0.001 |
| **Fruits and fruit-based products (g)** | 289.1 | 267.4, 310.8 | 253.1 | 231.9, 274.4 | 243.9 | 222.7, 265.2 | 216.8 | 195.6, 238.0 | | 173.6 | 152.6, 194.7 | -11.0 | 1.2 | 0.065 | <0.001 |
| **Eggs and egg-based products (g)** | 16.4 | 12.7, 20.1 | 14.6 | 10.9, 18.2 | 16.0 | 12.4, 19.6 | 14.8 | 11.2, 18.4 | | 13.3 | 9.8, 16.9 | -0.4 | 0.2 | 0.004 | 0.090 |
| **Meat, poultry and game and their products (g)** | 269.5 | 252.0, 287.1 | 240.3 | 223.1, 257.5 | 242.6 | 225.4, 259.8 | 232.4 | 215.3, 249.6 | | 208.7 | 191.7, 225.8 | -5.2 | 1.0 | 0.147 | <0.001 |
| **Dairy products (g)¶** | 494.9 | 460.9, 526.9 | 498.2 | 465.9, 530.5 | 461.6 | 429.3, 493.9 | 457.7 | 422.6, 486.9 | | 371.4 | 339.4, 403.4 | -9.8 | 1.9 | 0.142 | <0.001 |
| **Dairy products (serves)¶** | 1.3 | 1.3, 1.4 | 1.4 | 1.3, 1.5 | 1.5 | 1.4, 1.6 | 1.4 | 1.3, 1.5 | | 1.3 | 1.2, 1.4 | -0.0 | 0.0 | 0.118 | 0.463 |
| **Dairy alternatives (g)** | 17.9 | 10.5, 25.4 | 15.9 | 8.6, 23.2 | 6.5 | -0.8, 13.8 | 9.9 | 2.6, 17.1 | | 6.1 | -1.1, 13.4 | -0.8 | 0.4 | 0.003 | 0.055 |
| **Soups (g)** | 76.4 | 59.1, 93.7 | 71.8 | 54.9, 88.8 | 51.6 | 34.7, 68.5 | 47.4 | 30.5, 64.2 | | 44.0 | 27.3, 60.8 | -3.6 | 1.0 | 0.013 | <0.001 |
| **Seeds and nuts and their products (g)** | 5.9 | 4.5, 7.2 | 5.6 | 4.2, 6.9 | 4.8 | 3.4, 6.1 | 4.1 | 2.8, 5.5 | | 3.2 | 1.9, 4.5 | -0.3 | 0.8 | 0.023 | <0.001 |
| **Sauces (g)\*\*** | 32.5 | 26.4, 38.7 | 23.8 | 17.8, 29.8 | 29.2 | 23.1, 35.2 | 23.8 | 17.8, 29.8 | | 23.5 | 17.6, 29.5 | -0.9 | 0.3 | 0.020 | 0.014 |
| **Vegetables (g)††** | 274.9 | 255.2, 294.5 | 238.5 | 219.3, 257.8 | 237.6 | 218.4, 256.9 | 228.5 | 209.3, 247.7 | | 205.2 | 186.2, 224.3 | -6.6 | 1.1 | 0.037 | <0.001 |
| **Legumes and legume-based products (g)** | 22.0 | 16.0, 27.9 | 24.0 | 18.2, 29.9 | 16.6 | 10.8, 22.5 | 12.1 | 6.3, 17.9 | | 5.5 | -0.3, 11.3 | -1.5 | 0.3 | 0.012 | <0.001 |
| ***‘Extra’ foods*** |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |
| **Non-alcoholic beverages (g)‡** | 233.2 | 192.2, 274.2 | 345.6 | 305.4, 385.8 | 438.6 | 398.4, 478.8 | 546.0 | 506.0, 586.0 | | 820.0 | 780.2, 859.8 | 55.9 | 2.3 | 0.293 | <0.001 |
| *Tea and coffee (g)* | 45.7 | 30.1, 61.2 | 59.8 | 44.6, 75.0 | 58.9 | 43.7, 74.1 | 55.3 | 40.2, 70.4 | | 67.0 | 51.9, 82.0 | 0.2 | 0.9 | 0.048 | 0.841 |
| *Sugar sweetened beverages (g)* | 132.4 | 95.6, 169.2 | 243.3 | 207.3, 279.4 | 329.1 | 293.1, 365.2 | 453.7 | 417.8, 489.6 | | 714.2 | 678.5, 749.8 | 57.3 | 2.0 | 0.326 | <0.001 |
| *Intensely sweetened beverages (g)* | 55.2 | 40.8, 69.5 | 42.5 | 28.4, 56.6 | 50.6 | 36.5, 64.6 | 37.0 | 23.0, 51.0 | | 38.9 | 25.0, 52.8 | -1.6 | 0.8 | 0.021 | 0.061 |
| **Cereal grains and products (g)§** | 3.2 | 0.9, 5.5 | 7.7 | 5.4, 9.9 | 3.4 | 1.2, 5.7 | 4.8 | 2.6, 7.1 | | 6.4 | 4.2, 8.7 | 0.2 | 0.1 | 0.005 | 0.224 |
| **Cereal-based products (g)||** | 173.0 | 156.1, 190.0 | 172.9 | 156.3, 189.5 | 192.8 | 176.2, 209.4 | 195.6 | 179.0, 212.1 | | 212.1 | 195.7, 228.5 | 4.8 | 1.0 | 0.132 | <0.001 |
| **Fats and oils (g)** | 13.0 | 11.8, 14.1 | 13.0 | 11.8, 14.1 | 11.5 | 10.3, 12.6 | 11.3 | 10.1, 12.5 | | 98 | 8.7, 11.0 | -0.3 | 0.7 | 0.031 | <0.001 |
| **Meat, poultry and game and their products (g)** | 2.0 | 1.2, 2.7 | 1.9 | 1.1, 2.6 | 0.9 | 0.1, 1.6 | 1.6 | 0.9, 2.3 | | 0.7 | 0.0, 1.5 | -0.1 | 0.0 | 0.009 | 0.009 |
| **Dairy products (g)¶** | 34.5 | 22.0, 47.0 | 70.5 | 58.3, 82.8 | 87.4 | 75.1, 99.6 | 86.7 | 74.5, 98.9 | | 121.6 | 109.4, 133.7 | 6.7 | 0.7 | 0.054 | <0.001 |
| **Sauces (g)\*\*** | 20.0 | 15.9, 24.1 | 21.4 | 17.4, 25.4 | 26.0 | 22.0, 30.0 | 24.3 | 20.4, 28.3 | | 23.7 | 19.7, 27.7 | 0.4 | 0.2 | 0.020 | 0.115 |
| **Vegetables (g)††** | 38.2 | 30.5, 45.9 | 46.4 | 38.9, 53.9 | 44.5 | 37.0, 52.1 | 55.1 | 47.6, 62.6 | | 56.5 | 49.1, 64.0 | 1.8 | 0.4 | 0.029 | <0.001 |
| **Savoury snacks (g)** | 23.6 | 20.7, 28.5 | 23.1 | 19.3, 26.9 | 22.1 | 18.3, 25.9 | 20.6 | 16.8, 24.4 | | 21.9 | 18.1, 25.7 | -0.2 | 0.2 | 0.030 | 0.418 |
| **Sugars (g)** | 16.0 | 10.1, 22.0 | 25.0 | 19.2, 30.9 | 29.1 | 23.3, 35.0 | 32.0 | 26.2, 37.9 | | 54.4 | 48.6, 60.2 | 3.3 | 0.3 | 0.052 | <0.001 |
| **Confectionery (g)** | 19.0 | 14.1, 23.9 | 27.3 | 22.5, 32.1 | 32.9 | 28.1, 37.7 | 46.7 | 42.0, 51.5 | | 67.2 | 62.5, 72.0 | 4.3 | 0.3 | 0.140 | <0.001 |

Values are estimated marginal means (95% CI) calculated by ANCOVA, with total energy intake and BMI z-scores as covariates except for energy, where only BMI *z*-score was included as a covariate.

\*Usual intake calculated using the Multiple Source Method([27](#_ENREF_27)).

**†**β (SE), *R*2 and *p*trend calculated using linear regression with the food group intake as the dependent variable, %E from added sugars as a continuous independent variable, and age, sex, total energy intake and BMI *z*-scores as covariates.

**‡**‘Core’ non-alcoholic beverages include: fruit and vegetable juices, plain or mineral water, and beverage flavourings made up with milk; ‘extra’ non-alcoholic beverages include: tea and coffee, fruit drinks, cordial/mixers, carbonated soft drinks, flavoured water, electrolyte drinks, energy drinks, and beverage flavourings (dry or made up with water).

**§**‘Core’ cereal grains and products include: plain grains, plain breads, low fat filled/topped bread, low sugar sweet buns/scrolls, flat breads, low fat tortilla, and all breakfast cereals; ‘extra’ cereal grains and products include: higher fat filled/topped breads, higher sugar sweet buns/scrolls, higher fat tortilla/taco, high fat noodles.

**||**‘Core’ cereal-based products include: low fat savoury biscuits, rice and corn crackers/cakes, low sugar scones, low fat sandwiches, pasta or noodle dishes, low sugar/fat waffles and batter based products, crumpet; ‘extra’ cereal-based products include: sweet biscuits, high fat savoury biscuits, cakes and slices, higher sugar scones, cereal-based desserts, pastries, pizza, higher fat sandwiches, hamburgers, taco/tortilla based dishes, savoury dumplings, higher sugar/fat batter-based products, doughnuts.

**¶**‘Core’ dairy products include: fluid milk including lower fat/sugar flavoured milk, yoghurts, cheese, lower fat ice-creams, lower-fat custard; ‘extra’ dairy products include: condensed milk, cream, higher fat ice-creams, frozen yoghurts, higher fat custards, dairy desserts, higher fat/sugar flavoured milk; dairy servings defined as follows: 250 g milk (including flavoured milk); 200 g yoghurt or custards; 40 g cheese; 100 g ice cream.

\*\*‘Core’ sauces include: lower salt savoury/pasta sauces, and fruit/vegetable-based pickles/chutney; ‘extra’ sauces include: gravies, higher salt savoury/pasta sauces, mayonnaise, oil-based salad dressing, bread-based stuffing.

**††**‘Core’ vegetables include: lower fat potatoes and potato products, lower fat carrot and similar root vegetables, all other vegetables; ‘extra’ vegetables include: higher fat potatoes and potato products, higher fat carrot and similar root vegetables.

**Supplementary Table 12 –** Mean (95%CI) consumption level of various food groups according to age and sex specific quintiles of usual\* %energy from total sugars - participants aged 8 years or below only

|  | **%Energy from total sugars** | | | | | | | | | |  | |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Food group** | **Q1** | | **Q2** | | **Q3** | | **Q4** | | **Q5** | | **β†** |  |  | ***p*trend†** |
| **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **SE** | ***R2*** |
| ***‘Core’ food*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Non-alcoholic beverages (g)‡** | 927.5 | 881.4, 973.6 | 906.5 | 860.6, 952.5 | 883.2 | 837.2, 929.2 | 936.7 | 890.2, 983.2 | 919.5 | 873.0, 966.1 | 0.7 | 2.6 | 0.092 | 0.794 |
| *Fruit and vegetable juices (g)* | 70.9 | 53.4, 88.4 | 122.5 | 105.0, 139.9 | 125.1 | 107.6, 142.6 | 172.6 | 154.9, 190.2 | 193.5 | 175.9, 211.1 | 11.1 | 1.0 | 0.085 | <0.001 |
| **Cereal grains and products (g)§** | 327.3 | 312.6, 342.1 | 286.4 | 271.8, 301.1 | 271.7 | 257.0, 286.4 | 244.8 | 229.9, 259.6 | 238.1 | 223.3, 253.0 | -8.7 | 0.8 | 0.141 | <0.001 |
| **Cereal-based products (g)||** | 46.4 | 37.6, 55.2 | 52.5 | 43.7, 61.2 | 42.1 | 33.4, 50.9 | 57.3 | 48.4, 66.1 | 41.9 | 33.0, 50.7 | -0.2 | 0.5 | 0.013 | 0.754 |
| **Fish, sea foods and products (g)** | 33.3 | 27.9, 38.7 | 21.9 | 16.5, 27.3 | 22.6 | 17.2, 28.0 | 18.6 | 13.1, 24.0 | 20.2 | 14.7, 25.6 | -1.6 | 0.3 | 0.016 | <0.001 |
| **Fruits and fruit-based products (g)** | 209.7 | 192.3, 227.1 | 258.3 | 241.0, 275.6 | 263.4 | 246.0, 280.8 | 307.7 | 290.2, 325.2 | 327.7 | 210.1, 345.3 | 10.5 | 1.0 | 0.083 | <0.001 |
| **Eggs and egg-based products (g)** | 17.0 | 14.0, 20.0 | 15.1 | 12.2, 18.1 | 12.1 | 9.1, 15.1 | 12.2 | 9.2, 15.2 | 10.0 | 7.0, 13.0 | -0.6 | 0.2 | 0.016 | <0.001 |
| **Meat, poultry and game and their products (g)** | 175.1 | 164.9, 185.2 | 151.2 | 141.1, 161.3 | 135.3 | 125.1, 145.4 | 125.0 | 114.8, 135.3 | 120.6 | 110.3, 130.8 | -4.4 | 0.6 | 0.151 | <0.001 |
| **Dairy products (g)¶** | 320.0 | 292.4, 347.5 | 426.9 | 399.4, 454.3 | 492.3 | 464.8, 519.8 | 503.9 | 476.1, 531.7 | 527.4 | 499.5, 555.2 | 16.7 | 1.5 | 0.169 | <0.001 |
| **Dairy products (serves)¶** | 1.0 | 0.9, 1.1 | 1.2 | 1.2, 1.3 | 1.4 | 1.3, 1.4 | 1.4 | 1.3, 1.4 | 1.4 | 1.3, 1.5 | 0.0 | 0.0 | 0.156 | <0.001 |
| **Dairy alternatives (g)** | 34.5 | 24.5, 44.6 | 20.6 | 10.6, 30.6 | 16.1 | 6.1, 26.1 | 14.9 | 4.8, 25.0 | 2.1 | -8.0, 12.3 | -2.2 | 0.5 | 0.017 | <0.001 |
| **Soups (g)** | 43.9 | 34.0, 53.8 | 30.0 | 20.1, 39.8 | 27.9 | 18.0, 37.8 | 28.7 | 18.7, 38.7 | 24.4 | 14.4, 34.4 | -1.4 | 0.6 | 0.009 | 0.012 |
| **Seeds and nuts and their products (g)** | 5.2 | 4.0, 6.4 | 6.4 | 5.3, 7.6 | 3.5 | 2.3, 4.7 | 3.7 | 2.5, 4.9 | 3.1 | 1.9, 4.3 | -0.2 | 0.1 | 0.025 | <0.001 |
| **Sauces (g)\*\*** | 16.2 | 12.8, 19.6 | 14.9 | 11.5, 18.3 | 18.2 | 14.7, 21.6 | 18.2 | 14.8, 21.7 | 15.8 | 12.4, 19.3 | 0.1 | 0.2 | 0.005 | 0.785 |
| **Vegetables (g)††** | 182.4 | 169.3, 195.5 | 180.2 | 167.2, 193.3 | 170.3 | 157.3, 183.3 | 165.5 | 152.3, 178.6 | 169.3 | 156.1, 182.4 | -1.4 | 0.7 | 0.030 | 0.051 |
| **Legumes and legume-based products (g)** | 16.2 | 11.7, 20.7 | 12.2 | 7.8, 16.7 | 12.3 | 7.9, 16.8 | 14.2 | 9.7, 18.7 | 8.9 | 4.4, 13.4 | -0.7 | 0.3 | 0.006 | 0.013 |
| ***‘Extra’ foods*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Non-alcoholic beverages (g)‡** | 114.1 | 92.1, 136.2 | 148.0 | 126.0, 170.0 | 159.0 | 137.0, 181.1 | 190.9 | 168.7, 213.2 | 247.9 | 225.7, 270.2 | 12.1 | 1.3 | 0.132 | <0.001 |
| *Tea and coffee (g)* | 20.5 | 14.6, 26.4 | 11.3 | 5.4, 17.2 | 13.1 | 7.2, 19.0 | 7.0 | 1.1, 13.0 | 11.4 | 5.4, 17.4 | -0.7 | 0.4 | 0.021 | 0.048 |
| *Sugar sweetened beverages (g)* | 78.5 | 58.7, 98.3 | 119.1 | 99.4, 138.9 | 135.9 | 116.1, 155.7 | 172.4 | 152.4, 192.4 | 216.7 | 196.7, 236.8 | 12.6 | 1.1 | 0.121 | <0.001 |
| *Intensely sweetened beverages (g)* | 15.1 | 8.5, 21.8 | 17.6 | 11.0, 24.2 | 10.0 | 3.4, 16.7 | 11.5 | 4.8, 18.2 | 19.8 | 13.1, 26.5 | 0.2 | 0.4 | 0.022 | 0.686 |
| **Cereal grains and products (g)§** | 4.2 | 2.9, 5.5 | 3.3 | 2.0, 4.6 | 3.5 | 2.2, 4.8 | 2.0 | 0.7, 3.3 | 1.8 | 0.5, 3.1 | -0.2 | 0.1 | 0.011 | 0.012 |
| **Cereal-based products (g)||** | 95.1 | 86.2, 104.1 | 90.7 | 81.8, 99.6 | 100.1 | 91.2, 109.0 | 81.2 | 72.2, 90.2 | 87.7 | 78.7, 96.7 | -1.4 | 0.5 | 0.101 | 0.008 |
| **Fats and oils (g)** | 13.5 | 12.5, 14.5 | 11.6 | 10.6, 12.6 | 12.1 | 11.0, 13.1 | 11.0 | 9.9, 12.0 | 9.3 | 8.3, 10.3 | -0.3 | 0.1 | 0.055 | <0.001 |
| **Meat, poultry and game and their products (g)** | 1.0 | 0.3, 1.6 | 2.6 | 1.9, 3.2 | 0.8 | 0.1, 1.4 | 1.2 | 0.6, 1.8 | 0.6 | 0.0, 1.2 | -0.0 | 0.0 | 0.009 | 0.189 |
| **Dairy products (g)¶** | 28.8 | 20.8, 36.9 | 44.3 | 36.3, 52.4 | 47.6 | 39.5, 55.6 | 56.4 | 48.3, 64.5 | 59.8 | 51.6, 67.9 | 2.7 | 0.5 | 0.074 | <0.001 |
| **Sauces (g)\*\*** | 11.6 | 9.1, 14.1 | 9.6 | 7.2, 12.1 | 11.2 | 8.7, 13.7 | 9.0 | 6.5, 11.5 | 10.8 | 8.3, 13.3 | -0.2 | 0.1 | 0.008 | 0.260 |
| **Vegetables (g)††** | 31.4 | 26.6, 36.2 | 29.2 | 24.4, 33.9 | 31.8 | 27.0, 36.6 | 17.4 | 12.6, 22.2 | 17.4 | 12.6, 22.3 | -1.3 | 0.3 | 0.036 | <0.001 |
| **Savoury snacks (g)** | 16.8 | 14.5, 19.1 | 14.5 | 12.2, 16.8 | 13.3 | 11.0, 15.6 | 14.8 | 12.4, 17.1 | 10.4 | 8.1, 12.7 | -0.4 | 0.1 | 0.063 | 0.001 |
| **Sugars (g)** | 14.5 | 9.7, 19.3 | 20.8 | 16.0, 25.5 | 32.4 | 27.6, 37.2 | 29.8 | 25.0, 34.6 | 45.0 | 40.2, 49.8 | 2.7 | 0.3 | 0.073 | <0.001 |
| **Confectionery (g)** | 13.8 | 10.5, 17.1 | 21.9 | 18.7, 25.2 | 26.1 | 22.8, 29.4 | 28.2 | 24.9, 31.5 | 33.0 | 29.7, 36.4 | 1.6 | 0.2 | 0.100 | <0.001 |

Values are estimated marginal means (95% CI) calculated by ANCOVA, with total energy intake and BMI z-scores as covariates except for energy, where only BMI *z*-score was included as a covariate.

\*Usual intake calculated using the Multiple Source Method([27](#_ENREF_27)).

**†**β (SE), *R*2 and *p*trend calculated using linear regression with the food group intake as the dependent variable, %E from added sugars as a continuous independent variable, and age, sex, total energy intake and BMI *z*-scores as covariates.

**‡**‘Core’ non-alcoholic beverages include: fruit and vegetable juices, plain or mineral water, and beverage flavourings made up with milk; ‘extra’ non-alcoholic beverages include: tea and coffee, fruit drinks, cordial/mixers, carbonated soft drinks, flavoured water, electrolyte drinks, energy drinks, and beverage flavourings (dry or made up with water).

**§**‘Core’ cereal grains and products include: plain grains, plain breads, low fat filled/topped bread, low sugar sweet buns/scrolls, flat breads, low fat tortilla, and all breakfast cereals; ‘extra’ cereal grains and products include: higher fat filled/topped breads, higher sugar sweet buns/scrolls, higher fat tortilla/taco, high fat noodles.

**||**‘Core’ cereal-based products include: low fat savoury biscuits, rice and corn crackers/cakes, low sugar scones, low fat sandwiches, pasta or noodle dishes, low sugar/fat waffles and batter based products, crumpet; ‘extra’ cereal-based products include: sweet biscuits, high fat savoury biscuits, cakes and slices, higher sugar scones, cereal-based desserts, pastries, pizza, higher fat sandwiches, hamburgers, taco/tortilla based dishes, savoury dumplings, higher sugar/fat batter-based products, doughnuts.

**¶**‘Core’ dairy products include: fluid milk including lower fat/sugar flavoured milk, yoghurts, cheese, lower fat ice-creams, lower-fat custard; ‘extra’ dairy products include: condensed milk, cream, higher fat ice-creams, frozen yoghurts, higher fat custards, dairy desserts, higher fat/sugar flavoured milk; dairy servings defined as follows: 250 g milk (including flavoured milk); 200 g yoghurt or custards; 40 g cheese; 100 g ice cream.

\*\*‘Core’ sauces include: lower salt savoury/pasta sauces, and fruit/vegetable-based pickles/chutney; ‘extra’ sauces include: gravies, higher salt savoury/pasta sauces, mayonnaise, oil-based salad dressing, bread-based stuffing.

**††**‘Core’ vegetables include: lower fat potatoes and potato products, lower fat carrot and similar root vegetables, all other vegetables; ‘extra’ vegetables include: higher fat potatoes and potato products, higher fat carrot and similar root vegetables.

**Supplementary Table 13 –** Mean (95%CI) consumption level of various food groups according to age and sex specific quintiles of usual\* %energy from total sugars - participants aged 9 years or above only

|  | **%Energy from total sugars** | | | | | | | | | |  | |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Food group** | **Q1** | | **Q2** | | **Q3** | | **Q4** | | **Q5** | | **β†** |  |  | ***p*trend†** |
| **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **Mean** | **95%CI** | **SE** | ***R2*** |
| ***‘Core’ food*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Non-alcoholic beverages (g)‡** | 1304.9 | 1237.6, 1372.2 | 1233.4 | 1167.3, 1299.5 | 1268.4 | 1202.6, 1334.1 | 1256.4 | 1190.9, 1322.0 | 1269.6 | 1203.4, 1335.9 | 1.9 | 3.6 | 0.053 | 0.612 |
| *Fruit and vegetable juices (g)* | 108.6 | 85.6, 131.5 | 139.0 | 116.4, 161.5 | 174.5 | 152.1, 196.9 | 205.8 | 183.5, 228.2 | 265.8 | 243.2, 288.3 | 14.2 | 1.2 | 0.070 | <0.001 |
| **Cereal grains and products (g)§** | 425.2 | 404.6, 445.8 | 376.1 | 355.9, 396.4 | 340.3 | 320.2, 360.5 | 339.2 | 319.1, 359.2 | 284.0 | 263.8, 304.3 | -11.1 | 1.1 | 0.166 | <0.001 |
| **Cereal-based products (g)||** | 100.5 | 85.5, 115.5 | 75.1 | 60.4, 89.8 | 80.7 | 66.0, 95.3 | 79.1 | 64.5, 93.7 | 91.6 | 76.8, 106.3 | -0.8 | 0.8 | 0.016 | 0.341 |
| **Fish, sea foods and products (g)** | 38.2 | 31.7, 44.6 | 28.3 | 21.9, 34.6 | 20.9 | 14.6, 27.2 | 20.4 | 14.1, 26.7 | 19.1 | 12.8, 25.5 | -1.8 | 0.3 | 0.023 | <0.001 |
| **Fruits and fruit-based products (g)** | 148.2 | 127.0, 169.4 | 184.4 | 163.6, 205.2 | 246.2 | 225.5, 266.9 | 289.4 | 268.7, 310.0 | 301.7 | 280.8, 322.6 | 14.3 | 1.1 | 0.099 | <0.001 |
| **Eggs and egg-based products (g)** | 18.5 | 14.8, 22.2 | 17.1 | 13.5, 20.7 | 15.2 | 11.6, 18.8 | 12.3 | 8.7, 15.9 | 12.0 | 8.4, 15.6 | -0.7 | 0.2 | 0.009 | <0.001 |
| **Meat, poultry and game and their products (g)** | 282.4 | 265.2, 299.7 | 268.5 | 251.6, 285.5 | 236.7 | 219.9, 253.6 | 228.2 | 211.3, 245.0 | 177.3 | 160.3, 194.3 | -8.5 | 0.9 | 0.169 | <0.001 |
| **Dairy products (g)¶** | 316.0 | 283.6, 348.4 | 442.2 | 410.4, 474.0 | 470.1 | 438.5, 501.7 | 513.5 | 482.0, 545.1 | 529.9 | 498.0, 561.8 | 17.2 | 1.7 | 0.169 | <0.001 |
| **Dairy products (serves)¶** | 1.1 | 1.0, 1.2 | 1.3 | 1.2, 1.4 | 1.4 | 1.3, 1.5 | 1.5 | 1.4, 1.6 | 1.6 | 1.5, 1.7 | 0.0 | 0.0 | 0.143 | <0.001 |
| **Dairy alternatives (g)** | 20.4 | 12.9, 27.8 | 13.9 | 6.6, 21.2 | 6.2 | -1.1, 13.5 | 9.6 | 2.5, 16.8 | 6.3 | -1.0, 13.6 | -0.8 | 0.4 | 0.003 | 0.050 |
| **Soups (g)** | 66.3 | 49.0, 83.6 | 52.7 | 35.7, 69.6 | 54.9 | 38.1, 71.8 | 68.1 | 51.3, 84.9 | 48.3 | 31.3, 65.3 | -0.6 | 0.9 | 0.007 | 0.485 |
| **Seeds and nuts and their products (g)** | 4.8 | 3.4, 6.1 | 5.6 | 4.3, 7.0 | 5.1 | 3.8, 6.5 | 4.2 | 2.9, 5.6 | 3.6 | 2.3, 5.0 | -0.1 | 0.1 | 0.018 | 0.071 |
| **Sauces (g)\*\*** | 34.6 | 28.5, 40.7 | 23.3 | 17.3, 29.3 | 25.1 | 19.1, 31.0 | 29.4 | 23.5, 35.4 | 20.3 | 14.3, 26.3 | -0.6 | 0.3 | 0.019 | 0..066 |
| **Vegetables (g)††** | 231.9 | 212.2, 251.6 | 234.0 | 214.7, 253.4 | 239.8 | 220.6, 259.0 | 248.9 | 229.7, 268.1 | 227.6 | 208.2, 247.0 | 0.5 | 1.0 | 0.021 | 0.644 |
| **Legumes and legume-based products (g)** | 17.7 | 11.7, 23.7 | 24.2 | 18.4, 30.1 | 17.3 | 11.4, 23.1 | 13.7 | 7.9, 19.5 | 6.9 | 1.0, 12.8 | -0.9 | 0.3 | 0.007 | 0.004 |
| ***‘Extra’ foods*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Non-alcoholic beverages (g)‡** | 349.7 | 305.8, 393.6 | 392.6 | 349.4, 435.7 | 461.2 | 418.3, 504.1 | 505.3 | 462.5, 548.0 | 688.0 | 644.8, 732.3 | 27.7 | 2.3 | 0.154 | <0.001 |
| *Tea and coffee (g)* | 56.0 | 40.5, 71.4 | 59.4 | 44.2, 74.6 | 68.2 | 53.1, 83.3 | 59.5 | 44.4, 74.6 | 43.9 | 28.7, 59.1 | -0.8 | 0.8 | 0.048 | 0.344 |
| *Sugar sweetened beverages (g)* | 228.7 | 189.0, 268.3 | 295.0 | 256.1, 334.0 | 356.4 | 317.6, 395.1 | 401.4 | 362.7, 440.0 | 604.2 | 565.1, 643.2 | 30.7 | 2.1 | 0.159 | <0.001 |
| *Intensely sweetened beverages (g)* | 65.0 | 50.7, 79.3 | 38.2 | 24.1, 52.2 | 36.7 | 22.7, 50.6 | 44.4 | 30.4, 58.3 | 40.0 | 25.9, 54.1 | -2.3 | 0.8 | 0.024 | 0.004 |
| **Cereal grains and products (g)§** | 4.4 | 3.1, 7.8 | 7.0 | 4.8, 9.3 | 3.6 | 1.3, 5.9 | 4.3 | 2.1, 6.6 | 5.3 | 3.0, 7.5 | -0.2 | 0.1 | 0.006 | 0.077 |
| **Cereal-based products (g)||** | 202.9 | 186.0, 219.8 | 193.6 | 176.9, 210.2 | 189.8 | 173.2, 206.3 | 165.7 | 149.2, 182.1 | 196.5 | 179.9, 213.2 | -2.1 | 0.9 | 0.124 | 0.024 |
| **Fats and oils (g)** | 13.2 | 12.1, 14.4 | 13.3 | 12.2, 14.5 | 13.0 | 11.9, 14.2 | 10.1 | 9.0, 11.3 | 8.7 | 7.6, 9.9 | -0.5 | 0.1 | 0.046 | <0.001 |
| **Meat, poultry and game and their products (g)** | 2.7 | 2.0, 3.5 | 1.5 | 0.8, 2.3 | 1.1 | 0.4, 1.8 | 1.0 | 0.2, 1.7 | 0.7 | -0.1, 1.4 | -0.2 | 0.0 | 0.014 | <0.001 |
| **Dairy products (g)¶** | 52.9 | 40.3, 65.5 | 73.0 | 60.6, 85.4 | 77.0 | 64.7, 89.3 | 80.0 | 67.8, 92.3 | 119.7 | 107.2, 132.1 | 5.2 | 0.7 | 0.042 | <0.001 |
| **Sauces (g)\*\*** | 21.0 | 17.0, 25.1 | 25.3 | 21.3, 29.3 | 24.3 | 20.3, 28.3 | 22.8 | 18.8, 26.7 | 22.1 | 18.1, 26.1 | -0.1 | 0.2 | 0.019 | 0.810 |
| **Vegetables (g)††** | 55.3 | 47.6, 63.0 | 52.7 | 45.2, 60.2 | 53.8 | 46.3, 61.3 | 41.8 | 34.4, 49.3 | 37.9 | 30.4, 45.5 | -1.6 | 0.4 | 0.029 | <0.001 |
| **Savoury snacks (g)** | 35.4 | 31.5, 39.2 | 19.8 | 16.0, 23.5 | 20.5 | 16.8, 24.3 | 19.5 | 15.8, 23.3 | 17.4 | 13.6, 21.1 | -1.3 | 0.2 | 0.048 | <0.001 |
| **Sugars (g)** | 18.3 | 12.4, 24.3 | 21.6 | 15.7, 27.4 | 29.8 | 24.0, 35.6 | 35.9 | 30.1, 41.7 | 51.7 | 45.8, 57.6 | 2.9 | 0.3 | 0.049 | <0.001 |
| **Confectionery (g)** | 24.1 | 19.0, 29.2 | 29.4 | 24.5, 34.4 | 40.4 | 35.4, 45.3 | 46.7 | 41.8, 51.7 | 53.3 | 48.3, 58.3 | 2.5 | 0.3 | 0.080 | <0.001 |

Values are estimated marginal means (95% CI) calculated by ANCOVA, with total energy intake and BMI z-scores as covariates except for energy, where only BMI *z*-score was included as a covariate.

\*Usual intake calculated using the Multiple Source Method([27](#_ENREF_27)).

**†**β (SE), *R*2 and *p*trend calculated using linear regression with the food group intake as the dependent variable, %E from added sugars as a continuous independent variable, and age, sex, total energy intake and BMI *z*-scores as covariates.

**‡**‘Core’ non-alcoholic beverages include: fruit and vegetable juices, plain or mineral water, and beverage flavourings made up with milk; ‘extra’ non-alcoholic beverages include: tea and coffee, fruit drinks, cordial/mixers, carbonated soft drinks, flavoured water, electrolyte drinks, energy drinks, and beverage flavourings (dry or made up with water).

**§**‘Core’ cereal grains and products include: plain grains, plain breads, low fat filled/topped bread, low sugar sweet buns/scrolls, flat breads, low fat tortilla, and all breakfast cereals; ‘extra’ cereal grains and products include: higher fat filled/topped breads, higher sugar sweet buns/scrolls, higher fat tortilla/taco, high fat noodles.

**||**‘Core’ cereal-based products include: low fat savoury biscuits, rice and corn crackers/cakes, low sugar scones, low fat sandwiches, pasta or noodle dishes, low sugar/fat waffles and batter based products, crumpet; ‘extra’ cereal-based products include: sweet biscuits, high fat savoury biscuits, cakes and slices, higher sugar scones, cereal-based desserts, pastries, pizza, higher fat sandwiches, hamburgers, taco/tortilla based dishes, savoury dumplings, higher sugar/fat batter-based products, doughnuts.

**¶**‘Core’ dairy products include: fluid milk including lower fat/sugar flavoured milk, yoghurts, cheese, lower fat ice-creams, lower-fat custard; ‘extra’ dairy products include: condensed milk, cream, higher fat ice-creams, frozen yoghurts, higher fat custards, dairy desserts, higher fat/sugar flavoured milk; dairy servings defined as follows: 250 g milk (including flavoured milk); 200 g yoghurt or custards; 40 g cheese; 100 g ice cream.

\*\*‘Core’ sauces include: lower salt savoury/pasta sauces, and fruit/vegetable-based pickles/chutney; ‘extra’ sauces include: gravies, higher salt savoury/pasta sauces, mayonnaise, oil-based salad dressing, bread-based stuffing.

**††**‘Core’ vegetables include: lower fat potatoes and potato products, lower fat carrot and similar root vegetables, all other vegetables; ‘extra’ vegetables include: higher fat potatoes and potato products, higher fat carrot and similar root vegetables.