**Supplementary Table S1.** List of food and drinks analysed

|  |  |  |  |
| --- | --- | --- | --- |
| Product | Group | Subcategory | n (%) |
| Solid foods | Fruit | Dried fruit | 3 (1·3) |
| Fresh fruit | 3 (1·3) |
| Jam | 2 (0·8) |
| Nuts | Fried nuts with salt | 3 (1·3) |
| Fried nuts without salt | 2 (0·8) |
| Natural or toasted nuts without salt | 1 (0·4) |
| Salty snacks | Bakery products | 18 (7·7) |
| Fried corn | 1 (0·4) |
| Sandwiches | Sandwiches | 3 (1·3) |
| Sweet snacks | Bakery and pastry | 25 (10·6) |
| Biscuits | 2 (0·8) |
| Cereal bars | 6 (2·5) |
| Chocolate | 10 (4·2) |
| Chocolate bars | 7 (3·0) |
| Granola | 1 (0·4) |
| Ice creams | 29 (12·3) |
| Jelly beans | 1 (0·4) |
| Mix of grains | 2 (0·8) |
| Other dairy snacks (pudding, porridge, etc.) | Cottage cheese | 1 (0·4) |
| Porridge with added sugars | 7 (3·0) |
| Porridge with sweeteners | 3 (1·3) |
| Porridge without added sugars | 2 (0·8) |
| Protein bars | 1 (0·4) |
| Pudding | 1 (0·4) |
| Rice pudding with added sugars | 3 (1·3) |
| Rice pudding with sweeteners | 1 (0·4) |
| Others (chewing gums, sweets) | Candies with added sugars | 10 (4·2) |
| Candies with added sugars | 4 (1·7) |
| Chewing gums with sweeteners | 2 (0·8) |
| Drinks | Bottled water | Bottled water | 3 (1·3) |
| Dairy drinks | *Cappuccino* shake | 2 (0·8) |
| Chocolate shake | 8 (3·4) |
| Coffee shake | 1 (0·4) |
| Iced coffee | 1 (0·4) |
| Mocha shake | 2 (0·8) |
| Carbonated drinks | Carbonated drinks with added sugars | 16 (6·8) |
| Carbonated drinks with sweeteners | 16 (6·8) |
| Carbonated drinks with juice | 6 (2·5) |
| Soda | 2 (0·8) |
| Fruit juice | Fruit juice from concentrated | 7 (3·0) |
| Smoothies | 4 (1·7) |
| Milk | Milk | 2 (0·8) |
| Non-carbonated drinks | Non-carbonated drinks with added sugars | 9 (3·8) |
| Non-carbonated drinks with sweeteners | 1 (0·4) |
| Vegetable drinks | Oat milk | 1 (0·4) |
|  | | | |

**Supplementary Table S2**. Percentages of products classified into the same or opposite category and agreement between the three nutrient profiling models (AECOSAN, UK NPM and MFU)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | AECOSAN\* | | | | Kappa coefficient |
| “Unhealthy” | | “Healthy” | |  |
| n | % | n | % |  |
| UK NPM† | |  |  |  |  |
| Solid foods (n=171) | |  |  |  |  |
| “Unhealthy” | 85 | 49·7 | 10 | 5·8 |  |
| “Healthy” | 19 | 11·1 | 57 | 33·3 |  |
| Total | 104 | 60·8 | 67 | 39·2 | 0·652 |
| Drinks (n=85) |  |  |  |  |  |
| “Unhealthy” | 22 | 25·9 | 3 | 3·5 |  |
| “Healthy” | 8 | 9·4 | 52 | 61·2 |  |
| Total | 30 | 35·3 | 55 | 64·7 | 0·706 |
| Total (n=256) |  |  |  |  |  |
| “Unhealthy” | 107 | 41·8 | 13 | 5·1 |  |
| “Healthy” | 27 | 10·5 | 109 | 42·6 |  |
| Total | 134 | 52·3 | 122 | 47·7 | 0·688 |
| MFU‡ | |  |  |  |  |
| Solid foods (n=171) | |  |  |  |  |
| “Unhealthy” | 96 | 56·1 | 44 | 25·7 |  |
| “Healthy” | 8 | 4·7 | 23 | 13·5 |  |
| Total | 104 | 60·8 | 67 | 39·2 | 0·295 |
| Drinks (n=85) |  |  |  |  |  |
| “Unhealthy” | 17 | 20·0 | 31 | 36·5 |  |
| “Healthy” | 13 | 15·3 | 24 | 28·2 |  |
| Total | 30 | 35·3 | 55 | 64·7 | 0·003 |
| Total (n=256) |  |  |  |  |  |
| “Unhealthy” | 113 | 44·1 | 75 | 29·3 |  |
| “Healthy” | 21 | 8·2 | 47 | 18·4 |  |
| Total | 134 | 52·3 | 122 | 47·7 | 0·233 |
|  | UK NPM† | | | |  |
| MFU‡ |  |  |  |  |  |
| Solid foods (n=171) |  |  |  |  |  |
| “Unhealthy” | 95 | 55·6 | 45 | 26·3 |  |
| “Healthy” | 0 | 0·0 | 31 | 18·1 |  |
| Total | 95 | 55·6 | 76 | 44·4 | 0·434 |
| Drinks (n=85) |  |  |  |  |  |
| “Unhealthy” | 20 | 23·5 | 28 | 32·9 |  |
| “Healthy” | 5 | 5·9 | 32 | 5·9 |  |
| Total | 25 | 29·4 | 60 | 70·6 | 0·263 |
| Total (n=256) |  |  |  |  |  |
| “Unhealthy” | 115 | 44·9 | 73 | 28·5 |  |
| “Healthy” | 5 | 2·0 | 63 | 24·6 |  |
| Total | 120 | 46·9 | 136 | 53·1 | 0·408 |

AECOSAN, Agencia Española de Seguridad Alimentaria y Nutrición; MFU, Matbransjens Faglige Utvalg; NPM, nutrient profiling model

\*AECOSAN, 2010(24).

†Department of Health, 2011(25).

‡MFU, 2013(26).

**Supplementary Table S3**. Percentages of products classified into the same or opposite category and agreement between the three nutrient profiling models (AECOSAN, UK NPM and MFU) and processing level classification (NOVA system)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | NOVA system† | | | | | | | | | | | | Kappa coefficient |
| Ultra-processed | | | | | | | Non-ultra-processed | | | | |  |
| n | | | | % | | | n | % | | | |  |
| AECOSAN\* |  | | | | |  | | |  |  | | | |  |
| Solid foods (n=171) | | | | | |  | | |  |  | | | |  |
| “Unhealthy” | 97 | | | | | 56·7 | | | 7 | 4·1 | | | |  |
| “Healthy” | 53 | | | | | 31·0 | | | 14 | 8·2 | | | |  |
| Total | | | 150 | |  | 87·7 | | | 21 | 12·3 | | | | 0·116 |
| Drinks (n=85) | |  | | | |  | | |  |  | | | |  |
| “Unhealthy” | | 30 | | | | 35·3 | | | 0 | 0·0 | | | |  |
| “Healthy” | | 40 | | | | 47·0 | | | 15 | 17·6 | | | |  |
| Total | | 70 | | | | 82·3 | | | 15 | 17·6 | | | | 0·308 |
| Total (n=256) | |  | | | |  | | |  |  | | | |  |
| “Unhealthy” | | 127 | | | | 49·6 | | | 7 | 2·7 | | | |  |
| “Healthy” | | 93 | | | | 36·3 | | | 29 | 11·3 | | | |  |
| Total | | 220 | | | | 85·9 | | | 36 | 14·1 | | | | 0·179 |
| UK NPM‡ | | | | | |  | | |  |  | | | |  |
| Solid foods (n=171) | | | | | |  | | |  |  | | | |  |
| “Unhealthy” | | | 93 | | | 54·4 | | | 2 | 1·2 | | | |  |
| “Healthy” | | 57 | | | | 33·3 | | | 19 | 11·1 | | | |  |
| Total | | 150 | | | | 87·7 | | | 21 | 12·3 | | | | 0·209 |
| Drinks (n=85) | |  | | | |  | | |  |  | | | |  |
| “Unhealthy” | | 25 | | | | 29·4 | | | 0 | 0·0 | | | |  |
| “Healthy” | | 45 | | | | 52·9 | | | 15 | 17·6 | | | |  |
| Total | | 70 | | | | 82·3 | | | 15 | 17·6 | | | | 0·283 |
| Total (n=256) | |  | | | |  | | |  |  | | | |  |
| “Unhealthy” | | 118 | | | | 46·1 | | | 2 | 0·8 | | | |  |
| “Healthy” | | 102 | | | | 39·8 | | | 34 | 13·3 | | | |  |
| Total | | 220 | | | | 85·9 | | | 36 | 14·1 | | | | 0·243 |
| MFU\*\* | |  | | | |  | | |  |  | | | |  |
| Solid foods (n=171) | |  | | | |  | | |  |  | | | |  |
| “Unhealthy” | | 134 | | | | 78·4 | | | 6 | 3·5 | | | |  |
| “Healthy” | | 16 | | | | 9·4 | | | 15 | 8·8 | | | |  |
| Total | | 150 | | | | 87·7 | | | 21 | 12·3 | | | | 0·177 |
| Drinks (n=85) | |  | | | |  | | |  |  | | | |  |
| “Unhealthy” | | 48 | | | | 56·5 | | | 0 | 0·0 | | | |  |
| “Healthy” | | 22 | | | | 25·9 | | | 15 | 17·6 | | | |  |
| Total | | 70 | | | | 82·3 | | | 15 | 17·6 | | | | 0·368 |
| Total (n=256) | |  | | | |  | | |  |  | | | |  |
| “Unhealthy” | | 182 | | | | 71·1 | | | 6 | 2·3 | | | |  |
| “Healthy” | | 38 | | | | 14·8 | | | 30 | 11·7 | | | |  |
| Total | | 220 | | | | 85·9 | | | 36 | 14·1 | | | | 0·239 |
| AECOSAN+UK NPM+MFU | | | | | | | | | |  | | | |  |
| Solid foods (n=171) | | | | | | | | | |  | | | |  |
| “Unhealthy” | | | | 83 | | | 48·5 | | | 2 | 1·2 | | |  |
| “Healthy” | | | | 67 | | | 39·2 | | | 19 | 11·1 | | |  |
| Total | | | | 150 | | | 87·7 | | | 21 | 12·3 | | | 0·198 |
| Drinks (n=85) | | | | | | | | | |  | | | |  |
| “Unhealthy” | | | | 17 | | | | 20·0 | | 0 | | 0·0 | |  |
| “Healthy” | | | | 53 | | | | 62·4 | | 15 | | 17·6 | |  |
| Total | | | | 70 | | | | 82·3 | | 15 | | 17·6 | | 0·231 |
| Total (n=256) | | | | | | | | | |  | | | |  |
| “Unhealthy” | | | | 100 | | | | 39·1 | | 2 | | | 0·8 |  |
| “Healthy” | | | | 120 | | | | 46·9 | | 34 | | | 13·3 |  |
| Total | | | | 220 | | | | 85·9 | | 36 | | | 14·1 | 0·226 |

AECOSAN, Agencia Española de Seguridad Alimentaria y Nutrición; MFU, Matbransjens Faglige Utvalg; NPM, nutrient profiling model

\*AECOSAN, 2010(24).

†Monteiro *et al.,* 2016(29).

‡Department of Health, 2011(25).

\*\*MFU, 2013(26).