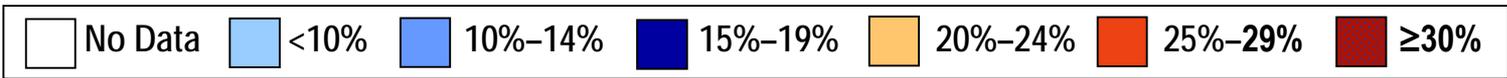


Objective 1

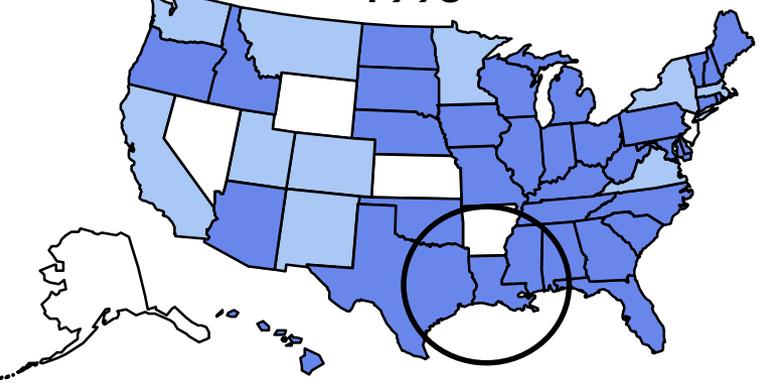
The prevalence of obesity and of excessive weight gain during pregnancy and their impact on maternal outcomes (gestational diabetes, caesarian rates, maternal complications) and child health (infant size at birth, obesity and diabetes rates in childhood and adulthood)



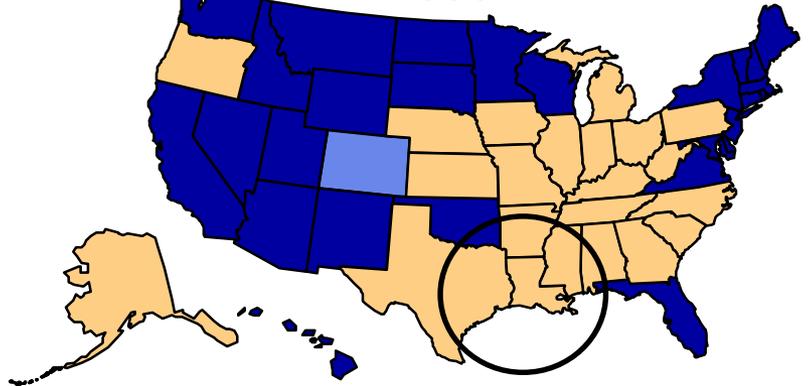
Obesity is on the rise in America



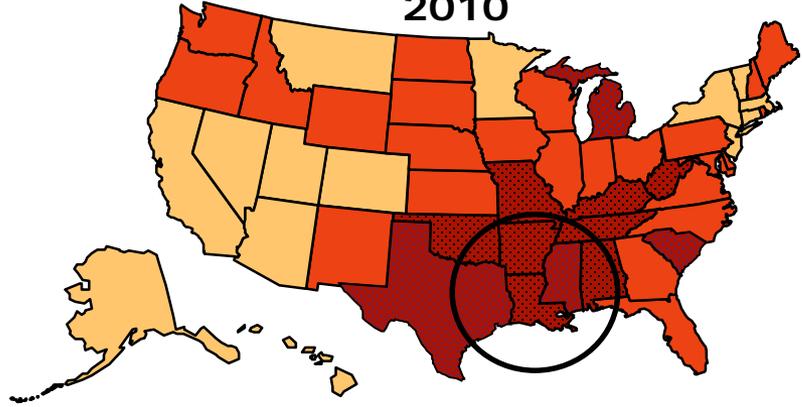
1990



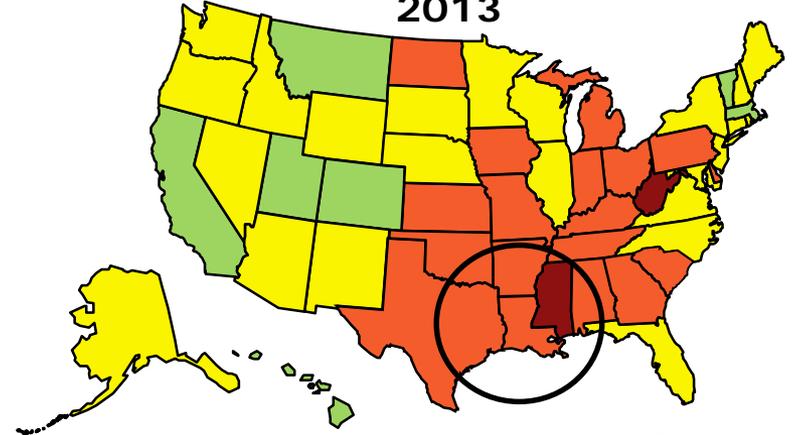
2000



2010



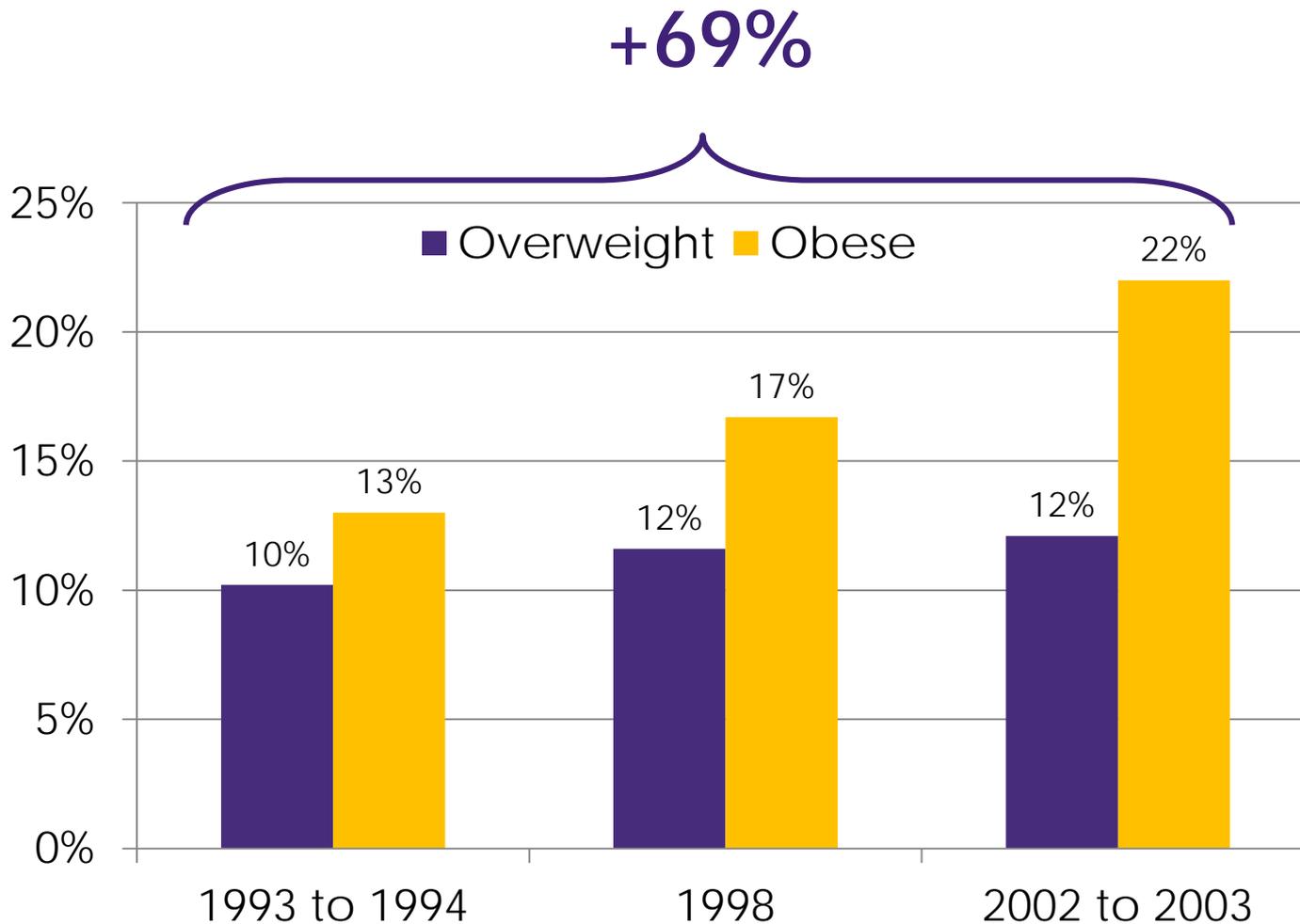
2013



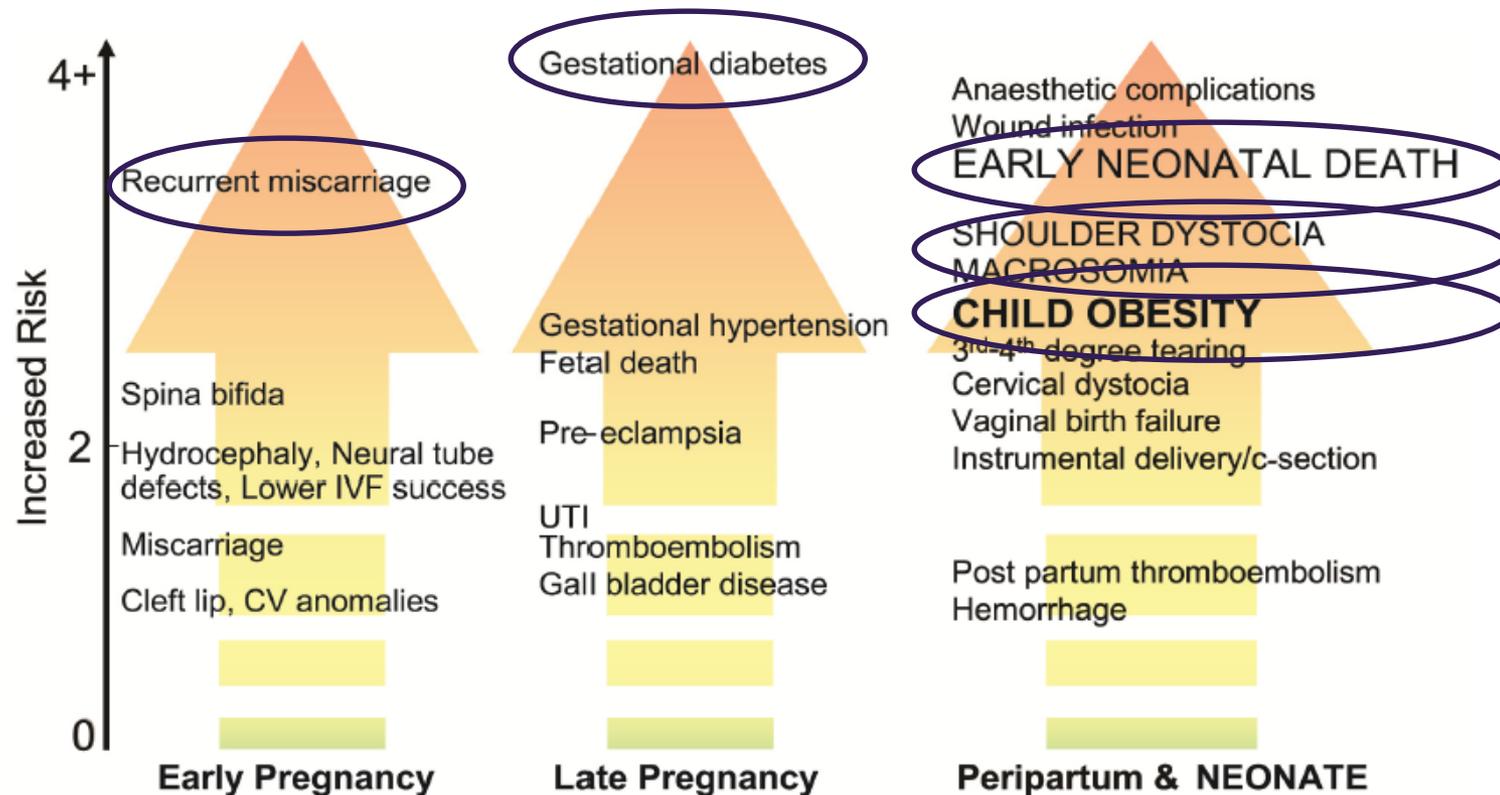
GUAM PR



Maternal overweight and obesity are also increasing



Risks associated with overweight or obese pregnancies



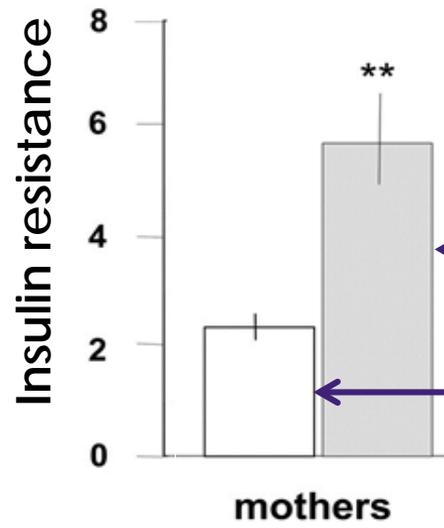
Increased adiposity in offspring of overweight & obese mothers



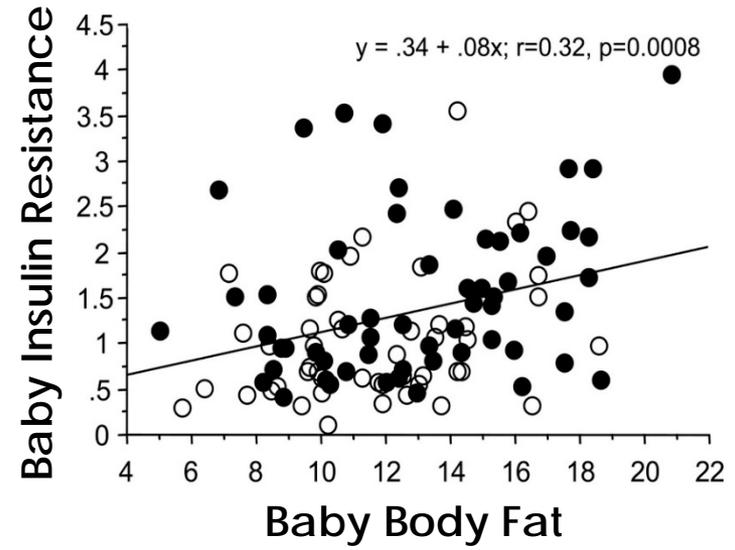
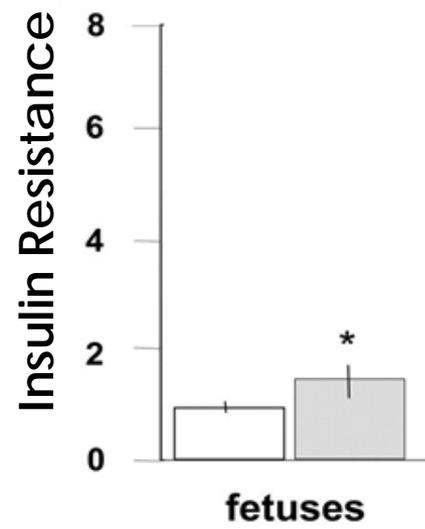
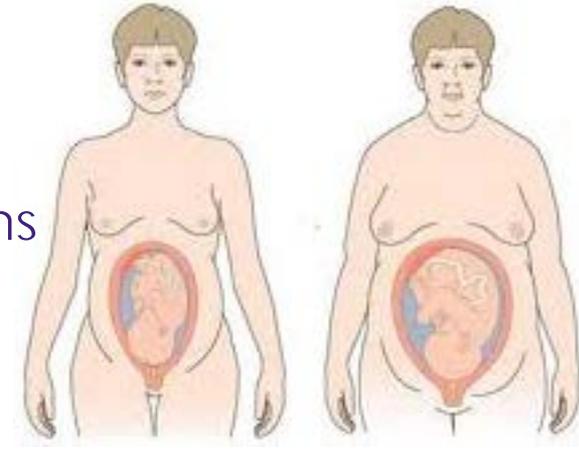
	Normal weight (n=210)	Overweight (n=59)	Obese (n=37)
Weight at birth (g)	3208.8 ± 422.6	3554.3 ± 559.9	3323.2 ± 392.3
Neonatal fat (%)	11.7 ± 4.1	13.0 ± 4.7*	14.6 ± 4.3*

>14% fat for neonates is considered obese

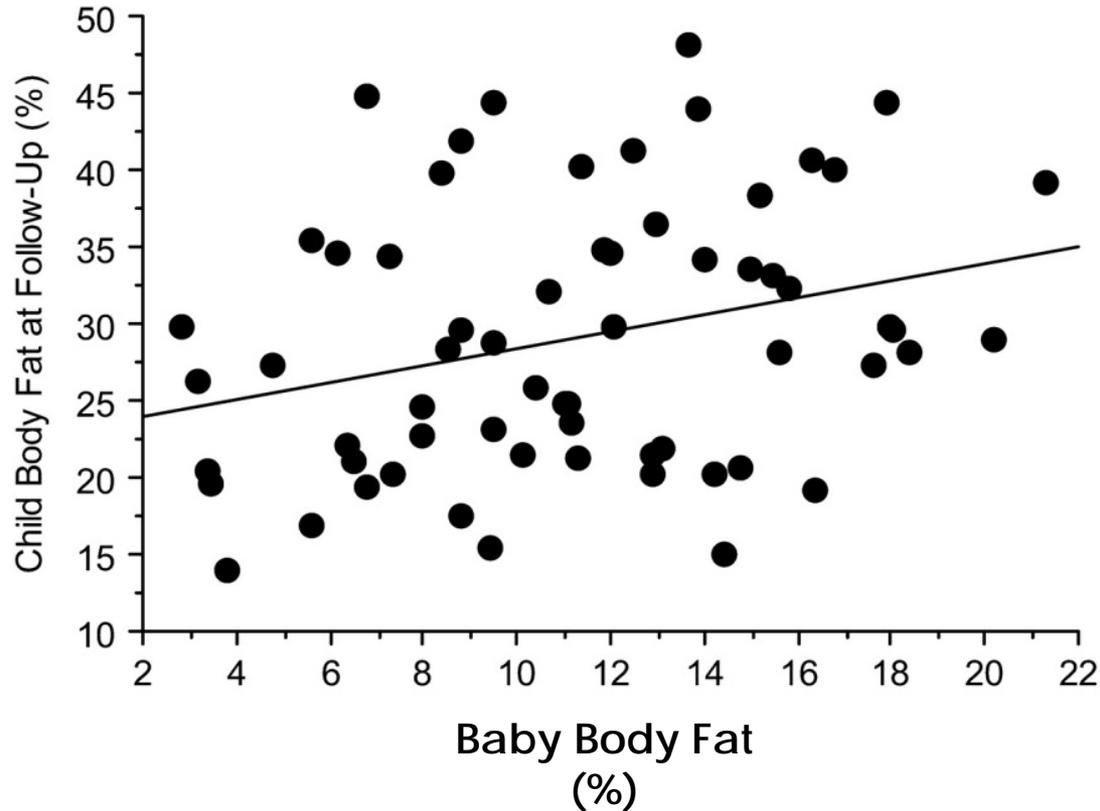
Neonatal adiposity already is associated with insulin resistance



← Obese moms
← Lean moms



Babies born with high body fat continue on this trajectory as kids



Perinatal risk factors for childhood obesity and metabolic dysregulation¹⁻³

Patrick M Catalano, Kristen Farrell, Alicia Thomas, Lorraine Huston-Presley, Patricia Mencia, Sylvie Hauguel de Mouzon, and Saeid B Amini

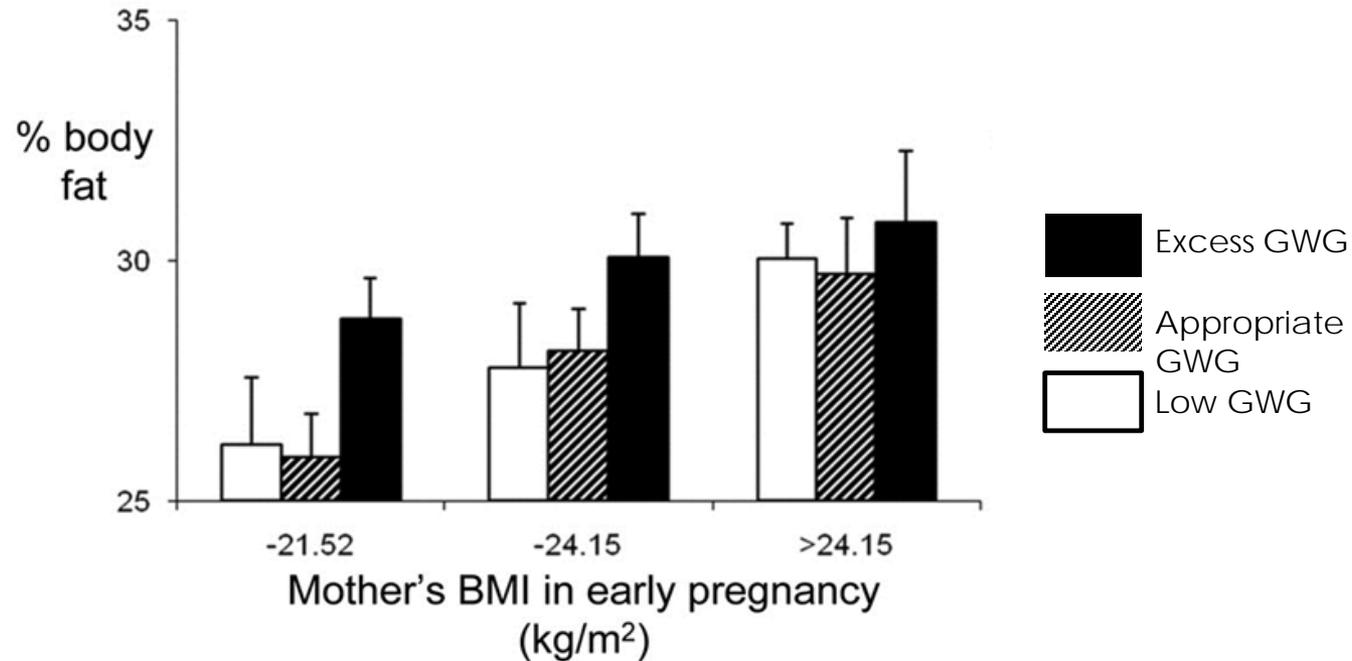
Am J Clin Nutr 2009;90:1303-1313

Maternal Pregravid BMI & GWG associated with adiposity in adult offspring

Adults children aged 30 years!

N=276 men and women

Body fat measured at 30 years of age



How can we improve maternal (and paternal) health before pregnancy?



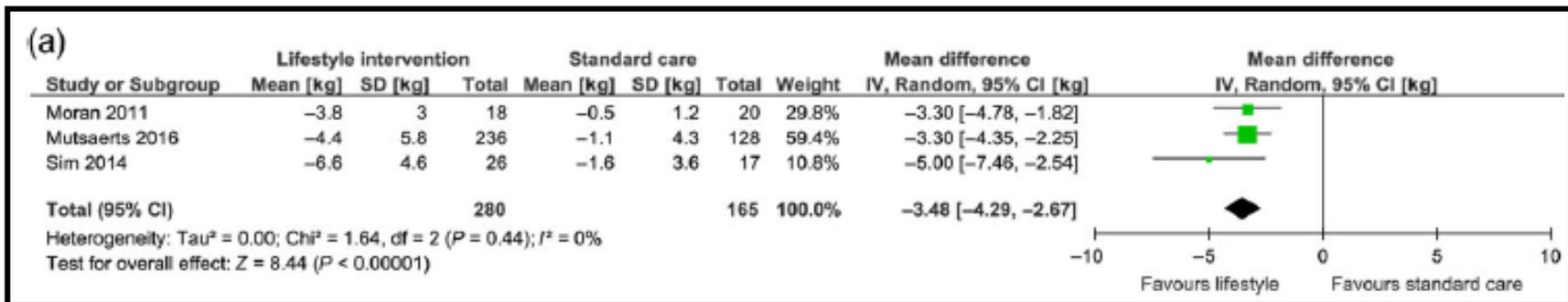
Good Question!

- ❖ 50% of pregnancies in the US, are unplanned
- ❖ Many adults (and clinicians) fail to recognize/acknowledge obesity
- ❖ When couples plan for children, their health (unless there are infertility issues), is often far from their minds.

Any evidence for improved outcomes with pregravid interventions?

Systematic review and meta-analysis of the impact of preconception lifestyle interventions on fertility, obstetric, fetal, anthropometric and metabolic outcomes in men and women

L. Lan^{1,2}, C.L. Harrison², M. Misso², B. Hill³, H.J. Teede^{1,2}, B.W. Mol⁴, and L.J. Moran^{2,4,*}



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Table V Obstetric outcomes.

Outcome	Study	Results
Premature Birth (<37 weeks gestation)	Lumley and Donohue (2006), Sim <i>et al.</i> (2014), Mutsaerts <i>et al.</i> (2016)	MA: OR 1.06 [95% CI:0.53–2.12] $P = 0.87$ $I^2 = 40\%$
Pregnancy loss	Legro <i>et al.</i> (2015), Sim <i>et al.</i> (2014), Mutsaerts <i>et al.</i> (2016)	MA: OR 1.43 [95% CI:0.89–2.30] $P = 0.14$ $I^2 = 2\%$
Pre-eclampsia	Sim <i>et al.</i> (2014), Mutsaerts <i>et al.</i> (2016)	MA: OR 0.92 [95% CI: 0.39–2.13] $P = 0.84$ $I^2 = 0\%$
Gestational diabetes	Sim <i>et al.</i> (2014), Mutsaerts <i>et al.</i> (2016)	MA: OR 0.39 [95% CI: 0.05–3.24] $P = 0.39$ $I^2 = 47\%$
Adverse ART outcomes	Mutsaerts <i>et al.</i> (2016)	Intervention: 1.7%. Control: 1.3% (P -value not available)
Gestational weight gain ^a	Hillemeier <i>et al.</i> (2008), Weisman <i>et al.</i> (2011)	Intervention: 10.6 kg [95% CI: 7.49–13.74] Control: 18.8 kg [95% CI: 13.11–24.40] $P = 0.023$ in favor of intervention
Delivery complications	Mutsaerts <i>et al.</i> (2016)	Intervention: 22.8%. Control: 15% (P -value not available)

^a $P = 0.138$ when adjusted for pre-pregnancy weight.

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Table VI Fetal outcomes.

Outcome	Study	Results
Live birth	Legro et al. (2015), Moran et al. (2011b), Sim et al. (2014), Mutsaerts et al. (2016)	MA: OR 1.88 [95% CI: 0.63–5.58] $P = 0.26$ $I^2 = 79\%$
Birth weight	Lumley and Donohue (2006), Legro et al. (2015) Mutsaerts et al. (2016) ^f	MA: Mean difference –197.0 g [95% CI: –501.91–107.90] $P = 0.21$ $I^2 = 56\%$ Intervention: 3312 g (IQR: 3198–3426) Control: 3341 g (IQR: 3234–3448) RR: –29 [98% CI: –185–27]
Neonatal mortality	Sim et al. (2014), Mutsaerts et al. (2016)	MA: OR 0.14 [95% CI: 0.01–1.37] $P = 0.09$ $I^2 = 0\%$
Congenital abnormalities	Mutsaerts et al. (2016)	Intervention: 3.1%. Control 3.1%. RR: 0.69 [95% CI: 0.17–2.88]

^f, median weight; IQR, interquartile range.