

# The value of appropriate weight gain for mom and baby – Implementation Strategies

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February 27<sup>th</sup>, 2014  
BSRC Annual Conference



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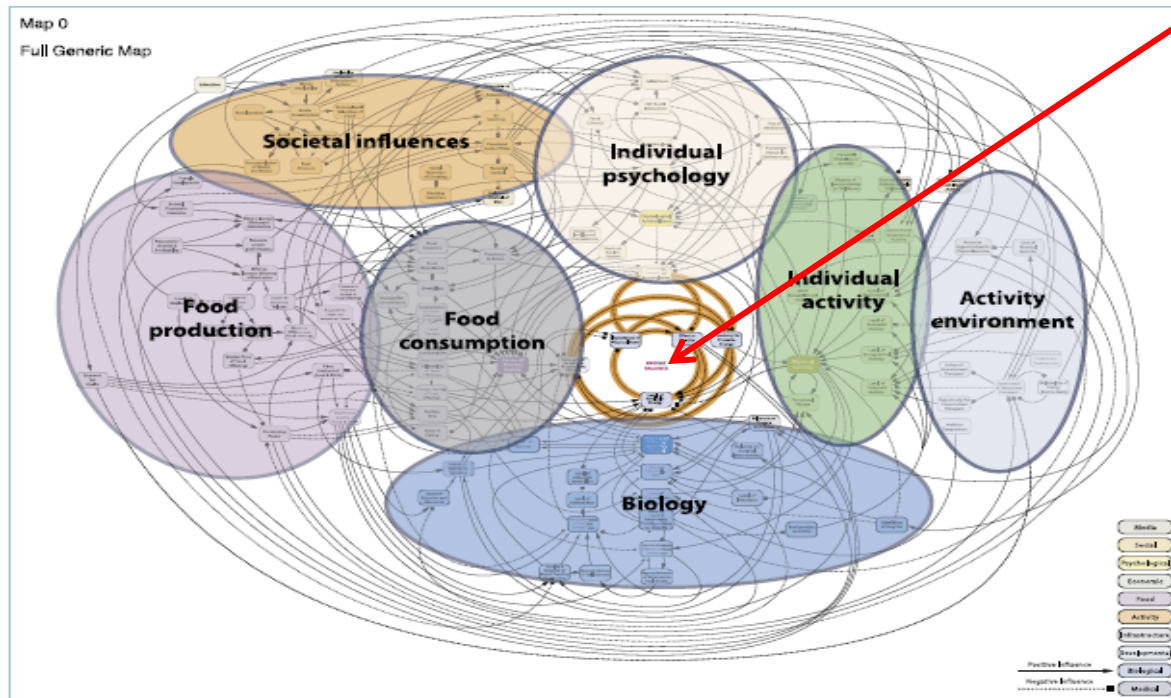
# Objectives

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- Review of the risks associated with maternal obesity and excessive gestational weight gain
- How this relates to child health
- Discuss two clinical scenarios:
  - ‘early exceeders’ who exceed absolute recommendations
  - ‘early exceeders’ who stabilize and meet absolute recommendations
- Highlight strategies and tools to help optimize maternal weight gain trajectory

# The Complexity Energy Balance

E balance



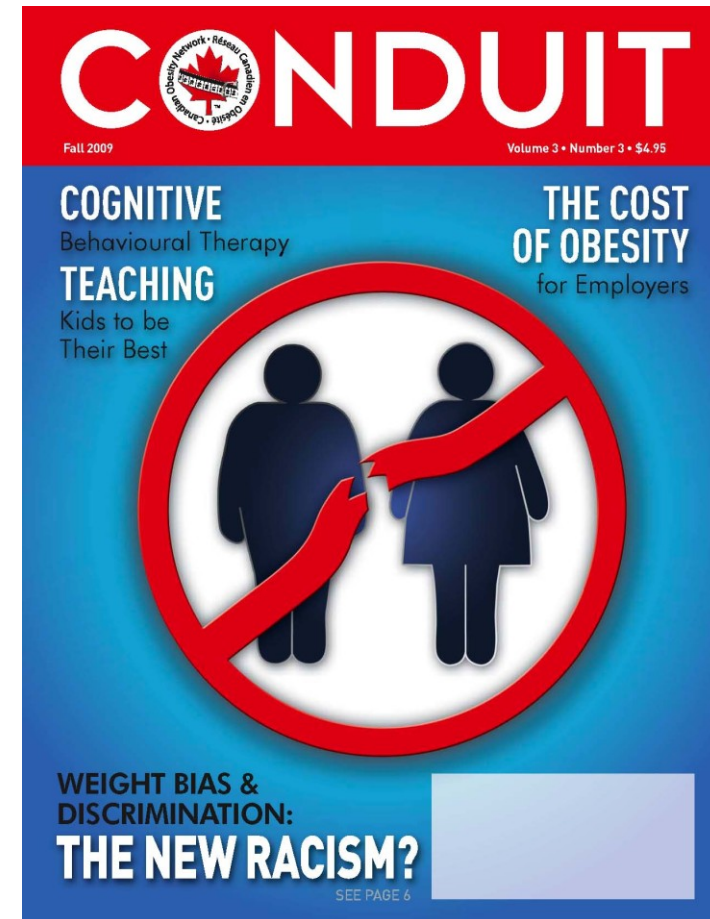
Many determinants of positive energy balance and unhealthy body weight

# Weight maintenance & loss

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# Weightism, Bias, Discrimination



# Obesity as a Disease

- Variation in response to diet and PA
- Defence of body weight
- Access to care



## Why we should consider obesity a disease

**DR. ARYA M. SHARMA**

Special to The Globe and Mail

Published Sunday, Jan. 19 2014, 5:00 PM EST

Last updated Thursday, Jan. 23 2014, 11:09 AM EST

36 comments



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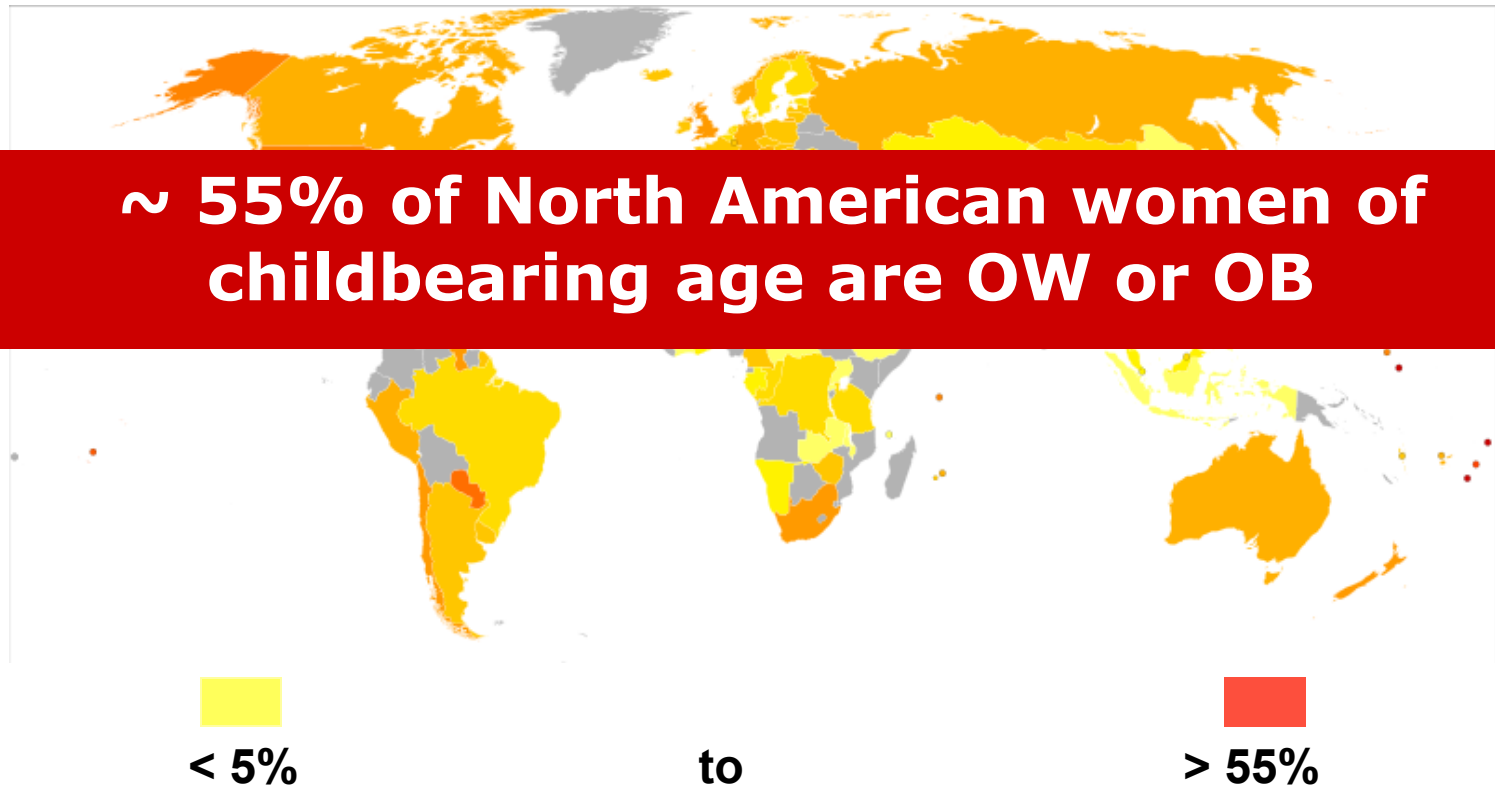
Is Obesity a disease?

Last year, the American Medical Association officially acknowledged obesity as a "disease." Not everyone agrees. There is no doubt that excess weight can cause a wide range of health problems, including heart disease and cancer – not unlike smoking. But, while we may consider smoking an addiction, we would hardly consider it a disease. So why should obesity qualify?

MORE RELATED TO THIS STORY

# Obesity in Female Adults- 2008

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# BMI on the Rise

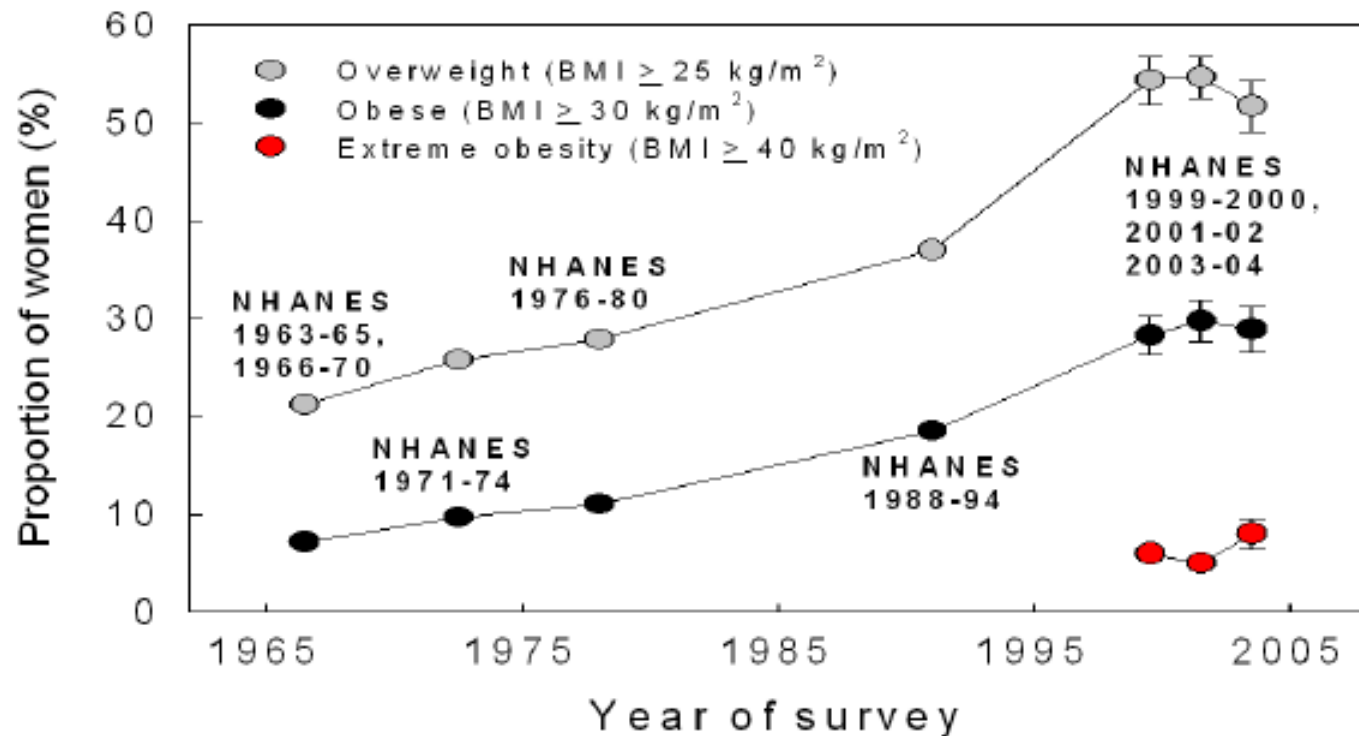
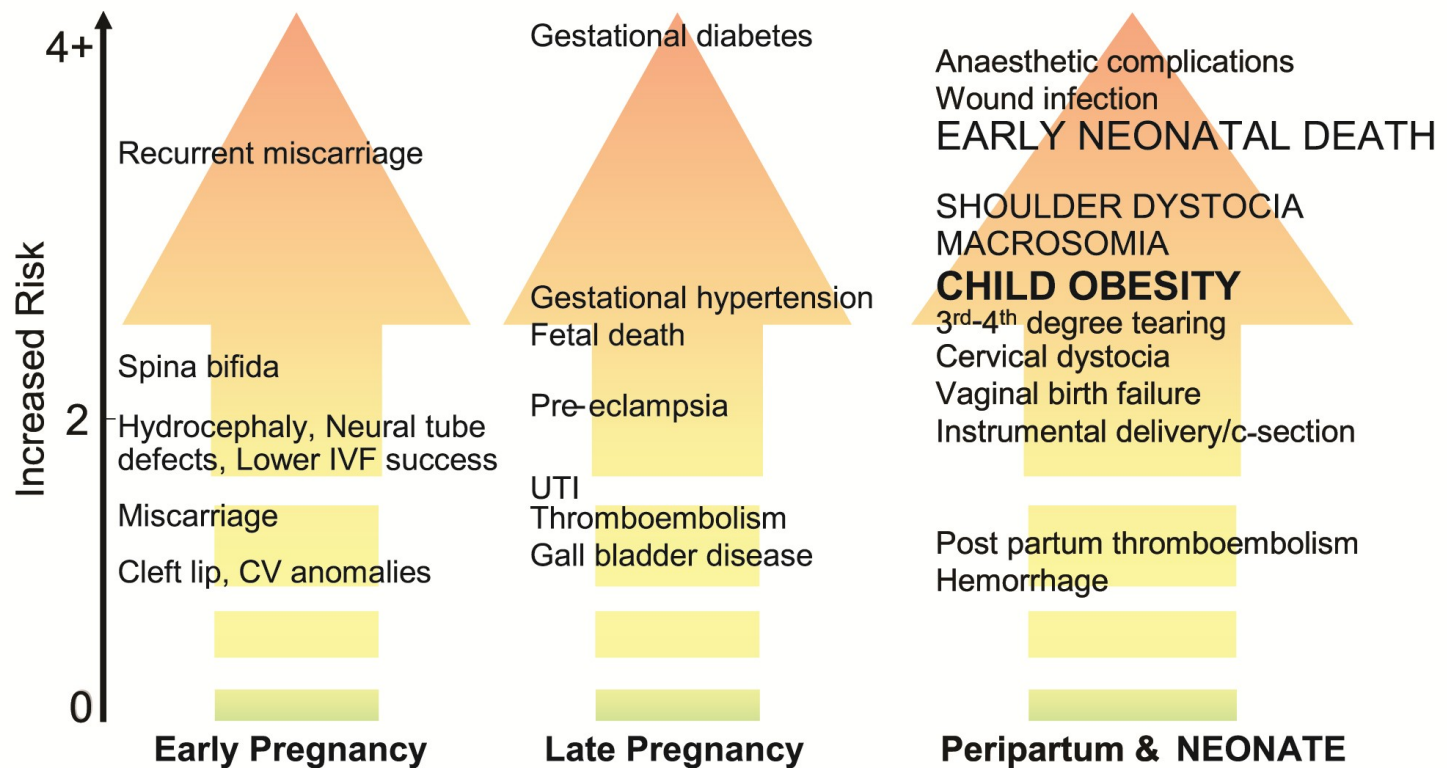


FIGURE 2-1 Prevalence of overweight, obesity, and extreme obesity among U.S. women 20–39 years old (ages 20–35 through NHANES 1988–1994), 1963–2004. NOTE: BMI = body mass index; NHANES = National Health and Nutrition Examination Survey. SOURCE: Lu, 2013.



# Risks of pregnancy complicated by overweight/obese



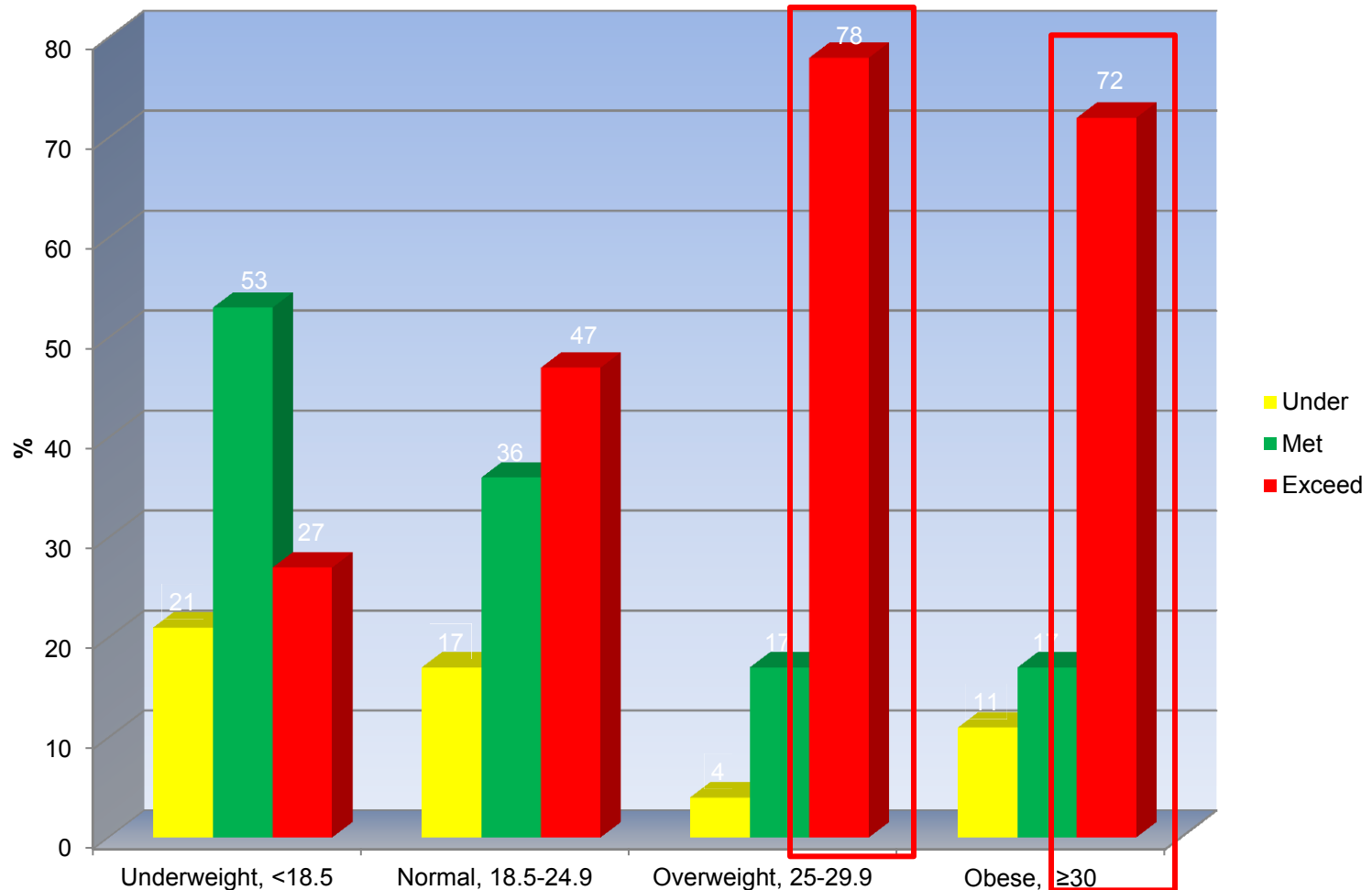


# What to gain?

Prepregnancy BMI	Total Weight Gain		Rates of Weight Gain* 2nd and 3rd Trimester	
	Range in kg	Range in lbs	Mean (range) in kg/week	Mean (range) in lbs/week
Underweight (< 18.5 kg/m <sup>2</sup> )	12.5-18	28-40	0.51 (0.44-0.58)	1 (1-1.3)
Normal weight (18.5-24.9 kg/m <sup>2</sup> )	11.5-16	25-35	0.42 (0.35-0.50)	1 (0.8-1)
Overweight (25.0-29.9 kg/m <sup>2</sup> )	7-11.5	15-25	0.28 (0.23-0.33)	0.6 (0.5-0.7)
Obese (≥ 30.0 kg/m <sup>2</sup> )	5-9	11-20	0.22 (0.17-0.27)	0.5 (0.4-0.6)

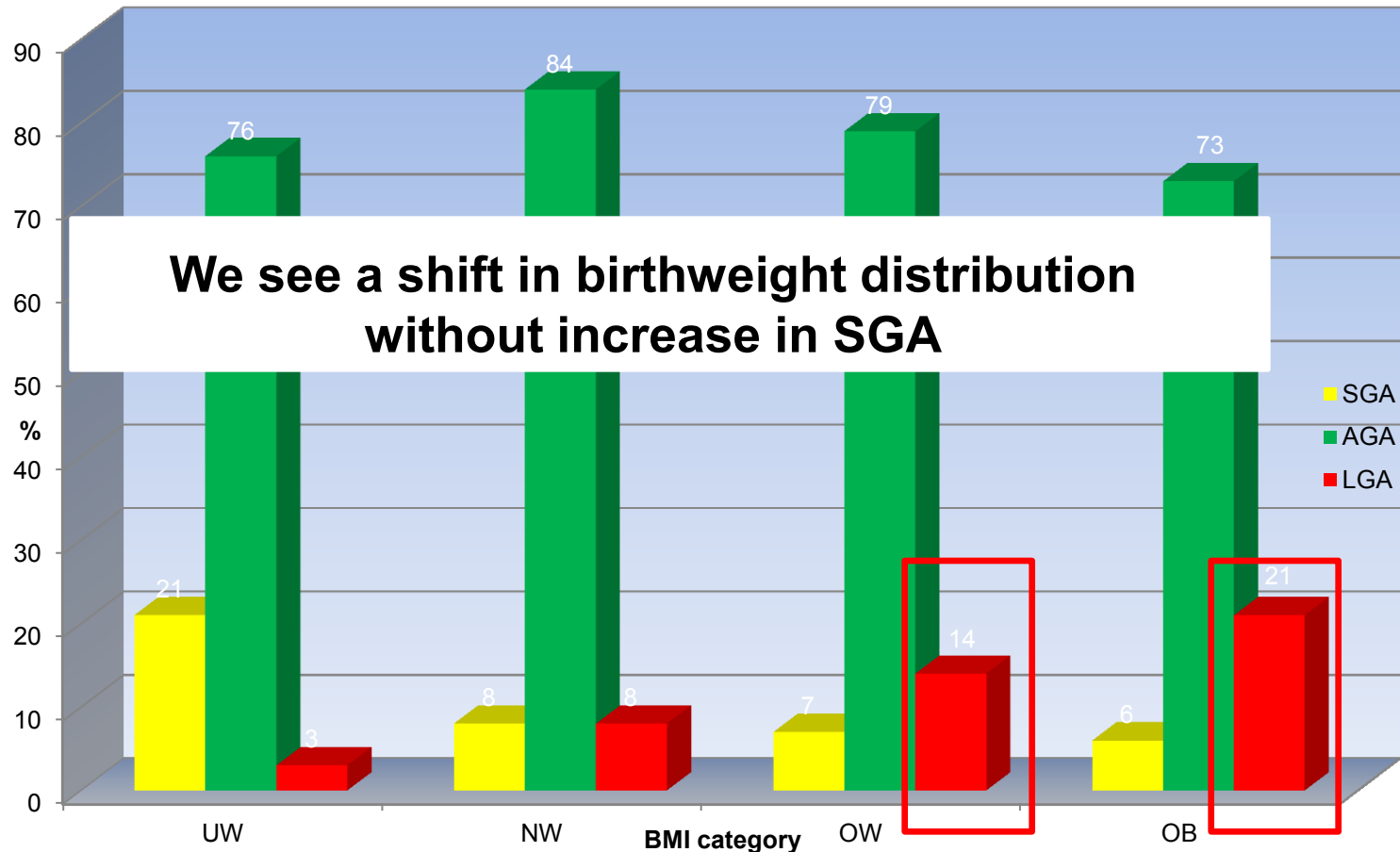
\* Calculations assume a 0.5-2 kg (1.1-4.4 lbs) weight gain in the first trimester (based on Siega-Riz et al., 1994; Abrams et al., 1995; Carmichael et al., 1997).

# Adherence to IOM Guidelines, %

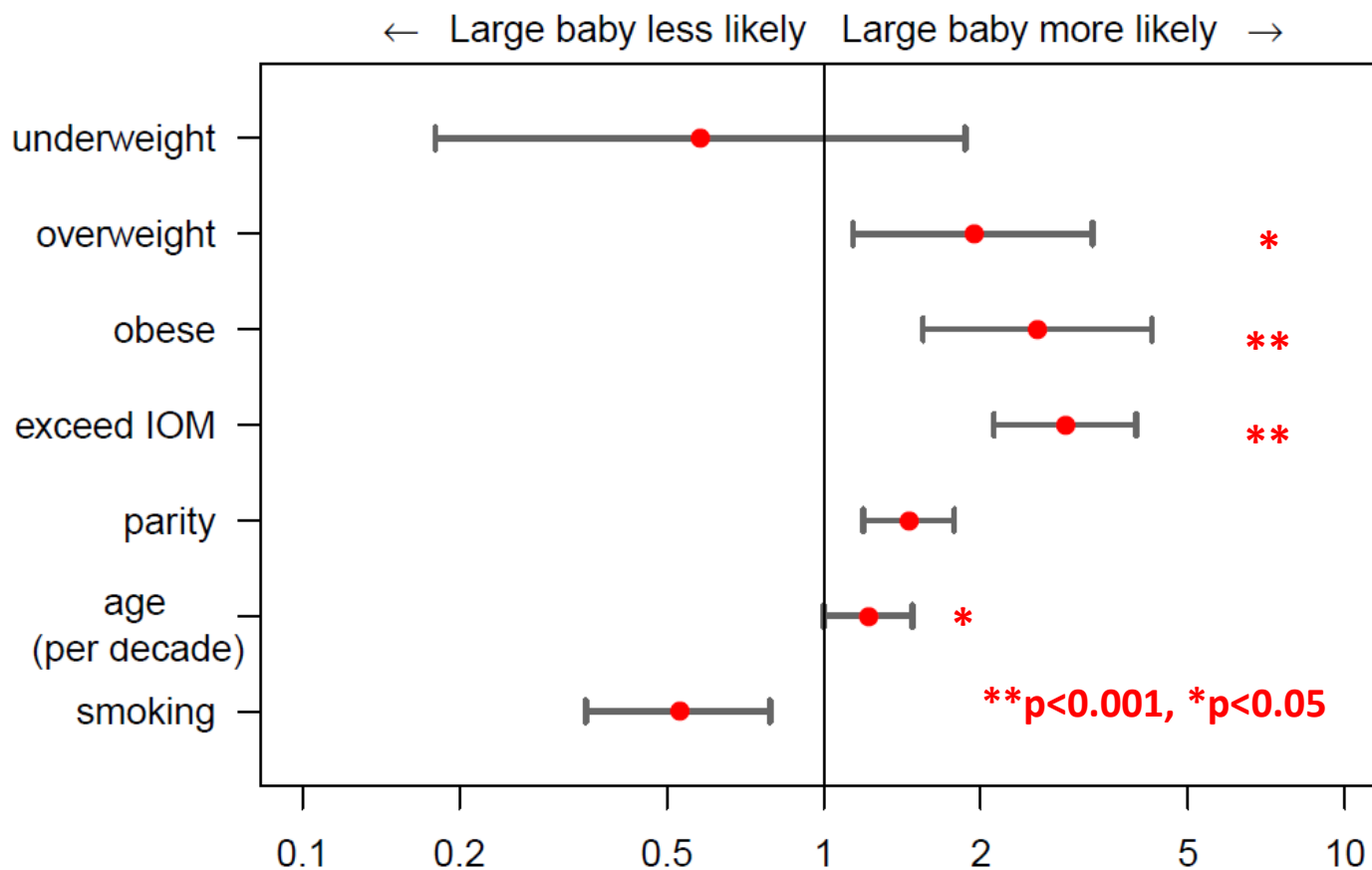


# Overweight, obesity and neonatal size at birth

Baby Size by Pre-pregnancy BMI  
OaK cohort n=4321



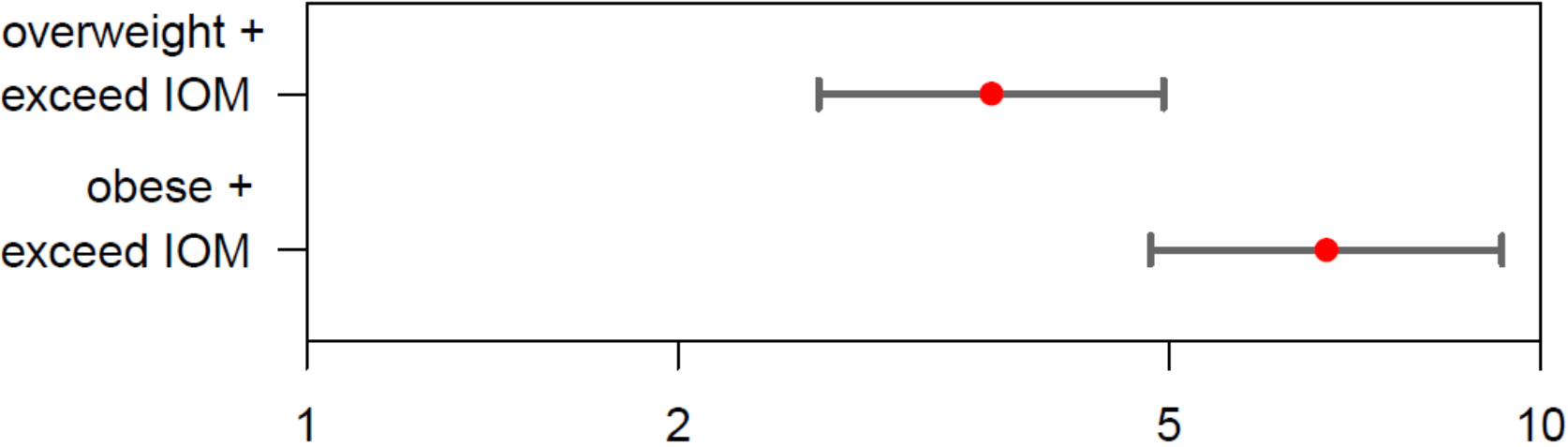
# Likelihood of having a BIG baby



controlling for gestational age,  
smoking, parity, maternal age

# Odds of Macrosomia - Double Trouble...

## Likelihood of having an LGA baby



\*controlled for gestational age, smoking, parity, maternal age

Odds ratio

Reference to Normal weight pre-pregnancy and meeting 2009 IOM Guidelines

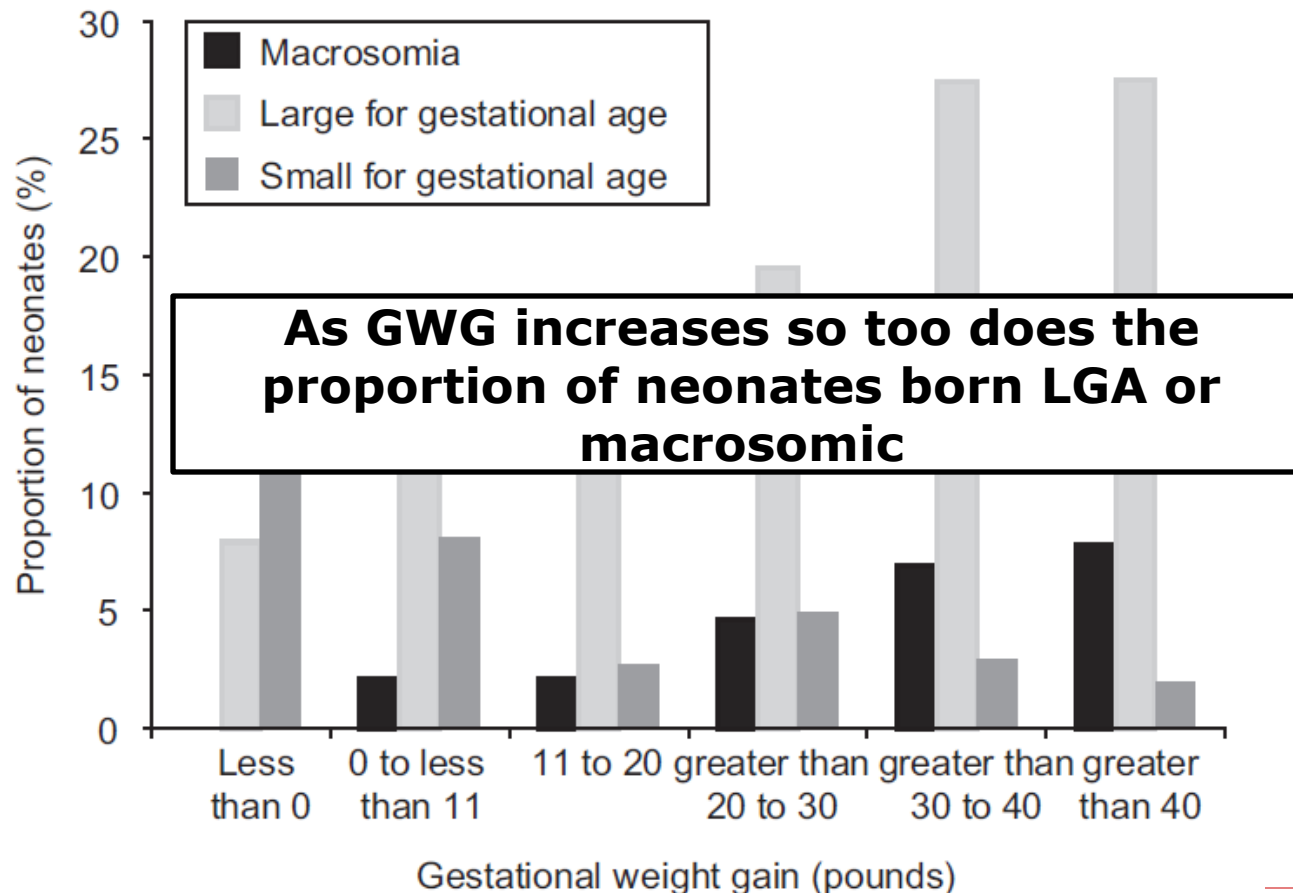
# What about GWG?

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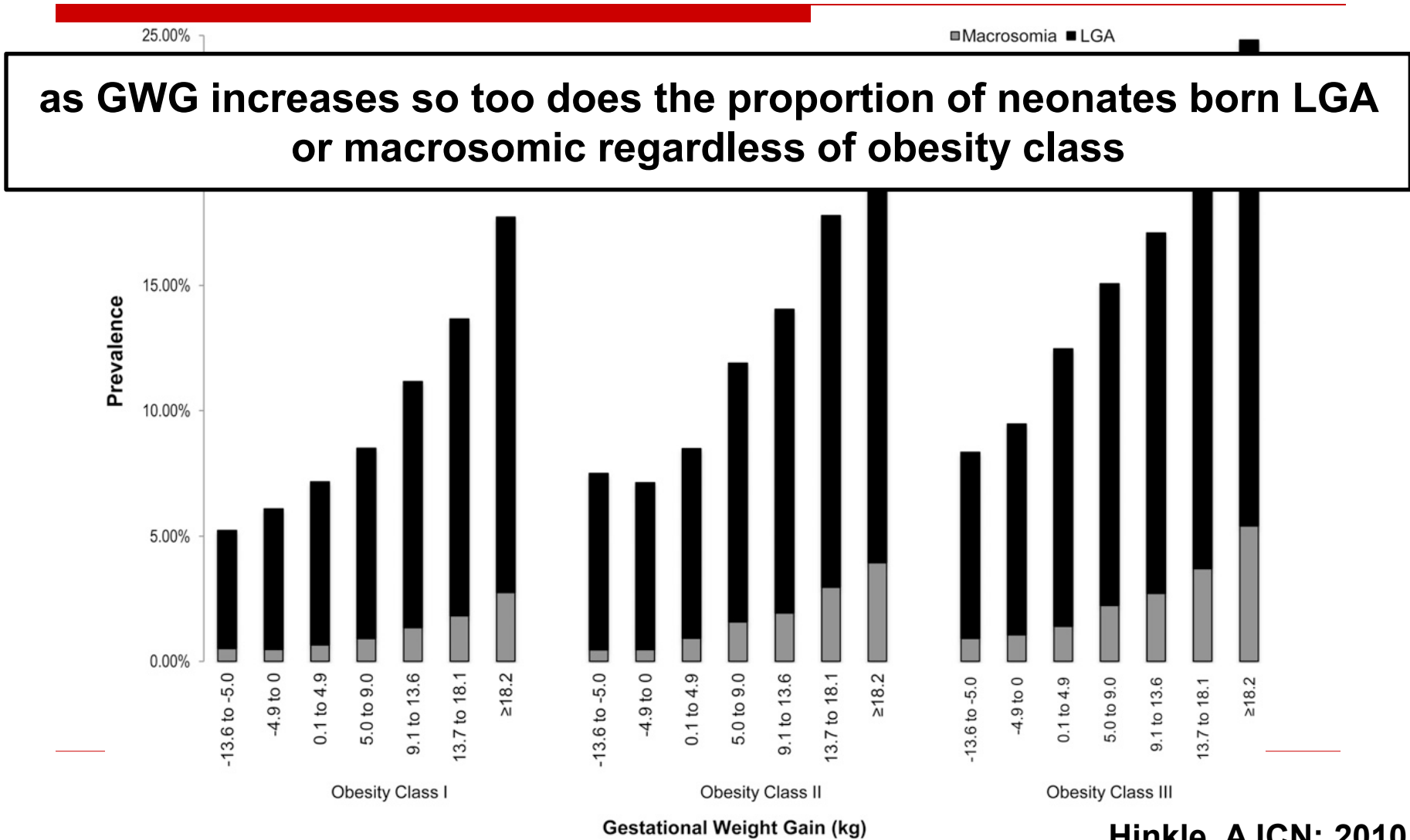




# GWG in women with BMI > 30 and Neonatal Birthweight



# GWG and LGA or macrosomia

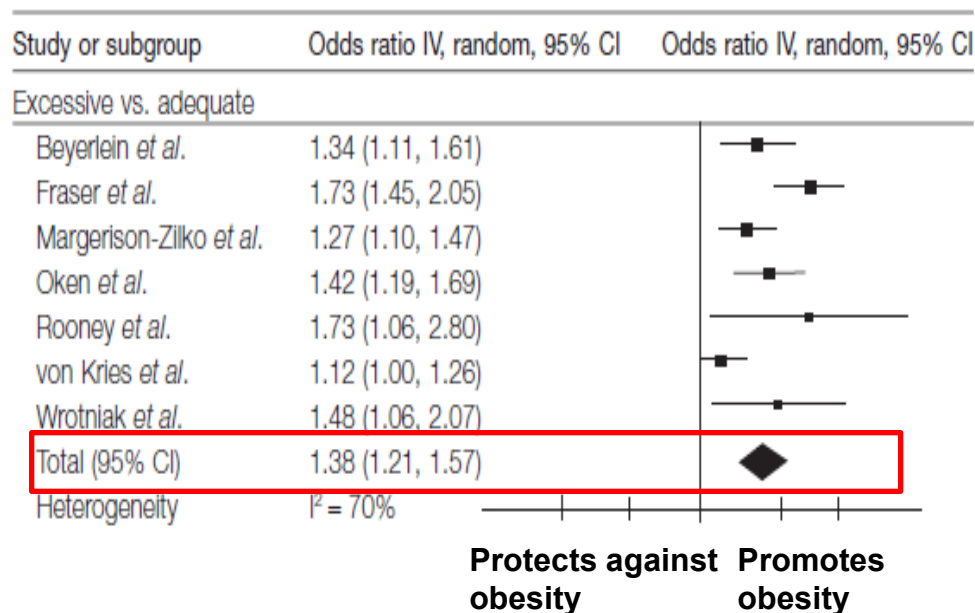


# What is the Problem?

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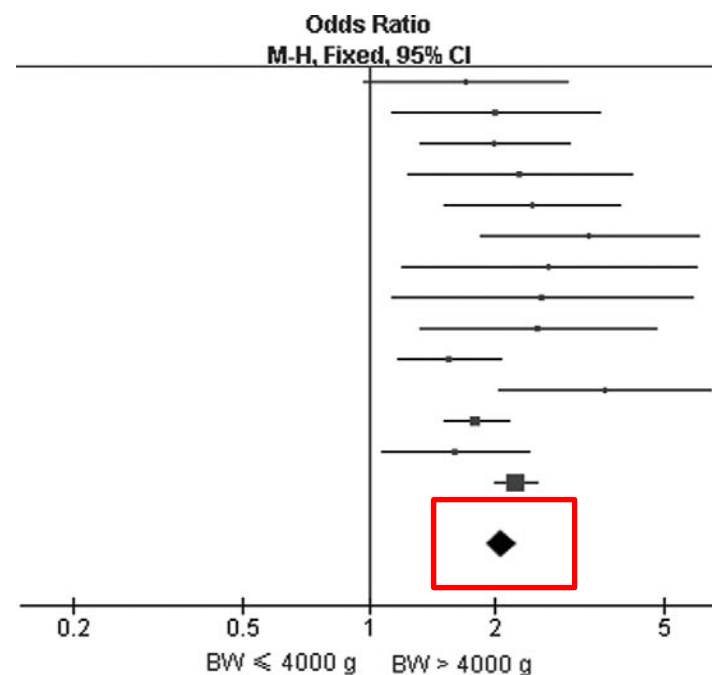


# Subsequent risk of child obesity



## Excess GWG

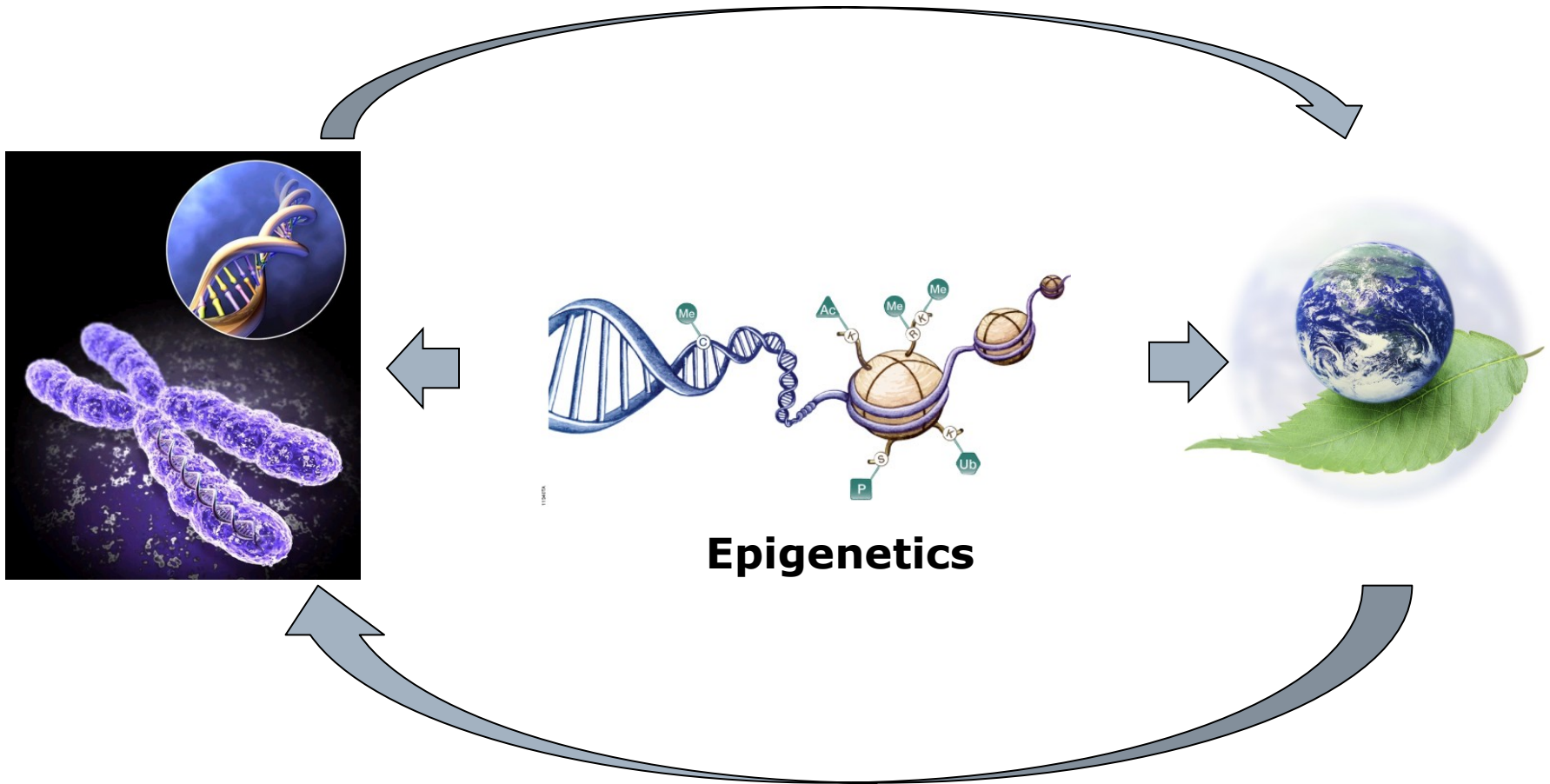
1.38 (95% CI 1.21-1.57)



## Birth Weight

# Genes vs. Environment

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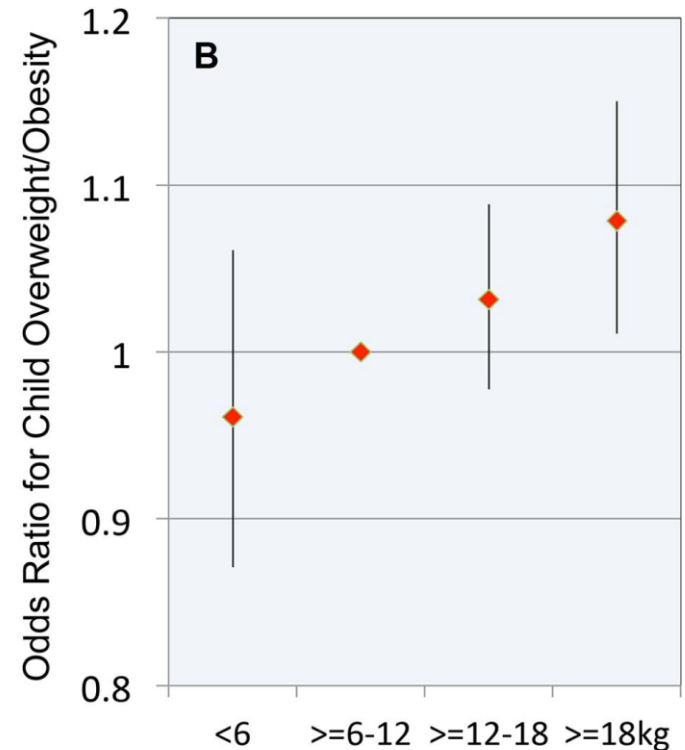


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Image sources: [www.science.unsw.edu.au](http://www.science.unsw.edu.au); [www.gillespiehouseinn.com](http://www.gillespiehouseinn.com); [www.promega.com](http://www.promega.com)

# Within-Family Comparison: Child obesity at 12 y/o

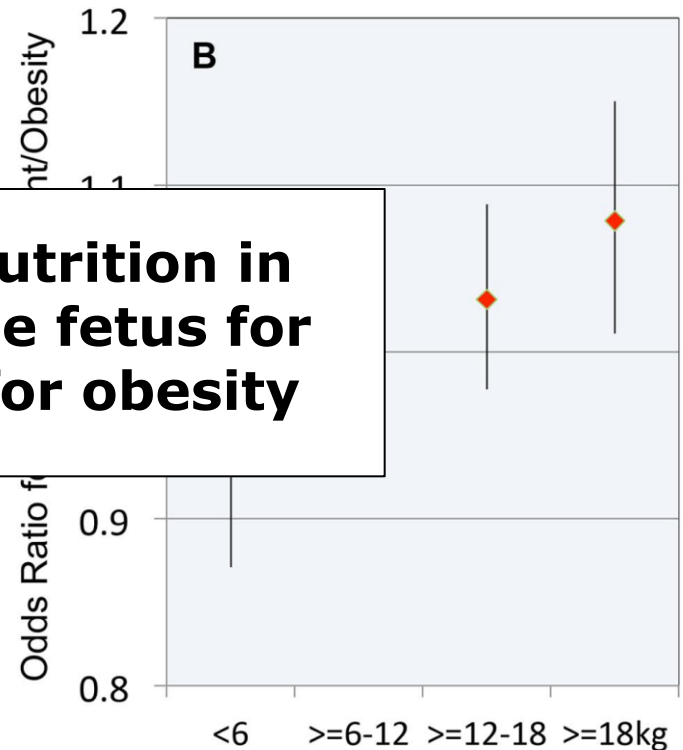
- Eliminated confounding through exclusion criteria
  - including preterm (<37 wks) or post term (>42 wks) GA multiple gestational
  - T2D or GDM
  - extremes in birth weight represent data entry error (<500 g/ >7000 g)
- Incorporated measured confounders in models
- Controlled for residual confounding by measured and unmeasured (e.g., shared genetic and environmental) covariates
  - comparing offspring born to the same mother
- Birth weight mediated less than half of the association between GWG and child BMI
- Childhood body weight predicts adult body weight



# Within-Family Comparison: Child obesity at 12 y/o

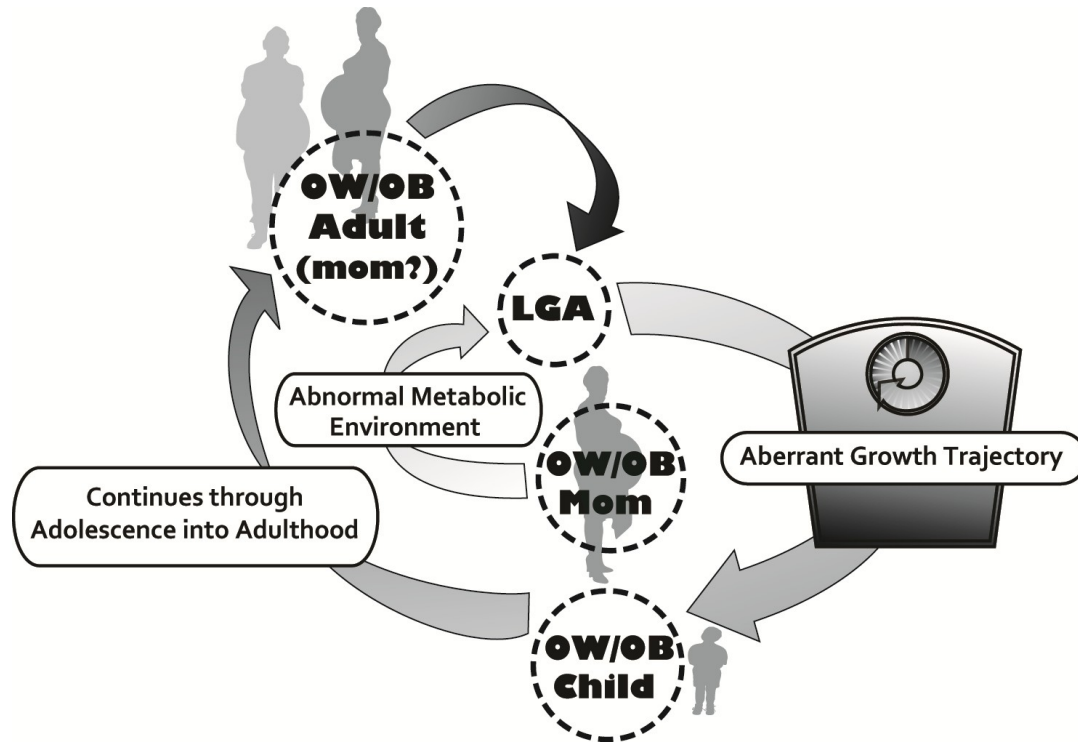
- ❑ Eliminated confounding through exclusion criteria
  - including preterm (<37 wks) or post term (>42 wks) GA multiple gestational
  - T2D or GDM
  - extremes in birth weight represent data entry error (<500 g/ >7000 g)
- ❑ Incorporated
- ❑ Control and uncontrolled environment
  - com
- ❑ Birth weight mediated less than half of the association between GWG and child BMI
- ❑ Childhood body weight predicts adult body weight

**Study suggests that overnutrition in pregnancy may program the fetus for an increased lifetime risk for obesity**



# Intergenerational Cycles

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## Etiology and Pathophysiology

# Gestational weight gain in relation to offspring obesity over the life course: a systematic review and bias-adjusted meta-analysis

A. A. Mamun, M. Mannan and S. A. R. Doi

School of Population Health, University of Queensland, Brisbane, Australia

*Received 30 April 2013; revised 13 September 2013; accepted 1 October 2013*

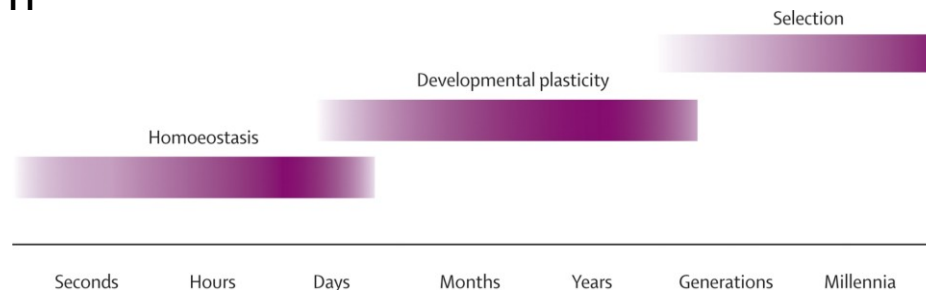
### Summary

Gestational weight gain (GWG) is considered one of the risk factors for future obesity in the offspring. However, the direction and strength of this association at different periods of offspring life is relatively unknown. This study investigates whether excess or inadequate maternal GWG during pregnancy influences the risk

# What did they find?

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- Offspring of women with inadequate GWG were at a decreased risk of obesity
  - RR: **0.86**; 95% confidence interval [CI]: 0.78–0.94
- Offspring of women with excess GWG were at an increased risk of obesity
  - RR: **1.40**; 95% CI: 1.23–1.59
- Similar after stratification by life stage
- Excess GWG **does** influence offspring obesity over the short- and long-term



# Is the medical community embracing the message?

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## Perspective

### How Early Should Obesity Prevention Start?

Matthew W. Gillman, M.D., and David S. Ludwig, M.D., Ph.D.

Obesity has pervaded the United States and is spreading throughout the world. Following in its wake is type 2 diabetes, which will affect at least half a billion people worldwide by 2030. A majority

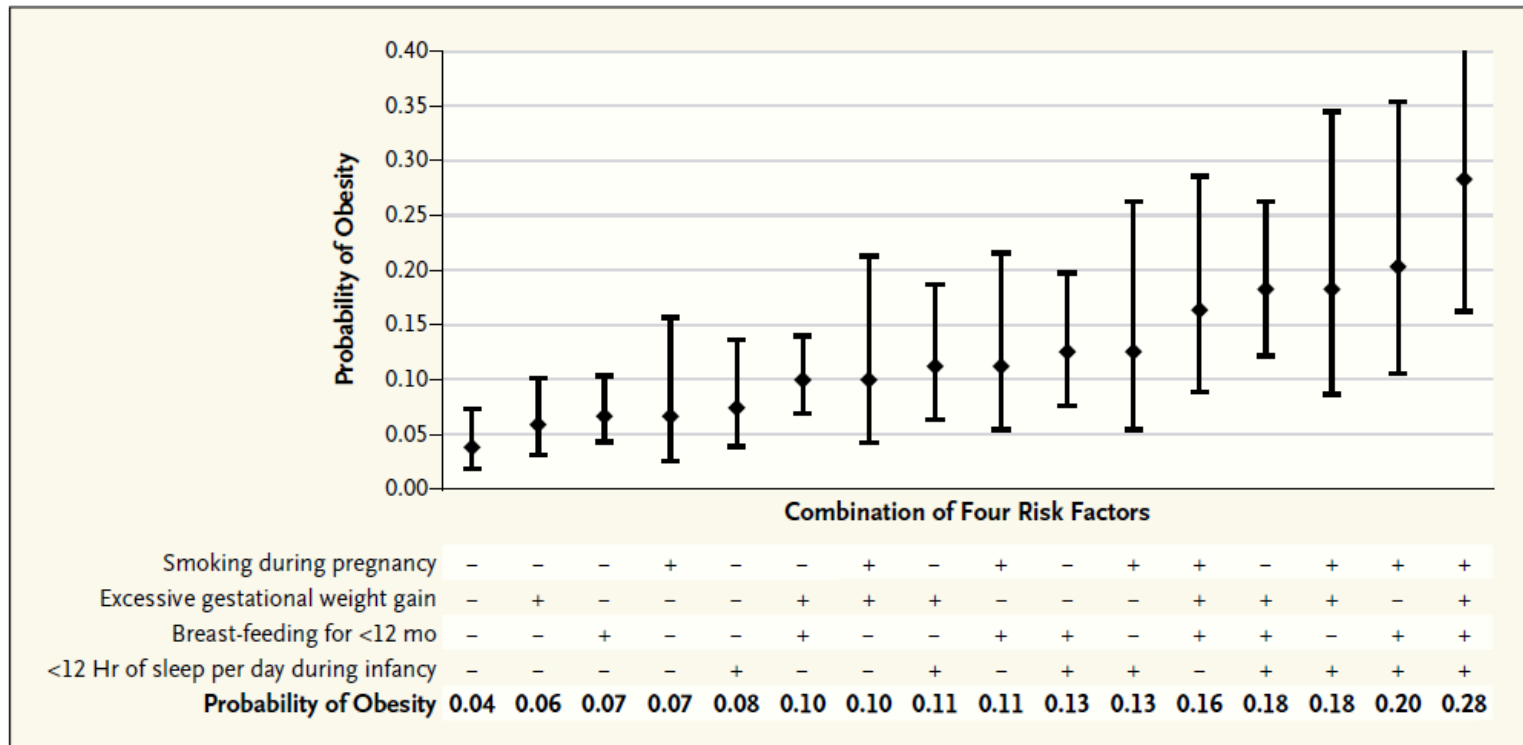
of U.S. women of childbearing age are overweight or obese (as defined by a body-mass index [BMI],

to higher adiposity in the offspring. If the child is female, grows up obese, and becomes

monal, mechanical, and other perturbations that occur prenatally and during infancy induce lifelong, often irreversible derangements in the offspring's adiposity and metabolism. These changes involve the environmental alteration of genetic expression, in part through epigenetic mechanisms,

# Predicted obesity risk, age 7

Based on 16 combinations of 4 pre/postnatal modifiable risk factors



# Timing of GWG: A cause for concern?

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- What if a women gains all her 'allotted' pregnancy weight before her 1<sup>st</sup> prenatal visit?



# Early 'exceeders' may put neonates at risk

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## Timing of Excessive Pregnancy-Related Weight Gain and Offspring Adiposity at Birth

*Margie H. Davenport, PhD, Stephanie-May Ruchat, PhD, Isabelle Giroux, RD, PhD, Maggie M. Sopper, PhD, and Michelle F. Mottola, PhD, FACSM*

**OBJECTIVE:** To evaluate whether the timing of excessive maternal weight gain in a cohort of women following current guidelines for healthy living during pregnancy affects neonatal adiposity at birth.

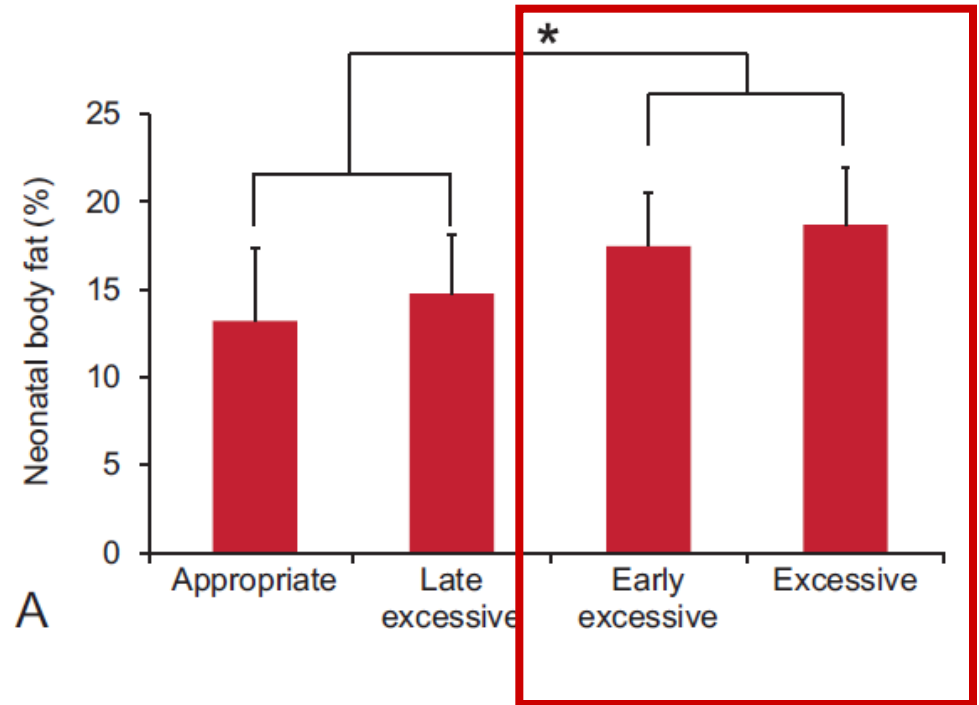
**METHODS:** One hundred seventy-two healthy women

pregnancy ("overall excessive"). Primary measures included neonatal weight, length, BMI, and body fat at birth measured 6–18 hours after delivery. Neonatal body fat greater than 14% was considered excessive.

**RESULTS:** Neonates of women who gained excessively in

# Neonatal body fat & excess GWG

- “Early excessive” and overall “excessive” categories are in excess of normative neonatal body fat\*
- Controlling for maternal pre-pregnancy BMI, maternal age, gestational age at delivery and fetal sex

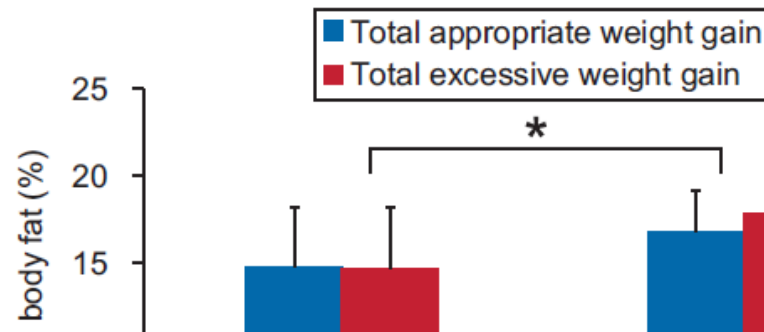


A. Neonatal body fat grouped by weight-gain category

\*Normative neonatal body fat for this method of assessing neonatal adiposity is 12–14%

# Too much too soon?

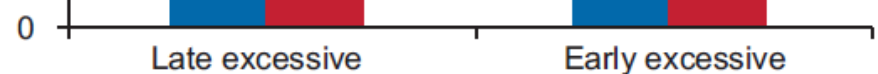
- Timing of GWG better predicted neonatal body fat than total GWG
- Neonates of women with excess GWG in the 1<sup>st</sup> half of pregnancy had an increased



## Timing & Rate of GWG Alters Fetal Growth

- Compared to neonates of women with total excess GWG  
■ (OR 1.49, 95% CI 0.80–2.79)

B



B. The influence of total appropriate compared with total excessive weight gain on neonatal body fat on "late excessive" and "early excessive" categories



# There's hope...

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Image: [www.cornerstonecounselling.com](http://www.cornerstonecounselling.com)

# Recovery from Excess GWG Protects Child Obesity

## Late Pregnancy Reversal from Excessive Gestational Weight Gain Lowers Risk of Childhood Overweight—A Cohort Study

Rüdiger von Kries<sup>1</sup>, Andrea Chmitorz<sup>1</sup>, Kathleen M. Rasmussen<sup>2</sup>, Otmar Bayer<sup>1</sup> and Regina Ensenauer<sup>3</sup>

**Objective:** Whether reversal to adequate gestational weight gain (GWG) in the third trimester reverses the risk for childhood overweight associated with excessive GWG is assessed.

**Design and Methods:** In a retrospective cohort study in 6,665 mother-child pairs, pre-pregnancy weight and the temporal course of GWG were collected from medical records. Overweight as defined by International Obesity Task Force was assessed at a mean age of 5.8 years. Main exposures were exceeding week-specific cut-off values for GWG in the third trimester or any previous trimester. Logistic regression models, adjusted for possible confounding factors, were used to predict the risk of childhood overweight from excessive GWG in the third trimester with stratification by excessive GWG in previous trimesters.

**Results:** In the final model, women who avoided excessive GWG in the third trimester had children with a 31% (odds ratio [OR]: 0.69, 95% confidence interval [CI]: 0.59, 0.82) lower probability being overweight. A similar association was observed for reversing from excessive GWG in the first or second trimester to normal GWG in the third trimester: 27% (OR: 0.73, 95% CI: 0.53, 0.99).

**Conclusions:** Avoidance of excessive GWG in the third trimester is associated with lower risk of childhood overweight even in case of excessive GWG in the first or second trimester.

*Obesity* (2013) 21, 1232-1237. doi:10.1002/oby.20197



# Appropriate GWG $\neq$ GWG Loss

Chicago Tribune - Pregnancy not the best time to lose weight: study

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## Pregnancy not the best time to lose weight: study

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C.E. Huggins, Reuters  
3:33 pm, February 21, 2014

NEW YORK (Reuters Health) - Overweight and obese women who gain too few pounds, or even lose weight, during pregnancy may be putting their unborn child at risk, a new study suggests.

"While many people recommend that weight loss in pregnancy, particularly for very obese women is ok . . . (there) may be adverse effects," said Dr. Patrick Catalano, director of the Center for Reproductive Health at MetroHealth in Cleveland, Ohio.

"We don't have much data, in particular on body composition changes in overweight (or) obese women who lose weight," said Catalano, who led the new study. "Maybe we need to be a little



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Cancer Central  
Produced By EMPOWERED DOCTOR  
Chicago Tribune  
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# GWL or GWG $\leq$ 5 kg

Table 2 – Neonatal Characteristics

	Gestational Weight loss or gain $\leq$ 5 kg (n = 188)	Gestational Weight gain > 5 kg (n = 1053)	p-value
<input type="checkbox"/> ↓ Birthweight	38.8 $\pm$ 1.4	38.9 $\pm$ 1.4	0.28
<input type="checkbox"/> ↓ Birth length			0.32
<input type="checkbox"/> ↓ Fat mass			
<input type="checkbox"/> ↓ Body fat %			
<input type="checkbox"/> ↓ LGA			
<input type="checkbox"/> ↑ SGA			
	Male	540 (51.3)	
	Female	540 (51.3)	
	Birth weight (g)	3466.8 $\pm$ 491.5	<0.0001
	Length (cm)	50.0 $\pm$ 2.8	0.001
	Head circumference (cm)	34.5 $\pm$ 1.7	0.02
	Lean Mass (g)	2995.4 $\pm$ 346.9	<0.0001
	Fat mass (g)	471.4 $\pm$ 192.7	<0.0001
	Body fat (%)	13.2 $\pm$ 4.3	0.0006
	LGA	139 (13.2%)	0.03
	SGA	51 (4.9)	0.009

Data are presented as mean  $\pm$  SD. Percents are in (%).

# GWL or GWG $\leq$ 5 kg

Table 2 – Neonatal Characteristics

- ↓ Birthweight
- ↓ Birth length

	Gestational Weight loss or gain $\leq$ 5 kg (n = 188)	Gestational Weight gain > 5 kg (n = 1053)	p-value
Gestational age (weeks)	38.8 $\pm$ 1.4	38.9 $\pm$ 1.4	0.28
Gender (%)			0.32
Male	89 (47.3)	540 (51.3)	

**Follow the IOM / Health Canada GWG Guidelines**

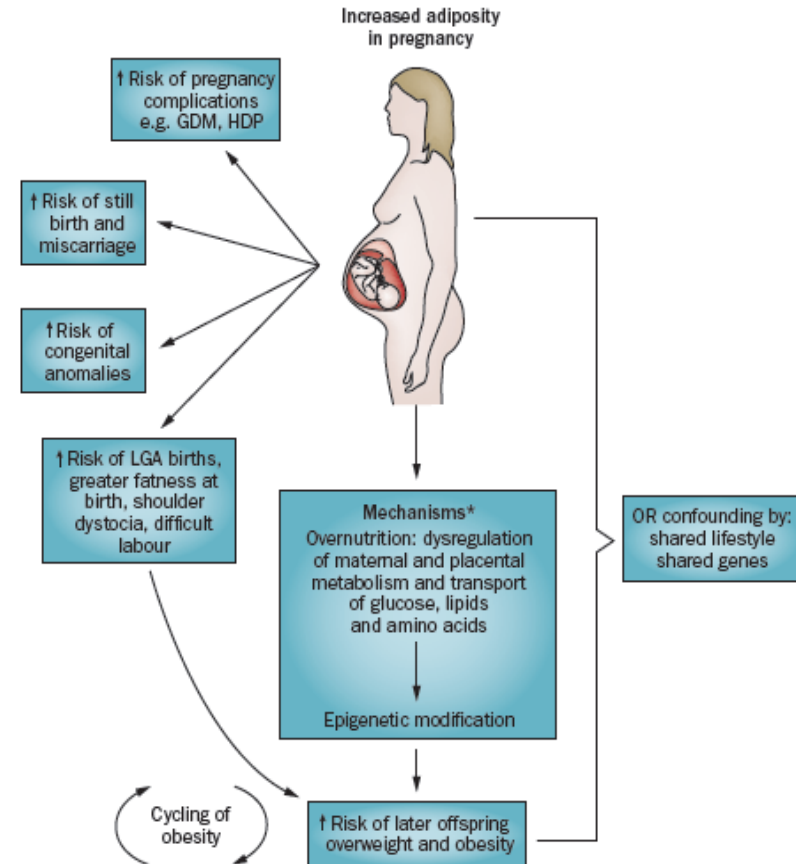
- ↓ Body fat %
- ↓ LGA
- ↑ SGA

Head circumference (cm)	34.2 $\pm$ 1.7	34.5 $\pm$ 1.7	0.02
Lean Mass (g)	2855.1 $\pm$ 321.0	2995.4 $\pm$ 346.9	<0.0001
Fat mass (g)	403.4 $\pm$ 175.3	471.4 $\pm$ 192.7	<0.0001
Body fat (%)	12.0 $\pm$ 4.2	13.2 $\pm$ 4.3	0.0006
LGA	14 (7.5%)	139 (13.2%)	0.03
SGA	18 (9.6%)	51 (4.9)	0.009

Data are presented as mean  $\pm$  SD. Percents are in (%).

# Pregnancy complicated by Ow/Obesity and/or Excess GWG

- Obesity and excess GWG directly & independently alter birthweight
  - Risk of obesity-related disease later in life
- Excess GWG increases risk for PPWR
  - Intergenerational effects
- Maternal & fetal cardiometabolic health compromised



# Why are so many patients exceeding recommendations?

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- Let's ask the patient what information they are receiving....
- And then let's ask the provider what they messages they deliver



# A patient-provider discrepancy?

ORIGINAL ARTICLE

An assessment of patient information channels and knowledge of physical activity and nutrition during pregnancy


Zach Ferraro MSc<sup>\*†</sup>, Jane Rutherford MSc<sup>\*</sup>, Erin J Keely MD<sup>‡</sup>, Lise Dubois PhD<sup>§</sup>  
and Kristi B Adamo PhD<sup>\*†††</sup>

VS.

International Journal of Women's Health

Dovepress

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ORIGINAL RESEARCH

Counseling about gestational weight gain and healthy lifestyle during pregnancy: Canadian maternity care providers' self-evaluation

This article was published in the following Dove Press journal:  
International Journal of Women's Health  
27 September 2013  
[Number of times this article has been viewed](#)

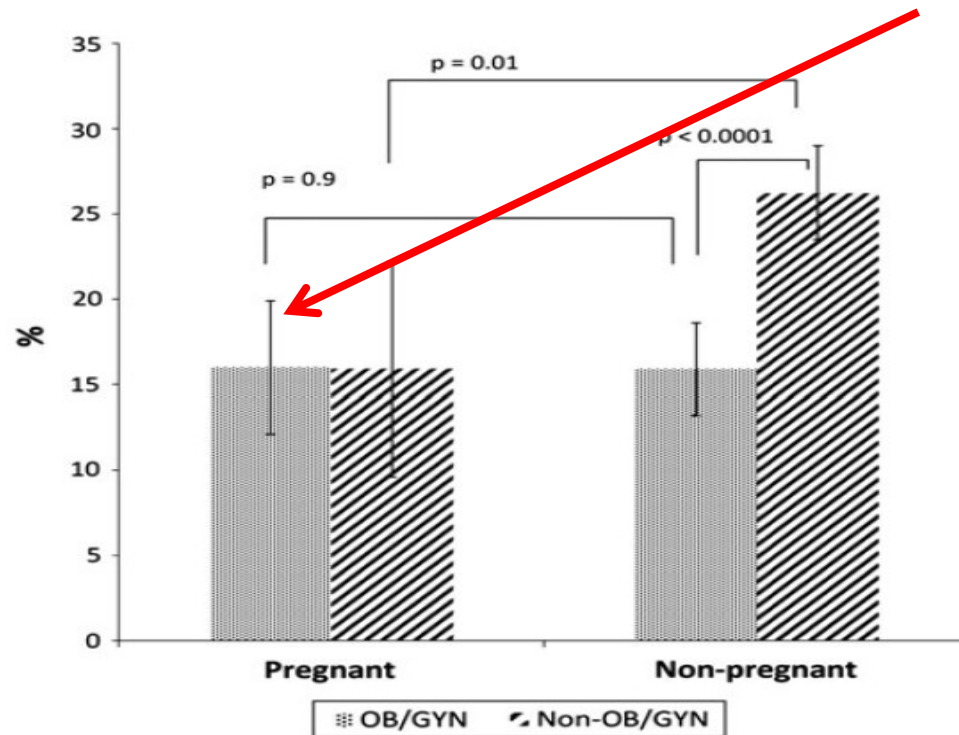
Zachary M Ferraro<sup>1</sup>  
Kaitlin S Boehm<sup>1</sup>  
Laura M Gaudet<sup>2,3</sup>  
Kristi B Adamo<sup>1,4,5</sup>

**Introduction:** There is discord between the recall of maternity care providers and patients when it comes to discussion of gestational weight gain (GWG) and obesity management. Few women report being advised on GWG, physical activity (PA), and nutrition, yet the majority of health care providers report discussing these topics with patients. We evaluated whether

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# Lifestyle counseling

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**Fig. 2** Percentage of NAMCS visits including provider-reported diet-exercise counseling by pregnancy status and provider specialty (n = 9,948)

# Bias toward Obese Pregnant Women

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- 11% admitted to making insensitive comments **to obese pregnant women**
  
- 31% admitted to making derogatory comments about obese pregnant women **to colleagues** ( $p=0.02$ )
  - Obstetricians (46%)
  - Family Physicians (39%)
  - Midwives (36%)
  - Nurses (14%)
  - Dietitians (0%)
  
- 66% believe **more derogatory comments are made** about obese pregnant women vs non-obese pregnant women ( $p=0.002$ )
  - Obstetricians (81%)
  - Family Physicians (69%)
  - Midwives (92%)
  - Nurses (52%)
  - Dietitians (14%)

# What do **women know** about **BMI & GWG**?

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- 74% of women **underestimated their BMI** category
- 64% of obese women and 40% of overweight women **overestimated their recommended GWG**
- **Poor knowledge of risks of obesity**
  - 28% identified BP problems
  - 51% identified GDM
  - 14% identified pp weight retention
  - 71% back pain
  - <5% C-section, preterm delivery, pregnancy complications

Shub, BMC Res Notes 2013

# Is it a perception issue?

Feedback

The screenshot shows the Business Standard website interface. At the top, the logo "Business Standard" is displayed in red, with the date "Thursday, February 27, 2014 | 09:33 PM IST" below it. A navigation menu includes "Home", "Markets", "Companies", "Opinion", "Politics", "Technology", "Specials", "Personal Finance", "Portfolio", and "My Page". Below this is a secondary menu with "BS Headlines", "News Now", "Economy", "Finance", "Current Affairs", "International", "Management", "Beyond Business", "The Strategist", "Weekend", and "BS 1000". A search bar is located in the top right corner, with "News", "Stock Quote", and "Authors" as filter options. The main content area features a dark blue banner for mobile apps with the text "Now Business Standard news and market analysis at a tap of your screen for FREE\*" and a "DOWNLOAD NOW" button. The article headline is "Pregnant women who think that they are 'eating for two' gain excessive weight", dated "ANI | Washington February 27, 2014 Last Updated at 10:12 IST". Below the headline are social media sharing buttons for Like, Tweet, G+, Share, and Add to My Page. The article text begins with "A new study has found that overweight or obese women, who think that they are 'eating for two', are more likely to experience excessive weight gain while pregnant." and mentions "Cynthia Chuang from Penn State College of Medicine studied the attitudes and habits of women who gained appropriate weight and those who exceeded guidelines." To the right of the article is a "Quick Links" section with a "Home Page" dropdown and a "Go" button. Below this is a promotional banner for Zulily, featuring a woman in a colorful patterned top and the text "ALL SHAPES & SIZES", "daily deals up to 70% off", and a "SHOP NOW" button.

# What can you do to help patients, clients, friends and family?

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# Monitoring systems & goals

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## A Qualitative Study of Gestational Weight Gain Counseling and Tracking

Emily Oken • Karen Switkowski • Sarah Price • Lauren Guthrie •  
Elsie M. Taveras • Matthew Gillman • Jonathan Friedes •  
William Callaghan • Patricia Dietz

# GWG counseling & tracking

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- MDs believed GWG had “a lot” of influence on pregnancy and child health outcomes
  - Their patients did not consider it important
  
- Most said excessive GWG was a big problem in their practice
  - Inadequate GWG was rare
  
- EMR auto-calculate GWG at each visit
  - A “growth chart” to plot actual vs. recommended
  - Alerts ‘out-of-range gains’
  - Prompts to counsel patients about weight
  
- Support tools within EMRs are well received by many clinicians and may help improve the frequency and accuracy of GWG tracking and counseling

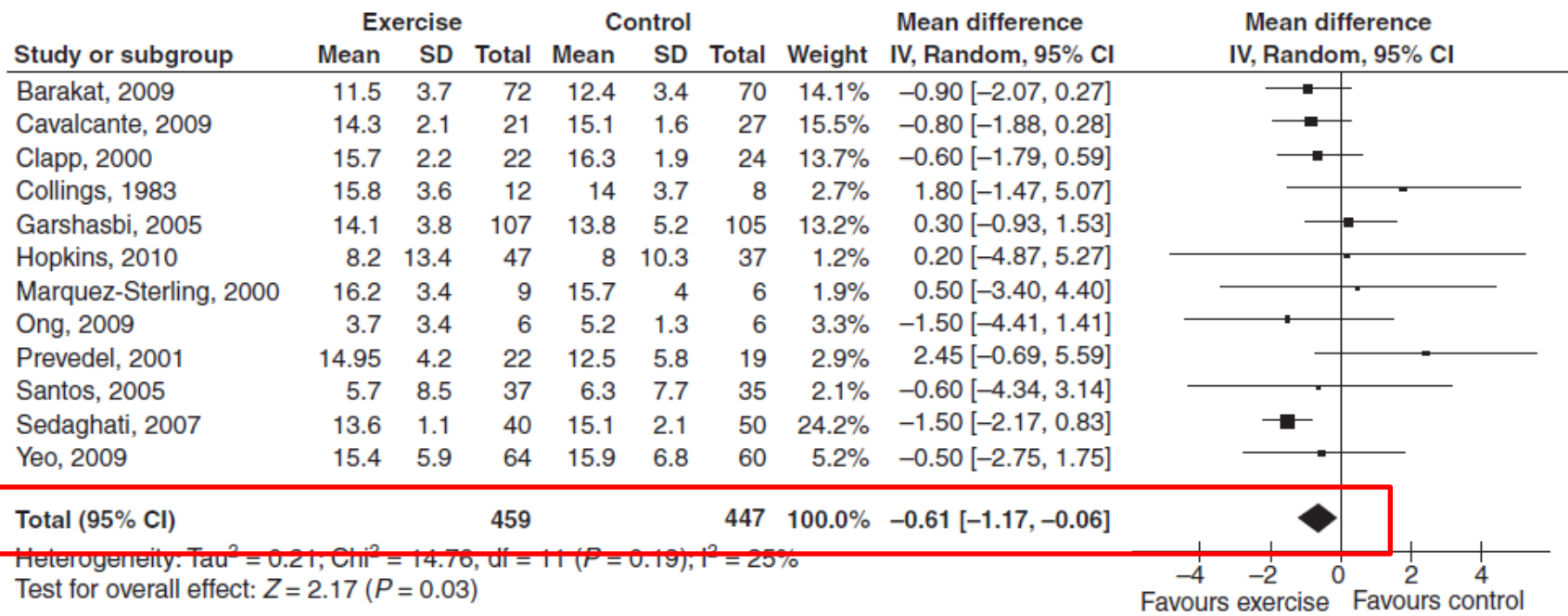


# What works?

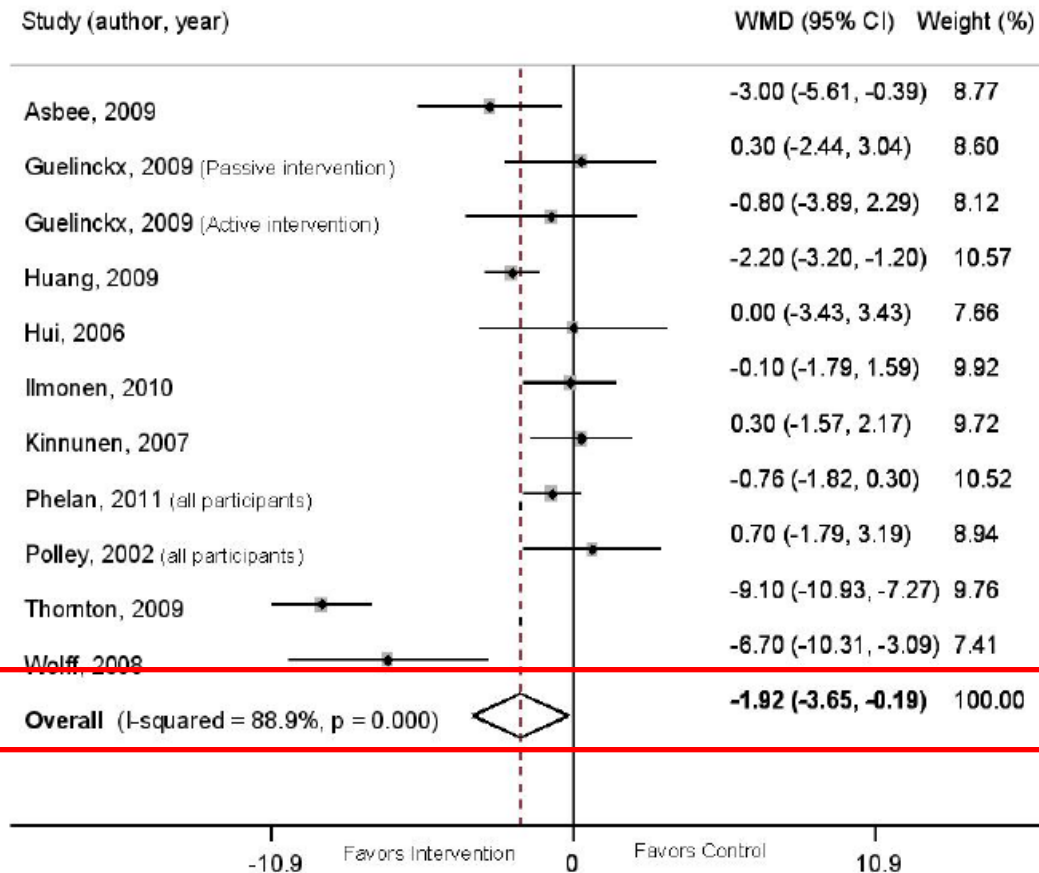
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- Improving Diet quality
  - Appropriate kcal intake
  
- Engaging in Physical Activity
  
- Reducing Sedentary Time
  
- All the above?

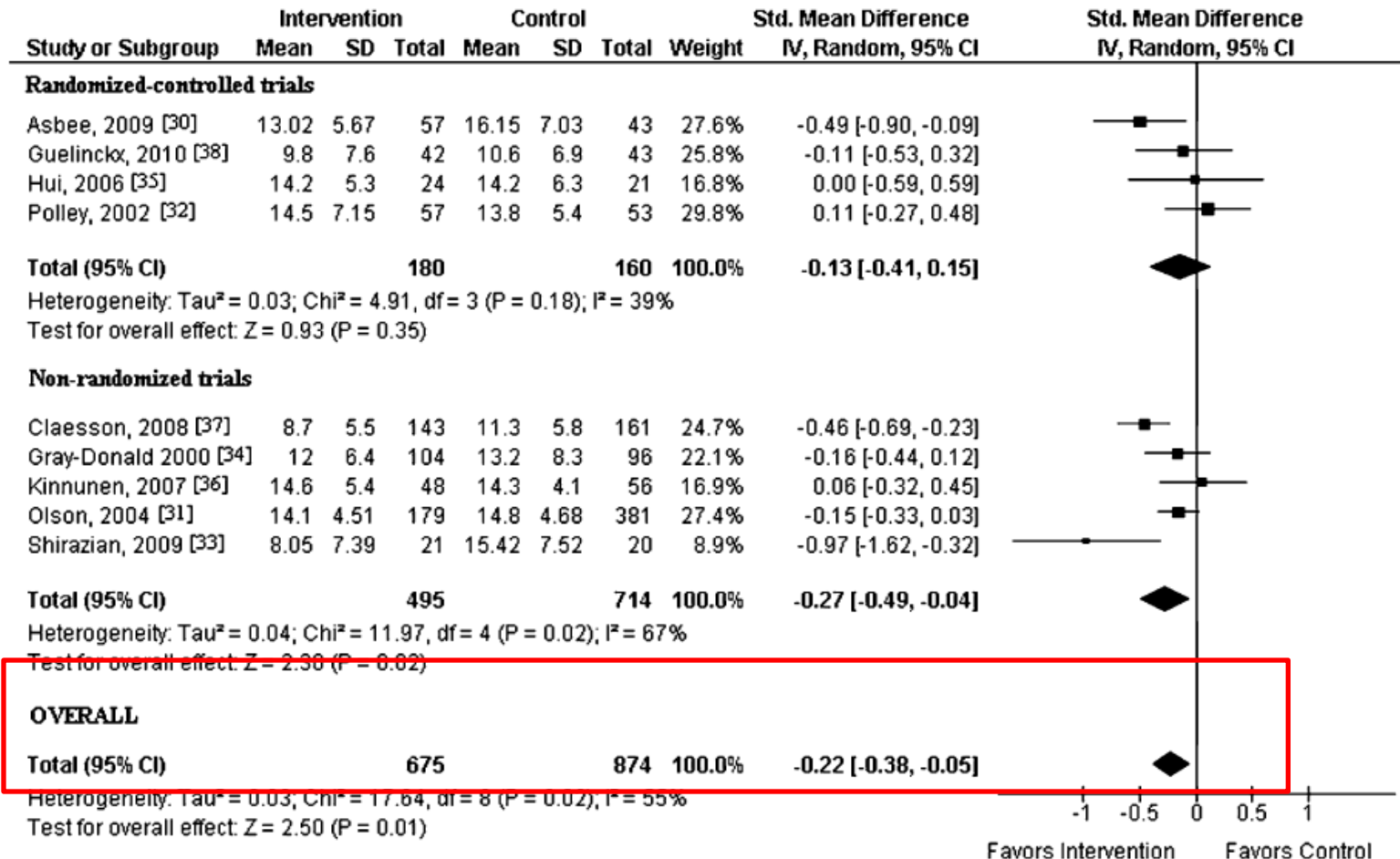
# Physical activity intervention *alone* helps manage GWG



# Clinical dietary intervention prevents excessive GWG



# Healthy eating & physical activity reduce GWG



# The latest lifestyle RCT

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BMJ



BMJ 2014;348:g1285 doi: 10.1136/bmj.g1285 (Published 10 February 2014)


Page 1 of 12

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## RESEARCH

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### Antenatal lifestyle advice for women who are overweight or obese: LIMIT randomised trial

 OPEN ACCESS

Jodie M Dodd *professor of obstetrics and gynaecology; maternal fetal medicine specialist*<sup>1,2</sup>, Deborah Turnbull *professor of psychology*<sup>3</sup>, Andrew J McPhee *director of neonatal medicine*<sup>4</sup>, Andrea R Deussen *senior clinical trials coordinator*<sup>1</sup>, Rosalie M Grivell *senior lecturer in obstetrics and*

# RCT Intervention: Did not alter GWG

- ❑ Maternal fitness, body composition, diet quality not reported
- ❑ Fetal body composition not reported
- ❑ Healthy behaviours trump #s on scale
- ❑ No adverse events

Table 2| Prespecified outcomes in infants born to women with BMI  $\geq 25$  at trial entry by treatment group. Values are numbers (%) of women and treatment effects are relative risks based on imputed data

Outcome	Lifestyle advice (n=1075*)	Standard care (n=1067*)	Treatment effect (95% CI), P value	
Large for gestational age	203 (19)	224 (21)	0.90 (0.76 to 1.07), 0.23	0.90 (0.77 to 1.07), 0.24
Major congenital anomaly	25 (2)	14 (1)	1.76 (0.92 to 3.37), 0.09	1.77 (0.93 to 3.39), 0.08
Birth weight above 4000 g	164 (15)	201 (19)	0.81 (0.67 to 0.98), 0.03	0.82 (0.68 to 0.99), 0.04
Hypoglycaemia requiring treatment	107 (10)	103 (10)	1.03 (0.79 to 1.33), 0.85	1.02 (0.79 to 1.31), 0.91
Admission to NICU or SCBU	394 (37)	385 (36)	1.02 (0.91 to 1.14), 0.79	1.00 (0.90 to 1.12), 0.99
Hyperbilirubinaemia requiring phototherapy	73 (7)	88 (8)	0.82 (0.61 to 1.11), 0.19	0.81 (0.60 to 1.09), 0.16
Nerve palsy	4 (0.4)	2 (0.2)	(N/A), 0.69‡	NA
Fracture	4 (0.4)	2 (0.2)	(N/A), 0.69‡	NA
Birth trauma	6 (0.6)	7 (0.7)	0.85 (0.29 to 2.52), 0.77	NA
Shoulder dystocia	44 (4)	35 (3)	1.25 (0.81 to 1.93), 0.32	1.25 (0.81 to 1.93), 0.32

# Disseminate resources

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- ❑ Educate yourself/others
- ❑ Comprehensive Literature Review
- ❑ Physical Activity & Nutrition Recommendations
- ❑ Implementing Prenatal Behaviour Change
- ❑ Resource links



# PARC Active Pregnancy Kit



How do you know you're walking at the right pace to get the health benefits?

Use the Talk Test; it's simple and easy... if you can't talk and walk, then you're walking too fast.



Do not do exercises lying on your back if you are past 4 months (16 weeks).



## LIFTING GUIDELINES

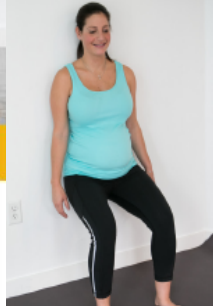
- 1 Avoid lifting heavy weights. Do not lift any weights while lying on your back.
- 2 Begin slowly. Gradually increase the number of times you perform each exercise. Do not push your muscles or energy levels to the point of fatigue.
- 3 Do not hold your breath. Exhale on exertion, inhale on relaxation using more repetitions and lighter weights.
- 4 If you are beyond four months or 16 weeks of pregnancy, avoid exercises while lying on your back. The enlarged uterus may decrease the flow of blood to a major vein or artery.



AVOID LIFTING HEAVY WEIGHTS

## IMAGINARY CHAIR

While standing, slide into an imaginary sitting position against a wall. Your thighs should be parallel to the floor, your back flat against the wall, feet are planted and your arms relaxed at your sides. Hold this position for no more than the duration of two complete breaths, remembering to breathe normally. Then slowly slide back up to a standing position. After a few seconds of rest, repeat the exercise. Do this 5-10 times.



## RELAX

Remember: listen to your body. If you feel uncomfortable, experience pain, dizziness, shortness of breath, or other symptoms - STOP and consult your health care provider.

Helping you to be active during pregnancy





# Community action

Gaining a healthy amount of weight in pregnancy is good for you and your baby.



Talk to your health care provider about how much weight gain is right for you. Get your **FREE Healthy Pregnancy Action Kit** by calling Health Connection at 1-877-721-7520.

*Aim to be active and eat healthy every day.*



## Recipes and tips for a healthy pregnancy

For more information about how to have a healthy pregnancy, call Simcoe Muskoka District Health Unit's Health Connection at 705-721-7520 or 1-877-721-7520, or visit [www.simcoemuskokahealth.org](http://www.simcoemuskokahealth.org)



### Quick Bean Casserole

- 2 cans (14 oz/398 ml) kidney beans or chickpeas
- 1 can (7.5 oz/213 ml) corn niblets
- 1 tablespoon (15 ml) oil, butter or margarine
- 1 onion, sliced
- 2 tomatoes, diced
- 1/2 cup (125 ml) sliced mushrooms
- 1 tablespoon (15 ml) tomato paste or ketchup
- 3 slices of whole wheat bread
- 4 oz (125 g) cheese (Mozzarella or Cheddar)

1. Drain beans and corn. Set aside.
2. In a large frying pan, heat oil and sauté onions, tomatoes and mushrooms.
3. Add beans, corn and tomato paste to pan, Cook over low heat for 5 minutes, stirring occasionally.



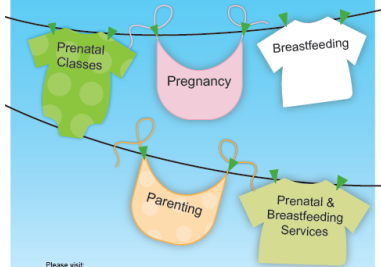
Being active during pregnancy has many benefits for you, such as more energy, improved mood, better sleep and healthy weight gain.

Did you know that gaining a healthy amount of weight during your pregnancy (as recommended by your health care provider), may give your baby a better chance of being born at a healthy weight?

To speak with a trained exercise professional about physical activity, call:  
Exercise & Pregnancy Helpline 1-866-637-7678



### Get information on...



Please visit:  
[www.smdhu.org/pregnancy](http://www.smdhu.org/pregnancy)  
or call Health Connection - free confidential health information and advice at your finger tips...  
705-721-7520 or 1-877-721-7520  
Monday to Friday, 8:30 a.m. - 4:30 p.m.



Aim to eat three meals and two snacks each day.

Did you know that having one vegetable or fruit at each meal and snack makes it easier to get the recommended 7-9 servings of vegetables and fruit you need every day?

Canada's Food Guide servings are 1/2 cup fresh, frozen or canned veggies, 1 cup raw or 1/2 cup cooked leafy veggies, 1 piece or 1/2 cup cut up fruit or 1/2 cup 100% fruit juice.

For more healthy recipes, go to:  
[www.eatrightontario.ca/en/Recipes.aspx](http://www.eatrightontario.ca/en/Recipes.aspx)

### Recipe for an Active Pregnancy

- You!
- a pair of comfortable shoes
  - a set of comfortable clothes
  - a watch or clock
  - 15-30 minutes of time
  - a pinch of energy
  - a bottle of water
  - one or more friends (optional)

1. Put on your clothes and shoes and grab your water.
2. Check the time and start walking.
3. Notice...
  - you are breathing a bit harder, but can still talk
  - you feel your muscles getting stronger
  - you feel the tension leaving your body
4. Look at the time again...15 minutes have sped by!
5. Say to yourself, "Next time I'm going for 16 minutes, and I'm going to work my way up to 30 minutes, four times each week."
6. Look in the mirror...check out that smile!

*You're glowing! Way to go! You did it!*

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Compliments of Becky Blair, Simcoe Muskoka Health Unit

# LIFECOURSE STRATEGIES TO PREVENT AND MANAGE CHILDHOOD OBESITY



1/20  
14

Workshop and survey summary

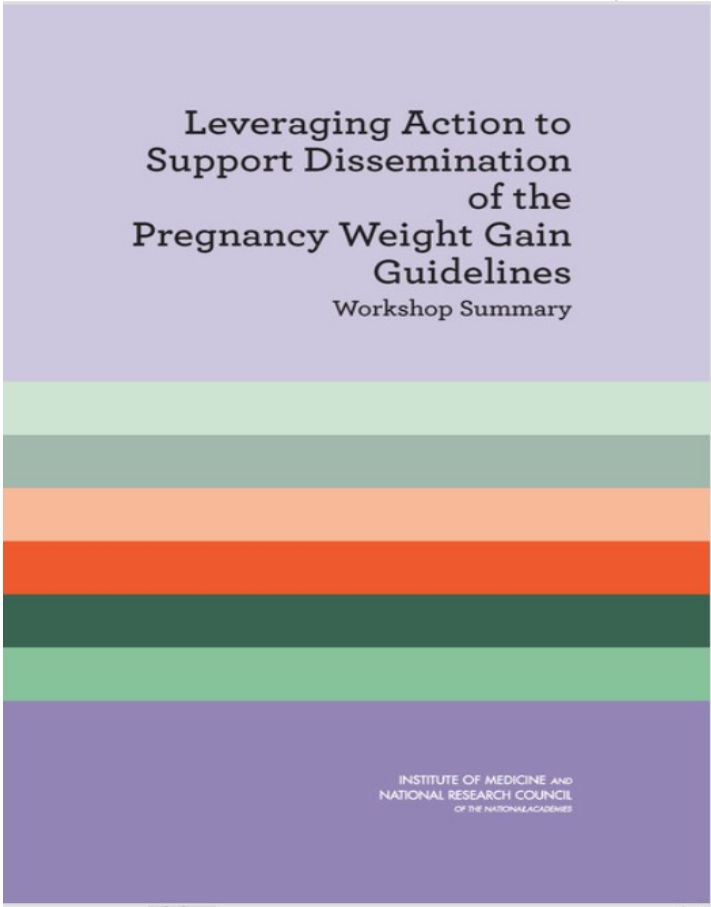
## Appendix III – Resources

A WEALTH OF INFORMATION AND RESOURCES WAS GATHERED THROUGH THE SURVEY. SPECIAL THANKS TO THOSE WHO ALLOWED US TO SHARE THEIR PERSONALLY DEVELOPED RESOURCES WITH YOU.

Baby Friendly Initiative: <http://www.bfiontario.ca/baby-friendly-initiative-outcome-indicators/>  
Best Start Resource Centre: <http://www.beststart.org/>  
Alberta Health Services: <http://www.albertahealthservices.ca/>  
Health Canada: <http://www.ho-sc.gc.ca/index-eng.php>  
Breastfeeding Matters: <http://www.breastfeedingmatters.ca/>  
Canadian Society for Exercise Physiology: <http://www.csep.ca/english/view.asp?x=1>  
Canada's Food Guide: <http://www.ho-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php>  
Health Canada's Gestational Weight Gain Recommendations: <http://www.ho-sc.gc.ca/fnan/nutrition/prenatal/hwgdp-ppspg-eng.php>  
Public Health Agency of Canada: <http://www.phac-aspc.gc.ca/index-eng.php>  
Public Health Ontario: <http://www.publichealthontario.ca/EN/Pages/default.aspx>  
Center for Disease Control: <http://www.cdc.gov/>  
Canadian Paediatric Society: <http://www.cps.ca/>  
Society of Obstetricians and Gynaecologists of Canada: <http://sogc.org/>  
Healthy Eating for a Healthy Pregnancy: <http://www.ho-sc.gc.ca/fn-an/nutrition/prenatal/ewbambasa-eng.php>  
Eat Right Ontario: <http://www.eatrightontario.ca/en/default.aspx>  
Eat Tracker: <http://www.eattracker.ca/>  
Ottawa Public Health:  
Registered Nurse Association Ontario:  
Children's Hospital of Eastern Ontario:  
Healthy Active Living and Obesity Research Group:  
Physical Activity Resource Centre: <http://parc.ophea.net/>  
Preventing Child Obesity In Canada's Aboriginal Communities: [www.letsbehealthy.ca](http://www.letsbehealthy.ca)  
City of Ottawa: [www.ottawa.ca](http://www.ottawa.ca)  
Electronic Health Library: <http://www.ahpdf.ca/healthlibrary>  
Dietitians of Canada: <http://www.dietitians.ca/>  
Ontario Society of Nutrition Professionals in Public Health: <http://www.osnpph.on.ca/>  
Middlesex London Health Unit: <https://www.healthunit.com/>  
Simcoe Health Region Gestational weight gain tools:  
<http://www.simcoemuskokahealth.org/fy/healthprofessionals/primaryhealthcare/MaternalChildHealth/PreventingChildObesity/PreventingMaternalChildObesity.aspx>

# The latest from the IOM

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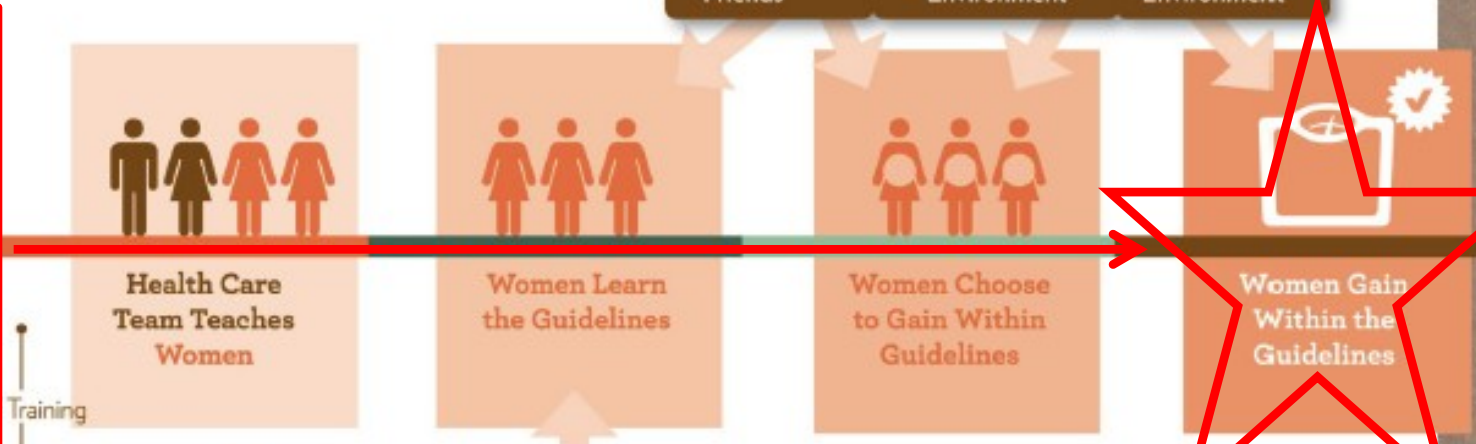
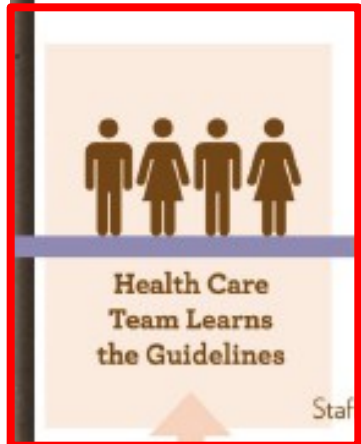
Leveraging Action to  
Support Dissemination  
of the  
Pregnancy Weight Gain  
Guidelines  
Workshop Summary

INSTITUTE OF MEDICINE AND  
NATIONAL RESEARCH COUNCIL  
OF THE NATIONAL ACADEMIES

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<http://www.iom.edu/About-IOM/Making-a-Difference/Kellogg/HealthyPregnancy.aspx>



Professional Society Opinions

Standard of Care

- Electronic Health Records
- Medical Payment System

- REPORT
- WORKSHOP
- MEDICAL LITERATURE

- INFORMATION IN DOCTOR'S OFFICE
- MOBILE APPS
- INTERNET RESOURCES
- MEDIA

Consensus Study  
**Weight Gain & Pregnancy**  
 Reexamining the Guidelines  
 INSTITUTE OF MEDICINE AND NATIONAL RESEARCH COUNCIL OF THE NATIONAL ACADEMIES

Implementation of  
**Weight Gain & Pregnancy**  
 Guidelines  
 INSTITUTE OF MEDICINE AND NATIONAL RESEARCH COUNCIL OF THE NATIONAL ACADEMIES

# Exercise is medicine...

# And it doesn't take much

KAISER PERMANENTE. thrive

## Walking Rx

Name: \_\_\_\_\_

Remember to be **FIT**:

**F**requency: 5 days a week  
**I**ntensity: Walk and talk  
**T**iming: 30 minutes a day

Recommended activity level: 150 minutes per week.

Stop: If you experience chest pain, excessive shortness of breath, or feel ill. \*

Signature: \_\_\_\_\_

\* If you have an emergency medical condition, call 911 or go to the nearest emergency department. An emergency medical condition is a medical or psychiatric condition that a reasonable person would believe requires immediate medical attention to prevent serious jeopardy to his or her health. For the complete definition of an emergency medical condition, please refer to your Evidence of Coverage.

walk to thrive  
with Kaiser Permanente



Walk 150 minutes a week to decrease chances of:

- Type 2 Diabetes ↓58% (with 7% weight loss)
- Depression ↓47%
- Breast cancer ↓20%
- Colon cancer ↓30%
- Heart disease ↓30%
- Stroke ↓25%
- Stress/anxiety ↓30%
- Insomnia ↓40%

Significantly decreases:  
Some Cancer Recurrence, Osteoporosis, Fatigue, Alzheimer's, and Dementia.

References:  
<http://www.medicinenet.com/walking/article.htm>  
<http://www.cancer.gov/cancer topics/factsheets/prevention/physicalactivity>  
[http://www.health.gov/paguide/lines/Report/G2\\_cardio.aspx#\\_toc19967815](http://www.health.gov/paguide/lines/Report/G2_cardio.aspx#_toc19967815)  
[http://www.health.gov/paguide/lines/Report/G8\\_mentalhealth.aspx#\\_toc197778613](http://www.health.gov/paguide/lines/Report/G8_mentalhealth.aspx#_toc197778613)

www.kpwalktothrive.org

KAISER PERMANENTE. thrive

□ FIGURE 2-3 Kaiser Permanente walking prescription. SOURCE: Conroy, 2013

# Lifestyle prescription



## Rx for a Healthy Weight During Pregnancy

Pre-pregnancy Weight: \_\_\_\_\_ & BMI: \_\_\_\_\_

Target Weight: \_\_\_\_\_ (at end of pregnancy)

	Pre-pregnancy BMI	Recommended Total Gain (lbs)	Rate of Gain in 2nd & 3rd Trimesters (lbs/week)
<b>Underweight</b>	< 18.5	28–40	1
<b>Normal</b>	18.5–24.9	25–35	1
<b>Overweight</b>	25–29.5	15–25	0.6
<b>Obese</b>	≥ 30	11–20	0.5

00900-092 (9-11)

### Tips for prenatal nutrition:

- Eat well balanced meals with a variety of foods
- Aim for 5–7 servings of fruits and vegetables each day
- Be sure to take your prenatal vitamins!
- Don't diet; weight gain is important to your baby's normal growth and development
- Replace any juice you are drinking with water or milk
- Don't eat large fish such as shark, swordfish, king mackerel, and tilefish
- Do eat other kinds of cooked fish, up to 12 ounces per week (wild is better than farmed) or take fish oil
- If you eat tuna, eat light tuna (not albacore) and only 2 meals a week
- Don't eat raw or undercooked meat, chicken, or fish

00900-092 (9-11) REVERSE

# IOM posters for centre use:

- ❑ Pregnancy weight gain guidelines poster
- ❑ Available at <http://www.iom.edu/healthypregnancy>



**Guidelines on  
Weight Gain  
& Pregnancy**  
INSTITUTE OF MEDICINE AND  
NATIONAL RESEARCH COUNCIL  
OF THE NATIONAL ACADEMIES

## How Much Weight Should You Gain When You're Pregnant?

If before pregnancy you are...	During pregnancy, you should gain...
Underweight	28-40 lbs
Normal (healthy) weight	25-35 lbs
Overweight	15-25 lbs
Obese	11-20 lbs

The best way to begin pregnancy is at a healthy weight. But no matter how much you weigh before becoming pregnant, how much weight you gain during pregnancy is important!

For more information about healthy weight gain during pregnancy, check out the IOM's free informative booklets for women and their health care providers at [www.iom.edu/healthypregnancy](http://www.iom.edu/healthypregnancy).

Board on Children, Youth, and Families  
Food and Nutrition Board

INSTITUTE OF MEDICINE AND  
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OF THE NATIONAL ACADEMIES

[iom.edu/healthypregnancy](http://iom.edu/healthypregnancy)  
/theIOM  
theIOM #WhatToGain



## CONGRATULATIONS!

Pregnancy is an exciting time for you and your family, and it also is a good time to focus on your health. Gaining too little or too much weight during pregnancy may affect your health and the health of your baby. To help, check out this easy-to-use pregnancy weight tracker customized just for you.

Bring this tracker with you to discuss with your health care provider what your weight gain goals for your pregnancy should be.

### WHY YOUR WEIGHT IS IMPORTANT

Many women enter pregnancy overweight or obese. While any woman can be overweight, the condition is more common among Hispanic women.

### START YOUR PREGNANCY AT A HEALTHY WEIGHT

Reaching a healthy weight before you get pregnant is the first step to ensuring your health and the health of your child. If you know you are overweight and you plan to become pregnant, work with your health care provider to develop a weight-loss plan before becoming pregnant.

### GAIN WITHIN THE GUIDELINES

The weight categories are based on your pre-pregnancy body mass index (BMI), which is a measure of body fat based on your height and weight. Talk to your health care provider to determine which weight category you fit into and how much weight you should gain during your pregnancy.

THE IOM'S GUIDELINES ON WEIGHT GAIN DURING PREGNANCY RECOMMEND ON AVERAGE:

UNDERWEIGHT  
WOMEN GAIN



NORMAL WEIGHT  
WOMEN GAIN



OVERWEIGHT  
WOMEN GAIN

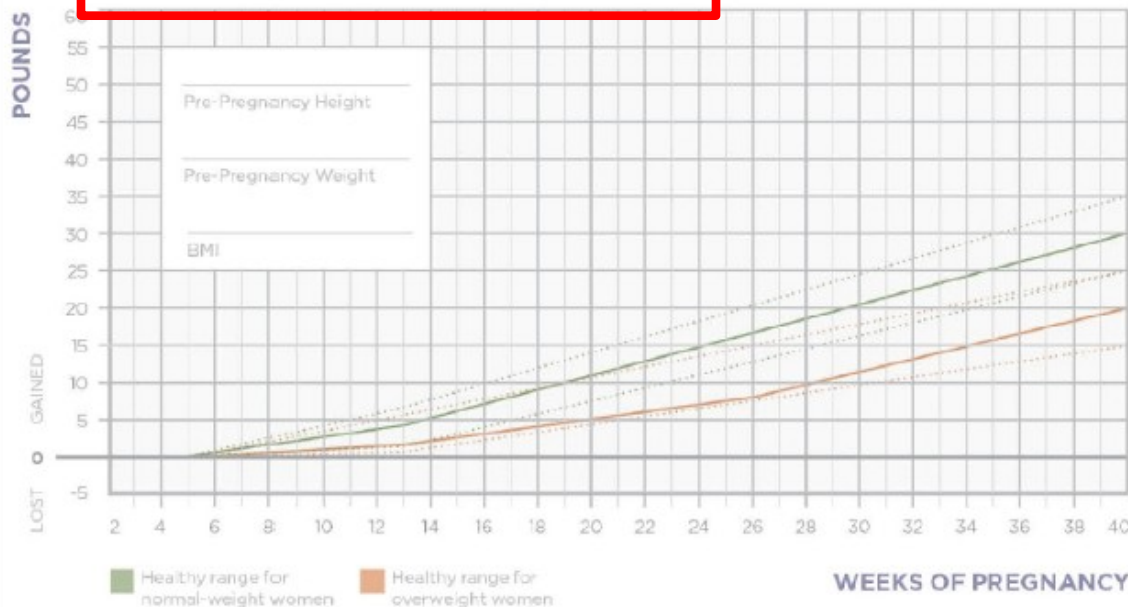


OBESE  
WOMEN GAIN



### TRACK YOUR WEIGHT DURING PREGNANCY

Place dots on the chart to track your progress.



### HOW TO USE THIS TRACKER

Every pregnancy is different. What worked for your mom or *abuela* may not work for you. This tracker will help you work with your health care provider to customize a weight gain plan that is right for you. Follow the steps below to ensure you are on the right track.

- 1 Write down your weight before pregnancy.
- 2 Ask your health care provider for three things: your height, weight, and BMI. Write this information down in the box provided.
- 3 Start recording your weight as early as you can. Every week, place a dot at your current weight gain. Connect the dots every week to track and compare your weight with the goals set by you and your health care provider.
- 4 Discuss your progress when you go in for a check-up and don't forget to ask for your weight every time!



# Myths...

□ +Physical activity will harm me and/or my baby

## An active pregnancy for fetal well-being? The value of active living for most women and their babies

Zachary M Ferraro,<sup>1,2</sup> Andree Gruslin,<sup>3,4</sup> Kristi B Adamo<sup>1,2,5</sup>

Prenatal life is recognised as a critical period where vital physiological processes may be permanently transformed leading

bradycardia occurred. However, despite these concerns, following exercise cessation fetal HR reached baseline values, uterine

who exerci  
nancy (3  
3x/weeks)  
controls ar  
cardiogram  
gestational  
the variabi  
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© Za

Ferraro et al., British Journal of Sports Medicine 2012.



♥ **Healthy Pregnancy**

### Five Common Myths Heard from Expectant Mothers

- 1 MYTH: "I have to eat for two during my pregnancy."**  
**TRUTH:** "Eating for two" may cause you to gain too much weight. Your baby needs far fewer calories to be healthy than you need. **Gaining too much weight during pregnancy is not good for your health and can be risky for your baby's health too.**
- 2 MYTH: "I should gain the same amount as the women in my family."**  
**TRUTH:** Every pregnancy is different. **What worked for your mom or abuela may not work for you.** You should work with your health care provider throughout your pregnancy to be sure you gain the weight that is right for you.
- 3 MYTH: "The more weight I gain, the healthier and stronger my baby will be."**  
**TRUTH:** **Gaining too little or too much weight during pregnancy may harm your health and the health of your baby.** Gaining too much weight increases the risks for a C-section, early delivery, or a bigger baby, which can make for a complicated birth. Gaining too little increases the risk of having a premature baby and can cause future health problems as your baby grows up.
- 4 MYTH: "I don't have to worry about my weight gain during my pregnancy. I'm already at my ideal weight."**  
**TRUTH:** Talk to your health care provider to determine which weight category you fall under and how much weight you should gain during your pregnancy. On average:
  - Underweight women should gain 28-40 lbs.
  - Normal weight women should gain 25-35 lbs.
  - Overweight women should gain 15-25 lbs.
  - Obese women should gain 11-20 lbs.
- 5 MYTH: "I shouldn't worry about losing weight after my first pregnancy if I'm planning on having another child. I'll lose all the weight together."**  
**TRUTH:** If you are planning on having another child, losing the weight gained during your previous pregnancy is vital. Having another baby before losing weight may cause problems during delivery.

**The Institute of Medicine Report**

The Institute of Medicine (IOM) is an independent nonprofit organization that provides science-based health advice to policy makers and the public. In 2009, the IOM published a report that recommended how much weight women should gain during their pregnancy, whether they are underweight, normal weight, overweight, or obese before becoming pregnant.

**Pregnancy Weight Gain and the Hispanic Community**

Hispanic women are more likely to enter a pregnancy overweight or obese, especially if they have lived in the U.S. longer. They are also less likely to lose weight gained from a previous pregnancy.

**Working with Your Health Care Provider and Your Family**

The first step to a healthy pregnancy is working with your health care provider to create a customized weight gain plan for your pregnancy. But you shouldn't do this alone. Share your weight gain plan with your family and discuss how to make traditional family dishes healthier for the health of the whole family.

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[iom.edu/healthy-pregnancy](http://iom.edu/healthy-pregnancy) [/theIOM](https://www.facebook.com/theIOM) [/theIOM](https://twitter.com/theIOM) #WhatToGain

Healthy Weight Gain During Pregnancy

resources.iom.edu/Pregnancy/WhatToGain.html

INTRODUCTION WHAT IS A HEALTHY WEIGHT? WHAT IS THE RIGHT AMOUNT TO GAIN? WHY IS THIS IMPORTANT? HOW CAN I GET TO A HEALTHY WEIGHT? ADDITIONAL RESOURCES

Are you **having a baby?**

**Hello!** Are you pregnant or thinking about having a baby? If so, please come with me to talk about gaining the right amount of weight during your pregnancy so that both you and your baby will have a healthy start together.

Let's Go!

Share: [f](#) [t](#) [in](#) [✉](#)

INSTITUTE OF MEDICINE AND NATIONAL RESEARCH COUNCIL OF THE NATIONAL ACADEMIES

**FIGURE 3-7** Screen from the interactive infographic.  
**NOTE:** Available at <http://www.iom.edu/healthypregnancy>.

# Our national voice on weight management

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# Fresh of the press

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- ❑ Available at: <http://www.obesitynetwork.ca/5As>
- ❑ Become a member of CON for FREE at [www.obesitynetwork.ca](http://www.obesitynetwork.ca)

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© Zach Ferraro PhD 2014

- ❑ NOTE: beta version and subject to minor changes

# CON 5 As

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- ❑ Remember weight is NOT a behavior
  - It's an outcome
- ❑ Must understand 'cause' of ex GWG (4Ms)
- ❑ Use SMART goals to reinforce behaviours
- ❑ E.g., I will eat 250kcal less/day and walk for 30mins
- ❑ Not: I will meet the IOM guidelines or eat less, move more



# Key principles

---

## Key Principles



### Discussion About Gestational Weight Gain Should Occur With Every Woman Who is Pregnant or Planning A Pregnancy

A woman planning or experiencing a pregnancy is usually very motivated to be as healthy as possible. Discussion of gestational weight gain from a patient-centered perspective allows providers to have sensitive conversations that are meaningful to the individual woman, regardless of her prepregnancy body mass index (BMI - underweight, normal weight, overweight, or obese). *Supporting all women to keep gestational weight gain within recommended parameters is important because unhealthy weight gain (excessively lower or higher than recommended) is linked to a range of negative health outcomes for mothers, babies, and children.*



### Achieving Healthy Gestational Weight Gain is About Improving Health and Well-Being of Both Mothers and Babies.

Success should be measured by the degree to which a woman adopts behaviours that improve or maintain health, in addition to the amount of weight she gains. Even modest approximations to the recommended gestational weight gain can improve personal health and reduce post-partum weight retention.

# Key principles

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## Early Action Means Addressing Root Causes and Removing Roadblocks

Successful weight management of gestational weight gain begins with identifying how much weight a woman should gain based on her prepregnancy BMI category and having early and repeated discussions to identify and address the myths, barriers, and facilitators of managing gestational weight gain. Refer to Health Canada guidelines.



## Pregnancy-Related Health Beliefs Can Be Powerful Influences On Weight Gain in Pregnancy

Understanding a woman's cultural context is critical. Making assumptions about health behaviours can lead to ineffective interventions.



## Achieving Goals is Different for Every Woman

Women vary considerably in their readiness and capacity for managing gestational weight gain. "Achieving Goals" can be defined as better quality of life, greater self-esteem, higher energy levels, improved overall health and/or achieving weight gain within the recommended range. Guideline-concordant weight gain in pregnancy is not a realistic goal for some women, and setting unachievable targets might simply set women up for failure. Instead, help women set weight targets that they can achieve to try to improve health for themselves and their babies.

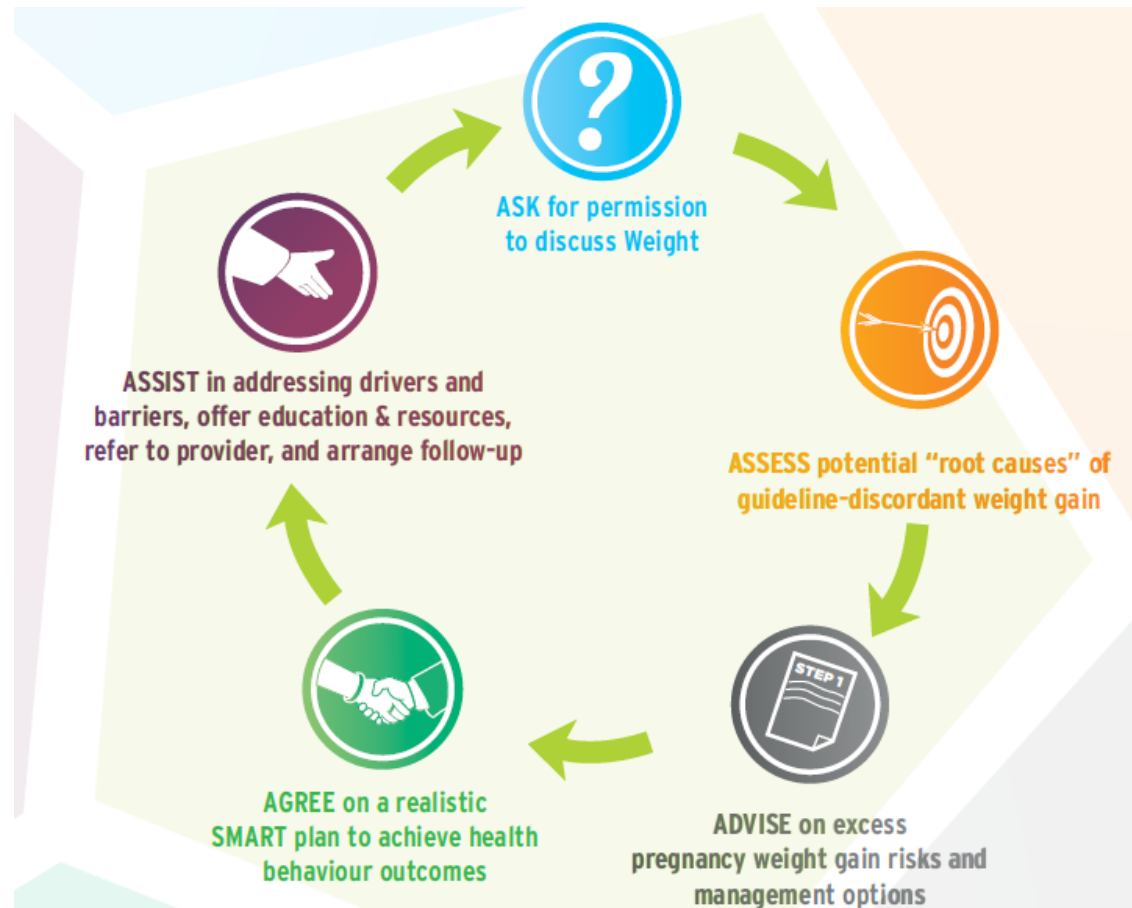
# Note to viewers

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- I intentionally removed the content of the 5 As for Healthy Pregnancy Weight Gain that was originally presented at BSRC 2014 as this document has not been officially released by the Canadian Obesity Network.



# Recap: The 5 As are



# Are the CON 5 As Effective?

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Original Article

**Effect of implementing the 5As of Obesity Management framework on provider–patient interactions in primary care**

C. F. Rueda-Clausen<sup>1,2</sup>, E. Benterud<sup>2</sup>, T. Bond<sup>3</sup>, R. Olszowka<sup>2</sup>, M. T Vallis<sup>4</sup>, A. M. Sharma<sup>1,3,\*</sup>

Article first published online: 29 OCT 2013

Issue



Clinical Obesity

Early View (Online Version of Record published before inclusion in an issue)

**facilitates weight management in primary care – the first essential step towards any hope of promoting meaningful obesity management in primary care practice**

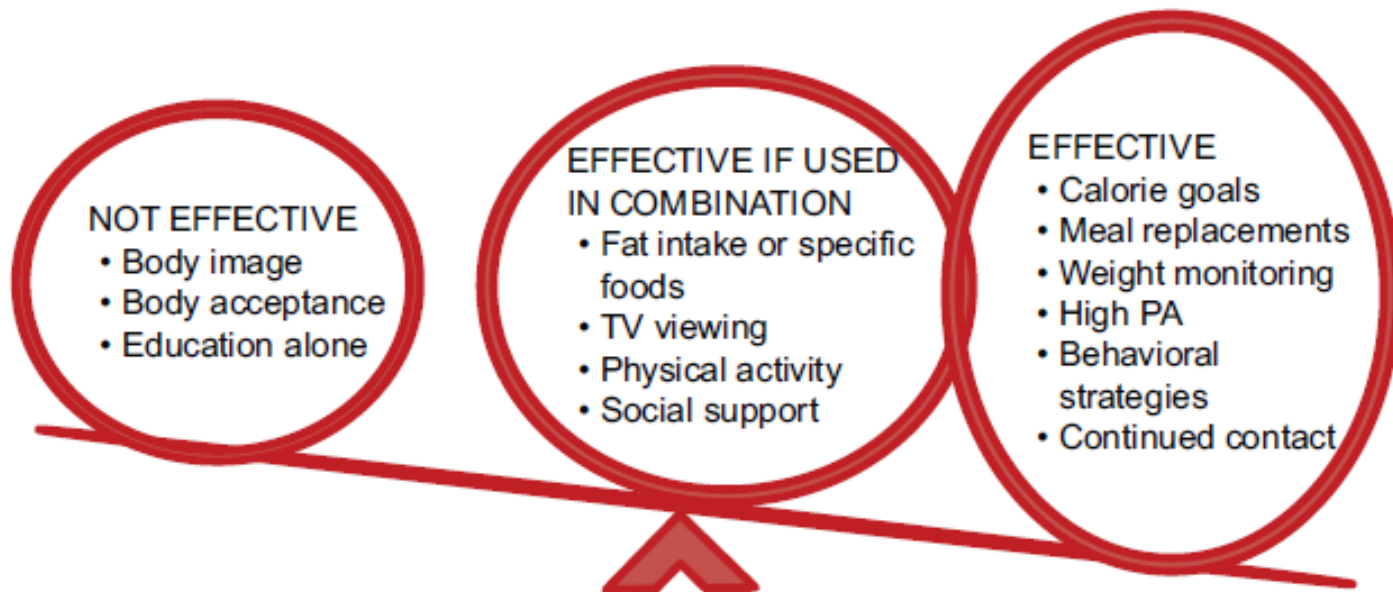
# We know what works....

# Let's make it work

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## Lessons Learned from Weight Control in Non-Pregnant Populations?

Phelan, Jankovitz, Hagobian, Abrams (2011, *Women's Health*)



# Pedagogy & Medicine

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BECOMING A PHYSICIAN

## Training Physicians to Manage Obesity — Back to the Drawing Board

James A. Colbert, M.D., and Sushrut Jangi, M.D.

According to the Centers for Disease Control and Prevention, nearly one third of U.S. children and about two thirds of U.S. adults are overweight or obese (see map) and therefore at increased risk for hypertension, diabetes, and musculoskeletal disease. If the trend continues unchecked, half the adults in the United States may be obese by 2030. Although a few clinics specializing in weight

- Psychopathobiology of obesity
- Motivational interviewing
- Empathetic interdisciplinary care

# Things to consider...

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1. Do you **adequately counsel** women on GWG targets?
  - Behaviour change vs. #s on the scale
2. Do you **measure /track GWG?**
  - rate of gain
3. How can you **adapt** your practice/centre?



# Team work & knowledge sharing

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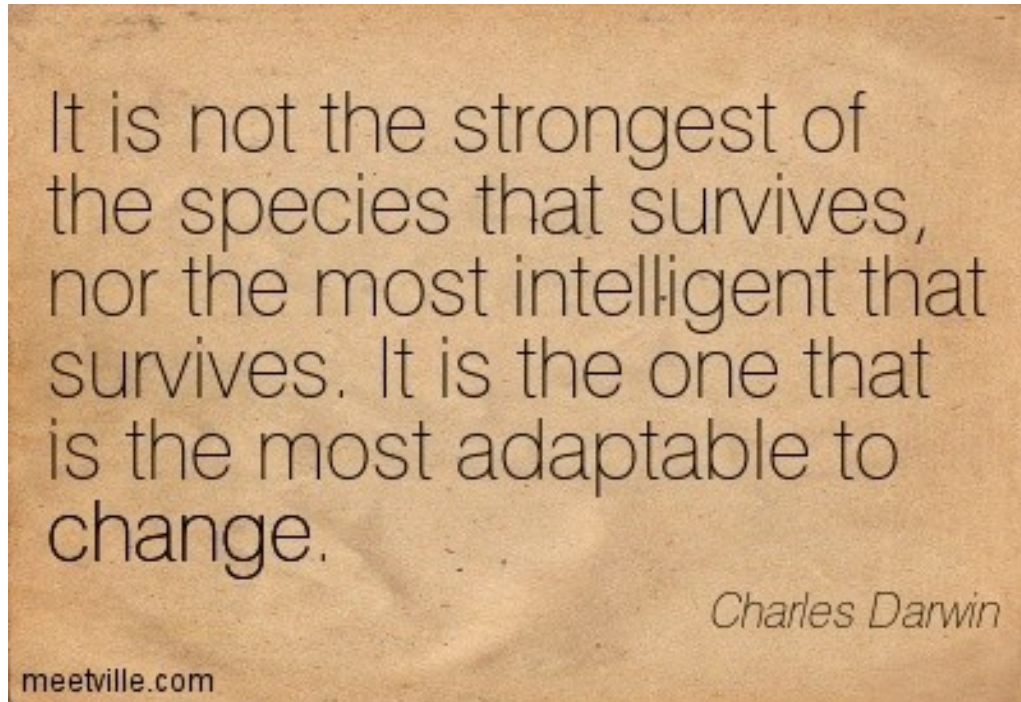
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Image source: [thehealthyemployee.co.uk](http://thehealthyemployee.co.uk)

# Thank you

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- For frequent discussion on this topic follow me on twitter @DrFerraro