**SUPPLEMENTARY MATERIAL**

**Supplementary Table 1** - Ultra-processed groups

|  |  |
| --- | --- |
| **Group** | **Food and beverages including in each group** |
| Ready-to-eat and take-away/fast foods | calzones, baked pastries, esfiha, puff pastries, bread rolls, burger, hot dog sandwich; chicken or meat sandwich; fritters snacks (pastel, risolis, coxinha (brazilian snack), pizza (various flavors/ with and without border), french fries, sauces (mayonnaise, ketchup, mustard) |
| Instant noodles | instant noodles (with or without spice) |
| Chips;  | chips and microwave popcorn |
| Sweetening products;  | traditional Brazilian sweets (brigadeiro, beijinho, casadinho, maria mole), processed cakes and pastries (cakes, sweet muffins) desserts (puddings, mousse, gelatin), condensed milk, cakes made mostly with ultra-processed products, processed flavors yogurt, sugar spreads (jam, dulce de leche and nutella) ice cream and popsicle (various flavors) |
| Sweet biscuits/breakfast cereals;  | sweet biscuits (with and without filling) and breakfast cereals (processed granola, dairy flour and mucilon) |
| Chocolate | chocolate (bar, candy: white/milk/bitter) |
| Industrial packaged breads;  | industrialized loaf, hot dog bread, hamburger bread, biscuits, sprinkles, garlic bread, flatbread;  |
| Soft drinks;  | soft drink: Normal, diet e light |
| Margarine;  | Margarine (Salted and unsalted) |
| Salted crackers;  | salted crackers (with and without filling); |
| Processed meats;  | bacon, salami, hot dog sausage, ham, pate, crackling |
| Infant formula;  | infant formula (various flavors and brands) |
| Chocolate powders;  | chocolates Powder  |
| Sweetened beverages | Artificial juice and tea, sweetened dairy beverages |
| Candy | sweets (candy, lollipop, chewing gum) |

**Supplementary Table 2** – Participants clustered by cardiovascular risk factors by TwoStep cluster analysisa

|  |  |
| --- | --- |
| **Cardiovascular risk factors** | **Clusters** |
| **Participants clustered by low cardiovascular risk** **n=171** | **Participants clustered by high cardiovascular risk** **n=49** |
| **Central adiposity** |  |  |
| WC (percentil) | 46.6 [23.4-59.9] | 82.0 [57.5-91.4] |
| **Inflammation** |  |  |
| hs-CRP (mg/L) | 1.1 [0,7-1.5] | 2.4 [1.2-5.5] |
| **Subclinical atherosclerosis** |  |  |
| cIMT (mm) |  0.516 (0.056)  | 0.521 (0.097)  |
| **Total** n (%) | 171 (77.7) | 49 (22.3) |

aValues are expressed in mean (SD) or median [IQR] of cluster

**Supplementary Table 3** -Nutrient profile of the diet according to UPF

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **UPF**  |  |
| **Nutrients** | **All** **participants****n=232** | **Lower intake****n=116** | **Higher intake****n=116** | **P value** |
|  | **Mean (SD)** | **Mean (SD)** | **Mean (SD)** |  |
| **UPF intake, mean (SD)** | 40.69% (6.21) | 35.86 (2.75) | 45.27 (4.97) |  |
| **Energy** (kcal/d) | 1807.74 (149.68) | 1881.80 (127.49) | 1737.40 (134.87) | **<0.001** |
| **Protein** (g/kg/d) | 2.29 (0.93) | 2.31 (0.96) | 2.28 (0.91) | 0.83 |
| **Carbohydrate** (%/E/d) | 53.29 (4.74) | 51.92 (4.13) | 54.57 (4.92) | **<0.001** |
| **Total fat** (%/E/d) | 32.60 (3.15) | 30.49 (2.06) | 34.61 (2.66) | **<0.001** |
| **Saturated fatty-acids** (%/E/d) | 10.99 (1.21) | 10.10 (0.80) | 11.84 (0.86) | **<0.001** |
| **Monounsaturated fatty-acids** (%/E/d) | 10.57 (1.11) | 9.92 (0.67) | 11.20 (1.09) | **<0.001** |
| **Polyunsaturated fatty-acids** (%/E/d) | 8.05 (0.75) | 7.65 (0.48) | 8.44 (0.75) | **<0.001** |
| **Trans fatty acids** (%/E/d) | 1.10 (0.16) | 1.07 (0.08) | 1.14 (0.22) | **0.001** |
| **Cholesterol** (mg/d) | 221.14 (24.08) | 208.64 (22.00) | 233.00 (19.60) | **<0.001** |
| **Sodium** (mg/d) | 2726.02 (105.13) | 2724.47 (78.01) | 2727.50 (125.92) | 0.83 |
| **Total fibers** (g/d) | 16.93 (1.52) | 17.66 (1.19) | 16.23 (1.48) | **<0.001** |
| **Added sugar** (g/d) | 71.34 (7.57) | 70.98 (7.13) | 71.68 (7.98) | 0.48 |
| **Calcium** (mg/d) | 726.43 (107.13) | 717.60 (103.19) | 734.81 (110.52) | 0.22 |
| **Iron** (mg/d) | 11.71 (0.64) | 11.79 (0.60) | 11.62 (0.65) | 0.05 |
| **Phosphorus** (mg/d) | 985.55 (59.42) | 972.11 (56.64) | 998.32 (59.41) | **0.001** |
| **Zinc** (mg/d) | 9.59 (0.55) | 9.38 (0.49) | 9.79 (0.55) | **<0.001** |
| **Selenium** (µg/d) | 107.07 (2.95) | 107.11 (2.80) | 107.02 (3.10) | 0.83 |
| **Magnesium** (mg/d) | 215.29 (12.91) | 215.75 (13.02) | 214.85 (12.84) | 0.59 |
| **Potassium** (mg/d) | 1970.81 (92.63) | 1989.86 (97.96) | 1952.71 (83.74) | **0.002** |
| **Vitamin A** (µg/d) | 354.40 (39.27) | 346.10 (36.54) | 362.27 (40.28) | **0.002** |
| **Vitamin C** (mg/d) | 138.40 (10.67) | 137.18 (12.81) | 138.98 (8.09) | 0.21 |
| **Vitamin D** (µg/d) | 4.44 (0.77) | 4.45 (0.78) | 4.43 (0.76) | 0.90 |
| **Vitamin B12** (µg/d) | 2752.41 (917.26) | 2537.06 (1151.90) | 2955.09 (553.48) | **<0.001** |

SD, standard deviation; kcal/d, kilocalorie per day; g/kg/d, gram per kilogram per day; %/E/d, percentage of energy per day; mg/d, milligram per day; g/d, gram per day; µg/d, microgram.

UPF intake was divided into two groups: lower intake (<median of UPF intake) and higher intake (≥ median of UPF intake).

p-value obtained by Student test

**Sample**

**(**n=319)

**Non-eligible** (n= 86)

- not contacted (n=63)

- chromosome syndrome (n=7)

- <5 years old (n=4)

- >18 years old (n=12)

**Elegible**

(n=233)

**Loss** (n=1)

- Nephrotic syndrome (n=1)

**Total assessed**

(n=232)

**Variables available for analysis** (n=232)

- Central adiposity (n=227)

- hs-CRP (n=230)

- cIMT (n=227)

- Participants clustered by

cardiovascular risk factors (n=220)

**Supplementary Figure 1.** Flowchart of recruitment of children and adolescents with CHD.