Gestational Diabetes

NUTRITION MESSAGES YOU NEED TO KNOW

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Acknowledgments

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Diabetes Education Society

Web page: www.diabetesedu.org

Objectives

- Discuss nutrition-based GDM prevention messages for preconception and early prenatal care
- List at least 3 Nutrition Guidelines for GDM for clients
- Recognize client challenges and barriers to making diet changes during pregnancy
- List common food selections for different ethnic populations and describe how to appropriately adjust nutrition messaging
- List educational tools & resources available for use with clients
- Discuss important postpartum nutrition messages to help prevent future development of type 2 diabetes for mother and child

Definition of GDM

- Gestational Diabetes Mellitus (GDM) is glucose intolerance recognized for the first time during pregnancy.
- This does not currently recognize the difference between pre-existing diabetes identified for the first time during pregnancy and diabetes that develops due to the pregnancy
**Long Term Concerns**

- **Mom:** ~50% risk of developing type 2 Diabetes in 5-10 years!!
- **Baby:** ↑ risk for developing childhood obesity and type 2 “adult onset” diabetes

**Risk of Pre-Pregnancy Overweight and Obesity**

- Increasing evidence points to the importance of a healthy weight prior to becoming pregnant
- Maternal obesity prior to conception is the strongest predictor for large for gestational age (LGA) and increased fat mass in the infant, even more so than weight gain during pregnancy or treated Gestational Diabetes\(^1\)
- A 5-10% decrease in pre-pregnancy weight can improve insulin sensitivity and the risk of diabetes and hypertension

\(^1\) Catalano OM, Ehrenberg HM, BJOG. 2006 Oct; 113 (10): 1126-33.

**Discuss Weight Gain**

- Determine BMI based on pre-pregnancy weight and height
- Inform client of weight gain goal
- Track weight
- Provide tips according to weight gain status

**Preconception and Early Prevention Nutrition Messages**

**Early Intervention**

- Complete universal risk assessment at first prenatal visit
- If client meets “High Risk” criteria:
  - Early glucose screening
  - Tell her about the risk of GDM
  - Track weight gain
  - Educate on healthy eating & exercise

**Healthy Eating & Exercise Tips**

- Ask about eating habits and give a few quick suggestions about nutrition
  - Increase water, decrease soda intake
  - Increase fruit & vegetable intake
  - Decrease high cal/high sugar foods
  - Decrease fast food frequency
  - Encourage exercise (½ hour walk each day)
Medical Nutrition Therapy for GDM

Goal of MNT

❖ To control blood glucose levels by controlling intake of carbohydrates and saturated fats while ensuring adequate nutrition without excessive weight gain

Medical Nutrition Therapy
❖ Assess
   ♥ Individualize plan based on client’s caloric needs and weight gain to date
❖ Instruct
   ♥ Teach carbohydrate counting, healthy food choices, appropriate weight gain
❖ Evaluate
   ♥ Review food and blood glucose records to assess compliance

ASSESS
❖ Weight History
❖ Weight Gain & Calorie Recommendations
❖ Physical Activity
❖ Current Food Habits & Preferences
❖ Comprehension Level

Weight History
❖ Previous pregnancies
❖ Weight fluctuations
   ♥ During pregnancy
   ♥ Prior to pregnancy
❖ Dieting habits
   ♥ Include history of anorexia or bulimia

Weight Gain and Calorie Recommendations

<table>
<thead>
<tr>
<th>BMI (kg/m²)</th>
<th>Recommended weight gain (lbs.)</th>
<th>Estimated calorie intake (kcal/kg/day PPW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight (&lt; 19.8)</td>
<td>28 - 40</td>
<td>36 – 40</td>
</tr>
<tr>
<td>Normal weight (19.8 – 26)</td>
<td>25 – 35</td>
<td>30</td>
</tr>
<tr>
<td>Overweight (26.1 – 29)</td>
<td>15 – 25</td>
<td>24</td>
</tr>
<tr>
<td>Obese (&gt;29)</td>
<td>15</td>
<td>12 - 18</td>
</tr>
<tr>
<td>Twin Gestation</td>
<td>35-45</td>
<td>Add an extra 500 kcal/day to the above recommendations</td>
</tr>
</tbody>
</table>

* Adopted from National Academy of Sciences Institute of Medicine Guidelines for Pregnancy
Physical Activity Assessment

- Ask about current activity level
- Determine willingness to increase activity, if not already active
- Benefits include ↓ insulin resistance, ↓ postprandial hyperglycemia and prevention of excessive weight gain

Comprehension

- Assess ability to understand written and verbal instructions
- Consider:
  - Reading level
  - Preferred learning style
  - Preferred language

Understanding Carbohydrates

- Explain that carbohydrate foods are converted to glucose in the body and cause blood glucose levels to rise
- Balance amount of carbohydrate foods eaten throughout the day
- Discuss types of carbohydrates

Diet Assessment

- Ask about prenatal vitamin intake
- Ask about food allergies or intolerances
- Use a diet assessment tool to determine trends & preferences
- Discuss cooking ability
- Determine food availability

INSTRUCT

- Carbohydrates
- Meal Planning
- Healthy Eating Tips
- Portion Sizes
- Weight Gain
- Physical Activity

Choosing Carbohydrate Foods

- Review client’s typical foods and their carbohydrate content
- Choose higher fiber foods
- Emphasize appropriate portion sizes
- Avoid confusing terminology
  - i.e. starch vs. carbohydrate
Counting Carbohydrates

- Carbohydrates can be tracked either by counting grams or “choices”
- 15 grams of carbohydrate = 1 carbohydrate choice

Developing a Meal Plan

- Start with 175 grams of carbohydrate, about 12 carbohydrate choices
- Distribute evenly throughout the day
  - Smaller, more frequent meals
- Consider client’s eating habits & preferences
- Watch timing
  - 2 hours between meals
  - No more than 10-12 hours between last evening meal and morning meal

Fat Intake

- Saturated fats contribute to higher levels of maternal triglycerides, which have been associated with macrosomia in the baby
- Limit saturated fat to less than 10% of calories and avoid trans fats
- Do not replace carbohydrates with high fat foods
- Choose foods with unsaturated fat in moderation

The Breakfast Meal

- Blood glucose elevated in the AM
- Carbohydrate foods less tolerated
- Limit to 15-30 g (1-2 carb choices)
- Choose items that contain protein over high-carb foods
- May need to avoid or limit fruit juice
- Monitor response to other typical breakfast foods

Tips for Decreasing Fat

- Bake, roast, grill or broil meats instead of frying
- Choose low-fat or nonfat cheese, milk and yogurt
- Avoid sauces or gravies
- Use minimal amounts of butter or margarine
- Choose vegetable oils if needed for cooking, use small amounts
- Check food labels
Additional Healthy Eating Tips
- Choose high-fiber foods
- Include additional protein at meals
- Take a prenatal vitamin every day
- Drink adequate water
- Include adequate sources of calcium
- Know which low-calorie sweeteners are safe for pregnancy
- Limit caffeine
- Monitor intake of mercury-containing fish
- Avoid exposure to listeriosis

Estimating Portion Sizes
- The 9-inch Plate
  - Visual
  - Can be an activity done together using paper plates
  - Keep in mind that milk and fruit are represented outside the plate, but are counted in total carbohydrate

9" Plate
- Milk
- Fruit
- Non-Starchy Vegetables
- Grains, Beans, Starchy Vegetables
- Meat and Meat Substitutes

Physical Activity
- Aim for 30 minutes/day, 5 days/week, if no contraindications
- Encourage exercising within one to two hours after a meal to improve glucose control
- Develop an individualized plan
- Ensure adequate hydration and avoid overheating

Estimating Portion Sizes (cont.)
- Common Item Visualization
  - Provide portion size card
  - Explain portions compared to common household items

EVALUATE
- Self Monitoring Blood Glucose
- Food Record
- Weight Gain
**Self-Monitoring of Blood Glucose (SMBG)**

- Allow up to 2 weeks for BG levels to respond to nutrition therapy
- If 20% of values exceed target goals, then consider meds
- Check that they are following diet and activity plan before turning to meds
- Glucose intolerance increases as pregnancy progresses

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**SMBG Goals**

- Fasting <95 mg/dl
- 1 hour postprandial <130-140 mg/dl
- 2 hour postprandial <120 mg/dl

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**Adjusting Meal Plan**

- Consider response to certain foods and modify as needed
- Can test pre-meal and post-meal to determine if response is related to food eaten
- Do not restrict food intake to less than 12-18 kcal/kg/day in an attempt to avoid medication
- If meds are begun, adjust meal plan appropriately

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**Discussing Weight Gain**

- Excessive Weight Gain
  - Discuss need to slow weight gain
  - Provide tips on ways to achieve a healthier weight
- Inadequate Weight Gain
  - Emphasize need for adequate weight gain
  - Provide tips to increase weight gain while maintaining blood glucose control

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**Weight Grids**

- Available at: www.healthy-baby.org
Client Challenges & Barriers

- Afraid
- Anxious
- In denial
- Concerned
- Confused
- Angry
- Scared
- Alone
- Overwhelmed
- Frustrated
- Guilty
- No Control
- Helpless
- Sad
- Worried

Barriers

- Ability to cook
- Food insecurity
- Financial concerns
- Medical jargon – lack of understanding
- Mixed messages
- Cultural differences

Change is difficult!

Solutions

- Be patient’s advocate
- Tell them it’s not their fault
- Take time to explain
- Good listening skills
- Engage family
- Offer follow-up
- Provide education appropriately
- Acknowledge emotions
- Be culturally aware
- Provide referrals for support
- Financial assistance

Gaining Understanding

- Allow client to teach you aspects that are important
  - Ex: food preferences
- Incorporate cultural beliefs into plan
  - Ex: family involvement
- Consider language needs
- View culture as an enabler rather than as a resistant force

Cultural Considerations

- Language
- Transportation
- Health insurance
- Learning level
- Family support
- Resistant

1 Ohio State University Extension Fact Sheet http://ohioline.osu.edu/hyg-fact/5000/5255.html
Information on Ethnic Food Choices


Considerations for a Mexican-American Client

- Mexican-American is not the same as Puerto Rican or other Latin American cultures
- Family is the most important social unit
- Consider high carb content of diet
  - Corn, corn tortillas, beans, rice, breads
- Food preparation often includes frying
- Increasing consumption of sugar sweetened drinks
- Eat ~ 4-5 meals/day, meal timing may vary

Educational Tools & Resources

- **Nutrition Toolkit**
  - Colorado Nutrition Guidelines
  - My Diabetes Record
  - Weight Gain Grid
  - Portion Size Cards
  - Carbohydrate Counting Worksheet
  - Educational Materials
    - Diabetes Education Society – Making Everything Right™ patient booklet & curriculum
    - International Diabetes Center – Gestational Diabetes patient book & curriculum

Web Resources

1. Calorie King
2. Cardboard Food Models
   - [http://www.westerndairyassociation.org/](http://www.westerndairyassociation.org/)
3. Determining BMI and Appropriate Weight Gain
   - [www.healthy-baby.org](http://www.healthy-baby.org)
4. Diabetes Education Society
   - [www.diabetesedu.org](http://www.diabetesedu.org)
5. International Diabetes Center Materials
   - [www.parknicollet.com/healthinnovations/](http://www.parknicollet.com/healthinnovations/)
6. MyPyramid for Pregnant & Breastfeeding Women
7. Portion Size Card
8. Safety of Artificial Sweeteners
   - [http://www.americanpregnancy.org/pregnancyhealth/artificialsweetner.htm](http://www.americanpregnancy.org/pregnancyhealth/artificialsweetner.htm)
9. Table Top Nutrition
   - [http://tabletopnutrition.com/01-tabletop-home.shtml](http://tabletopnutrition.com/01-tabletop-home.shtml)
10. Understanding Food Labels
    - [http://www.fsis.fda.gov/9/Edmg/foodlab.html](http://www.fsis.fda.gov/9/Edmg/foodlab.html)

Postpartum Nutrition Messages
Arrange Postpartum Visit

- **Crucial** that women return to their provider for follow-up postpartum
- Discuss with client prior to delivery the importance of returning to the clinic for a follow-up visit for education and 2-hour OGTT
- Provide postpartum reminder card with appointment details
- Inform client about risk of type 2 diabetes for self and child

Discuss Weight Loss

- Encourage weight loss within 6 to 12 months
  - If overweight/obese, work to lose 5-7% of body weight slowly, over time
  - Weight loss improves insulin sensitivity and reduces risk of developing diabetes
- Discuss importance of a healthy weight prior to any future pregnancies
- Encourage continued healthy food choices and physical activity

Encourage Breastfeeding

- Promotes weight loss for the mother
- May decrease maternal progression to type 2 diabetes
- Reduces insulin resistance in mothers
- May decrease obesity in the child

Prevent Childhood Obesity & Diabetes

- Inform mother of risk to child of developing obesity at a young age and future risk of type 2 diabetes
- Encourage modeling and teaching healthy eating habits for child
- Encourage 60 minutes of activity each day
- Provide “Never Too Early” tip sheet

Overflowing the System

- What can we do to change this?

Thank You!

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