

Supplementary Material

Supplementary Tables

Table S1. Examples of meals served in Dijon school canteens in March 2019 (FR)

Monday 4	Tuesday 5	Wednesday 6	Thursday 7	Friday 8
Gougères	Celeriac	Asparagus / mayonnaise	Lettuce	Tomatoes vinaigrette
Grilled ham	Fish	Soyballs with tomato sauce	Beef with gingerbread sauce	Chicken
Green beans	Mashed potatoes	Rice	Pasta	Cauliflower
Cheese	Vanilla custard	Cheese	Strawberry yogurt drink	Cheese
Apple	-	Banana	-	Donut
Monday 11	Tuesday 12	Wednesday 13	Thursday 14	Friday 15
Lettuce	Lettuce	Cheese pie	Shredded carrots	Fresh vegetable soup
Fish	Omelette	Lamb curry	Cheese croquette	Roasted pork with juice
Spinach	Ratatouille	Brocoli flan	Lentils	Fries
Cottage cheese	Cheese	Cheese	Fruit yogurt	Cheese
Orange	Basque cake	Peer	-	Pineapple
Monday 18	Tuesday 19	Wednesday 20	Thursday 21	Friday 22
Lettuce	Beetroot	Tomatoes vinaigrette	Radish salad	Tabbouleh
Cheese pastry with cream sauce	Roasted chicken	Veal	Sauerkraut	Fish
Cottage cheese	Quinoa	Carrots	Sausage and ham	Mixed vegetables
Apple purée	Cheese	Cheese	Yogurt	Cheese
	Clementine	Praline cake	Madeleine	Clementine
Monday 25	Tuesday 26	Wednesday 27	Thursday 28	Friday 29
Lettuce	Cucumber	Lettuce	Cabbage and carrots	Beetroot
Spaghetti and bolognese sauce	Fish	Chickpeaballs with tomato sauce	Beef	Poached eggs
Vanilla yogurt	Mixed vegetables	Indian style cereals	Zucchini	Wheat
-	Cheese	Chocolate custard	Cottage cheese	Cheese
	Flan	-	Waffle with strawberry jam	Fruit salad

Table S2. Confidence levels of pairing with CIQUAL/AGRIBALYSE food items

Confidence level	Rules	n
1	Exact same label Same food item but different label (e.g., brand name)	133
2	Similar label but differences on: preservation method (e.g., fresh/frozen), cooking method or packaging Similar label but ingredient or fragrance variation (e.g., strawberry/vanilla ice cream) More generic label (e.g., type of food item: blue cheese)	207
3	Similar label but ingredient missing or additional ingredient Similar label but raw vs. cooked difference More generic label (e.g., small food group: leaf vegetables) More than one level-2 rules	75
4	More generic label (large food group: vegetables)	17

Table S3. Nutrients used for MAR/2000 kcal (n=23) and MER/2000 kcal (n=3) calculation and corresponding recommended daily intakes (RDI) or maximum recommended values (MRV).

Nutrient	Unit	RDI ¹ or MRV ²
Energy	kcal	2000
Proteins	g	25
Fibers	g	13
Vitamin B1	mg	0.8
Vitamin B2	mg	1.2
Vitamin B3	mg	9
Vitamin B6	mg	1
Vitamin B9	µg	201
Vitamin B12	µg	1.4
Vit C	mg	89
Vit D	µg	5
Vit E	mg	9.1
Vit A ³	µg	501
Iode	µg	120
Calcium	mg	924
Potassium	mg	2892
Iron	mg	8.2
Magnesium	mg	203
Zinc	mg	9.2
Copper	mg	1.2
Iodine	µg	120
Selenium	µg	39
LA ⁴	g	8.9
ALA ⁵	g	2.2
DHA ⁶	mg	152
SFA ⁷	g	26
Salt	g	6.5
Total sugars ⁸	g	67.5

¹ Recommended daily intake for children aged 4–13 years attending primary school in France (Martin, 2001; Vieux *et al.*, 2016; EnScol *et al.*, 2020). ² Maximum recommended value for children aged 4-12 years (ANSES, 2012, 2019a, 2021b).

³Vitamin A = retinol + beta-carotene/6. ⁴Linoleic acid. ⁵Alpha-linolenic acid. ⁶ Docosahexaenoic acid. ⁷Saturated fatty acids. ⁸Total sugars = fructose + glucose + maltose + saccharose

Table S4. MAR and nutrient content per meal for all meals (n=249), non-vegetarian (n = 183) and vegetarian (n = 66) meals served in the Dijon school canteens in 2019

	RDI ¹ or MRV ²	Mean (SD)			<i>p</i> ³
		All meals (n=249)	Non-vegetarian meals (n=183)	Vegetarian meals (n=66)	
MAR (%)		48.7 (6.4)	49.4 (6.4)	46.9 (5.8)	0.003
Proteins (g/meal)	25	30.1 (7.8)	32.2 (7.3)	24.5 (6.3)	<0.001
Fibres (g/meal)	13	9.0 (3.2)	8.3 (2.7)	10.9 (3.7)	<0.001
Vitamin B1 (mg/meal)	0.8	0.3 (0.2)	0.4 (0.2)	0.3 (0.1)	0.016
Vitamin B2 (mg/meal)	1.2	0.4 (0.1)	0.4 (0.1)	0.4 (0.2)	0.409
Vitamin B3 (mg/meal)	9	5.3 (3.0)	6.1 (2.9)	3.2 (2.0)	<0.001
Vitamin B6 (mg/meal)	1	0.6 (0.2)	0.6 (0.2)	0.5 (0.2)	0.001
Vitamin B9 (µg/meal)	201	117.5 (30.6)	104.0 (42.1)	155.0 (84.2)	<0.001
Vitamin B12 (µg/meal)	1.4	1.5 (1.5)	1.8 (1.6)	0.7 (0.4)	<0.001
Vitamin C (mg/meal)	89	22.5 (16.9)	23.7 (17.9)	19.3 (13.4)	0.036
Vitamin D (µg/meal)	5	1.4 (1.3)	1.5 (1.4)	1.2 (0.7)	0.015
Vitamin E (mg/meal)	9.1	4.2 (1.9)	4.0 (1.9)	4.9 (1.9)	0.001
Vitamin A ⁴ (µg/meal)	501	452.1 (473.4)	459.0 (461.0)	433.1 (509.6)	0.717
Calcium (mg/meal)	924	243.5 (82.2)	235.0 (80.3)	267.2 (83.4)	0.006
Potassium (mg/meal)	2892	938.7 (248.9)	970.4 (262.0)	851.1 (182.7)	<0.001
Iron (mg/meal)	8.2	3.2 (1.2)	3.2 (1.3)	3.4 (0.9)	0.107
Magnesium (mg/meal)	203	91.1 (24.7)	88.8 (23.0)	97.5 (28.3)	0.028
Zinc (mg/meal)	9.2	3.5 (1.7)	3.7 (1.9)	2.8 (0.6)	<0.001
Copper (mg/meal)	1.2	0.7 (0.2)	0.7 (0.3)	0.8 (0.1)	0.001
Iodine (µg/meal)	120	79.3 (33.1)	81.7 (35.6)	72.7 (24.2)	0.025
Selenium (µg/meal)	39	72.4 (21.8)	73.0 (21.9)	71.0 (21.8)	0.542
LA ⁵ (g/meal)	8.9	3.1 (1.6)	3.0 (1.6)	3.6 (1.5)	0.004
ALA ⁶ (g/meal)	2.2	0.4 (0.4)	0.5 (0.5)	0.4 (0.2)	0.006
DHA ⁷ (mg/meal)	152	67.0 (79.5)	75.4 (90.8)	43.6 (16.2)	<0.001
SFA ⁸ (g/meal)	26	10.1 (5.0)	10.3 (9.6)	9.6 (4.2)	0.317
Salt (g/meal)	6.5	2.4 (0.8)	2.4 (0.8)	2.5 (0.8)	0.325
Total sugars ⁹ (g/meal)	67.5	18.6 (6.8)	17.79	20.72	0.004

¹ Recommended daily intake for children aged 4–13 years attending primary school in France (Martin, 2001)

² Maximum recommended value for children aged 4-12 years (ANSES, 2012, 2019a, 2021b) ³ Mean comparison of vegetarian and non-vegetarian meals (two-sample Student's t test, significance: $p < 0.05$ for meal indicators, $p < 0.002$ for nutrients). ⁴ Vitamin A = retinol + beta-carotene/6. ⁵ Linoleic acid. ⁶ Alpha-linolenic acid. ⁷ Docosahexaenoic acid.

⁸ Saturated fatty acids. ⁹ Total sugars = fructose + glucose + maltose + saccharose

Table S5. MAR and nutrient content per meal for the five meal subcategories based on protein dish: beef, veal, lamb (n = 56); pork and poultry (n = 68); fish (n = 55); eggs and/or cheese (n = 40); vegan (n = 30), served in the Dijon school canteens in 2019

		Mean (SD)					
	RDI ¹ or MRV ²	Beef, Veal, Lamb (n = 56)	Pork, Poultry (n = 68)	Fish (n = 55)	Eggs and/or cheese (n = 40)	Vegan (n = 30)	<i>p</i> ³
MAR (%)		48.3 (5.9) ^{ab}	49.1 (6.8) ^a	50.9 (6.4) ^a	48.4 (6.2) ^{ab}	45.3 (4.7) ^b	0.003
Proteins (g/meal)	25	30.9 (7.0) ^{ab}	34.1 (8.0) ^a	31.7 (6.3) ^{ab}	26.9 (6.2) ^b	21.2 (4.6) ^c	<0.001
Fibers (g/meal)	13	8.3 (2.3) ^b	8.6 (3.1) ^b	8.1 (2.5) ^b	9.5 (3.6) ^b	12.2 (3.3) ^a	<0.001
Vitamin B1 (mg/meal)	0.8	0.3 (0.1) ^{ab}	0.4 (0.3) ^a	0.3 (0.1) ^b	0.3 (0.1) ^{ab}	0.3 (0.1) ^{ab}	<0.001
Vitamin B2 (mg/meal)	1.2	0.4 (0.1) ^{ab}	0.4 (0.2) ^{ab}	0.4 (0.1) ^{bc}	0.5 (0.2) ^a	0.3 (0.1) ^c	<0.001
Vitamin B3 (mg/meal)	9	5.4 (1.6) ^b	8.1 (2.9) ^a	4.4 (2.4) ^b	3.8 (2.3) ^{bc}	2.4 (0.9) ^c	<0.001
Vitamin B6 (mg/meal)	1	0.6 (0.2) ^{ab}	0.7 (0.3) ^a	0.5 (0.2) ^b	0.5 (0.1) ^b	0.5 (0.2) ^{ab}	<0.001
Vitamin B9 (µg/meal)	201	97.5 (28.7) ^c	104.6 (54.9) ^{bc}	106.8 (33.8) ^{bc}	160.3 (88.5) ^a	147.1 (73.6) ^{ab}	<0.001
Vitamin B12 (µg/meal)	1.4	1.9 (0.9) ^{ab}	0.8 (0.3) ^c	2.8 (2.4) ^a	0.9 (0.2) ^{bc}	0.5 (0.5) ^c	<0.001
Vitamin C (mg/meal)	89	25.1 (18.4) ^a	22.8 (16.4) ^a	22.3 (19.1) ^a	22.0 (13.8) ^a	18.1 (14.5) ^a	0.486
Vitamin D (µg/meal)	5	0.8 (0.6) ^b	1.2 (0.7) ^b	2.5 (2.0) ^a	1.4 (0.7) ^b	0.9 (0.6) ^b	<0.001
Vitamin E (mg/meal)	9.1	3.7 (1.7) ^a	3.9 (2.0) ^a	4.4 (1.8) ^a	5.0 (2.0) ^a	4.5 (1.9) ^a	0.016
Vitamin A ⁴ (µg/meal)	501	454.4 (451.7) ^a	469.5 (489.0) ^a	440.9 (434.7) ^a	528.8 (616.5) ^a	326.9 (298.4) ^a	0.516
Calcium (mg/meal)	924	221.1 (82.3) ^b	227.0 (74.7) ^b	254.7 (81.0) ^{ab}	301.1 (77.3) ^a	225.3 (71.1) ^b	<0.001
Potassium (mg/meal)	2892	952.2 (266.4) ^{ab}	1009.4 (257.6) ^a	959.0 (262.8) ^{ab}	782.2 (163.9) ^b	924.9 (172.8) ^{ab}	<0.001
Iron (mg/meal)	8.2	3.8 (1.7) ^a	2.9 (0.9) ^b	2.6 (0.9) ^b	3.4 (0.9) ^{ab}	3.5 (1.1) ^{ab}	<0.001
Magnesium (mg/meal)	203	78.6 (15.0) ^b	91.5 (24.9) ^{ab}	96.6 (23.4) ^{ab}	90.1 (26.7) ^{ab}	105.1 (29.1) ^a	<0.001
Zinc (mg/meal)	9.2	5.5 (2.1) ^a	3.3 (1.0) ^b	2.4 (0.6) ^c	2.9 (0.5) ^{bc}	2.5 (0.5) ^{bc}	<0.001
Copper (mg/meal)	1.2	0.6 (0.1) ^b	0.7 (0.1) ^{ab}	0.7 (0.4) ^{ab}	0.7 (0.2) ^{ab}	0.8 (0.1) ^a	0.006
Iodine (µg/meal)	120	60.1 (19.0) ^b	69.8 (20.7) ^b	117.6 (37.1) ^a	70.7 (26.5) ^b	77.6 (19.6) ^b	<0.001
Selenium (µg/meal)	39	60.3 (16.7) ^c	71.5 (20.2) ^{bc}	88.7 (18.9) ^a	59.6 (17.4) ^c	84.5 (19.1) ^{ab}	<0.001
LA ⁵ (g/meal) ⁴	8.9	2.8 (1.8) ^{ab}	3.4 (1.5) ^{ab}	2.5 (1.5) ^b	3.3 (1.4) ^{ab}	3.8 (1.6) ^a	0.001
ALA ⁶ (g/meal) ⁵	2.2	0.4 (0.4) ^a	0.5 (0.5) ^a	0.5 (0.5) ^a	0.3 (0.2) ^a	0.4 (0.1) ^a	0.042
DHA ⁷ (mg/meal) ⁶	152	42.6 (88.9) ^b	42.8 (16.1) ^b	150.3 (105.9) ^a	47.3 (19.7) ^b	40.7 (10.3) ^b	<0.001
SFA ⁸ (g/meal) ⁷	26	10.5 (5.4) ^{ab}	10.2 (5.4) ^{ab}	10.2 (5.2) ^{ab}	11.9 (3.7) ^a	6.8 (3.1) ^b	0,001
Salt (g/meal)	6.5	2.1 (0.7) ^a	2.5 (1.0) ^a	2.5 (0.6) ^a	2.7 (0.8) ^a	2.2 (0.7) ^a	0.004
Total sugars ⁹ (g/meal)	67.5	17.7 (6.1) ^a	19.4 (6.8) ^a	16.2 (6.2) ^a	20.3 (8.3) ^a	20.2 (5.6) ^a	0.009

¹ Recommended daily intake for children aged 4–13 years attending primary school in France (Martin, 2001). ² Maximum recommended value for children aged 4-12 years (ANSES, 2012, 2019a, 2021b). ³ Type III fixed effects tests of the subcategory effect in ANOVA models with MAR and nutrient content as dependent variables. The same letters indicate no significant difference between subcategories (post hoc pairwise comparisons, significance: $p < 0.05$ for meal indicators, $p < 0.002$ for nutrients). ⁴ Vitamin A = retinol + beta-carotene/6. ⁵ Linoleic acid.

⁶ Alpha-linolenic acid. ⁷ Docosahexaenoic acid. ⁸ Saturated fatty acids. ⁹ Total sugars = fructose + glucose + maltose + saccharose