

Sample characteristics—Estimated preterm birth prevalences by subgroup

Categorical variables		Preterm birth		Total	p-value
		Unweighted n	Weighted %	n ¹	
Total		47,654	9.2%	192,110	
Race/Ethnicity	NH White	26,385	8.5%	103,326	.0000
	NH Black	11,558	13.2%	33,351	
	Hispanic	5,668	8.0%	29,087	
	Other	4,043	8.6%	26,346	
Income – grouped	<10k	11,025	10.4%	39,748	.0000
	10 - 14k	4,489	9.3%	17,338	
	15 - 19k	3,089	9.7%	11,982	
	20 - 24k	3,301	8.8%	13,173	
	25 - 34k	4,404	9.4%	18,134	
	35 - 49k	4,423	8.5%	18,900	
Other Insurance (not including Medicaid)	Not on Other Insurance	20,851	9.4%	80,081	.0179
	On Other Insurance	26,685	9.0%	111,506	
Medicaid	On Medicaid	8,345	11.0%	31,189	.0000
	No	39,174	8.9%	160,260	
Education	0-8 yrs	1,666	8.7%	7,913	.0000
	9-11 yrs	7,394	10.4%	27,142	
	12 yrs	15,148	9.8%	57,924	
	13-15 yrs	11,134	8.9%	44,698	
	16+ yrs	11,659	8.4%	52,123	
Urban/Rural Category	Urban	14,612	9.4%	62,174	.0000
	Rural	5,618	8.9%	27,247	
Prior live birth complications (prior live preterm/LBW birth)	No	35,990	8.1%	161,639	.0000
	Yes	9,970	20.5%	22,978	
Prior SAB/TAB	No	33,747	8.8%	139,856	.0000
	Yes	13,411	10.2%	50,878	
Any Pregnancy History	First pregnancy	17,716	9.49%	66,397	.0153
	Second Pregnancy	29,976	9.05%	125,811	
Intention to get pregnant	Sooner	9,541	10.8%	10.8%	.0000
	Later	14,664	9.0%	9.0%	
	Then	16,968	8.2%	8.2%	
	Did not want	5,649	11.1%	11.1%	
Diabetes before pregnancy	No	45,118	9.0%	185,075	.0000
	Yes	1,800	19.2%	4,467	
Smoke – 3 months before pregnancy	No	34,137	8.9%	141,936	.0085
	Yes	12,671	10.1%	47,019	
Drink – 3 months before pregnancy	No	25,485	9.9%	96,870	.0000
	Yes	21,146	8.5%	91,150	
Abuse – 12 months before pregnancy	No	43,517	9.1%	176,875	.0000
	Yes	3,250	10.7%	11,509	
Stressors	1. I was in a physical fight	2,511	2,511	10.9% ²	8,759
	2. My husband/partner was in jail	2,732	2,732	10.8%	9,758
	3. I lost my job even though I wanted to continue working	5,473	5,473	10.6%	19,371
	4. I couldn't pay my bills	12,583	12,583	10.5%	45,737
	5. My husband/partner said he did not want me to be pregnant	4,548	4,548	10.6%	16,610

Continuous variables	No Preterm birth	Preterm birth	Total	p-value
	Weighted Mean (CI)	Weighted Mean (CI)	n	
Age	28.37 (28.31, 28.45)	28.48 (28.31, 28.65)	192,110	.1263
BMI	25.54 (25.47, 25.61)	25.96 (25.77, 26.15)	181,349	.0000

¹Weighted n may not add up to 100% due to missing data; ²Individual stressor variables only shown for “yes” responses.

236 Ectonucleotide pyrophosphatase phosphodiesterase 1 (ENPP1) expression in adipose tissue of women with excessive versus normal gestational weight gain during pregnancy

Aaron Poole¹, Gayle Olson¹, Batbayar Tumurbaatar², Kathleen Vincent¹, Yongquan Jiang³, Massoud Motamedi³, Gracie Vargas³, Manisha Chandalia², Abate Nicola²

¹University of Texas Medical Branch Galveston, Obstetrics & Gynecology, Galveston, TX, ²University of Texas Medical Branch Galveston, Internal Medicine–Endocrinology, Galveston, TX, ³University of Texas Medical Branch Galveston, Center for Biomedical Engineering, Galveston, TX

OBJECTIVE: ENPP1, a transmembrane glycoprotein, has been shown to modulate adipocyte maturation and insulin receptor signaling. These effects have been associated with systemic insulin resistance and increased risk for type 2 diabetes. Our objective is to measure adipocyte ENPP1 expression in response to gestational weight gain (GWG).

STUDY DESIGN: Women scheduled for elective repeat cesarean at term and who fasted at least 6 hours were recruited. Blood was obtained before the initiation of intravenous fluids and subcutaneous fat was biopsied after the skin incision. Adipose cell size was analyzed using 3D multi-photon imaging. Tissue expression level of ENPP1 and phosphorylation of Akt (pAkt) for insulin signaling were measured by Western Blot. Using IOM guidelines, excessive vs normal GWG were compared. Statistical Analysis Software was utilized.

RESULTS: Fifteen subjects with excessive GWG were compared to 9 with normal GWG. Maternal age, EGA at delivery and pregestational body mass index (BMI) were not significantly different. Delivery BMI, birthweight, tissue expression level of ENPP1, adipocyte cell size and phosphorylated Akt were significantly different (Table).

CONCLUSION: Increased expression level of ENPP1 in women with excessive GWG is associated with decreased adipocyte cell size and phosphorylation of Akt, indicating impaired maturation of adipocytes and insulin signaling. These findings suggest women with excessive GWG may be at risk for future systemic insulin resistance and type 2 diabetes.

Excessive versus normal gestational weight gain

	Normal GWG 9 subjects	Excessive GWG 15 subjects	p value
Pregestational BMI*	25.9 ± 3.3	27.3 ± 5.4	0.55
Delivery BMI*	29.7 ± 3.1	34.4 ± 4.7	0.01
Birth weight (gm)	3306 ± 392	3656 ± 358	0.03
Expression level tissue ENPP1	0.35 ± 0.18	0.57 ± 0.20	0.01
Adipocyte cell size (micron)	111 ± 15	95 ± 15	0.03
Ratio pAkt	0.77 ± 0.20	0.52 ± 0.23	0.01

* BMI [weight (kg)]/[height (m)]².