pair wise fashion; ie, Group 1 to 2, 1 to 3, etc. Target gene products were identified by magnitude of fold-change across groups as well as analysis for trend on the following scales: linear, logarithmic, squared, square root. Gene products of interest were identified by a P-value < 0.001 being deemed statistically significant.

RESULTS: We identified 33 candidate genes that were found to be significantly different between patient groups. These genes are primarily involved in muscle contraction, cell proliferation, cell cycle control, transcription/translation, immunity, intracellular maintenance, and extracellular communication. TMEM127 (trans-membrane protein involved in protein transport and inhibition of cell proliferation) was significantly down regulated with increasing obesity. Other genes (PAK7, LTK, EIF5A, GLUL) involved in initiation of cell proliferation were significantly up regulated.

CONCLUSION: These results suggest obesity is associated with differential expression of genes within the myometrial tissue of obese women. Further exploration of these genes may provide insight into the dysfunctional labor patterns of overweight and obese women.

TABLE 1
Differential gene expression in myometrial tissue of obese gravidas

Gene symbol	Function	Expression
LTK	Cell proliferation, Cellular apoptosis	Upregulated
ADAMTS17	Proteolysis, Metalloendopeptidase activity	Upregulated
SGCA	Muscle contraction, Calcium ion binding	Upregulated
GJA9	Extracellular communication	Downregulated
R3HDM2	Nucleic acid binding, Metal ion binding	Downregulated
SNORD115-3	RNA modification	Downregulated
TMEM127	Protein transport, Inhibition of cell proliferation	Downregulated
CECR1	Growth factor activity, Nucleoside metabolism	Downregulated

313 Defining uterine tachysystole: how much is too much?

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OBJECTIVE: There is a paucity of data on how much uterine activity is excessive when measured against clinical outcomes. Our purpose was to determine if uterine tachysystole as defined by the American Congress of Obstetricians and Gynecologists, 6 or more contractions per 10 minutes, is associated with adverse fetal outcomes.

STUDY DESIGN: This is a prospective cohort study of 584 women undergoing induction of labor with 100 micrograms of oral misoprostol. Fetal heart rate tracings were analyzed for contractions per 10 minutes during the initial 4 hours after misoprostol administration. Patients were divided into 4 groups: ≤4, 5, 6, ≥7 contractions per 10 minutes. Infant condition at birth was assessed using 5- minute Apgar ≤3, umbilical artery blood pH ≤7.1, intubation in the delivery room, neonatal seizures, NICU admission, or perinatal death. Cesarean delivery for FHR indications was also analyzed.

RESULTS: Infant outcome and cesarean birth for FHR indications showed no associations with the number of contractions per 10 minutes (Table). However, 6 or more contractions in 10 minutes were significantly associated with FHR decelerations (p=<0.001); this was true for variable, late, and prolonged decelerations (p=<0.001, p=0.02, p=0.017 respectively). Analysis was also performed using the maximum number of contractions per 30 minutes and the results were similar to those for 10- minute intervals.

CONCLUSION: Uterine activity quantified as the maximum number of contractions per ten minutes or per 30 minutes was not found to be associated with cesarean delivery or any measure of infant condition at birth that could serve to define excessive uterine contractions. However, 6 or more contractions per ten minutes was associated with increased fetal heart rate decelerations. We conclude that the current recommended definition of uterine tachysystole by the American Congress of Obstetricians and Gynecologists as 6 or more contractions per ten minutes is an appropriate definition.

Table 1. Selected outcomes in relation to uterine contractions per 10 minutes during the first 4 hours of induced labor.

	Maximum contractions per 10 minutes				
	≤4	5	6	≥7	
Outcome	N=152	N=179	N=134	N=119	P-value
5- minute Apgar ≤3	0 (0)	1 (1)	0 (0)	0 (0)	0.62
Umbilical artery pH ≤7.1	26 (17)	30 (17)	17 (13)	23 (19)	0.89
Seizures	0 (0)	0 (0)	0 (0)	0 (0)	–
Intubation at delivery	1 (1)	0 (0)	0 (0)	0 (0)	0.42
NICU admission	5 (3)	3 (2)	0 (0)	1 (1)	0.14
Perinatal death	0 (0)	0 (0)	0 (0)	0 (0)	–
Cesarean for FHR	16 (11)	17 (9)	11 (8)	8 (7)	0.72

All data shown as N (%).

314 Obese women have longer duration of the first stage of labor

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OBJECTIVE: While many studies have identified maternal obesity as a risk factor for cesarean delivery, the effect of obesity on the progress of labor is less clear. We aimed to estimate the effects of obesity on the duration and progression of the first stage of labor.

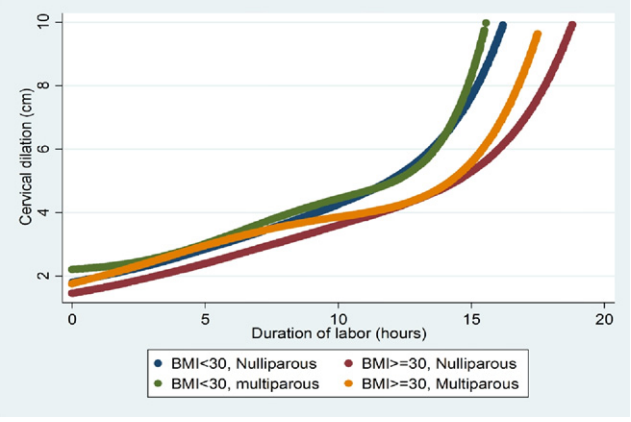
STUDY DESIGN: We performed a retrospective cohort study of labor progression among 5204 consecutive parturients with singleton term pregnancies (≥ 37 weeks) and vertex presentation who completed the first stage of labor. Two comparison groups were defined by body mass index (BMI) 4000g, and prior cesarean.

RESULTS: The labor curves indicate longer duration and slower progression of the first stage of labor among women with BMI>30, both overall and when stratified by parity (Figure). Multivariable interval-censored regression analysis confirmed significantly longer duration (4 to 10cm: 4.6 versus 4.0 hours, p<0.001) and slower progression of cervical dilation from 4 to 6cm (2.4 versus 1.9 hours, p<0.001, with a range of 0.5-10.7 hours) among women with BMI ≥30 after adjusting for confounders (Table).

CONCLUSION: The overall duration is longer and progression of the early part of the first stage of labor is slower in obese women. This suggests that obesity should be considered in defining norms for management of labor particularly in the early part of the first stage.

Cervical Dilation	BMI ≥ 30 (n=2791)	BMI < 30 (2413)	P value*
Duration			
From 4 to 10cm	4.6 (1.3,16.0)	4.0 (1.1,14.0)	<0.001
Progression			
From 4 to 6 cm	2.4 (0.5,10.7)	1.9 (0.4,8.4)	<0.001
From 6 to 8 cm	0.5 (0.1, 4.2)	0.6 (0.1, 5.1)	0.42
From 8 to 10 cm	0.3 (0.03,2.4)	0.4 (0.04,3.1)	0.43

*Adjusted for prior C-section, parity, labor type, Race, birth weight>4000g
Data are median (5th, 95th percentile)



315 Recurrent anal sphincter injury: a population based study

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OBJECTIVE: This study was performed to determine the effect of a primary anal sphincter injury in the first vaginal delivery as a risk factor for recurrent anal sphincter injury in subsequent vaginal deliveries.

STUDY DESIGN: This is a population-based cohort study that used data from the California Office of Statewide Health Planning and Development. The study population (Lac First) was defined as women having their first singleton vaginal delivery between 1991 and 1995 complicated by an anal sphincter injury, with a second vaginal delivery between 1991 and 2004. These women were compared to a control group of women without anal sphincter injury (Nolac First) during the same time period. The primary outcome of interest was occurrence of an anal sphincter injury in the second vaginal delivery. Maternal demographics, obstetric and labor data, and fetal data were collected for the second delivery. Odds ratios for recurrent anal sphincter injury were calculated using multivariate logistic regression and were reported with 95% confidence interval.

RESULTS: A total of 375,278 women were identified with their first vaginal delivery between 1991-1995 and a second vaginal delivery before 2005. The Lac First group consisted of 43,583 (11.6%) women with an anal sphincter injury. During their second delivery, 2,648 (6.1%) had a recurrent anal sphincter injury. In contrast, in the Nolac First group, only 1.4% (4,697 of 331,695 women) were found to have anal sphincter injury at the time of their second delivery. The adjusted odds ratio for recurrent injury was 3.79 (95% CI 3.60-3.98). Variables significantly associated with recurrent anal sphincter injury at the time of second delivery were found to be increasing maternal age >40 (OR 1.34, 95% CI 1.14-1.58), fetal macrosomia >5000g (OR 9.92, 95% CI 7.44-13.22), operative deliveries with forceps (OR 4.69, 95% CI 3.77-5.82) and vacuum (OR 1.96, 95% CI 1.74-2.22).

CONCLUSION: Women with anal sphincter injury at their first delivery are at almost a four fold risk for recurrent anal sphincter injury at the time of second delivery.

316 Estimating the impact of pelvic immaturity & young maternal age on fetal malposition

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OBJECTIVE: Fetal malposition, specifically occiput posterior and transverse (OP/OT), is associated with higher intra-partum morbidity. We tested the hypothesis that young maternal age & pelvic immaturity are risk factors for fetal malposition.

STUDY DESIGN: In a cohort study of all nulliparous teen (≤18 years old) deliveries over a 4-year period at one institution, fetal head position at time of delivery was collected and correlated with maternal characteristics and outcome data. Using Risser staging observations, pelvic maturity age was set at 16 and accordingly the women were divided into two groups (younger vs. older teens). Group comparisons and analysis was performed using Fishers exact, Student's t-test, and logistic regression modeling.

RESULTS: Older teen mothers (16-18 years old, n=609) had higher rates of malposition (22% vs. 12%, p=0.02) when compared with younger teens (≤15 years old, n=98). Among all women with a malpositioned fetus, older teens had a higher body mass index (BMI: 32.6 vs. 28.5, p=0.04) and subsequent need for Cesarean delivery (69% vs. 33%, p=0.02) when compared with their younger counterparts (Figure 1). Although younger teens were more successful in having a vaginal delivery (67%) with an OP/OT position, it was at the expense of a 25% rate of severe perineal laceration (3rd/4th degree).

CONCLUSION: Obesity, and not young maternal age or pelvic immaturity appears to be associated with fetal malposition. The direct association with increasing pre-pregnancy BMI and the long-term impacts of the high rates of Cesarean delivery in this young population underscores the need for more public health attention.