with a history of a stillbirth between 22 and 28 weeks of gestation during the first pregnancy (15.0 per 1000, OR 2.54 [95% CI 0.72-8.98]). Women with a history of a stillbirth ≥ 37 weeks of gestation appeared to have no risk of recurrence (1.1 per 1000, OR 0.37 [95% CI 0.05-2.64]). This might be related to the 68% induction of labor rate for women with a history of stillbirth ≥ 37 weeks of gestation was, versus 22% for women without a history of stillbirth.

CONCLUSION: Women with a prior stillbirth have a higher risk of recurrence in their next pregnancy. This risk was mainly observed when stillbirth had occurred in early gestation (22-28 weeks). The absence of this association in late pregnancy might be due to more inductions of labour.

Recurrence risk of stillbirth in a second pregnancy by gestational age

	Recurrence risk # Per 1000	OR *	95% CI
Gestational age of the first stillbirth			
>=22 weeks	5.8	2.36	1.32-4.21
22-27 weeks	15.0	2.54	0.72-8.98
28-33 weeks	8.3	2.60	0.85-8.40
34-36 weeks	3.7	0.98	0.13-7.16
≥ 37 weeks	1.1	0.37	0.05-2.64

#Risk of stillbirth in a second pregnancy with a history of stillbirth in the first pregnancy (per 1000 births); *Odds ratio adjusted for maternal age, ethnicity, low-social economic status and small for gestational age.

121 A silk-based gel for cervical injection: controlled gelation with sonication

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OBJECTIVE: To develop an injectable, silk-based biomaterial as an alternative to cervical cerclage for the management of cervical insufficiency. Here, we studied sonication to achieve controlled gelation of a silk-based biomaterial and determined feasibility of cervical injection in a rat model.

STUDY DESIGN: A purified silk solution (6% w/w) was prepared as previously reported. The solution was concentrated to 10% or 15% by dialysis against a polytheylene glycol solution. Solutions were autoclaved for sterilization. Using a 3mL syringe, a 1.5mL silk solution was sonicated with Branson 450 Sonifier and a 1/8″ diameter tapered microtip. Solutions were sonicated for 10-25 sec at 15% amplitude and 20kHz frequency. To determine the effect of temperature on gelation, solutions were sonicated at room temperature and in an ice bath. Time to gelation was measured. Gelation was determined by an opaque appearance on visual inspection and a positive vial inversion test. Sprague Dawley rats (n=5) were used to test the feasibility of cervical injections. A nasal speculum and arthroscope (5mm, 30 degree) were used to visualize the cervix. Cervical injections (200 uL) were performed with a 23 gauge needle using direct visualization. The cervices were dissected for histological examination to determine anatomical localization.

RESULTS: No gelation was observed in the absence of sonication. At 20-25 sec of sonication, immediate gelation occurred and the gel could not be pushed through a 23 gauge needle. Variables associated with more rapid time to gelation included sonication at room temperature, increased silk concentration, and longer sonication times ($p<.01$ for each). Rat cervical injections were technically feasible with the aid of the arthroscope. The gel was visualized in the cervical stroma on H&E histology.

CONCLUSION: Sonication results in controlled gelation of a silk-based biomaterial. Injection of this biomaterial into the cervical stroma of a rat is feasible. Further studies are needed to assess this biomaterial in vivo.

122 The Institute of Medicine guidelines for gestational weight gain: effect on perinatal outcomes in obese, morbidly obese, and super obese women

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OBJECTIVE: To evaluate the impact of the updated Institute of Medicine (IOM) guidelines for gestational weight gain in obese, morbidly obese, and super obese women on maternal and neonatal outcomes.

STUDY DESIGN: Retrospective cohort of obese women, defined as body mass index (BMI) > 30, delivering singletons > 36 weeks between 2000-2009. Women were included if they had a weight documented in the first trimester and one within 10 days prior to delivery. Women were stratified by obesity category: obese (BMI 30-39), morbidly obese (BMI 40-49), and super obese (BMI > 50). Gestational weight gain was categorized according to IOM guidelines, which recommend a gain of 5-9.1 kg for obese women. Selected perinatal outcomes were analyzed, and logistic regression was used to adjust for potential confounders.

RESULTS: Of the 5364 women eligible for the study, 74% were obese, 21% were morbidly obese, and 5% were super obese. Compared to obese women who gained within the IOM guidelines, women with a BMI > 30 and gestational weight gain exceeding the IOM guidelines had a 38% increased risk of cesarean delivery and hypertensive disorders and a 60% increased risk of macrosomia. Weight gain less than the IOM guidelines was associated with a 30% decreased risk of amnionitis and a 39% decreased risk of macrosomia. When compared to obese women, morbidly obese and super obese women had increased risks of a multitude of perinatal morbidities (Table). Morbidly obese women exceeding the guidelines had an increased risk of hypertensive disorders. Super obese women with weight gain less than recommended had a decreased risk of hypertensive disorders.

CONCLUSION: Gestational weight gain exceeding 2009 IOM guidelines is associated with increased risks of adverse outcomes in obese women. Weight gain less than recommended appears to be protective against some morbidities. Strategies to promote limited gestational weight gain may improve perinatal outcomes in this population.

Perinatal outcomes in obese, morbidly obese, and super obese women according to gestational weight gain per IOM guidelines

	BMI 30-39 (N=4000) aOR (95% CI)*		BMI 40-49 (N=1123) aOR (95% CI)*		BMI > 50 (N=241) aOR (95% CI)*	
	< 5 kg	> 9.1 kg	< 5 kg	> 9.1 kg	< 5 kg	> 9.1 kg
C-section	0.85 (0.69, 1.04)	1.43 (1.19, 1.71)	0.87 (0.62, 1.22)	1.26 (0.90, 1.78)	0.98 (0.52, 1.83)	1.17 (0.59, 2.33)
GDM	0.85 (0.59, 1.23)	0.99 (0.71, 1.38)	1.00 (0.54, 1.87)	1.48 (0.79, 2.76)	1.83 (0.47, 7.14)	2.29 (0.53, 9.90)
Amnionitis	0.68 (0.44, 1.05)	1.33 (0.96, 1.83)	0.56 (0.27, 1.14)	0.88 (0.46, 1.69)	1.53 (0.40, 5.95)	1.19 (0.28, 4.97)
Endometritis	0.48 (0.21, 1.12)	1.14 (0.64, 2.02)	1.53 (0.40, 5.92)	1.59 (0.41, 6.22)	0.28 (0.02, 3.27)	0.86 (0.11, 6.67)
HTN	0.90 (0.68, 1.19)	1.34 (1.06, 1.70)	0.75 (0.49, 1.15)	1.61 (1.07, 2.42)	0.38 (0.18, 0.83)	1.23 (0.59, 2.58)
BWT ≥ 4000g	0.59 (0.40, 0.86)	2.00 (1.50, 2.66)	0.49 (0.28, 0.86)	1.41 (0.85, 2.34)	0.73 (0.24, 2.27)	1.88 (0.60, 5.89)
LGA	0.66 (0.51, 0.86)	1.71 (1.38, 2.12)	0.46 (0.30, 0.68)	1.27 (0.87, 1.87)	0.64 (0.27, 1.51)	1.20 (0.48, 3.00)

BWT, birthweight; *HTN*, hypertension; *LGA*, large for gestational age.

*Referent group is women with gestational weight gain within IOM guidelines (5-9.1kg).

123 Optimal timing of delivery in women with prior stillbirth: a decision analysis

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