Weight Gain in Pregnancy
Helping Women Meet Their Goals

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Disclosures

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Components of Gestational Weight Gain

- Breasts: 1-2 pounds
- Baby: 6-8 pounds
- Placenta: 1-2 pounds
- Uterus: 1-2 pounds
- Amniotic Fluid: 2-3 pounds

Your blood: 3-4 pounds
Your protein and fat storage: 8-10 pounds
Your body fluids: 3-4 pounds

Total weight gain: 25-35 lbs.
Second Half of Pregnancy

for pregnant adolescent girl of normal weight

Breakfast
Orange Juice 8 oz.
Shredded wheat Scrambled egg Toast - 2 slices
Butter or margarine
Marmalade
Milk-1/2 pint

Lunch
Meat sandwich on whole wheat bread
Carrot and Green Pepper Sticks
Cheese cubes
Oatmeal cookies
Fresh Fruit
Milk-1/2 pint

Mid afternoon
Chicken sandwich
Milk-1/2 pint

Dinner
Boiled Beef Liver
Steamed Broccoli
Baked popcorn
Vegetable salad with French dressing
Baked apple with raisins
Milk-1/2 pint

Salt
Pregnancy alone does not necessarily cause an expectant mother to limit the amount of salt she uses. If your doctor thinks you should use less salt in your diet, he will tell you so. The need for restricting salt in the diet varies with the individual.

If your doctor has told you to cut down on salt, keep it where you can't reach it on the table and leave it out of

the scales tell the story
careful not to eat foods that contain extra salt. Among these are bacon, ham, chipped beef, corned beef, salted and smoked fish, salted nuts, pretzels, salted crackers, popcorn, and potato chips.

Your weight

Must you gain weight because you are pregnant? You will almost certainly be heavier toward the end of your pregnancy than when it began, but you should regain your normal figure after the baby is born. The average full-term baby increase in the size of your liver and the volume of your blood. Your breasts will be a little heavier and your body tissues will absorb and hold more water. These normal increases usually add up to more than 12 pounds.

Many physicians recommend a total weight gain during pregnancy of about 20 pounds. This is a general recommendation however. Your doctor may want you to gain more or less, depending on what you weighed when you became pregnant and on your previous history of weight gains and losses.
The 2009 IOM Report and Guidelines

<table>
<thead>
<tr>
<th>Pre-pregnancy BMI (kg/m²)</th>
<th>IOM Recommended Gestational Weight Gain (kg / lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;18.5 (Underweight)</td>
<td>12.5-18 / 28-40</td>
</tr>
<tr>
<td>18.5 – 24.9 (Normal)</td>
<td>11.5-16 / 25-35</td>
</tr>
<tr>
<td>25.0 - 29.9 (Overweight)</td>
<td>7-11.5 / 15-25</td>
</tr>
<tr>
<td>≥30.0 (Obese)</td>
<td>5-9 / 11-20</td>
</tr>
</tbody>
</table>
WEIGHT GAIN BY TRIMESTER

<table>
<thead>
<tr>
<th>Prepregnancy BMI</th>
<th>Total First Trimester Weight Gain</th>
<th>Second and Third Trimester Weight Gain Per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight (&lt;18.5 kg/m²)</td>
<td>2.2-6.6 lbs 1-3 kgs</td>
<td>1.0-1.3 lbs 0.44-0.58 kgs</td>
</tr>
<tr>
<td>Normal (healthy) weight (18.5 to 24.9 kg/m²)</td>
<td>2.2-6.6 lbs 1-3 kgs</td>
<td>0.8-1.1 lbs 0.35-0.5 kgs</td>
</tr>
<tr>
<td>Overweight (25-29.9 kg/m²)</td>
<td>2.2-6.6 lbs 1-3 kgs</td>
<td>0.5-0.7 lbs 0.23-0.33 kgs</td>
</tr>
<tr>
<td>Obese (&gt;30 kg/m²)</td>
<td>0.5-4.4 lbs 0.2-2 kgs</td>
<td>0.4-0.6 lbs 0.17-0.27 kgs</td>
</tr>
</tbody>
</table>
FIGURE 3-1 Proportion of women meeting gestational weight gain recommendations full-term singleton births in 2010 PRAMS preliminary data. NOTE: Pregnancy Risk Assessment Monitoring System (PRAlvfSL 28 states and New York City included.)
Does Early WG Increase GDM?

Some show association between high early (<24 weeks) gain and diagnosis of GDM

Effect is most marked in overweight/obese women
Higher early WG predicts GDM
Women gain less weight AFTER GDM diagnosis

Some evidence that BMI-matched women without GDM gain more overall than women who get the diagnosis

That means that our diet plans are helping reduce WG, BUT

Motivation of dx and glucose monitoring
How much weight gain for GDM?
What about the woman who gains no weight or loses weight?

Nutrition consultation
Other risk factors for PTD/SGA?
Over-restricting?
Eating disorder?
Depression?
Food insecurity?
Assess fetal growth
Reassure!
Preliminary Outcome Data
The Healthy Moms Trial
Vesco et al, Kaiser Portland
(Presented at The Obesity Society 2012)

N=93 (47 IG, 46 CG) of the randomized 118 women.

Mean pre-pregnancy BMI (36.2 kg/m2)

GWG of ≤3% in 28% of the IG vs. 10% of the CG (OR=3.7, 95% CI [1.1, 12.6], p=.04).

Adjusted mean GWG was less in the IG (4.5 kg) than CG (8.3 kg), difference=3.7 kg, 95% CI [2.0, 12.2], p<.001.
Weight Gain Intervention Studies

Long-term outcomes of children not assessed – but more data to come

Diet and/or exercise *can* reduce weight gain among obese women and improve outcomes

Best outcomes if WG WITHIN IOM guidelines – too soon to recommend weight loss
M.O.M.S.
“Mindfulness, Obesity, Metabolism and Stress Management”

- Meditation
- Stress Reduction
  - Prevent overeating
  - Hunger and fullness awareness
  - Emotional triggers
  - Self-acceptance
- Nutrition and activity
Obesity and Stress

Stress-induced cortisol secretion drives excessive fat and sugar intake, “non-homeostatic eating”
Promotes toxic belly fat and insulin resistance
Does Prenatal Advice on Weight Gain Matter?

Correct advice about weight gain was associated with actual weight gain within guidelines;

No advice about weight gain was associated excessive gain;

About a third of women report receiving no advice about how much weight to gain.

Barriers to weight gain counseling:

- Insufficient nutrition training
- Belief that counseling is ineffective
- Concern about sensitivity of topic

- CME, dieticians
- Literature
- Normalize
1) **OPEN THE CONVERSATION**: With Empathy, active listening and optimism! Ask permission
"Can we take a few minutes to discuss your breastfeeding plan/weight gain today?"

2) **ASK OPEN-ENDED QUESTIONS**:
"How do you feel about your current weight or weight gain?"
What are your weight goals for this pregnancy?"
"What do you think would be a healthy amount of weight for you to gain during this pregnancy? "
"How important is breastfeeding for you?"

3) **Negotiate the Agenda**:
"Would it be okay to discuss some ways for you to maintain a healthy lifestyle during your pregnancy (OR to prepare for breastfeeding?)"
"What ideas do you have about diet or activity?"

4) **EXPLORE AMBIVALENCE**: Ask disarming questions
"How comfortable do you feel with the suggestion to walk for 30 minutes a day?"
"On a scale of 1-5, how important is breastfeeding to you?"

5) **ASSESS READINESS TO CHANGE**
Pre-contemplation - not yet considering change
Contemplation- aware of the problem, but ambivalent
Preparation - recognizes something has to be done
Action- engages in specific behaviors to change
Maintenance- does what is needed to maintain change
Relapse-slips and returns to previous behavior

6) **ASK ABOUT THE NEXT STEP**
"What goal will you work on until your next visit?"
AVOID: choosing the goal for the patient

7) **PROVIDE RESOURCES FOR EDUCATION**: Offer a handout, but allow them to decline
AVOID: ordering, arguing, scare tactics, threatening, lecturing, and preaching

8) **CLOSE AND SUMMARIZE THE CONVERSATION**:
Show appreciation for intent or effort
Summarize the behavior change goal they have set for themselves
Voice confidence in achieving the goal
"I am confident you will be successful with this goal. We will follow up on your progress at your next visit. Thank you for coming in today."
What about first ½ of pregnancy?

Infrequent visits in early pregnancy Many women gain excessive weight before 20 weeks gestation

Need either: more frequent visits OR self-directed tools (digital health)
Example of smartphone app

**Mom Mobile**

**Results**
During your first trimester, you should weigh between 146 and 149 pounds.

**Current Target Weight:**
146 - 149 lbs within range

**Expected total weight gain:**
25 - 35 lbs

**Expected full term weight:**
170 - 179 lbs

**Weight Gain Calculator**

Only the first two are required, but if you answer the rest, the results will be more detailed:

- Pre-pregnancy weight: [kgs]
- Height: [cms]
- How many weeks pregnant: [weeks]
- Are you carrying twins? [No] [Yes]
- Current Weight: [kgs]

[Calculate]

[What's Next]
Simple Goals

I can make one small change to improve my health!

Choose one:
- Drink four or more glasses of water each day.
- Limit fruit juice to one small cup each day.
- Avoid sugary drinks, like soda or punch.
- Switch from regular milk to low fat or nonfat milk.
- Eat a variety of fresh, frozen, or canned fruits each day.
- Eat two or more fresh, frozen, or canned vegetables each day.
- Grill, broil or bake meats, poultry, and fish. Take the skin off chicken before or after it is cooked.
- Eat whole grains at least half the time, like oatmeal, brown rice, corn tortillas and whole wheat bread.
- Use liquid oils from plants, such as canola, olive, or corn oil.
- Limit use of solid fats such as lard, margarine, butter, or shortening.
- Eat fewer fried foods.
- Be active each day, like walking, dancing, or taking the stairs.

At your next visit, tell us about your one small change.
Role of exercise in prenatal weight gain

Studies conflicting as to impact
Post-prandial walking may benefit glucose control
Helpful adjunct but likely to have less impact than diet
Other health benefits besides weight? (e.g. stress reduction, metabolic benefits)
Trigger Questions

Are there things in your diet you think you need to change?
Do you eat a lot of white bread, pasta, pastries?
Do you drink juice, soda, or other sweet drinks?
Do you like eating fresh fruits and vegetables?
You can leave pregnancy healthier than you started

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