

Supplementary material

Table S1: Comparison between women with singleton pregnancies and no diabetes who had data on pre-pregnancy BMI (pBMI) and participated in the biomarker study (responders), and women who had data on pBMI but did not participate in the biomarker study (non-responders).

Maternal characteristics	Responders (n 4243)			Non-responders (n 3711)			P-value*
	N	Mean or %	SD	N	Mean or %	SD	
Age (years)	4243	30.9	4.9	3711	30.5	5.6	<0.001
pBMI** (kg/m ²)	4243	22.9	3.8	3711	23.4	4.5	<0.001
Education after primary school (years)	4212	9.3	3.8	3662	8.1	4.3	<0.001
Parity (% nulliparous)	4243	58.1		3711	53.0		<0.001
Ethnicity (% Dutch)	4236	59.5		3706	44.2		<0.001
Smoking during pregnancy (% yes)	4239	9.6		3705	9.3		0.577
Alcohol use during pregnancy (% yes)	4242	24.8		3706	16.7		<0.001
Hypertension during pregnancy (% yes)	4243	11.0		3711	10.5		0.432

*p-value was determined by performing an independent t-test for continuous variables or a chi-square test for dichotomous variables.

Table S2: Regression models of the association between maternal pre-pregnancy BMI (pBMI) and maternal folate, ferritin, iron and vitamin B12 concentration in early pregnancy, performed on the Dutch population.

		Maternal nutrient status				Odds for deficiency			
		Model 1		Model 2		Model 1		Model 2	
Nutrient	pBMI category	β	95% CI	β	95% CI	OR	95% CI	OR	95% CI
Folate (nmol/L)	Underweight	0.3	-2.3, 2.8	1.0	-1.4, 3.6	1.34	0.53, 3.40	1.01	0.38, 2.70
	Normal weight	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>
	Overweight	-1.5*	-2.8, -0.1	-1.0	-2.4, 0.4	2.33***	1.52, 3.56	2.06**	1.30, 3.24
	Obese	-3.7**	-6.3, -1.1	-1.7	-4.3, 0.9	2.71**	1.30, 5.61	1.38	0.60, 3.15
Log (Ferritin ($\mu\text{g/L}$)) [†]	Underweight	-0.12	-0.28, 0.03	-0.09	-0.24, 0.06	1.48	0.73, 3.01	1.41	0.68, 2.93
	Normal weight	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>
	Overweight	-0.03	-0.11, 0.06	0.03	-0.05, 0.11	1.34	0.89, 2.01	1.12	0.73, 1.71
	Obese	0.15	-0.01, 0.32	0.20*	0.04, 0.36	0.86	0.34, 2.15	0.70	0.27, 1.82
Iron ($\mu\text{mol/L}$)	Underweight	-0.3	-1.8, 1.2	-0.1	-1.6, 1.4	2.27	0.88, 5.85	2.04	0.77, 5.36
	Normal weight	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>
	Overweight	-2.4***	-3.2, -1.6	-2.0***	-2.8, -1.1	2.12**	1.23, 3.68	1.87*	1.06, 3.30
	Obese	-4.4***	-6.1, -2.8	-4.0***	-5.6, -2.3	5.63***	2.74, 11.59	5.00***	2.27, 11.01
Log (Vitamin B12 (pg/mL)) [†]	Underweight	-0.02	-0.09, 0.05	-0.00	-0.07, 0.07	1.16	0.59, 2.28	1.09	0.55, 2.15
	Normal weight	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>
	Overweight	-0.09***	-0.13, -0.05	-0.09***	-0.13, -0.06	1.52*	1.08, 2.13	1.55*	1.10, 2.18
	Obese	-0.22***	-0.30, -0.15	-0.22***	-0.29, -0.14	3.42***	2.04, 5.72	3.07***	1.78, 5.28

Model 1: standardized for gestational age at blood sampling moment; Model 2: model 1 and additionally adjusted for maternal age, education, parity, smoking during pregnancy, alcohol use during pregnancy, nausea during pregnancy and weight gain during pregnancy.

Folate: *n* 2231, ferritin: *n* 2494, iron: *n* 2391, vitamin B12: *n* 2461.

P*<0.05, *P*<0.01, ****P*<0.001

†Log transformation was performed because of skewed distribution of the variables.

Table S3: Regression models of the association between maternal pre-pregnancy BMI (pBMI) and maternal folate, ferritin, iron and vitamin B12 concentration in early pregnancy, performed on the non-supplement using population.

		Maternal nutrient status				Odds for deficiency			
		Model 1		Model 2		Model 1		Model 2	
Nutrient	pBMI category	β	95% CI	β	95% CI	OR	95% CI	OR	95% CI
Folate (nmol/L)	Underweight	-0.9	-5.3, 3.5	0.6	-3.7, 4.8	0.57	0.20, 2.41	0.63	0.18, 2.29
	Normal weight	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>
	Overweight	-3.3**	-5.7, -0.9	-1.6	-4.1, 0.9	1.38	0.78, 2.44	1.25	0.66, 2.37
	Obese	-4.8**	-8.1, -1.5	-2.5	-6.0, 1.0	2.15	1.06, 4.37	1.97	0.88, 4.43
Log (Ferritin ($\mu\text{g/L}$)) [†]	Underweight	-0.11	-0.30, 0.09	-0.05	-0.23, 0.14	1.59	0.70, 3.59	1.31	0.56, 3.07
	Normal weight	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>
	Overweight	-0.04	-0.15, 0.06	0.01	-0.09, 0.12	1.01	0.60, 1.71	0.85	0.49, 1.47
	Obese	0.03	-0.13, 0.19	0.15	-0.02, 0.31	1.59	0.80, 3.18	1.16	0.54, 2.51
Iron ($\mu\text{mol/L}$)	Underweight	-0.8	-2.7, 1.0	-0.5	-2.3, 1.4	3.17*	1.19, 8.46	2.64	0.95, 7.30
	Normal weight	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>
	Overweight	-2.0***	-3.0, -1.0	-1.3*	-2.3, -0.2	1.95	0.99, 3.84	1.73	0.85, 3.53
	Obese	-5.1***	-6.7, -3.5	-3.9***	-5.6, -2.2	6.73***	3.38, 13.40	5.58***	2.47, 12.60
Log (Vitamin B12 (pg/mL)) [†]	Underweight	0.01	-0.07, 0.10	0.05	-0.05, 0.14	0.73	0.35, 1.55	0.84	0.38, 1.87
	Normal weight	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>
	Overweight	-0.07**	-0.12, -0.02	-0.07**	-0.13, -0.02	1.71**	1.19, 2.47	1.58*	1.06, 2.35
	Obese	-0.16***	-0.23, -0.08	-0.21***	-0.29, -0.12	2.00*	1.12, 3.55	2.27**	1.25, 4.13

Model 1: standardized for gestational age at blood sampling moment; Model 2: model 1 and additionally adjusted for maternal age, education, parity, smoking during pregnancy, alcohol use during pregnancy, nausea during pregnancy, weight gain during pregnancy, and ethnicity.

Folate: *n* 532, ferritin: *n* 1575, iron: *n* 1514, vitamin B12: *n* 1746.

p*<0.05, *p*<0.01, ****p*<0.001

†Log transformation was performed because of skewed distribution of the variable.