

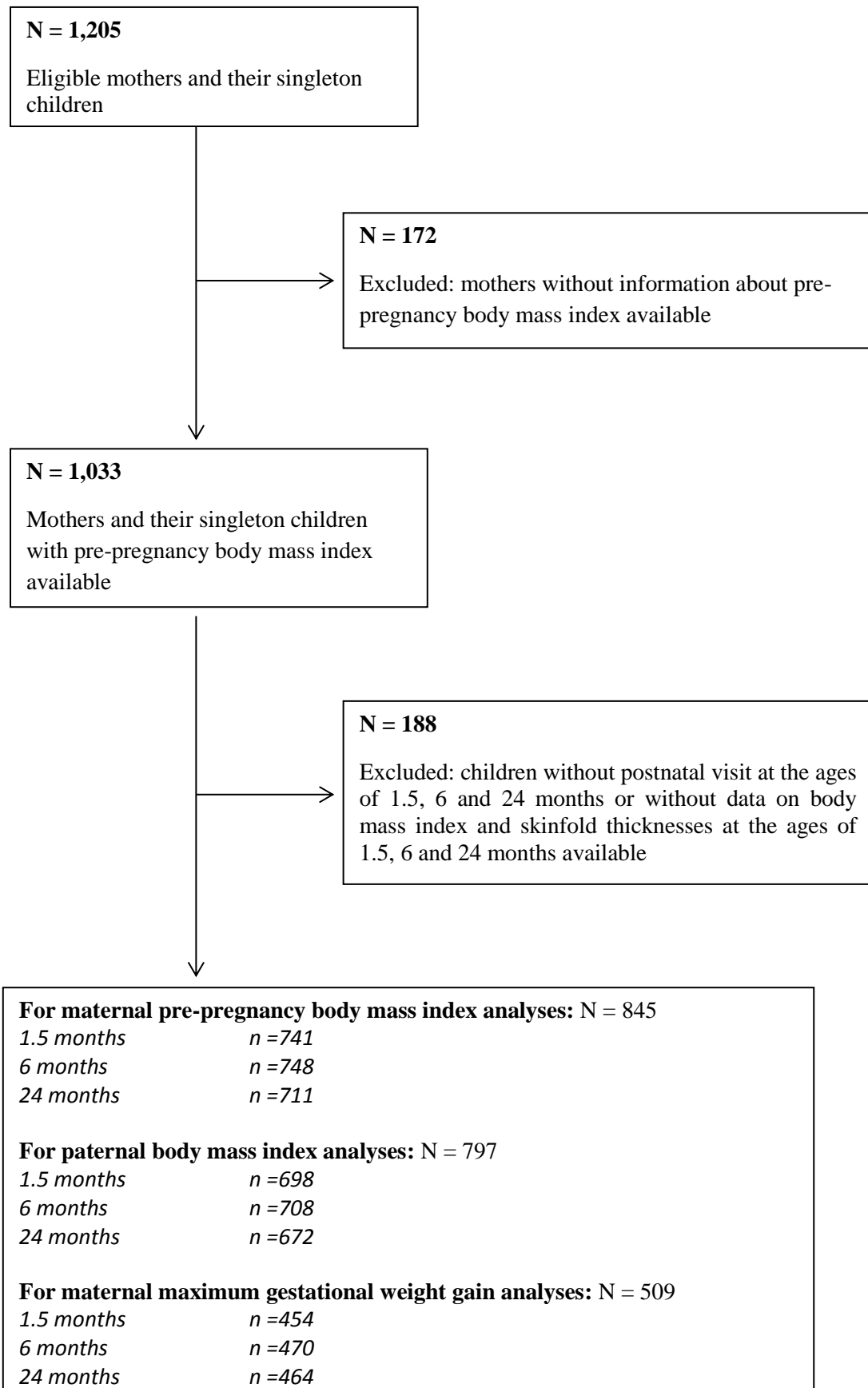
**Supplementary materials**

**Associations of maternal obesity and excessive weight gain during pregnancy with subcutaneous fat mass in infancy.**

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**Figure S1** Flow chart of participants in study



**Table S1** Comparison of subject characteristics between children included and not included in the analyses<sup>1</sup>

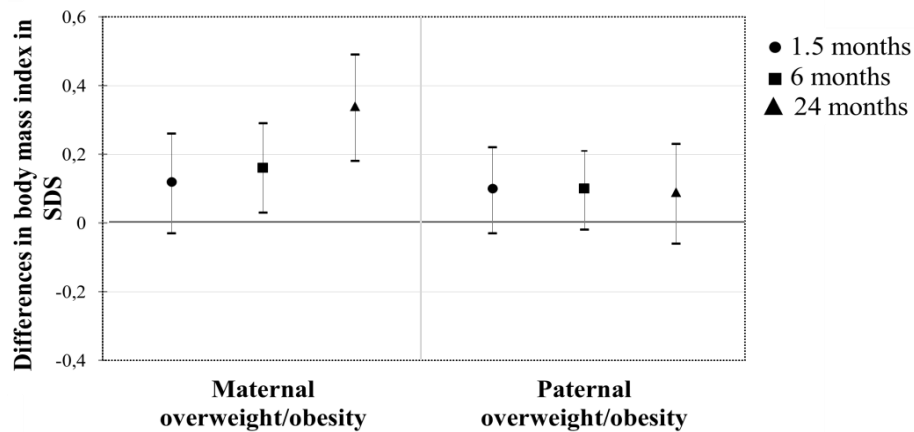
Characteristics	Participants (N=845)	Non-participants (N=188)	P-value
<b>Maternal characteristics</b>			
Age, mean (SD), years	31.8 (4.1)	30.5 (4.5)	<0.001
Education (higher education), n (%)	548 (65.2)	103 (55.7)	0.042
Parity (nulliparous), n (%)	522 (61.8)	113 (60.1)	0.671
Body mass index, mean (SD), kg/m <sup>2</sup>	23.5 (4.1)	23.5 (4.3)	0.855
Maximum gestational weight gain, mean (SD), kg	15.5 (5.7)	14.9 (5.6)	0.424
Excessive gestational weight gain (IOM criteria), n (%)	242 (47.9)	23 (41.1)	0.449
Weight in early-pregnancy, mean (SD), kg	70.8 (12.9)	71.2 (13.2)	0.752
Weight in mid-pregnancy, mean (SD), kg	78.0 (13.3)	78.3 (13.2)	0.832
Weight in late-pregnancy, mean (SD), kg	84.5 (13.5)	83.1 (13.4)	0.462
Total energy intake, mean (SD), kcal	2119 (512)	2142 (518)	0.722
Smoking during pregnancy (yes), n (%)	186 (23.3)	47 (26.3)	0.408
Gestational diabetes, n (%)	9 (1.1)	1 (0.6)	0.528
Gestational hypertensive disorders, n (%)	62 (7.6)	8 (4.5)	0.141
<b>Paternal characteristics</b>			
Age, mean (SD), years	33.9 (5.1)	32.9 (5.3)	0.014
Education (higher education), n (%)	472 (64.2)	80 (51.3)	0.010
Body mass index, mean (SD), kg/m <sup>2</sup>	25.2 (3.2)	25.6 (3.5)	0.142
<b>Birth and infant characteristics</b>			
Boys, n (%)	439 (52.0)	99 (52.7)	0.861
Gestational age at birth, median (95% range), weeks	40.3 (35.9-42.4)	40.1 (33.7-42.1)	0.278
Birthweight, mean (SD), g	3515 (537)	3478 (601)	0.403
Caesarean delivery, n (%)	119 (14.9)	23 (13.8)	0.705
Breast feeding duration, mean (SD), months	4.4 (3.9)	3.6 (3.8)	0.030
Introduction of solids foods (before 6 months), n (%)	600 (80.2)	112 (89.6)	0.041

<sup>1</sup> Values are observed data and represent means (SD), medians (95% range) or numbers of subjects (valid %). Differences were tested using Student's t-tests and Mann-Whitney tests for normally and non-

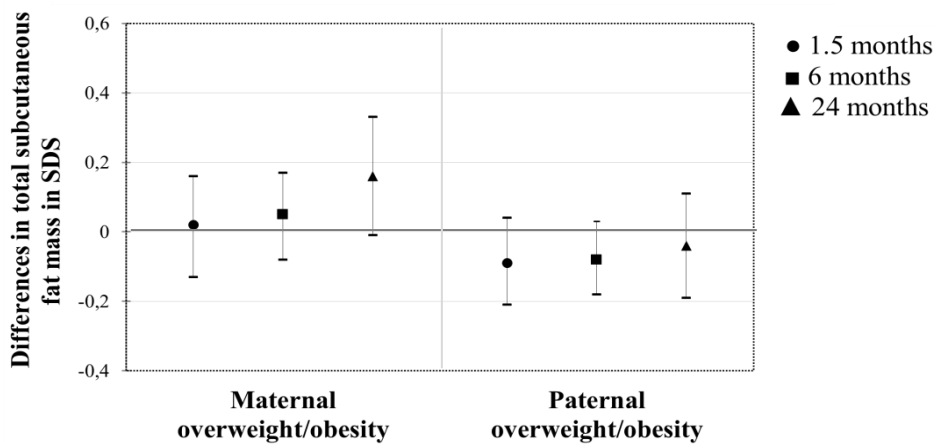
normally distributed variables, respectively and  $\chi^2$ -test for dichotomous variables. SD, standard deviation. IOM criteria, Institute of Medicine criteria.

**Figure S2.** Associations of parental pre-pregnancy overweight with infant subcutaneous fat mass measures<sup>1-2</sup>

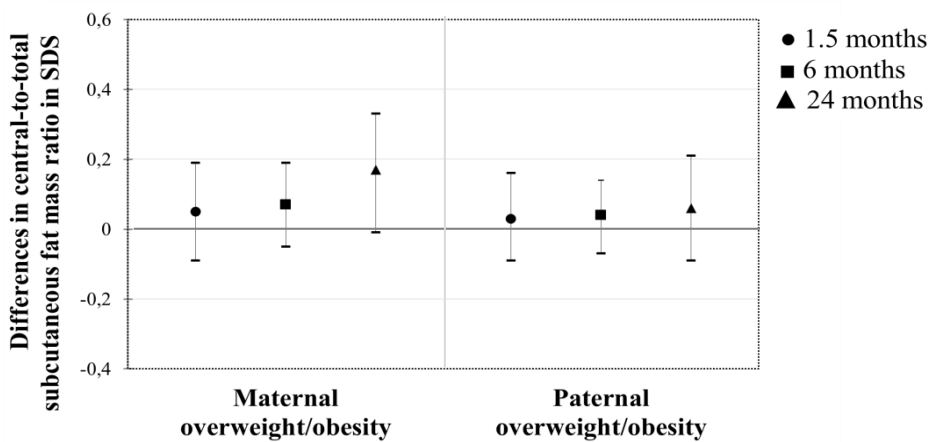
**A. Body mass index**



**B. Total subcutaneous fat mass**



**C. Central-to-total subcutaneous fat mass ratio**



<sup>1</sup>Values are regression coefficients (95% confidence interval) from repeated measurement linear regression models that reflect differences in subcutaneous fat mass measures in standard-deviation scores at 1.5, 6 and 24 months for maternal and paternal overweight/obesity as compared to the reference group (maternal and paternal underweight/normal weight). Total subcutaneous fat mass = biceps + triceps + suprailiacal + subscapular skinfold thicknesses. Central-to-total subcutaneous fat mass ratio = (suprailiacal + subscapular skinfold thicknesses)/total subcutaneous fat mass.

<sup>2</sup>Maternal model includes maternal age and educational level, parity, maternal total energy intake, smoking habits and weight gain until 30 weeks of gestation, gestational diabetes, gestational hypertensive disorders, child's sex and gestational age-adjusted birthweight standard-deviation scores, cesarean delivery, breast feeding duration and timing of introduction of solid foods. Paternal model includes the same potential confounders as maternal model but paternal age and educational level instead of maternal age and educational level.

**Table S2.** Associations of maternal weight gain until 30 weeks of gestation with infant subcutaneous fat mass measures <sup>1</sup>

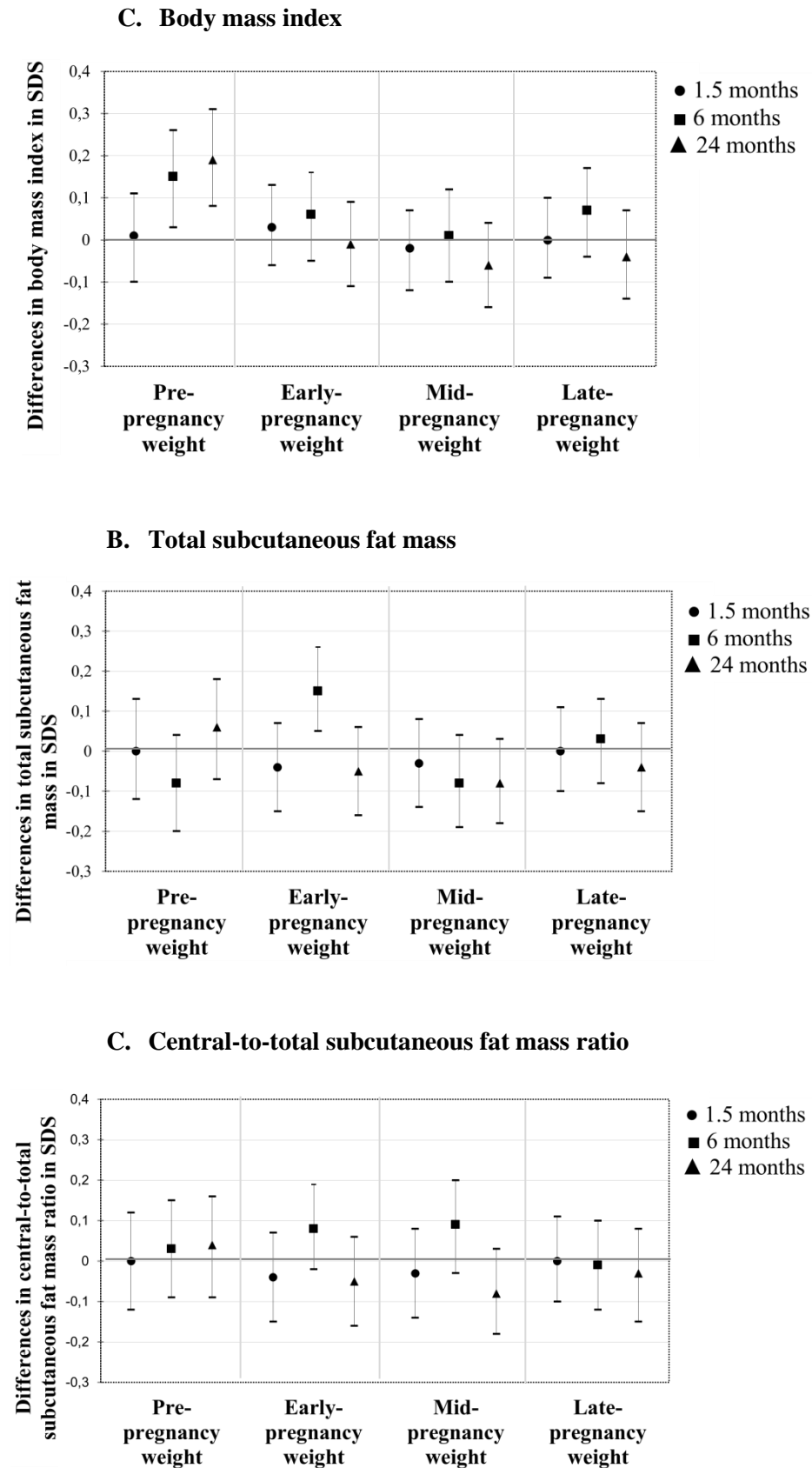
	Fat mass measures in standard deviation scores Difference (95% Confidence Interval)								
	1.5 months			6 months			24 months		
	Body mass index	Total subcutaneous fat mass	Central-to-total subcutaneous fat mass ratio	Body mass index	Total subcutaneous fat mass	Central-to-total subcutaneous fat mass ratio	Body mass index	Total subcutaneous fat mass	Central-to-total subcutaneous fat mass ratio
<b>Weight gain until 30 weeks of gestation model</b>									
<i>n</i> = 833	<i>n</i> =721	<i>n</i> =687	<i>n</i> =687	<i>n</i> = 729	<i>n</i> = 723	<i>n</i> = 723	<i>n</i> =647	<i>n</i> =621	<i>n</i> =621
Unadjusted	0.08 (0.01,0.16)*	0.01 (-0.07,0.08)	0 (-0.07,0.08)	0.08 (0.01,0.16)*	0.06 (-0.01,0.14)	0.02 (-0.06,0.09)	-0.01 (-0.09,0.06)	-0.05 (-0.13,0.02)	-0.07 (-0.14,0.01)
Adjusted	0.02 (-0.05,0.09)	-0.02 (-0.10,0.06)	0.01 (-0.07,0.09)	0.04 (-0.04,0.12)	0.07 (-0.01,0.14)	0.05 (-0.03,0.12)	-0.03 (-0.11,0.04)	-0.06 (-0.15,0.02)	-0.07 (-0.15,0.01)
<b>Excessive gestational weight gain model¶</b>									
<i>n</i> = 116	<i>n</i> =104	<i>n</i> =95	<i>n</i> =95	<i>n</i> = 100	<i>n</i> = 98	<i>n</i> = 98	<i>n</i> =94	<i>n</i> =91	<i>n</i> =91
Unadjusted	0.05 (-0.16,0.25)	-0.15 (-0.37,0.07)	0 (-0.22,0.21)	0.19 (-0.02,0.40)	0.17 (-0.04,0.38)	0.13 (-0.08,0.34)	0.06 (-0.16,0.28)	-0.02 (-0.24,0.20)	-0.17 (-0.39,0.06)
Adjusted	-0.03 (-0.22,0.16)	-0.17 (-0.39,0.05)	0.04 (-0.19,0.26)	0.10 (-0.12,0.31)	0.13 (-0.09,0.35)	0.19 (-0.03,0.40)	0.02 (-0.20,0.25)	-0.07 (-0.30,0.17)	-0.20 (-0.43,0.04)

<sup>1</sup>Values are regression coefficients (95% confidence interval) from linear regression models that reflect differences in subcutaneous fat mass measures in standard-deviation scores at 1.5, 6 and 24 months per standard-deviation scores change in maternal weight gain until 30 weeks of gestation or for maternal excessive weight gain as compared to the reference group (insufficient and sufficient weight gain). Body mass index = weight/height<sup>2</sup>. Total subcutaneous fat mass = biceps + triceps + suprailiacal + subscapular skinfold thicknesses. Central-to-total subcutaneous fat mass ratio = (suprailiacal + subscapular skinfold thicknesses)/total subcutaneous fat mass.

¶Adjusted for maternal age and educational level, parity, pre-pregnancy body mass index (for models with weight gain until 30 weeks of gestation as a continuous variable), maternal total energy intake, smoking habits during pregnancy, gestational diabetes, gestational hypertensive disorders, child's sex and gestational age-adjusted birthweight standard-deviation scores, cesarean delivery, breast feeding duration and timing of introduction of solid foods (for 6 and 24 months outcomes).

\*P-value<0.05.

**Figure S3.** Associations of maternal pre-pregnancy weight and early-, mid- and late-pregnancy weight with infant subcutaneous fat mass measures from conditional analyses<sup>1-2</sup>





<sup>1</sup>Values are regression coefficients (95% confidence interval) from linear regression models that reflect differences in subcutaneous fat mass measures in standard-deviation scores at 1.5, 6 and 24 months per standard-deviation scores change in maternal pre-pregnancy weight and per standard-deviation scores change in standardized residual change in maternal early-, mid- and late-pregnancy weight from conditional regression analyses. Total subcutaneous fat mass = biceps + triceps + suprailiacal + subscapular skinfold thicknesses. Central-to-total subcutaneous fat mass ratio = (suprailiacal + subscapular skinfold thicknesses)/total subcutaneous fat mass.

<sup>2</sup>Models were adjusted for maternal age and educational level, parity, height at intake, maternal total energy intake, smoking habits during pregnancy, gestational diabetes, gestational hypertensive disorders, child's sex and gestational age-adjusted birthweight standard-deviation scores, cesarean delivery, breast feeding duration and timing of introduction of solid foods (for 6 and 24 months outcomes).