

Table S1 Construction of the Norwegian Fit for Delivery Diet (NFFD) score from 10 subscales reflecting the dietary behaviors that were targeted in the NFFD diet intervention

Dietary recommendations	Related FFQ-question(s)	Response alternatives and coding	Calculations	Possible range of each subscale	Median = cut-off	Dietary behavior associated with scoring
1. Eat regular meals	How often do you eat - breakfast - lunch - dinner - evening meal/supper	Never = 0 Less than once a week = 0.5 Once a week = 1 Twice/week = 2 Three times/week = 3 Four times a week = 4 Five times/week = 5 Six times/week = 6 Every day = 7	Sum of answers to the four questions	0-28 meals a week	Pre-pregnancy: 23 Early pregnancy: 25	Pre-pregnancy: < 24 meals/week = 0 ≥ 24 meals/week = 1 Early pregnancy: ≤ 25 meals/week = 0 > 25 meals/week = 1
2. Drink water when thirsty	How often do you drink - tap water - bottled water - carbonized water - whole fat milk - low fat milk - skimmed milk - juice - fruit drinks or nectar - sugar containing beverages - artificially sweetened beverages - alcohol containing beverages	Never = 0 Less than once a week = 0.5 Once a week = 1 Twice/week = 2 Three times/week = 3 Four times a week = 4 Five times/week = 5 Six times/week = 6 Every day = 7 Several times/day = 10	Sum of water intake events (frequency) divided by sum of all other drink intake events (frequency) X 100	0-100%	Pre-pregnancy: 44 % Early pregnancy: 46%	Pre-pregnancy: < 44% of drinking events is water = 0 ≥ 44% of drinking events is water = 1 Early pregnancy: < 46% of drinking events is water = 0 ≥ 46% of drinking events is water = 1
3. Eat vegetables with dinner every day	How often do you eat vegetables with dinner?	Never to daily (0-7)	No calculation	0-7	Pre-pregnancy: 4 Early pregnancy: 5	Pre-pregnancy: ≤ 4 times/week = 0 > 4 times/week = 1 Early pregnancy: < 5 times/week = 0 ≥ 5 times/week = 1

4.	In between meals - choose fruits or vegetables	How often do you eat fruits or vegetables as an in-between meal?	Never to several times a day (0-10)	Frequency of eating fruits or vegetables in between meals	0-10	Pre-pregnancy: 3 Early pregnancy: 5	Pre-pregnancy: < 3 times/week = 0 ≥ 3 times/week = 1 Early pregnancy: < 5 times/week = 0 ≥ 5 times/week = 1
5.	Eat sweets and snacks only when you really appreciate it	How often do you eat sweets or unhealthy foods without really appreciating it?	Never to several times a day (0-10)	No calculation	0-10	Pre-pregnancy: 0.5 Early pregnancy: 0.5	Pre-pregnancy and early pregnancy: Never = 1 Sometimes = 0
6.	Buy small portion sizes of unhealthy foods	Which size of the following three items do you usually buy? - crisps - chocolate - soda	Small = 0 Big = 1	Sum of three answers	0-3	Pre-pregnancy: 1 Early pregnancy: 1	Pre-pregnancy and early pregnancy: Buying small portion size of at least one of the three items = 1 Buying big size of all three items = 0
7.	Limit your intake of added sugar	How often do you have - sugar-sweetened fruit drinks - soda - cookies/crackers - sweet breads - cake/muffins - sugar-containing - cereals - sugar-containing - fruit yoghurt - chocolate/sweets How often do you add sugar to your food	Never to several times a day (0-10)	Sum of answers to the nine questions	0-90	Pre-pregnancy: 10.5 Early pregnancy: 10.5	Pre-pregnancy and early pregnancy: < 10.5 (equivalent to eating food with added sugar once a day or less)= 1 ≥ 10.5 (equivalent to eating food with added sugar more than once a day) = 0
8.	Limit your intake of salt	How often do you eat - salted crackers - noodles - crisps or other salted snacks - hot dogs from kiosk/gas station	Never to several times a day (0-10)	Sum of answers to the seven questions	0-70	Pre-pregnancy: 6.5 Early pregnancy: 6.0	Pre-pregnancy: Fast-foods, snacks or salting of food no more than 6.5 times a week = 1 Fast-foods, snacks or salting of foods more than 6.5 days a week = 0

	- fried potato chips from fast-food restaurants - canned or freeze-dried food How often do you add salt to your food?					Early pregnancy: Fast-foods, snacks or salting of food no more than 6 times a week = 1 Fast-foods, snacks or salting of foods more than six days a week = 0
9. Do not eat beyond satiety	How often do you eat beyond satiety?	Never to several times a day (0-10)	No calculation	0-10	Pre-pregnancy: 1 Early pregnancy: 1	Pre-pregnancy and early pregnancy: Less than once a week = 1 Once a week or more = 0
10. Read nutrition labels on foods before buying		Never=1 Sometimes=2 Usually=3 Always=4	No calculation	1-4	Pre-pregnancy: 2 Early pregnancy: 2	Pre-pregnancy and early pregnancy: Never or seldom reading labels = 0 sometimes or often reading labels = 1
Total FFD-score			Sum of the ten dichotomized subscales	0-10		≤ 3 = low 4-5 = medium ≥ 6 = high

Table S2 Comparison of meal pattern and frequency of intake for selected foods across *pre-pregnancy* and *early pregnancy* diet score categories (n=591)

Meal pattern and food intake (frequency per week)	Period for which diet was assessed	Low diet score		Medium diet score		High diet score	
		Median	IQR	Median	IQR	Median	IQR
Main meals per week	Pre-pregnancy	21.0	17.0-23.0	23.0	21.0-25.0	25.0	23.0-28.0
	Early pregnancy	23.0	21.0-26.0	25.0	22.0-28.0	27.0	25.0-28.0
Fruits (total)	Pre-pregnancy	4.5	2.5-7.0	6.0	4.0-9.0	8.0	5.5-11.0
	Early pregnancy	7.0	4.5-9.0	9.0	6.5-11.0	10.0	8.0-13.0
Vegetables (total)*	Pre-pregnancy	7.3	4.9-10.0	8.8	6.6-12.0	12.0	8.9-15.1
	Early pregnancy	8.1	5.7-10.8	10.0	7.5-12.6	12.8	9.8-15.8
Vegetables with dinner	Pre-pregnancy	3.0	2.0-4.0	4.0	3.0-6.0	6.0	5.0-7.0
	Early pregnancy	3.0	2.0-4.0	5.0	3.0-6.0	6.0	5.0-7.0
Fruits and vegetables total	Pre-pregnancy	11.8	8.1-16.6	15.3	11.7-19.8	19.6	16.0-24.8
	Early pregnancy	14.9	11.6-19.3	18.6	14.6-23.0	23.3	18.7-27.4
Water (total)	Pre-pregnancy	8.0	6.4-11.0	10.5	8.0-11.0	11.0	10.0-11.5
	Early pregnancy	10.5	7.5-11.0	10.5	8.0-11.0	11.0	10.0-12.0
Milk (unsweetened)	Pre-pregnancy	3.0	0.5-7.0	4.5	0.5-7.0	4.0	0.5-7.0
	Early pregnancy	5.0	2.0-7.4	5.0	1.0-7.0	5.5	0.5-7.0
Sugar-sweetened beverages	Pre-pregnancy	2.0	0.5-4.0	1.0	0.5-2.0	0.5	0.0-1.0
	Early pregnancy	2.0	0.5-4.0	1.0	0.5-2.0	0.5	0.0-1.0
Artificially sweetened beverages	Pre-pregnancy	3.0	0.5-6.0	1.0	0.5-3.0	0.5	0.0-2.0
	Early pregnancy	1.0	0.5-3.0	0.5	0.5-2.0	0.5	0.0-2.0
Coffee	Pre-pregnancy	2.0	0.0-7.0	5.0	0.0-10.0	7.0	0.5-10.0
	Early pregnancy	0.5	0.0-3.0	0.0	0.0-3.0	0.5	0.0-3.0
Alcohol containing beverages	Pre-pregnancy	0.5	0.5-1.0	0.5	0.5-1.0	0.5	0.5-0.5
	Early pregnancy	0.0	0.0-0.0	0.0	0.0-0.0	0.0	0.0-0.0
Sweetened beverages combined**	Pre-pregnancy	10.0	6.9-12.1	7.0	4.5-9.8	5.0	2.5-8.0
	Early pregnancy	9.5	7.0-12.0	8.0	5.0-11.0	6.0	3.3-8.5
Cakes and pastries	Pre-pregnancy	2.0	1.5-3.5	1.5	1.5-2.0	1.5	1.0-2.0
	Early pregnancy	2.0	1.5-3.5	2.0	1.5-3.5	1.5	1.0-2.0

Sweets and snacks	Pre-pregnancy	5.0	4.0-8.0	4.0	2.5-5.0	3.0	2.0-4.0
	Early pregnancy	4.5	3.5-6.5	3.5	2.5-5.0	2.5	1.5-3.5

* frequency of eating vegetables, including vegetables used on sandwiches. Because of a supposedly small amount of vegetables on sandwiches, vegetables reported eaten on sandwiches were calculated as reported frequency divided by 4

**Sugar-sweetened and artificially sweetened beverages combined

Table S3a Sensitivity analysis of the associations between pre-pregnancy NFFD diet score and maternal and neonatal outcomes confined to the control group in the NFFD study (n=295)

Obstetrical outcomes	No. included in the analysis	No. of cases	Pre-pregnancy model 1			Pre-pregnancy model 2		
			Crude			Adjusted*		
			OR	95% CI	p-value	OR*	95% CI	p-value
Adequacy of weight gain (term)¹								
Excessive	263	138	0.92	0.82-1.02	0.124	0.93	0.82-1.04	0.196
Inadequate	263	47	1.03	0.90-1.18	0.687	1.00	0.86-1.17	0.969
Gestational diabetes²								
Elevated 2-hour glucose tolerance test (WHO criteria)	287	23	1.02	0.84-1.23	0.843	1.03	0.84-1.26	0.794
Preeclampsia³								
Preeclampsia total	287	15	1.08	0.86-1.36	0.526	1.06	0.82-1.36	0.658
Severe preeclampsia/HELLP/eclampsia ⁴	287	8	0.99	0.73-1.35	0.956	0.94	0.66-1.35	0.738
Preterm delivery								
Prior to 37 weeks	292	17	0.77	0.61-0.97	0.029	0.79	0.61-1.01	0.060
Prior to 37 weeks (preeclampsia cases excluded)	272	12	0.64	0.47-0.86	0.003	0.66	0.47-0.92	0.015
Neonatal outcomes								
Birthweight > 4000 g (term)	275	41	0.88	0.76-1.03	0.110	0.91	0.77-1.07	0.242
Birthweight > 4500 g (term)	275	5	0.87	0.58-1.30	0.488	0.84	0.53-1.31	0.438
LGA >90 th centile ⁵	292	11	0.85	0.64-1.12	0.234	0.86	0.64-1.16	0.335
Birthweight < 2.5 kg (term)	275	3	0.93	0.56-1.56	0.783	0.91	0.51-1.64	0.763
SGA < 10 th centile ⁵	292	26	1.04	0.87-1.25	0.643	1.03	0.85-1.24	0.806

LGA: large for gestational age; SGA: small for gestational age

*Multivariable associations between pre-pregnancy diet score and outcomes are expressed as odds ratios (OR) with 95 % confidence intervals (95% CI) and corresponding p-values. A p-value of ≤ 0.05 is considered significant. All models are adjusted for maternal age (continuous), educational attainment (≤ 12 , 13-15, ≥ 16 years), marital status (cohabiting yes/no), income (4 categories), and pre-pregnancy BMI (continuous).

¹Weight gain outside Institute of Medicine (IOM) 2009 recommendations (1)

²WHO 1999 criteria at gestational week 30: Elevated 2-h glucose ≥ 7.8 mmol/l (23)

³Based on guidelines adopted by the Norwegian Federation of Obstetricians and Gynecologists; an increase in blood pressure to at least ≥ 140 systolic or 90 mm Hg diastolic after 20th gestational week combined with proteinuria (protein excretion of at least 0.3 g/24 h or $\geq 1+$ on dip-stick), both measured at least twice (24)

⁴Defined as preeclampsia diagnosed before 34 weeks of pregnancy and/or severity of symptoms, as documented in hospital charts. Cases of eclampsia and HELLP-syndrome were included.

⁵Birth weight percentile calculated according to offspring sex and gestational age, based on data from the Medical Birth Registry of Norway (MBRN)(26)

Table S3b Sensitivity analysis of the associations between early pregnancy NFFD diet score and maternal and neonatal outcomes confined to the control group in the NFFD study (n=591)

Obstetrical outcomes	No. included in the analysis	No. of cases	Early pregnancy model 1			Early pregnancy model 2			Early pregnancy model 3		
			Crude			Adjusted*			Adjusted**		
			OR	95% CI	p-value	OR*	95% CI	p-value	OR**	95% CI	p-value
Adequacy of weight gain (term)¹											
Excessive (yes/no)	263	138	0.88	0.78-1.00	0.043	0.86	0.75-0.98	0.020	0.80	0.69-0.93	0.003
Inadequate (yes/no)	263	47	1.08	0.92-1.26	0.345	1.11	0.94-1.30	0.240	1.14	0.95-1.36	0.156
Gestational diabetes²											
Elevated 2-hour glucose tolerance test (WHO criteria)	287	23	0.99	0.81-1.22	0.943	0.97	0.78-1.20	0.762	1.01	0.77-1.32	0.945
Preeclampsia³											
Preeclampsia total	287	15	0.99	0.77-1.27	0.935	0.95	0.73-1.24	0.714	0.91	0.69-1.20	0.503
Severe preeclampsia/HELLP/eclampsia ⁴	287	8	0.88	0.62-1.25	0.485	0.83	0.57-1.21	0.333	0.83	0.57-1.21	0.333
Preterm delivery											
Prior to 37 weeks	292	17	0.68	0.52-0.89	0.004	0.67	0.50-0.89	0.007	0.73	0.54-0.99	0.040
Prior to 37 weeks (preeclampsia cases excluded)	272	12	0.54	0.38-0.77	0.001	0.51	0.34-0.77	0.001	0.53	0.33-0.86	0.010
Neonatal outcomes											
Birthweight > 4000 g (term)	275	41	0.83	0.70-0.98	0.028	0.84	0.69-1.01	0.063	0.83	0.68-1.02	0.081
Birthweight > 4500 g (term)	275	5	0.57	0.35-0.95	0.030	0.52	0.30-0.88	0.015	0.60	0.33-1.10	0.097
LGA >90 th centile ⁵	292	11	0.78	0.57-1.07	0.121	0.77	0.55-1.08	0.127	0.76	0.50-1.17	0.215
Birthweight < 2.5 kg (term)	275	3	0.97	0.56-1.3	0.969	1.04	0.53-2.04	0.917	0.98	0.51-1.89	0.948
SGA < 10 th centile ⁵	292	26	1.11	0.91-1.35	0.292	1.11	0.91-1.37	0.308	1.12	0.90-1.41	0.311

LGA: large for gestational age; SGA: small for gestational age

*Multivariable associations between early pregnancy diet score and the outcomes are expressed as odds ratios (OR) with 95 % confidence intervals (95% CI) and corresponding p-values. A p-value of ≤ 0.05 is considered significant. Model 2 is adjusted for maternal age (continuous), educational attainment (≤ 12 , 13-15, ≥ 16 years), marital status (married/cohabiting yes/no), family income (4 categories), current smoking (yes/no) and pre-pregnancy BMI (continuous)

**Model 3 is additionally adjusted for early pregnancy physical activity level

¹Weight gain outside Institute of Medicine (IOM) 2009 recommendations (1)

² WHO 1999 criteria at gestational week 30: Elevated 2-h glucose ≥ 7.8 mmol/l (23)

³ Based on guidelines adopted by the Norwegian Federation of Obstetricians and Gynecologists; an increase in blood pressure to at least ≥ 140 systolic or 90 mm Hg diastolic after 20th gestational week combined with proteinuria (protein excretion of at least 0.3 g/24 h or $\geq 1+$ on dip-stick), both measured at least twice (24)

⁴ Defined as preeclampsia diagnosed before 34 weeks of pregnancy and/or severity of symptoms, as documented in hospital charts. Cases of eclampsia and HELLP-syndrome were included.

⁵ Birth weight percentile calculated according to offspring sex and gestational age, based on data from the Medical Birth Registry of Norway (MBRN) (26)