**Supplementary Table 3** Prevalence (%) of inadequacy of nutrient intake in Japanese children and adolescents (n = 2,849) according to free sugars intake: the 2016 National Health and Nutrition Survey, Japan (excluding energy misreporters)ab

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Nutrients | <2.5%E  (n=588) | 2.5 to <5%E  (n=835) | 5 to <10%E  (n=979) | ≥10%E  (n=447) |
| Macronutrients |  |  |  |  |
| Protein (g/1000kcal) | 0 | 0 | 0.1 | 0.2 |
| Protein (%E) | 24.5 | 21.4 | 28.0 | 50.6 |
| Fat (%E) | 62.9 | 55.6 | 59.0 | 48.1 |
| SFA (%E)c | 44.4 | 43.6 | 45.1 | 40.4 |
| Carbohydrates (%E) | 41.8 | 35.6 | 29.6 | 26.6 |
| Micronutrients (per 1000 kcal) |  |  |  |  |
| n-6 PUFA (g) | 27.6 | 26.4 | 35.2 | 46.5 |
| n-3 PUFA (g) | 35.7 | 37.0 | 43.0 | 57.9 |
| Dietary fibre (g)c | 63.2 | 52.4 | 58.4 | 63.1 |
| Vitamin A (µg RAE)d | 38.1 | 37.1 | 46.0 | 53.9 |
| Vitamin D (µg) | 68.5 | 67.5 | 70.0 | 76.1 |
| Vitamin E (mg) | 31.5 | 34.0 | 40.5 | 50.6 |
| Vitamin K (µg) | 27.9 | 23.6 | 31.6 | 43.9 |
| Thiamin (mg) | 26.9 | 28.5 | 35.8 | 49.9 |
| Riboflavin (mg) | 22.8 | 18.4 | 19.9 | 28.9 |
| Niacin (mg NE)d | 0 | 0 | 0 | 0.2 |
| Vitamin B6 (mg) | 7.8 | 6.1 | 9.4 | 22.8 |
| Vitamin B12 (µg) | 8.5 | 6.4 | 7.2 | 15.2 |
| Folate (µg) | 6.1 | 3.8 | 5.8 | 14.1 |
| Pantothenic acid (mg) | 25.2 | 24.9 | 34.7 | 54.4 |
| Vitamin C (mg) | 32.3 | 27.4 | 33.1 | 41.2 |
| Sodium (g NaCl equivalent) | 92.5 | 95.0 | 93.4 | 85.0 |
| Potassium (mg)c | 27.0 | 21.2 | 26.8 | 46.0 |
| Calcium (mg) | 56.0 | 50.1 | 48.5 | 61.1 |
| Magnesium (mg) | 18.7 | 9.6 | 12.6 | 18.1 |
| Phosphorus (mg) | 23.8 | 22.3 | 30.6 | 51.7 |
| Iron (mg) | 42.9 | 38.2 | 43.1 | 51.5 |
| Zinc (mg) | 0.5 | 0.5 | 1.5 | 6.0 |
| Copper (mg) | 0 | 0 | 0 | 0.5 |
| Manganese (mg) | 55.6 | 56.7 | 63.7 | 73.4 |

%E, percent of energy intake; RAE, retinol activity equivalent; NE, niacin equivalent

a In total, 70 participants were excluded as energy misreporters

b Using nutrient density, prevalence of inadequacy was estimated as the percentage of participants with lower intake than the reference value the Dietary Reference Intakes for Japanese, 2020(17), except for SFA and sodium (estimated as the percentage of participants with higher intake than the reference value); and protein (%E), fat, and carbohydrates (estimated as the percentage of participants with intake beyond the range of the reference value)

c Estimated for participants aged 3-19 years (n=541, 763, 896, and 404 for <2.5%E, 2.5 to <5%E, 5 to <10%E, and ≥10%E, respectively) because the Dietary Reference Intakes of SFA, dietary fibre, and potassium for children aged 1-2 years are not advocated.

c 1 µg RAE = sum of retinol (µg) + β-carotene (µg) × 1/12 + α-carotene (µg) × 1/12 + β-cryptoxanthin (µg) × 1/24

d 1 mg NE = niacin (mg) + protein (mg)/6000