

ESM Table 1: Completion of the Automated Self-Administered 24-h Dietary Recall (ASA24) by trimester and offspring sex

ASA24s	Boys	Girls	P-value
Total completed, % (n)			
1 st Trimester	55.8 (24)	44.2 (19)	0.80 ^a
2 nd Trimester	52.3 (706)	47.7 (644)	
3 rd Trimester	51.4 (521)	48.6 (493)	
Per person frequency, mean (min, max)			
1 st Trimester	3.46 (0, 7)	3.84 (0, 6)	0.51 ^b
2 nd Trimester	3.76 (1, 7)	3.77 (1, 8)	0.98 ^b
3 rd Trimester	4.38 (1, 7)	4.37 (1, 8)	0.87 ^b
Gestational age (wks.) at recall, mean (SD)			
1 st Trimester	11.7 (1.6)	12.4 (0.7)	0.08 ^c
2 nd Trimester	20.6 (3.8)	20.3 (4.0)	0.27 ^c
3 rd Trimester	32.8 (4.3)	32.9 (3.9)	0.76 ^c

a P-value based on chi-square of global sex differences in the distribution of ASA24 frequency by trimester.

b P-value based on a general linear models stratified by trimester where frequency of ASA24s per woman was modeled as the dependent variable and offspring sex was the independent variable

c P-value based on a general linear models stratified by trimester where gestational age at ASA24s was modeled as the dependent variable and offspring sex was the independent variable

ESM Table 2. Maternal characteristics during the prenatal period and mean (SD) concentration of offspring biomarkers at age 4-7 years among 396 boys in the Healthy Start study.

Maternal characteristics	Glucose mmol/l			HOMA-IR			Adiponectin			Leptin µg/l			TGs:HDL mmol/l Ratio			% fat mass		
	N	Mean ± SD	P ^d	N	Mean ± SD	P ^d	N	Mean ± SD	P ^d	N	Mean ± SD	P ^d	N	Mean ± SD	P ^d	N	Mean ± SD	P ^d
Age at index pregnancy			0.06			<.01			0.88			0.78			0.85			0.34
16-24 y	62	4.7 ± 0.4		59	0.9 ± 0.4		45	10.9 ± 2.9		45	3.8 ± 1.0		46	0.0034 ± 0.0005		83	19.2 ± 7.9	
25-29 y	66	4.6 ± 0.4		64	0.9 ± 0.5		44	10.6 ± 2.3		50	3.8 ± 1.0		57	0.0034 ± 0.0004		90	20.1 ± 6.8	
30-34 y	94	4.6 ± 0.4		90	0.7 ± 0.4		54	10.2 ± 2.5		45	4.0 ± 1.0		78	0.0035 ± 0.0006		111	20.3 ± 5.4	
≥35 y	50	4.6 ± 0.4		50	0.7 ± 0.4		25	11.2 ± 2.0		27	3.7 ± 1.0		37	0.0034 ± 0.0004		61	20.1 ± 6.6	
Race-ethnicity			<.01			<.01			0.53			0.58			0.67			0.17
Non-Hispanic White	148	4.6 ± 0.4		141	0.7 ± 0.3		86	10.7 ± 2.4		90	3.8 ± 1.1		119	0.0035 ± 0.0005		200	19.9 ± 5.9	
Non-Hispanic Black	37	4.6 ± 0.4		37	0.9 ± 0.4		30	10.7 ± 2.9		27	3.8 ± 0.9		27	0.0032 ± 0.0004		48	16.8 ± 6.7	
Hispanic	73	4.8 ± 0.3		71	0.9 ± 0.5		43	10.4 ± 2.5		41	4.0 ± 0.9		57	0.0035 ± 0.0005		76	22.4 ± 7.7	
Non-Hispanic Other ^a	14	4.7 ± 0.4		14	0.9 ± 0.4		9	10.7 ± 2.4		9	3.6 ± 1.2		15	0.0033 ± 0.0005		21	19.0 ± 5.9	
Education			<.01			<.01			0.94			0.94			0.11			0.66
High school or less	66	4.8 ± 0.3		62	0.9 ± 0.5		56	10.7 ± 2.7		38	3.8 ± 1.0		57	0.0035 ± 0.0005		84	20.3 ± 8.2	
Some college /associates degree	66	4.7 ± 0.4		65	0.9 ± 0.5		38	10.5 ± 2.6		50	3.9 ± 1.0		55	0.0034 ± 0.0005		79	19.6 ± 6.7	
College graduate	59	4.5 ± 0.4		57	0.7 ± 0.4		22	10.2 ± 2.1		38	3.7 ± 1.0		46	0.0033 ± 0.0004		80	20.1 ± 5.9	
Graduate degree	81	4.5 ± 0.4		79	0.7 ± 0.3		52	10.8 ± 2.4		41	3.9 ± 1.1		60	0.0035 ± 0.0005		102	19.7 ± 5.6	
Pre-pregnancy BMI kg/m ² ^b			0.02			0.03			0.94			0.78			0.37			<.01
Underweight (<19.0)	6	4.7 ± 0.2		5	0.8 ± 0.3		2	11.0 ± 1.5		4	5.1 ± 0.7		3	0.0033 ± 0.0006		8	18.6 ± 6.6	
Normal (19.0-24.9)	130	4.6 ± 0.4		124	0.7 ± 0.4		78	10.7 ± 2.5		83	3.8 ± 1.0		104	0.0034 ± 0.0005		165	18.8 ± 6.2	
Overweight (25.0-29.9)	75	4.7 ± 0.4		74	0.8 ± 0.5		48	10.4 ± 2.5		46	3.8 ± 1.0		55	0.0035 ± 0.0005		100	20.4 ± 6.2	
Obese (≥30.0)	61	4.7 ± 0.4		60	0.9 ± 0.4		40	10.8 ± 2.6		34	3.9 ± 1.1		56	0.0034 ± 0.0005		72	22.0 ± 7.8	
Gestational weight gain ^c			0.96			0.61			0.54			0.33			0.17			0.58
Inadequate	37	4.6 ± 0.3		35	0.7 ± 0.4		21	10.7 ± 2.3		19	3.9 ± 1.0		29	0.0036 ± 0.0005		54	19.5 ± 7.7	
Adequate	35	4.7 ± 0.3		33	0.9 ± 0.4		19	11.0 ± 2.3		20	4.2 ± 1.0		31	0.0034 ± 0.0005		47	20.2 ± 7.3	
Excessive	174	4.6 ± 0.4		170	0.8 ± 0.4		112	10.5 ± 2.6		117	3.7 ± 1.0		136	0.0034 ± 0.0005		212	20.1 ± 5.8	
Gestational diabetes mellitus			0.25			0.86			0.15			0.06			0.52			0.02
No	248	4.6 ± 0.4		240	0.8 ± 0.4		152	10.6 ± 2.5		151	3.8 ± 1.0		199	0.0034 ± 0.0005		308	19.6 ± 6.4	
Yes	11	4.8 ± 0.3		11	0.8 ± 0.3		9	9.4 ± 3.1		5	4.7 ± 1.0		8	0.0035 ± 0.0005		14	23.9 ± 6.3	
Smoking during pregnancy			0.49			0.88			0.98			0.48			0.66			0.31
No	259	4.6 ± 0.4		250	0.8 ± 0.4		157	10.6 ± 2.5		155	3.8 ± 1.0		207	0.0034 ± 0.0005		327	20.0 ± 6.7	
Yes	13	4.6 ± 0.4		13	0.8 ± 0.5		11	10.6 ± 3.2		12	4.0 ± 0.9		11	0.0034 ± 0.0005		18	18.4 ± 6.3	
Physical activity status (moderate-to-vigorous)			0.29			0.93			0.65			0.61			0.24			0.73
<150 min/week	109	4.6 ± 0.3		107	0.8 ± 0.4		69	10.5 ± 2.3		63	3.9 ± 1.0		84	0.0035 ± 0.0005		138	19.8 ± 6.8	
≥150 min/week	163	4.6 ± 0.4		156	0.8 ± 0.4		99	10.7 ± 2.6		104	3.8 ± 1.0		134	0.0034 ± 0.0005		207	20.0 ± 6.6	

Abbreviations: HOMA-IR, Homeostatic Model Assessment of Insulin Resistance; HDL, high-density lipoprotein; TGs, Triglycerides; BMI, body mass index. Bolded values indicate P<0.05.

Sample sizes for covariates used in multivariable models are, Model 1: maternal race/ethnicity (N=396), age (N=396), education (N=396), maternal smoking habits (N=396), physical activity (N=396), avg. gestational week at diet recall (N=396); child's age (N=396), Model 2: Model 1 covariates + maternal pre-pregnancy BMI (N=396); Model 3: Model 1 covariates + child's Health Eating Index score (N=334), and physical activity levels (N=310)

a Other includes, Asian, American Indian/Alaska natives, Hawaiian/Pacific Islanders

b Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion

c Institute of Medicine 2009 guidelines

d tests for significant differences between mean maternal HEI score and maternal characteristics in the entire sample and stratified by offspring sex were based on generalized linear models; P-value represents Type III main effects for categorical variables. For ordinal variables (age, education level, pre-pregnancy weight status, gestational weight gain status, and birthweight categories) the P-value represents a test for linear trend.

ESM Table 3. Maternal characteristics during the prenatal period and mean (SD) concentration of offspring biomarkers at age 4-7 years among 365 girls in the Healthy Start study.

Maternal characteristics	Glucose mmol/l			HOMA-IR			Adiponectin			Leptin µg/l			TGs:HDL mmol/l Ratio			% fat mass		
	N	Mean ± SD	P ^d	N	Mean ± SD	P ^d	N	Mean ± SD	P ^d	N	Mean ± SD	P ^d	N	Mean ± SD	P ^d	N	Mean ± SD	P ^d
Age at index pregnancy																		
16-24 y	76	4.6 ± 0.3	0.03	71	0.9 ± 0.4		39	10.9 ± 2.5		71	6.7 ± 2.1		59	0.0035 ± 0.0005		106	20.6 ± 7.1	
25-29 y	61	4.5 ± 0.3		57	0.9 ± 0.4		27	11.0 ± 2.7		49	7.0 ± 2.1		48	0.0035 ± 0.0005		90	19.9 ± 7.4	
30-34 y	63	4.4 ± 0.3		58	0.7 ± 0.2		37	11.2 ± 2.6		49	6.5 ± 1.6		51	0.0036 ± 0.0005		86	19.7 ± 6.3	
≥35 y	31	4.5 ± 0.4		29	0.8 ± 0.3		16	11.0 ± 2.0		27	6.8 ± 1.9		23	0.0035 ± 0.0006		53	17.4 ± 6.0	
Race-ethnicity			0.88															0.88
Non-Hispanic White	127	4.4 ± 0.3		120	0.7 ± 0.3		61	11.0 ± 2.6		107	6.5 ± 1.8		99	0.0036 ± 0.0005		187	20.0 ± 6.8	
Non-Hispanic Black	41	4.5 ± 0.3		38	0.9 ± 0.4		25	10.4 ± 2.7		36	6.9 ± 2.1		31	0.0035 ± 0.0004		50	16.9 ± 6.7	
Hispanic	55	4.7 ± 0.3		49	0.9 ± 0.5		30	11.8 ± 2.0		46	7.3 ± 2.1		44	0.0036 ± 0.0006		79	21.2 ± 6.7	
Non-Hispanic Other ^a	8	4.5 ± 0.2		8	0.7 ± 0.3		3	9.8 ± 1.5		7	6.3 ± 1.2		7	0.0033 ± 0.0004		19	17.5 ± 7.0	
Education			<.01															0.10
High school or less	81	4.6 ± 0.3		76	0.9 ± 0.4		46	11.0 ± 2.5		67	7.0 ± 2.1		60	0.0035 ± 0.0004		112	20.7 ± 7.0	
Some college /associates degree	53	4.5 ± 0.3		50	0.8 ± 0.5		26	11.2 ± 2.0		45	6.4 ± 1.8		49	0.0036 ± 0.0005		77	19.8 ± 6.6	
College graduate	50	4.4 ± 0.3		45	0.7 ± 0.3		24	11.5 ± 2.6		44	6.6 ± 1.9		35	0.0036 ± 0.0006		70	18.0 ± 6.7	
Graduate degree	47	4.4 ± 0.4		44	0.7 ± 0.2		23	10.6 ± 2.9		40	6.8 ± 1.7		37	0.0036 ± 0.0006		76	19.6 ± 7.0	
Pre-pregnancy BMI kg/m ²			<.01															0.16
Underweight (<19.0)	5	4.6 ± 0.2		5	1.0 ± 0.6		0	-		5	6.7 ± 2.1		5	0.0037 ± 0.0004		173	20.4 ± 8.7	
Normal (19.0-24.9)	116	4.4 ± 0.3		108	0.7 ± 0.3		61	10.7 ± 2.7		106	6.6 ± 2.0		86	0.0036 ± 0.0005		88	18.9 ± 7.2	
Overweight (25.0-29.9)	62	4.6 ± 0.3		58	0.9 ± 0.4		31	11.7 ± 1.9		47	6.7 ± 1.8		51	0.0036 ± 0.0005		65	20.7 ± 6.5	
Obese (≥30.0)	48	4.6 ± 0.4		44	0.8 ± 0.4		27	10.9 ± 2.6		38	7.2 ± 2.0		39	0.0035 ± 0.0005		62	20.1 ± 6.0	
Gestational weight gain ^b			0.30															0.13
Inadequate	44	4.5 ± 0.4		37	0.8 ± 0.4		23	10.6 ± 2.4		37	6.8 ± 2.2		34	0.0035 ± 0.0005		62	19.0 ± 7.9	
Adequate	25	4.4 ± 0.4		23	0.8 ± 0.4		11	10.6 ± 2.6		26	6.3 ± 1.7		21	0.0035 ± 0.0005		42	18.4 ± 7.5	
Excessive	152	4.5 ± 0.3		146	0.8 ± 0.4		76	11.3 ± 2.5		120	6.7 ± 1.9		114	0.0036 ± 0.0005		206	20.2 ± 6.4	
Gestational diabetes mellitus			0.21															0.21
No	208	4.5 ± 0.3		193	0.8 ± 0.4		110	11.0 ± 2.5		180	6.7 ± 1.9		159	0.0035 ± 0.0005		299	19.9 ± 6.8	
Yes	9	4.6 ± 0.3		8	0.8 ± 0.2		3	12.5 ± 1.4		8	6.8 ± 2.0		10	0.0035 ± 0.0005		17	17.8 ± 8.2	
Smoking during pregnancy			0.21															0.15
No	211	4.5 ± 0.3		196	0.8 ± 0.4		104	11.1 ± 2.5		183	6.7 ± 1.9		168	0.0035 ± 0.0005		311	19.5 ± 6.8	
Yes	20	4.6 ± 0.3		19	0.9 ± 0.4		15	10.4 ± 2.6		13	6.4 ± 1.9		13	0.0036 ± 0.0004		24	21.6 ± 8.1	
Physical activity status (moderate-to-vigorous)			0.11															0.91
<150 min/week	93	4.6 ± 0.3		85	0.8 ± 0.3		49	10.9 ± 2.7		77	6.8 ± 1.8		69	0.0036 ± 0.0006		130	19.7 ± 6.6	
≥150 min/week	138	4.5 ± 0.3		130	0.8 ± 0.4		70	11.2 ± 2.3		119	6.7 ± 2.0		112	0.0035 ± 0.0005		205	19.6 ± 7.0	

Abbreviations: HOMA-IR, Homeostatic Model Assessment of Insulin Resistance; HDL, high-density lipoprotein; TGs, Triglycerides; BMI, body mass index. Bolded values indicate P<0.05.

Sample sizes for covariates used in multivariable models are, Model 1: maternal race/ethnicity (N=365), age (N=365), education (N=365), maternal smoking habits (n=365), physical activity (N=365), avg. gestational week at diet recall (N=365); child's age (N=365), Model 2: Model 1 covariates + maternal pre-pregnancy BMI (N=365); Model 3: Model 1 covariates + child's Health Eating Index score (N=294), and physical activity levels (N=282)

a Other includes, Asian, American Indian/Alaska natives, Hawaiian/Pacific Islanders

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d tests for significant differences between mean maternal HEI score and maternal characteristics in the entire sample and stratified by offspring sex were based on generalized linear models; P-value represents Type III main effects for categorical variables. For ordinal variables (age, education level, pre-pregnancy weight status, gestational weight gain status, and birthweight categories) the P-value represents a test for linear trend.

ESM Table 4. Association of maternal Health Eating Index (HEI) score (continuous and quintiles) during pregnancy and childhood biomarkers of glucose homeostasis, the adipoinsular axis, lipids, and body composition among boys (N=396).

HEI score	MODEL 1 (GA at diet recall)		MODEL 2 (confounders)		
	Outcome	BETA CI	P	BETA CI	P
Glucose, mmol/l					
continuous	-0.004 (-0.007, 0.000)	0.03	-0.003 (-0.006, 0.001)	0.12	
quintile 5	-0.13 (-0.27, 0.01)	0.02	-0.10 (-0.25, 0.04)	0.10	
quintile 4	-0.20 (-0.33, -0.06)		-0.18 (-0.32, -0.04)		
quintile 3	-0.03 (-0.17, 0.11)		-0.02 (-0.16, 0.12)		
quintile 2	-0.10 (-0.24, 0.04)		-0.10 (-0.23, 0.03)		
quintile 1	ref		ref		
Insulin, pmol/l ^a					
continuous	-0.006 (-0.010, -0.001)	0.01	-0.004 (-0.009, 0.001)	0.08	
quintile 5	-0.24 (-0.42, -0.06)	<0.01	-0.20 (-0.40, 0.00)	0.02	
quintile 4	-0.24 (-0.41, -0.06)		-0.20 (-0.39, -0.02)		
quintile 3	-0.16 (-0.34, 0.03)		-0.15 (-0.34, 0.05)		
quintile 2	-0.07 (-0.26, 0.11)		-0.08 (-0.26, 0.11)		
quintile 1	ref		ref		
One/insulin, pmol/l ^a					
continuous	0.006 (0.001, 0.010)	0.01	0.004 (-0.001, 0.009)	0.08	
quintile 5	0.24 (0.06, 0.42)	<0.01	0.20 (0.00, 0.40)	0.02	
quintile 4	0.24 (0.06, 0.41)		0.20 (0.02, 0.39)		
quintile 3	0.16 (-0.03, 0.34)		0.15 (-0.05, 0.34)		
quintile 2	0.07 (-0.11, 0.26)		0.08 (-0.11, 0.26)		
quintile 1	ref		ref		
HOMA-IR, % ^a					
continuous	-0.006 (-0.011, -0.002)	0.01	-0.005 (-0.009, 0.000)	0.07	
quintile 5	-0.27 (-0.46, -0.08)	<0.01	-0.23 (-0.43, -0.02)	0.02	
quintile 4	-0.28 (-0.46, -0.09)		-0.23 (-0.43, -0.03)		
quintile 3	-0.18 (-0.37, 0.01)		-0.16 (-0.36, 0.03)		
quintile 2	-0.13 (-0.31, 0.06)		-0.12 (-0.31, 0.07)		
quintile 1	ref		ref		
Adiponectin, ug/ml ^a					
continuous	-0.005 (-0.008, -0.002)	<0.01	-0.006 (-0.009, -0.002)	<0.01	
quintile 5	-0.21 (-0.33, -0.09)	<0.01	-0.25 (-0.37, -0.12)	<0.01	
quintile 4	-0.14 (-0.26, -0.03)		-0.16 (-0.28, -0.04)		
quintile 3	-0.07 (-0.19, 0.05)		-0.09 (-0.21, 0.04)		
quintile 2	-0.17 (-0.29, -0.05)		-0.18 (-0.30, -0.05)		
quintile 1	ref		ref		
Leptin, μ g/l					
continuous	0.000 (-0.012, 0.011)	0.98	0.002 (-0.011, 0.015)	0.76	
quintile 5	-0.30 (-0.79, 0.19)	0.84	-0.25 (-0.79, 0.28)	0.91	
quintile 4	0.13 (-0.31, 0.58)		0.24 (-0.24, 0.73)		
quintile 3	-0.21 (-0.68, 0.27)		-0.20 (-0.69, 0.29)		
quintile 2	-0.36 (-0.83, 0.11)		-0.32 (-0.80, 0.16)		
quintile 1	ref		ref		
Cholesterol, mmol/l					
continuous	0.044 (-0.142, 0.230)	0.65	0.012 (-0.199, 0.222)	0.91	
quintile 5	1.36 (-6.66, 9.37)	0.66	0.31 (-8.60, 9.22)	0.90	
quintile 4	3.97 (-3.65, 11.59)		2.50 (-5.86, 10.86)		
quintile 3	4.99 (-3.32, 13.30)		4.11 (-4.47, 12.69)		
quintile 2	2.80 (-5.18, 10.78)		1.52 (-6.69, 9.72)		
quintile 1	ref		ref		
Triglycerides, mmol/l ^a					
continuous	0.000 (0.000, 0.000)	0.88	0.000 (0.000, 0.000)	0.63	
quintile 5	0.00 (-0.13, 0.12)	0.92	-0.03 (-0.17, 0.11)	0.76	
quintile 4	0.01 (-0.10, 0.13)		0.00 (-0.12, 0.13)		
quintile 3	0.10 (-0.03, 0.23)		0.09 (-0.03, 0.22)		
quintile 2	-0.01 (-0.14, 0.11)		-0.01 (-0.14, 0.11)		

quintile 1	ref		ref	
HDL, mmol/l				
continuous	0.012 (-0.039, 0.063)	0.65	0.020 (-0.038, 0.078)	0.50
quintile 5	0.72 (-1.49, 2.94)	0.39	1.32 (-1.14, 3.79)	0.24
quintile 4	1.75 (-0.38, 3.88)		2.08 (-0.23, 4.39)	
quintile 3	0.29 (-2.00, 2.58)		0.70 (-1.69, 3.08)	
quintile 2	1.11 (-1.02, 3.24)		1.30 (-0.88, 3.47)	
quintile 1	ref		ref	
LDL, mmol/l				
continuous	0.014 (-0.164, 0.191)	0.88	0.007 (-0.192, 0.207)	0.94
quintile 5	0.35 (-7.30, 8.01)	0.84	0.19 (-8.20, 8.58)	0.85
quintile 4	1.54 (-5.85, 8.93)		1.00 (-7.02, 9.01)	
quintile 3	4.61 (-3.23, 12.44)		3.97 (-4.06, 11.99)	
quintile 2	0.19 (-7.43, 7.82)		-0.83 (-8.59, 6.94)	
quintile 1	ref		ref	
TGs:HDL ratio ^a				
continuous	0.000 (0.000, 0.000)	0.14	0.000 (0.000, 0.000)	0.03
quintile 5	-0.004 (-0.009, 0.001)	0.09	-0.007 (-0.012, -0.002)	0.01
quintile 4	-0.004 (-0.009, 0.001)		-0.006 (-0.011, -0.001)	
quintile 3	-0.001 (-0.006, 0.004)		-0.003 (-0.008, 0.002)	
quintile 2	-0.004 (-0.008, 0.001)		-0.004 (-0.009, 0.001)	
quintile 1	ref		ref	
%Fat mass				
continuous	0.035 (-0.017, 0.088)	0.19	0.029 (-0.028, 0.085)	0.32
quintile 5	1.79 (-0.43, 4.01)	0.20	1.33 (-1.01, 3.67)	0.41
quintile 4	1.04 (-1.17, 3.25)		0.78 (-1.45, 3.02)	
quintile 3	0.96 (-1.31, 3.23)		0.18 (-2.04, 2.41)	
quintile 2	1.52 (-0.74, 3.78)		1.35 (-0.81, 3.51)	
quintile 1	ref		ref	
Fat mass, kg ^a				
continuous	0.001 (-0.002, 0.005)	0.48	0.001 (-0.003, 0.005)	0.70
quintile 5	0.10 (-0.05, 0.25)	0.36	0.08 (-0.08, 0.24)	0.54
quintile 4	0.08 (-0.07, 0.22)		0.06 (-0.09, 0.21)	
quintile 3	0.06 (-0.10, 0.21)		0.03 (-0.12, 0.18)	
quintile 2	0.13 (-0.02, 0.28)		0.11 (-0.03, 0.26)	
quintile 1	ref		ref	
BMI z-score				
continuous	-0.007 (-0.016, 0.001)	0.08	-0.002 (-0.010, 0.007)	0.68
quintile 5	-0.23 (-0.58, 0.13)	0.12	-0.01 (-0.36, 0.35)	0.89
quintile 4	-0.20 (-0.54, 0.15)		0.00 (-0.33, 0.34)	
quintile 3	0.08 (-0.28, 0.43)		0.19 (-0.15, 0.52)	
quintile 2	-0.05 (-0.41, 0.31)		0.02 (-0.31, 0.35)	
quintile 1	ref		ref	
Sum of skinfolds, mm ^a				
continuous	-0.001 (-0.003, 0.002)	0.65	0.000 (-0.003, 0.002)	0.89
quintile 5	-0.015 (-0.107, 0.076)	0.53	-0.003 (-0.099, 0.093)	0.74
quintile 4	-0.026 (-0.116, 0.065)		-0.010 (-0.101, 0.082)	
quintile 3	0.071 (-0.021, 0.164)		0.088 (-0.002, 0.179)	
quintile 2	0.003 (-0.090, 0.095)		0.010 (-0.079, 0.099)	
quintile 1	ref		ref	

Abbreviations: GA, gestational age; HOMA-IR, Homeostatic Model Assessment of Insulin Resistance; HDL, high-density lipoprotein; LDL, low-density lipoprotein; TGs, Triglycerides; BMI, body mass index; cir., circumference

Bolded values indicate P<0.05

Model 1 adjusts for average GA at diet recall throughout pregnancy

Model 2 (confounders): GA at diet recall, maternal race/ethnicity, age, education, prepregnancy BMI, maternal smoking habits, physical activity; and child's age

a Estimates represent geometric means; P value derived from models where outcomes were log-transformed due to non-normal distributions

ESM Table 5. Association of maternal Health Eating Index (HEI) score (continuous and quintiles) during pregnancy and childhood biomarkers of glucose homeostasis, the adipoinisular axis, lipids, and body composition among girls (N=365).

HEI score	MODEL 1 (GA at diet recall)		MODEL 2 (Confounding)		
	Outcome	BETA CI	P	BETA CI	P
Glucose, mmol/l					
continuous	-0.002 (-0.005, 0.002)	0.32	-0.001 (-0.004, 0.003)	0.71	
quintile 5	-0.05 (-0.19, 0.08)	0.52	-0.01 (-0.15, 0.14)	0.97	
quintile 4	0.08 (-0.05, 0.22)		0.10 (-0.04, 0.24)		
quintile 3	0.04 (-0.10, 0.17)		0.02 (-0.12, 0.17)		
quintile 2	0.07 (-0.06, 0.20)		0.09 (-0.04, 0.21)		
quintile 1	ref		ref		
Insulin, pmol/l ^a					
continuous	-0.006 (-0.010, -0.002)	0.01	-0.004 (-0.009, 0.001)	0.11	
quintile 5	-0.18 (-0.36, 0.01)	0.02	-0.08 (-0.27, 0.12)	0.27	
quintile 4	-0.09 (-0.27, 0.10)		-0.02 (-0.21, 0.17)		
quintile 3	0.02 (-0.17, 0.20)		0.06 (-0.13, 0.25)		
quintile 2	0.05 (-0.12, 0.22)		0.07 (-0.10, 0.24)		
quintile 1	ref		ref		
One/insulin, pmol/l ^a					
continuous	0.006 (0.002, 0.010)	0.01	0.004 (-0.001, 0.009)	0.11	
quintile 5	0.18 (-0.01, 0.36)	0.02	0.08 (-0.12, 0.27)	0.27	
quintile 4	0.09 (-0.10, 0.27)		0.02 (-0.17, 0.21)		
quintile 3	-0.02 (-0.20, 0.17)		-0.06 (-0.25, 0.13)		
quintile 2	-0.05 (-0.22, 0.12)		-0.07 (-0.24, 0.10)		
quintile 1	ref		ref		
HOMA-IR, % ^a					
continuous	-0.006 (-0.011, -0.001)	0.01	-0.004 (-0.009, 0.001)	0.13	
quintile 5	-0.18 (-0.38, 0.01)	0.04	-0.09 (-0.30, 0.12)	0.29	
quintile 4	-0.04 (-0.23, 0.15)		0.03 (-0.17, 0.23)		
quintile 3	0.05 (-0.14, 0.25)		0.09 (-0.11, 0.29)		
quintile 2	0.07 (-0.11, 0.25)		0.10 (-0.08, 0.28)		
quintile 1	ref		ref		
Adiponectin, ug/ml ^a					
continuous	0.002 (-0.002, 0.005)	0.38	0.001 (-0.003, 0.005)	0.67	
quintile 5	0.09 (-0.05, 0.24)	0.28	0.07 (-0.09, 0.24)	0.53	
quintile 4	0.07 (-0.08, 0.22)		0.03 (-0.13, 0.20)		
quintile 3	0.04 (-0.10, 0.19)		0.02 (-0.14, 0.19)		
quintile 2	0.09 (-0.06, 0.24)		0.07 (-0.09, 0.23)		
quintile 1	ref		ref		
Leptin, µg/l					
continuous	0.002 (-0.019, 0.022)	0.85	0.005 (-0.017, 0.028)	0.64	
quintile 5	0.12 (-0.73, 0.96)	0.96	0.26 (-0.66, 1.18)	0.75	
quintile 4	0.24 (-0.59, 1.07)		0.24 (-0.62, 1.10)		
quintile 3	0.01 (-0.85, 0.86)		-0.08 (-0.95, 0.80)		
quintile 2	0.49 (-0.30, 1.27)		0.49 (-0.30, 1.29)		
quintile 1	ref		ref		
Cholesterol, mmol/l					
continuous	0.136 (-0.073, 0.344)	0.20	0.116 (-0.109, 0.340)	0.31	
quintile 5	4.27 (-4.23, 12.78)	0.14	3.59 (-5.45, 12.62)	0.27	
quintile 4	3.99 (-4.66, 12.64)		3.11 (-5.73, 11.94)		
quintile 3	1.60 (-7.11, 10.32)		2.62 (-6.25, 11.49)		
quintile 2	-1.80 (-9.87, 6.27)		-1.06 (-9.19, 7.08)		
quintile 1	ref		ref		
Triglycerides, mmol/l ^a					
continuous	0.000 (0.000, 0.000)	1.00	0.000 (0.000, 0.000)	0.56	
quintile 5	0.02 (-0.10, 0.14)	0.68	-0.01 (-0.14, 0.12)	0.86	

quintile 4	0.06 (-0.06, 0.18)		0.03 (-0.10, 0.16)	
quintile 3	0.08 (-0.05, 0.20)		0.07 (-0.06, 0.20)	
quintile 2	0.04 (-0.08, 0.15)		0.03 (-0.09, 0.14)	
quintile 1	ref		ref	
HDL, mmol/l				
continuous	-0.027 (-0.091, 0.038)	0.42	-0.008 (-0.078, 0.062)	0.83
quintile 5	-0.48 (-3.08, 2.13)	0.74	0.17 (-2.66, 3.00)	0.84
quintile 4	0.45 (-2.27, 3.17)		0.74 (-2.04, 3.53)	
quintile 3	-1.45 (-4.09, 1.20)		-0.71 (-3.43, 2.01)	
quintile 2	0.38 (-2.09, 2.86)		0.45 (-2.05, 2.94)	
quintile 1	ref		ref	
LDL, mmol/l				
continuous	0.212 (0.038, 0.386)	0.02	0.159 (-0.028, 0.345)	0.09
quintile 5	7.18 (0.03, 14.33)	0.01	5.47 (-2.09, 13.03)	0.09
quintile 4	5.20 (-1.91, 12.31)		3.94 (-3.37, 11.24)	
quintile 3	2.38 (-4.86, 9.62)		2.45 (-4.92, 9.82)	
quintile 2	-0.06 (-6.73, 6.61)		0.47 (-6.26, 7.19)	
quintile 1	ref		ref	
TGs:HDL ratio ^a				
continuous	0.000 (0.000, 0.000)	0.53	0.000 (0.000, 0.000)	0.93
quintile 5	0.001 (-0.004, 0.006)	0.67	-0.001 (-0.006, 0.005)	0.76
quintile 4	0.000 (-0.005, 0.006)		-0.001 (-0.007, 0.005)	
quintile 3	0.005 (-0.001, 0.010)		0.004 (-0.002, 0.009)	
quintile 2	0.000 (-0.005, 0.005)		0.000 (-0.005, 0.005)	
quintile 1	ref		ref	
%Fat mass				
continuous	-0.033 (-0.089, 0.022)	0.24	-0.022 (-0.078, 0.033)	0.43
quintile 5	-0.86 (-3.15, 1.43)	0.43	-0.03 (-2.29, 2.23)	0.81
quintile 4	0.35 (-1.99, 2.69)		0.47 (-1.76, 2.70)	
quintile 3	1.13 (-1.19, 3.45)		0.90 (-1.31, 3.11)	
quintile 2	0.76 (-1.49, 3.01)		1.03 (-1.04, 3.10)	
quintile 1	ref		ref	
Fat mass, kg ^a				
continuous	-0.001 (-0.005, 0.003)	0.59	0.000 (-0.005, 0.004)	0.92
quintile 5	-0.03 (-0.20, 0.15)	0.79	0.03 (-0.15, 0.21)	0.85
quintile 4	0.07 (-0.11, 0.25)		0.08 (-0.10, 0.26)	
quintile 3	0.05 (-0.13, 0.22)		0.04 (-0.13, 0.22)	
quintile 2	0.07 (-0.10, 0.24)		0.10 (-0.06, 0.27)	
quintile 1	ref		ref	
BMI z-score				
continuous	-0.002 (-0.009, 0.005)	0.60	0.001 (-0.007, 0.008)	0.89
quintile 5	-0.05 (-0.34, 0.25)	0.96	0.09 (-0.21, 0.39)	0.56
quintile 4	0.18 (-0.12, 0.47)		0.18 (-0.11, 0.48)	
quintile 3	0.04 (-0.25, 0.33)		0.06 (-0.22, 0.34)	
quintile 2	0.10 (-0.19, 0.39)		0.18 (-0.10, 0.45)	
quintile 1	ref		ref	
Sum of skinfolds, mm ^a				
continuous	0.000 (-0.002, 0.002)	0.83	0.001 (-0.001, 0.003)	0.52
quintile 5	0.041 (-0.043, 0.125)	0.49	0.072 (-0.017, 0.161)	0.26
quintile 4	0.054 (-0.031, 0.140)		0.057 (-0.030, 0.144)	
quintile 3	0.040 (-0.044, 0.123)		0.046 (-0.039, 0.131)	
quintile 2	0.078 (-0.005, 0.161)		0.094 (0.012, 0.175)	
quintile 1	ref		ref	

Abbreviations: GA, gestational age; HOMA-IR, Homeostatic Model Assessment of Insulin Resistance; HDL, high-density lipoprotein; LDL, low-density lipoprotein; TGs, Triglycerides; BMI, body mass index; cir., circumference

Bolded values indicate P<0.05

Model 1 adjusts for average GA at diet recall throughout pregnancy

Model 2 (confounders): GA at diet recall, maternal race/ethnicity, age, education, prepregnancy BMI, maternal smoking habits, physical activity; and child's age

a Estimates represent geometric means; P value derived from models where outcomes were log-transformed due to non-normal distributions

ESM Table 6. Association of maternal Health Eating Index score >57 vs. ≤57 in early (<27 gestational weeks), late pregnancy (≥27 gestational weeks pregnancy), and consistently >57 at both time-points with childhood biomarkers of glucose homeostasis, the adipoinsular axis, lipids, and body composition

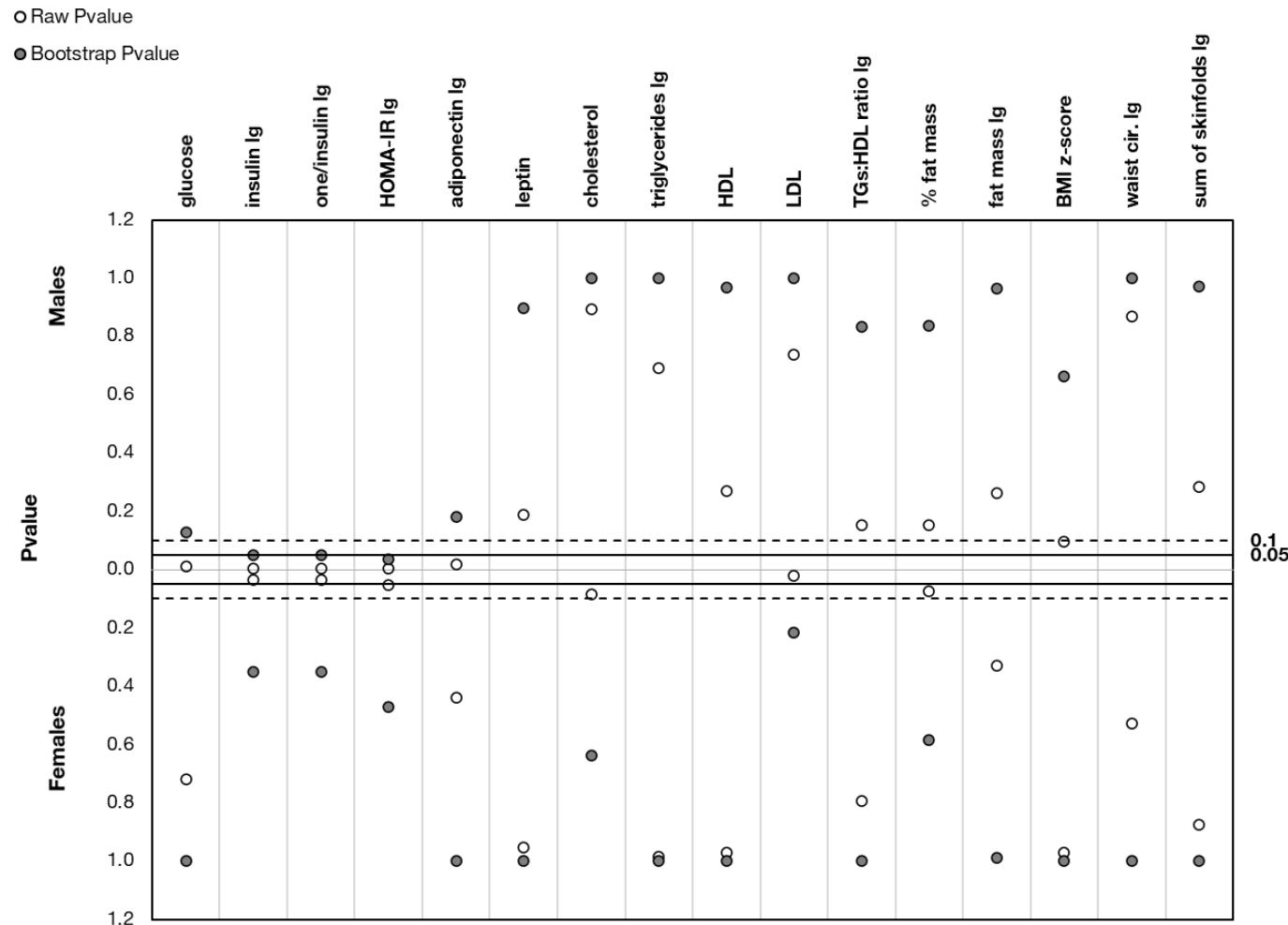
HEI score >57 vs. ≤ 57	Early Pregnancy <27 gestational weeks				Late pregnancy ≥27 gestational weeks				HEI score consistently >57 in early and late pregnancy			
	UNADJUSTED		ADJUSTED		UNADJUSTED		ADJUSTED		UNADJUSTED		ADJUSTED	
	BETA	CI	P	BETA	CI	P	BETA	CI	P	BETA	CI	P
Among boys (N=220)												
Glucose, mmol/l	-0.08 (-0.20, 0.05)	0.24	-0.02 (-0.15, 0.11)	0.76	-0.07 (-0.21, 0.07)	0.31	-0.05 (-0.19, 0.08)	0.44	-0.06 (-0.18, 0.06)	0.32	-0.02 (-0.14, 0.10)	0.71
Insulin, pmol/l ^a	-0.15 (-0.31, 0.01)	0.07	-0.10 (-0.28, 0.07)	0.25	-0.13 (-0.31, 0.05)	0.14	-0.09 (-0.27, 0.09)	0.33	-0.13 (-0.28, 0.03)	0.11	-0.08 (-0.25, 0.08)	0.31
One/insulin, pmol/l ^a	0.15 (-0.01, 0.31)	0.07	0.10 (-0.07, 0.28)	0.25	0.13 (-0.05, 0.31)	0.14	0.09 (-0.09, 0.27)	0.33	0.13 (-0.03, 0.28)	0.11	0.08 (-0.08, 0.25)	0.31
HOMA-IR, % ^a	-0.18 (-0.35, -0.01)	0.04	-0.11 (-0.29, 0.07)	0.23	-0.14 (-0.32, 0.04)	0.13	-0.09 (-0.27, 0.10)	0.37	-0.14 (-0.30, 0.02)	0.08	-0.08 (-0.25, 0.08)	0.32
Adiponectin, ug/ml ^a	-0.08 (-0.19, 0.03)	0.15	-0.10 (-0.21, 0.02)	0.10	-0.12 (-0.24, 0.01)	0.08	-0.11 (-0.24, 0.02)	0.11	-0.07 (-0.17, 0.03)	0.18	-0.08 (-0.19, 0.03)	0.14
Leptin, µg/l	0.02 (-0.41, 0.46)	0.92	0.00 (-0.45, 0.44)	0.98	-0.05 (-0.53, 0.43)	0.84	0.06 (-0.42, 0.55)	0.79	-0.06 (-0.49, 0.37)	0.78	-0.08 (-0.51, 0.35)	0.72
Cholesterol, mmol/l	-4.60 (-11.86, 2.65)	0.21	-6.07 (-14.03, 1.89)	0.13	-0.22 (-8.08, 7.65)	0.96	-1.16 (-9.45, 7.14)	0.78	-2.79 (-9.64, 4.06)	0.42	-3.78 (-11.17, 3.61)	0.32
Triglycerides, mmol/l ^a	0.02 (-0.09, 0.13)	0.73	-0.03 (-0.15, 0.09)	0.61	0.09 (-0.02, 0.21)	0.12	0.08 (-0.04, 0.20)	0.21	0.05 (-0.05, 0.15)	0.36	-0.02 (-0.09, 0.13)	0.74
HDL, mmol/l	-1.56 (-3.46, 0.34)	0.11	-1.10 (-3.16, 0.96)	0.30	-0.95 (-2.99, 1.09)	0.36	-1.25 (-3.35, 0.85)	0.24	-0.94 (-2.74, 0.87)	0.31	-0.67 (-2.56, 1.23)	0.49
LDL, mmol/l	-4.28 (-11.44, 2.88)	0.24	-4.45 (-12.23, 3.32)	0.26	-0.61 (-8.35, 7.13)	0.88	-0.16 (-8.31, 7.99)	0.97	-2.83 (-9.57, 3.90)	0.41	-2.67 (-9.89, 4.54)	0.47
TGs:HDL ratio ^a	0.00 (0.00, 0.01)	0.24	0.00 (0.00, 0.01)	0.68	0.00 (0.00, 0.01)	0.33	0.00 (0.00, 0.01)	0.31	0.00 (0.00, 0.01)	0.29	0.00 (0.00, 0.01)	0.55
%Fat mass	0.88 (-0.88, 2.65)	0.33	0.46 (-1.30, 2.23)	0.61	0.82 (-1.04, 2.69)	0.39	0.10 (-1.81, 2.02)	0.92	0.97 (-0.71, 2.65)	0.26	0.45 (-1.27, 2.16)	0.61
Fat mass, kg ^a	0.01 (-0.10, 0.12)	0.85	0.01 (-0.11, 0.12)	0.91	0.07 (-0.05, 0.19)	0.27	0.04 (-0.08, 0.17)	0.49	0.05 (-0.06, 0.15)	0.41	0.03 (-0.08, 0.14)	0.58
BMI z-score	-0.28 (-0.56, 0.01)	0.06	-0.16 (-0.44, 0.12)	0.27	0.03 (-0.28, 0.33)	0.85	0.17 (-0.13, 0.47)	0.26	-0.09 (-0.36, 0.18)	0.52	0.03 (-0.24, 0.29)	0.84
Sum of skinfolds, mm ^a	-0.02 (-0.10, 0.06)	0.6	-0.01 (-0.09, 0.07)	0.78	0.03 (-0.06, 0.11)	0.56	0.04 (-0.05, 0.12)	0.41	0.01 (-0.06, 0.09)	0.76	0.02 (-0.06, 0.10)	0.61
Among girls (N=204)												
Glucose, mmol/l	-0.08 (-0.20, 0.05)	0.22	-0.01 (-0.14, 0.11)	0.83	-0.07 (-0.19, 0.06)	0.3	-0.04 (-0.17, 0.09)	0.57	-0.11 (-0.23, 0.00)	0.05	-0.08 (-0.19, 0.04)	0.21
Insulin, pmol/l ^a	-0.07 (-0.22, 0.08)	0.35	-0.02 (-0.18, 0.13)	0.79	0.01 (-0.14, 0.16)	0.88	0.07 (-0.09, 0.23)	0.4	-0.05 (-0.19, 0.10)	0.52	-0.01 (-0.16, 0.14)	0.91

One/insulin, pmol/l ^a	0.07 (-0.08, 0.22)	0.35	0.02 (-0.13, 0.18)	0.79	-0.01 (-0.16, 0.14)	0.88	-0.07 (-0.23, 0.09)	0.4	0.05 (-0.10, 0.19)	0.52	0.01 (-0.14, 0.16)	0.91
HOMA-IR, % ^a	-0.05 (-0.21, 0.10)	0.5	-0.01 (-0.17, 0.15)	0.87	0.00 (-0.16, 0.16)	0.97	0.04 (-0.13, 0.21)	0.63	-0.07 (-0.22, 0.08)	0.35	-0.04 (-0.19, 0.11)	0.60
Adiponectin, ug/ml ^a	0.07 (-0.06, 0.20)	0.31	0.10 (-0.05, 0.26)	0.20	0.01 (-0.12, 0.14)	0.9	0.00 (-0.16, 0.16)	0.96	0.03 (-0.09, 0.16)	0.58	0.06 (-0.09, 0.21)	0.47
Leptin, µg/l	0.02 (-0.80, 0.84)	0.96	-0.32 (-1.18, 0.53)	0.46	0.39 (-0.46, 1.23)	0.37	0.19 (-0.69, 1.08)	0.67	-0.04 (-0.80, 0.72)	0.92	-0.47 (-1.30, 0.35)	0.26
Cholesterol, mmol/l	2.12 (-5.76, 10.01)	0.6	-0.77 (-9.06, 7.51)	0.86	1.58 (-6.47, 9.64)	0.7	-1.39 (-10.18, 7.39)	0.76	4.45 (-2.85, 11.76)	0.23	1.80 (-6.11, 9.71)	0.66
Triglycerides, mmol/l ^a	0.07 (-0.05, 0.18)	0.26	0.06 (-0.06, 0.19)	0.31	-0.03 (-0.15, 0.09)	0.64	-0.06 (-0.19, 0.08)	0.4	0.05 (-0.06, 0.15)	0.40	0.03 (-0.09, 0.15)	0.63
HDL, mmol/l	0.07 (-2.36, 2.50)	0.96	0.37 (-2.29, 3.03)	0.78	-0.57 (-3.00, 1.86)	0.64	-0.66 (-3.39, 2.06)	0.63	-0.27 (-2.54, 2.00)	0.82	-0.37 (-2.93, 2.19)	0.78
LDL, mmol/l	2.24 (-3.97, 8.46)	0.48	-0.33 (-6.86, 6.20)	0.92	1.91 (-4.44, 8.26)	0.56	0.56 (-6.34, 7.46)	0.87	3.89 (-1.90, 9.68)	0.19	2.10 (-4.16, 8.35)	0.51
TGs:HDL ratio ^a	0.00 (0.00, 0.01)	0.6	0.00 (0.00, 0.01)	0.68	0.00 (0.00, 0.01)	0.78	0.00 (0.00, 0.01)	0.74	0.00 (0.00, 0.01)	0.55	0.00 (0.00, 0.01)	0.51
%Fat mass	-1.91 (-4.14, 0.32)	0.09	-1.51 (-3.60, 0.59)	0.16	-1.66 (-3.81, 0.49)	0.13	-0.11 (-2.20, 1.99)	0.92	-2.04 (-4.04, -0.04)	0.05	-1.27 (-3.19, 0.64)	0.19
Fat mass, kg ^a	-0.11 (-0.25, 0.03)	0.12	-0.08 (-0.22, 0.05)	0.23	-0.09 (-0.22, 0.05)	0.21	0.01 (-0.13, 0.14)	0.94	-0.12 (-0.25, 0.01)	0.06	-0.07 (-0.19, 0.06)	0.30
BMI z-score	-0.08 (-0.36, 0.19)	0.55	-0.04 (-0.30, 0.22)	0.75	-0.14 (-0.41, 0.12)	0.29	-0.07 (-0.34, 0.19)	0.59	-0.09 (-0.33, 0.16)	0.50	0.01 (-0.24, 0.25)	0.97
Sum of skinfolds, mm ^a	-0.05 (-0.12, 0.03)	0.2	-0.06 (-0.14, 0.01)	0.11	0.02 (-0.06, 0.09)	0.63	0.04 (-0.04, 0.12)	0.33	-0.03 (-0.09, 0.04)	0.47	-0.03 (-0.10, 0.04)	0.47

Abbreviations: HOMA-IR, Homeostatic Model Assessment of Insulin Resistance; HDL, high-density lipoprotein; LDL, low-density lipoprotein; TGs, Triglycerides; BMI, body mass index; cir., circumference

Adjusted model: maternal race/ethnicity, age, education, prepregnancy BMI, maternal smoking habits; and child's age

^a Estimates represent geometric means; P value derived from models where outcomes were log-transformed due to non-normal distributions



ESM Figure 1. Bootstrap corrected P-values for the estimates of association between maternal Health Eating Index score >57 vs. ≤57 during pregnancy and childhood biomarkers of glucose homeostasis, the adipoinsular axis, lipids, and body composition

Ig: log transformed; Broken line indicates P-value <0.10; Solid line indicates P-value <0.05;

Girls	glucose	insulin	one/ insulin	HOMA- IR	adipone- ctin	leptin	cholest- erol	TGs	HDL	LDL	TGs: HDL	% fat mass	fat mass	BMI z-score	SSF
glucose	1.00	0.46	-0.46	0.56	-0.01	0.02	-0.06	0.06	-0.05	-0.14	-0.07	0.08	0.14	0.21	0.24
insulin		1.00	-1.00	0.99	-0.07	-0.09	-0.09	0.10	0.06	-0.16	-0.06	0.14	0.16	0.18	0.17
one/insulin			1.00	-0.99	0.07	0.09	0.09	-0.10	-0.06	0.16	0.06	-0.14	-0.16	-0.18	-0.17
HOMA-IR				1.00	-0.06	-0.12	-0.11	0.10	0.05	-0.19	-0.07	0.14	0.17	0.18	0.19
adiponectin					1.00	-0.02	0.02	0.27	-0.17	0.05	-0.30	0.08	0.15	0.15	0.09
leptin						1.00	-0.06	-0.01	-0.23	0.04	-0.05	0.15	0.17	0.28	0.28
cholesterol							1.00	0.13	0.39	0.80	-0.09	0.02	0.01	0.05	0.07
TGs								1.00	-0.06	0.15	-0.92	0.04	0.04	0.12	-0.01
HDL									1.00	0.03	0.41	-0.11	-0.08	0.01	0.01
LDL										1.00	-0.15	0.06	0.02	-0.01	0.09
TGs:HDL											1.00	-0.03	-0.02	-0.15	0.01
% fat mass												1.00	0.91	0.40	0.40
fat mass													1.00	0.57	0.48
BMI z-score														1.00	0.52
SSF															1.00

EMS Figure 2. Spearman correlations between child biomarkers and body composition

Abbreviations: HOMA-IR, Homeostatic Model Assessment of Insulin Resistance; HDL, high-density lipoprotein; LDL, low-density lipoprotein; TGs, Triglycerides; BMI, body mass index; cir., circumference; SSF, sum of skinfolds

Darker blue indicates stronger positive correlation; Darker red indicate stronger negative correlation