

## SUPPLEMENTARY MATERIAL

### Original article

#### **Pro-inflammatory diet pictured in children with atopic dermatitis or food allergy: nutritional data of the LiNA cohort**

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**Supplementary Table S1: Atopic outcome characterisation.** Prevalence of atopic dermatitis and food allergy within the first 10 years of life within the analysed LiNA sub-cohort (n=211) and IgE levels measured in serum samples at the age of 10 years

	<b>Total cases</b>	<b>tlgE<sup>e</sup></b> increased vs not increased	<b>fx5<sup>f</sup></b> increased vs not increased	<b>sx1<sup>f</sup></b> increased vs not increased
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
<b>Atopic dermatitis</b>				
positive	79 (37.4) <sup>a</sup>	51 (76.2) / 16 (23.9)	17 (25.4) / 50 (74.6)	41 (61.2) / 26 (38.8)
negative	132 (62.6) <sup>b</sup>	65 (58.6) / 46 (41.4)	40 (36.0) / 71 (64.0)	11 (9.9) / 100 (90.1)
<b>Food allergy</b>				
positive	25 (11.8) <sup>c</sup>	19 (90.5) / 2 (9.5)	7 (33.3) / 14 (66.7)	15 (71.4) / 6 (28.6)
negative	186 (88.2) <sup>d</sup>	97 (61.8) / 60 (38.2)	21 (13.4) / 136 (86.6)	66 (42.0) / 91 (58.0)

<sup>a,b,c,d</sup> 33 cases with missing IgE measurements at the age of 10 years, in detail <sup>a</sup> 12 <sup>b</sup> 21 <sup>c</sup> 4 <sup>d</sup> 29

<sup>e</sup> increased: total IgE > 34.6 kU/L; <sup>f</sup> increased: specific IgE > 0.35 kU/L (CAP-class > 0)

**Supplementary Table S2: Nutritional data validation.** Comparison of average daily nutritional intake (absolute values) in 10 year old children from the LiNA- and EsKiMo cohort. Shown are median with 5. and 95. Percentile. Energy % - percentage of energy intake, RE – retinol equivalents, FE – folate equivalents (EsKiMo data from Mensink, G., Hesecker, H., Richter, A., et al. (2007). *Forschungsbericht Ernährungsstudie als KIGGS-Modul (EsKiMo)*.)

		Girls						Boys					
		LiNA (n = 104)			EsKiMo (n = 93)			LiNA (n = 107)			EsKiMo (n = 99)		
		Median	5. percentile	95. percentile	Median	5. percentile	95. percentile	Median	5. percentile	95. percentile	Median	5. percentile	95. percentile
<b>energy (kcal)</b>		<b>1954.0</b>	1250.5	3084.6	<b>1842.4</b>	1234.2	2443.8	<b>2254.8</b>	1267.5	3498.8	<b>1813.3</b>	1296.9	2681.9
water (l)		<b>1.7</b>	1.1	3.5	<b>1.6</b>	1.0	2.7	<b>2.1</b>	1.1	3.8	<b>1.7</b>	1.1	2.5
<b>Macronutrients</b>	fat (energy %)	<b>35.3</b>	25.7	45.1	<b>32.2</b>	21.7	41.4	<b>36.0</b>	24.6	43.9	<b>32.3</b>	22.9	41.6
	saturated FA (g)	<b>33.4</b>	18.5	60.7	<b>28.4</b>	12.8	42.8	<b>39.0</b>	22.7	77.0	<b>28.3</b>	17.6	49.2
	polyunsaturated FA (g)	<b>10.9</b>	5.9	20.8	<b>8.3</b>	3.6	17.9	<b>12.2</b>	7.6	22.4	<b>8.3</b>	4.6	15.1
	monounsaturated. FA (g)	<b>27.2</b>	14.9	48.5	<b>22.7</b>	10.2	38.0	<b>31.9</b>	18.2	59.9	<b>23.4</b>	14.3	39.5
	cholesterol (mg)	<b>271.5</b>	159.0	443.0	<b>249.3</b>	94.2	459.0	<b>305.0</b>	166.0	585.0	<b>244.9</b>	101.0	493.0
	carbohydrates (energy %)	<b>48.6</b>	39.8	59.4	<b>52.7</b>	43.6	66.4	<b>47.9</b>	39.7	60.4	<b>52.8</b>	43.0	64.5
	sugar (g)	<b>106.5</b>	50.1	177.0	<b>110.7</b>	55.6	193.8	<b>115.0</b>	46.6	235.0	<b>117.2</b>	66.3	208.5
	fibre (g)	<b>21.3</b>	11.0	38.9	<b>17.1</b>	9.3	27.2	<b>22.5</b>	11.9	47.7	<b>17.4</b>	9.0	28.8
	protein (energy %)	<b>14.7</b>	11.7	17.7	<b>13.1</b>	10.3	18.0	<b>14.6</b>	11.6	18.4	<b>13.7</b>	10.3	18.1
<b>Minerals</b>	sodium (g)	<b>2.2</b>	1.2	4.4	<b>2.2</b>	1.3	3.7	<b>2.5</b>	1.3	4.4	<b>2.2</b>	1.3	3.8
	potassium (g)	<b>2.7</b>	1.5	4.4	<b>2.3</b>	1.1	3.4	<b>3.1</b>	1.6	4.7	<b>2.3</b>	1.5	3.4
	calcium (mg)	<b>655.0</b>	380.0	1430.0	<b>871.2</b>	401.8	1428.7	<b>840.0</b>	390.0	1790.0	<b>908.0</b>	476.2	1424.9
	magnesium (mg)	<b>266.0</b>	148.0	454.0	<b>294.1</b>	151.4	460.6	<b>321.0</b>	167.0	509.0	<b>285.9</b>	186.4	432.1
	phosphorus (mg)	<b>1065.0</b>	680.0	2010.0	<b>1068.7</b>	531.3	1529.0	<b>1270.0</b>	690.0	2240.0	<b>1097.7</b>	726.4	1653.4
	iron (mg)	<b>9.2</b>	5.2	15.3	<b>10.4</b>	6.7	16.4	<b>10.3</b>	6.1	15.8	<b>11.0</b>	7.2	19.2
	zinc (mg)	<b>8.9</b>	5.7	15.8	<b>8.3</b>	4.7	12.6	<b>10.0</b>	5.9	18.2	<b>8.7</b>	6.0	13.2
	iodine (µg)	<b>83.5</b>	45.0	125.0	<b>77.6</b>	33.7	156.0	<b>96.0</b>	50.0	171.0	<b>79.1</b>	48.3	172.4
<b>Vitamins</b>	vitamin A (RE (mg))	<b>1.1</b>	0.6	3.2	<b>0.7</b>	0.2	2.2	<b>1.1</b>	0.5	3.1	<b>0.9</b>	0.4	2.1
	vitamin C (mg)	<b>148.3</b>	60.8	343.6	<b>100.0</b>	30.8	213.2	<b>139.4</b>	42.9	345.7	<b>99.2</b>	27.6	256.5
	vitamin D (µg)	<b>1.7</b>	0.9	4.3	<b>1.4</b>	0.2	3.9	<b>1.9</b>	0.9	4.7	<b>1.5</b>	0.5	6.6
	vitamin E (mg)	<b>9.1</b>	5.2	21.9	<b>9.7</b>	4.5	20.9	<b>10.3</b>	5.0	22.3	<b>9.2</b>	5.4	19.6
	vitamin K (µg)	<b>107.7</b>	42.0	274.0	<b>190.9</b>	93.7	395.7	<b>116.1</b>	38.5	266.6	<b>185.4</b>	97.6	320.2
	thiamine (mg)	<b>1.2</b>	0.7	2.3	<b>1.2</b>	0.6	2.3	<b>1.5</b>	0.8	2.3	<b>1.2</b>	0.7	2.6
	riboflavin (mg)	<b>1.3</b>	0.8	2.0	<b>1.5</b>	0.8	2.4	<b>1.6</b>	0.9	2.8	<b>1.5</b>	0.9	3.3
	niacin equivalents (mg)	<b>27.0</b>	17.7	42.8	<b>21.7</b>	12.9	29.7	<b>29.8</b>	18.8	48.6	<b>22.0</b>	14.4	38.8
	pyridoxine (mg)	<b>1.4</b>	0.8	2.5	<b>1.5</b>	0.8	2.4	<b>1.6</b>	0.8	2.7	<b>1.5</b>	0.9	3.8
	biotin (µg)	<b>42.5</b>	22.4	73.4	<b>37.0</b>	11.3	95.6	<b>50.5</b>	23.3	84.5	<b>39.4</b>	23.2	132.9
	folic acid (FE (µg))	<b>229.5</b>	136.0	409.0	<b>203.5</b>	115.8	387.2	<b>259.0</b>	233.0	446.0	<b>204.9</b>	105.4	495.7
	cyanocobalamin (µg)	<b>4.1</b>	2.4	7.8	<b>3.6</b>	1.3	6.8	<b>5.0</b>	2.3	9.9	<b>4.2</b>	2.0	8.7

## Supplementary Figure Legends

**Supplementary Figure S1: Flow chart.** Included study subjects in the current project and reasons for drop outs/missing data.

**Supplementary Figure S2: Single nutrient intake in all children.** Nutrient intake as % of the D-A-CH reference values (log10). Data are presented in violin plots as median (solid line) with 25<sup>th</sup> to 75<sup>th</sup> percentile (dotted line), n = 211. A: Macronutrient, B: Water soluble vitamins, C: Fat soluble vitamins, D: Minerals. CH: carbohydrates, Na: sodium, Cl: chloride, K: potassium, Ca: calcium, P: phosphorus, Mg: magnesium, Fe: iron, I: iodine, F: fluoride, Zn: zinc, Cu: copper, Mn: manganese, vit – vitamin

**Supplementary Figure S3: Single nutrient intake in girls and boys.** Sex – specific nutrient intake as % of the D-A-CH reference values (log10). Data are presented in violin plots as median (solid line) with 25<sup>th</sup> to 75<sup>th</sup> percentile (dotted line) for boys (green, n = 107) and for girls (orange, n = 104), \*\*\* significant difference (p < 0.05) between girls and boys (Mann-Whitney U-test) A: Macronutrient, B: Water soluble vitamins, C: Fat soluble vitamins, D: Minerals. CH: carbohydrates, Na: sodium, Cl: chloride, K: potassium, Ca: calcium, P: phosphorus, Mg: magnesium, Fe: iron, I: iodine, F: fluoride, Zn: zinc, Cu: copper, Mn: manganese, vit – vitamin