

Table S1. PANDiet for Australian and New Zealand children aged from 18 to 23 months: components, reference values, and inter-individual variability ¹.

	Reference Value	Variability	Ref
Moderation sub-score			
Protein	3.5 g/kg	0%	
Total Fat	40% of EI	0%	
Total Carbohydrate	60% of EI	0%	
SFA	11 % of EI [#]	15% [#]	
NMES	11% of EI [#]	15% [#]	
Sodium	400 mg	15%	
Adequacy sub-score			
Protein	0.92 g/kg	12%	
Total Carbohydrate	45% of EI [#]	0% [#]	
Total Fat	35% of EI [#]	0% [#]	
PUFA	4.5 % of EI	15% [#]	
Vitamin A	210 µg	20%	
Thiamin	0.4 mg/1000 kcal	10%	
Riboflavin	0.4 mg	10%	
Niacin	5 mg/1000 kcal	15%	
Vitamin B ₆	15 µg/g protein	10%	
Folate	120 µg	10%	
Vitamin B ₁₂	0.7 µg	10%	
Vitamin C	25 mg	20%	
Vitamin D	5 µg	15% [#]	
Calcium	360 mg	15%	
Magnesium	5.0mg/kg	10%	
Zinc	2.5 mg	10%	
Phosphorus	380 mg	10%	
Potassium	200 mg	15% [#]	
Iron	4 mg	15% [#]	
Copper	0.7 mg	15% [#]	
Selenium	20 µg	10%	
Iodine	65 µg	20%	
Tolerable Upper Intake Limits			
Retinol (vitamin A)	600 µg		
Niacin	250 mg		
Vitamin B-6	15 mg		
Vitamin C	400 mg		
Vitamin D	80 µg		
Folate	300 µg		
Calcium	2, 500 mg		
Zinc	7 mg		
Phosphorus	3,000 mg		
Iron	20 mg		

¹ EI, Energy intake. Reference value refers to Australia and New Zealand nutritional recommendations including Estimated Average Requirement (EAR), adequate Intake (AI) or Acceptable Macronutrient Distribution Range, as appropriate (28).

#Data not available in New Zealand and Australian nutrient reference values.
 Values obtained from Verger et al. (31) for U.K. children (33,34).
 † Reference value obtained from the Institute of Medicine (IoM) upper limit
 for protein in 1–3 year old children (35)

Table S2. Nutritional composition of CM and GUMLi per 100 mL of prepared product.

	Study Group	
	Control CM ¹	Intervention GUMLi ¹
Energy (kJ)	245.0	249.0
(kcal)	71.0	60.0
Macronutrients		
Protein (g)	3.1	1.7
Carbohydrate (g)	4.5	7.8
Total Fat (g)	3.6	1.9
Saturated (g)	1.9	1.3
Total n-3 long chain fatty acids (g) (DHA+EPA+DPA ²)	<0.002	0.04
Dietary Fiber ³		
scGOS (g)	0.0	1.8
lcFOS (g)	0.0	0.2
Micronutrients		
Sodium (mg)	24.7	19.0
Calcium (mg)	96.7	116.0
Phosphorus (mg)	81.5	94.0
Magnesium (mg)	9.0	11.0
Non heme iron (mg)	0.0	1.3
Zinc (mg)	0.3	0.5
Iodine (µg)	2.4	9.1
Vitamin A (µg REs)	33.4	27.0
Cholecalciferol (µg)	0.1	1.2
dl-alpha-tocopherol (mg)	0.1	1.3
Thiamin (mg)	0.02	0.1
Riboflavin (µg)	193.8	137.0
Vitamin B-6 (µg)	0.5	139.0
Vitamin B-12 (µg)	0.42	0.14
Niacin (µg)	0.1	1.0
Folic acid (µg)	0.5	20.0
Vitamin C (mg)	0.0	17.0

¹Obtained from manufacturer (Danone), values based on average totals from three batches produced for use in the GUMLi trial.

²DHA: Docosahexaenoic acid; EPA: Eicosapentaenoic acid; DPA: Docosapentaenoic acid.

³scGOS: Short-chain galacto-oligosaccharides; lcFOS: Long-chain fructo-oligosaccharides.

Table S3. Characteristics of the Auckland cohort included versus excluded in the PANDiet analysis.

	Auckland Participants		P*
	Included (N=83) n (%)	Excluded (N=25) n (%)	
Baseline demographics			
Child's sex			0.765
Boy	47 (57)	15 (60)	
Girl	36 (43)	10 (40)	
Other children in the family			0.585
No	38 (46)	13 (52)	
Yes	45 (54)	12 (48)	
Day care attendance			0.464
No	50 (60)	13 (52)	
Yes	33 (40)	12 (48)	
Breastfed at baseline			0.522
No	51 (61)	13 (54)	
Yes	32 (39)	11 (46)	
Missing		1	
Mother's Ethnicity			0.196
Māori	14 (17)	1 (4)	
Pacific	1 (1)	1 (4)	
Asian	5 (6)	1 (4)	
European	49 (59)	20 (80)	
Other	14 (17)	2 (8)	
Mother's Age, years (mean ± SD)	32 (5)	30 (6)	0.102
Mother's BMI, kgm² (mean ± SD)	27 (6)	27 (5)	0.957
Mother's Highest Level of Education			0.047
No school qualifications	0 (0)	0 (0)	
Primary	2 (2)	0 (0)	
Secondary	12 (14)	10 (40)	
Tertiary	66 (80)	15 (60)	
Other	3 (4)	0 (0)	
Mother's Employment Status			0.136
Full-time caregiver	29 (35)	7 (28)	
Full-time paid employment	18 (22)	7 (28)	
Part-time paid employment	27 (33)	6 (24)	
Receiving a benefit	1 (1)	2 (8)	
Unemployed, not receiving a benefit	3 (4)	2 (8)	
Other	5 (6)	0 (0)	
Prefer not to answer	0 (0)	1 (4)	
Smoking			
Current smoking	2 (2)	0 (0)	1.000
Smoking before pregnancy	7 (8)	2 (8)	1.000
Smoking during pregnancy	1 (1)	1 (4)	0.411

*Chi-square test or Fisher's Exact test is used to test the difference between groups for categorical variables; the Kruskal-Wallis test or two-sample t-test is used to compare the medians/means between groups for continuous variables.

Table S4. Nutrient intake among Auckland children (N=83) from 18 and 23 months of age (month 7–11 post randomisation)^{1,2}.

Nutrients	Intervention (N=41) Mean (SD)	Control (N=42) Mean (SD)	Adjusted Difference (95% CI)	P*
Energy, kcal				
Month 07	1135.92 (294.19)	1122.34 (187.51)	36.61 (–93.18, 166.41)	0.579
Month 08	1114.07 (277.52)	1246.07 (378.83)	–108.96 (–238.76, 20.84)	0.100
Month 10	1128.31 (383.78)	1068.61 (291.44)	82.74 (–47.05, 212.54)	0.210
Month 11	1190.24 (288.14)	1118.93 (283.21)	94.34 (–35.45, 224.14)	0.154
Carbohydrate, g				
Month 07	142.45 (40.53)	127.44 (36.36)	18.26 (–0.25, 36.76)	0.053
Month 08	138.50 (38.12)	144.65 (56.59)	–2.90 (–21.41, 15.61)	0.758
Month 10	138.25 (45.72)	123.41 (41.01)	18.09 (–0.42, 36.59)	0.055
Month 11	145.81 (41.01)	126.61 (43.06)	22.45 (3.94, 40.96)	0.018
Total fat, g				
Month 07	38.49 (13.70)	43.91 (11.34)	–4.69 (–11.04, 1.65)	0.146
Month 08	37.76 (14.79)	46.21 (16.22)	–7.72 (–14.07, –1.37)	0.017
Month 10	39.53 (17.61)	40.34 (13.50)	–0.08 (–6.42, 6.27)	0.981
Month 11	43.99 (15.81)	43.75 (13.59)	0.97 (–5.38, 7.32)	0.764
Saturated fat, g				
Month 07	18.98 (7.37)	21.16 (5.98)	–1.96 (–5.27, 1.34)	0.243
Month 08	18.11 (7.41)	22.16 (8.16)	–3.83 (–7.14, –0.53)	0.023
Month 10	19.46 (8.88)	19.73 (7.77)	–0.05 (–3.35, 3.26)	0.977
Month 11	20.93 (8.11)	21.00 (6.84)	0.15 (–3.16, 3.45)	0.930
NMES, g				
Month 07	45.46 (18.22)	42.02 (17.88)	4.33 (–5.27, 13.93)	0.375
Month 08	45.90 (19.00)	49.01 (30.16)	–2.22 (–11.83, 7.38)	0.649
Month 10	40.13 (23.17)	39.00 (19.24)	2.03 (–7.58, 11.63)	0.678
Month 11	48.53 (25.02)	39.29 (21.47)	10.14 (0.54, 19.74)	0.039
Sodium, mg				
Month 07	1174.83 (656.71)	1113.54 (477.98)	84.96 (–186.02, 355.93)	0.537
Month 08	1169.36 (582.85)	1445.92 (688.80)	–252.89 (–523.87, 18.09)	0.067
Month 10	1205.99 (683.53)	1133.67 (708.06)	95.98 (–175.00, 366.96)	0.486
Month 11	1280.76 (497.31)	1271.69 (658.78)	32.74 (–238.24, 303.71)	0.812
Protein, g				
Month 07	46.07 (17.15)	50.13 (10.13)	–3.26 (–9.65, 3.13)	0.316
Month 08	46.09 (14.01)	56.47 (17.08)	–9.58 (–15.97, –3.19)	0.004
Month 10	46.45 (18.34)	44.33 (12.51)	2.92 (–3.47, 9.31)	0.369
Month 11	44.59 (14.36)	47.48 (13.13)	–2.09 (–8.48, 4.30)	0.520
PUFA, g				
Month 07	3.69 (1.68)	4.30 (2.06)	–0.44 (–1.48, 0.60)	0.404
Month 08	4.30 (2.29)	4.72 (3.92)	–0.26 (–1.29, 0.78)	0.623

Month 10	4.07 (1.69)	3.87 (2.17)	0.37 (-0.67, 1.40)	0.484
Month 11	5.10 (2.43)	4.34 (2.29)	0.92 (-0.11, 1.96)	0.080
Vitamin A, µg				
Month 07	600.40 (400.47)	571.78 (267.69)	15.37 (-106.56, 137.30)	0.804
Month 08	498.73 (321.17)	513.25 (245.67)	-27.76 (-149.70, 94.17)	0.654
Month 10	481.32 (237.81)	479.52 (263.98)	-11.45 (-133.38, 110.48)	0.853
Month 11	444.69 (236.56)	485.73 (235.35)	-54.28 (-176.21, 67.65)	0.381
Thiamin, mg				
Month 07	1.50 (0.63)	1.19 (0.84)	0.34 (0.03, 0.64)	0.030
Month 08	1.54 (0.56)	1.29 (0.72)	0.28 (-0.02, 0.59)	0.069
Month 10	1.35 (0.70)	1.03 (0.82)	0.36 (0.05, 0.66)	0.022
Month 11	1.36 (0.68)	0.99 (0.64)	0.40 (0.10, 0.71)	0.010
Riboflavin, mg				
Month 07	1.82 (0.64)	2.12 (0.64)	-0.29 (-0.56, -0.02)	0.037
Month 08	1.71 (0.54)	2.30 (0.77)	-0.58 (-0.85, -0.30)	<0.0001
Month 10	1.66 (0.50)	2.07 (0.67)	-0.39 (-0.66, -0.11)	0.006
Month 11	1.63 (0.61)	2.11 (0.57)	-0.47 (-0.74, -0.20)	0.001
Niacin, mg				
Month 07	19.97 (7.25)	17.79 (4.64)	2.49 (-0.12, 5.09)	0.061
Month 08	20.63 (5.18)	20.09 (7.30)	0.85 (-1.75, 3.45)	0.521
Month 10	19.34 (6.64)	15.80 (5.87)	3.84 (1.24, 6.45)	0.004
Month 11	19.09 (5.31)	17.28 (5.39)	2.11 (-0.49, 4.71)	0.112
Vitamin B6, mg				
Month 07	0.99 (0.57)	1.07 (0.54)	-0.07 (-0.30, 0.15)	0.524
Month 08	1.05 (0.47)	1.28 (0.79)	-0.22 (-0.44, 0.01)	0.059
Month 10	0.89 (0.43)	0.98 (0.43)	-0.07 (-0.30, 0.15)	0.514
Month 11	0.96 (0.39)	1.01 (0.38)	-0.04 (-0.26, 0.18)	0.724
Folate, µg				
Month 07	232.46 (113.43)	242.49 (143.98)	-6.57 (-68.96, 55.82)	0.836
Month 08	259.78 (166.42)	274.67 (134.44)	-11.44 (-73.83, 50.95)	0.718
Month 10	204.29 (144.77)	257.42 (171.64)	-49.68 (-112.07, 12.71)	0.118
Month 11	240.27 (164.95)	224.85 (87.87)	18.87 (-43.52, 81.26)	0.552
Vitamin B12, µg				
Month 07	2.36 (1.12)	2.78 (1.09)	-0.41 (-0.91, 0.09)	0.108
Month 08	2.25 (1.30)	3.17 (1.55)	-0.91 (-1.41, -0.41)	0.0004
Month 10	2.14 (0.94)	2.57 (0.93)	-0.42 (-0.92, 0.07)	0.095
Month 11	2.03 (0.91)	2.58 (1.15)	-0.55 (-1.05, -0.05)	0.031
Vitamin C, mg				
Month 07	104.00 (44.39)	45.38 (37.36)	57.38 (35.76, 79.01)	<0.0001
Month 08	99.95 (39.44)	50.22 (54.71)	48.48 (26.86, 70.11)	<0.0001
Month 10	92.84 (34.62)	50.54 (65.97)	41.05 (19.43, 62.68)	0.0002
Month 11	92.51 (48.54)	58.80 (61.49)	32.47 (10.85, 54.10)	0.003
Vitamin D, µg				
Month 07	6.02 (6.57)	3.23 (3.18)	2.80 (1.07, 4.53)	0.002
Month 08	4.73 (2.70)	3.59 (4.00)	1.16 (-0.57, 2.89)	0.188
Month 10	5.17 (2.76)	2.92 (2.49)	2.27 (0.54, 4.00)	0.011
Month 11	4.86 (3.44)	3.73 (4.75)	1.15 (-0.58, 2.88)	0.194
Calcium, mg				

Month 07	901.26 (268.15)	898.06 (287.37)	8.15 (-113.76, 130.06)	0.895
Month 08	808.31 (257.94)	943.49 (314.09)	-130.24 (-252.15, -8.33)	0.036
Month 10	899.34 (284.54)	836.03 (251.58)	68.25 (-53.65, 190.16)	0.271
Month 11	830.41 (284.29)	891.05 (280.79)	-55.70 (-177.60, 66.21)	0.369
Magnesium, mg				
Month 07	190.42 (59.23)	192.43 (50.27)	0.93 (-22.60, 24.46)	0.938
Month 08	186.24 (54.21)	206.19 (70.46)	-17.01 (-40.54, 6.52)	0.156
Month 10	181.27 (52.24)	169.37 (43.16)	14.84 (-8.70, 38.37)	0.216
Month 11	189.36 (55.05)	178.23 (46.71)	14.06 (-9.47, 37.60)	0.240
Zinc (mg)				
Month 07	6.75 (2.76)	6.11 (1.51)	0.71 (-0.22, 1.64)	0.133
Month 08	6.64 (2.24)	6.85 (2.65)	-0.13 (-1.07, 0.80)	0.776
Month 10	6.44 (2.45)	5.37 (1.74)	1.14 (0.21, 2.07)	0.017
Month 11	6.42 (1.77)	5.45 (1.69)	1.04 (0.11, 1.97)	0.029
Phosphorus, mg				
Month 07	1023.06 (284.32)	1004.05 (202.02)	33.99 (-83.88, 151.87)	0.571
Month 08	966.96 (257.85)	1106.43 (293.65)	-124.49 (-242.36, -6.62)	0.039
Month 10	984.67 (335.64)	930.98 (252.54)	68.68 (-49.20, 186.55)	0.252
Month 11	989.53 (278.71)	988.18 (262.19)	16.33 (-101.54, 134.20)	0.785
Potassium, mg				
Month 07	1666.69 (703.04)	1962.08 (433.28)	-283.10 (-528.37, -37.83)	0.024
Month 08	1537.51 (481.42)	2232.75 (761.17)	-682.95 (-928.21, -437.68)	<0.0001
Month 10	1406.79 (493.64)	1861.05 (503.26)	-441.97 (-687.24, -196.70)	0.001
Month 11	1512.12 (526.22)	1987.09 (511.40)	-462.67 (-707.94, -217.40)	0.000
Iron, mg				
Month 07	10.62 (3.36)	6.23 (2.82)	4.58 (3.31, 5.85)	<0.0001
Month 08	10.80 (2.96)	6.90 (2.75)	4.10 (2.83, 5.37)	<0.0001
Month 10	9.83 (2.89)	5.64 (3.07)	4.38 (3.11, 5.65)	<0.0001
Month 11	10.26 (3.24)	5.24 (2.35)	5.21 (3.93, 6.48)	<0.0001
Copper, mg				
Month 07	0.62 (0.32)	0.60 (0.24)	0.04 (-0.08, 0.15)	0.524
Month 08	0.60 (0.26)	0.68 (0.35)	-0.06 (-0.18, 0.05)	0.255
Month 10	0.63 (0.28)	0.50 (0.21)	0.15 (0.04, 0.26)	0.010
Month 11	0.60 (0.18)	0.53 (0.18)	0.09 (-0.02, 0.20)	0.115
Selenium, µg				
Month 07	23.53 (13.95)	26.54 (14.20)	-1.96 (-10.66, 6.75)	0.658
Month 08	25.49 (21.96)	34.94 (36.19)	-8.39 (-17.09, 0.31)	0.059
Month 10	25.85 (17.66)	22.68 (13.11)	4.22 (-4.48, 12.92)	0.340
Month 11	25.66 (19.68)	25.02 (13.39)	1.70 (-7.00, 10.40)	0.701
Iodine, µg				
Month 07	64.08 (23.15)	52.65 (24.78)	11.80 (0.49, 23.11)	0.041
Month 08	63.58 (29.84)	55.72 (21.88)	8.22 (-3.09, 19.54)	0.154
Month 10	60.53 (27.92)	53.13 (26.95)	7.77 (-3.55, 19.08)	0.178
Month 11	65.92 (30.56)	53.53 (21.06)	12.76 (1.45, 24.07)	0.027

EI: Energy intake; N/A: Not available.

* Significant p -values are bold.

¹ Repeated measures mixed model with an autoregressive covariance structure, adjusting for sex.

² Only nutrients with significant relationships at any of the four time points are displayed.