



Gestational Diabetes

NUTRITION MESSAGES
YOU NEED TO KNOW

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Acknowledgments

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Co-Sponsored By:

Diabetes Education Society

Web page: www.diabetesedu.org

Web page:
<http://www.cdphe.state.co.us/pp/diabetes/index.html>

Presenter



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Colorado Nutrition Guidelines for Gestational Diabetes

Developed by the Diabetes Prevention and Control Program
at the Colorado Department of Public Health and Environment

June 2007

<http://www.coloradoguidelines.org/guidelines/gestationaldiabetes.asp>

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



Preconception and Early Prevention Nutrition Messages



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 Diabetes¹
- ☆ 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.

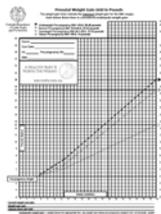
Early Intervention

- ☆ 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



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



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

BMI (kg/m ²)	Recommended weight gain (lbs.)	Estimated calorie intake (kcal/kg/day PPW)
Underweight (< 19.8)	28 - 40	36 - 40
Normal weight (19.8 - 26)	25 - 35	30
Overweight (26.1 - 29)	15 - 25	24
Obese (>29)	15	12 - 18
Twin Gestation	35-45	Add an extra 500 kcal/day to the above recommendations

* 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

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



Comprehension

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



INSTRUCT

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



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



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

Serving Size:

Be sure to base calculations on # of servings eaten – take note of serving size

Nutrition Facts	
Serving Size 1/2 cup (125 mL) EA serving 30g (100 g)	
Amount Per Serving	
Calories 60	Calories from Fat 0
% Daily Value*	
Total Fat 1g	2%
Saturated Fat 0g	0%
Trans Fat 0g	0%
Cholesterol 0mg	0%
Sodium 105mg	4%
Total Carbohydrate 25g	5%
Dietary Fiber 14g	67%
Sugars 0g	
Protein 2g	
Vitamin A 0%	Vitamin C 10%
Calcium 10%	Iron 25%

*Percent Daily Values are based on a diet of other people's misdeeds.
 †Percent Daily Values are based on a diet of other people's misdeeds.
 Your daily values may be higher or lower depending on your calorie needs:
 Calories 2,000 2,500
 Total Fat Less than 65g 80g
 Total Fat Less than 30g 35g
 Cholesterol Less than 300mg 300mg
 Sodium Less than 2,400mg 2,400mg
 Total Carbohydrate 300g 370g
 Fiber 25g 30g
 Protein 50g 60g

Calories per gram:
 Fat 9 • Carbohydrate 4 • Protein 4

NutritionData.com

Saturated Fat:
Choose foods low in saturated fat (<5% DV)

Total

Carbohydrate:

Be sure to count total, not just sugars. It is the total amount that will affect blood glucose levels.

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

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

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

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

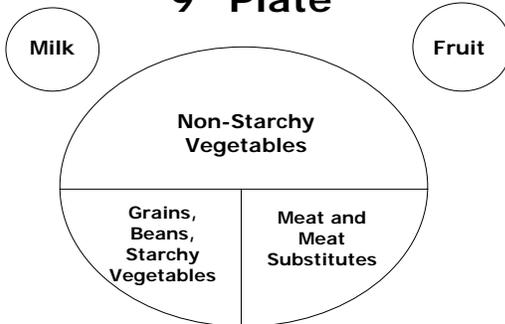


- ☆ Choose high-fiber foods
- ☆ Include additional protein at meals
- ☆ Take a prenatal vitamin every day
- ☆ Drink adequate water
- ☆ Include adequate sources of calcium
- ☆ Know which low-calorie sweeteners are safe for pregnancy
- ☆ Limit caffeine
- ☆ Monitor intake of mercury-containing fish
- ☆ 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



Estimating Portion Sizes (cont.)

- ☆ Common Item Visualization
 - ◆ Provide portion size card
 - ◆ Explain portions compared to common household items



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



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

SMBG Goals



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

My Gestational Diabetes Record

- Take a few moments to write down foods you eat, your blood glucose, and your exercise. Showing this record to your health care provider can help you and your provider plan the care for your baby and you.
- Meals and Snacks: Write down the times you eat, what you eat, how much you eat and how it was prepared.
- Blood Glucose Readings: Test your blood in the morning before breakfast (fasting) and test 1 (Q1) 2 hours after the start of your meal. Choose either a 1-hour (Q2) 2-hour check and try to stick with testing at the same time after each meal. Circle the 1-hour (Q2) 2-hour value so your provider will know at which time you checked.
- Exercise: Write down what you do and how long you do it.
- Notes: Write down anything else you think is important. Remember to review your records with your health care provider at your next appointment.



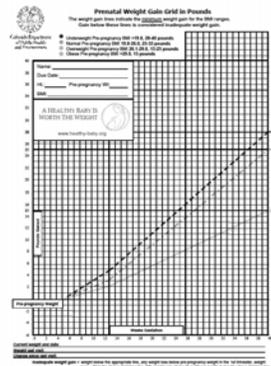
Date	MORNING		NOON		EVENING		SNACKS		EXERCISE	NOTES
	Time	What I ate and drank	Time	What I ate and drank	Time	What I ate and drank	Time	What I ate and drank		
	Fasting glucose	1 or 2 hour blood glucose	Fasting glucose	1 or 2 hour blood glucose	Fasting glucose	1 or 2 hour blood glucose				
	Fasting glucose	1 or 2 hour blood glucose	Fasting glucose	1 or 2 hour blood glucose	Fasting glucose	1 or 2 hour blood glucose				
	Fasting glucose	1 or 2 hour blood glucose	Fasting glucose	1 or 2 hour blood glucose	Fasting glucose	1 or 2 hour blood glucose				

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

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



Weight Grids available at:
www.healthy-baby.org

Client Challenges & Barriers



Emotions

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



Barriers



- ☆ Ability to cook
- ☆ Food insecurity
- ☆ Financial concerns
- ☆ Medical jargon – lack of understanding
- ☆ Mixed messages
- ☆ Cultural differences
- ☆ Language
- ☆ Transportation
- ☆ Health insurance
- ☆ Learning level
- ☆ Family support
- ☆ Resistant

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

Cultural Considerations

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 force¹



¹ Ohio State University Extension Fact Sheet <http://ohioline.osu.edu/hyg-fact/5000/5255.html>

Information on Ethnic Food Choices

- ☆ Cultural and Ethnic Food and Nutrition Education Materials: A Resource List for Educators – January 2008
 - ◆ <http://www.nal.usda.gov/fnic/pubs/bibs/gen/ethnic.pdf>

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

- ☆ **Calorie King**
 - ◆ <http://www.calorieking.com/>
- ☆ **Cardboard Food Models**
 - ◆ <http://www.westernmilkassociation.org/>
- ☆ **Determining BMI and Appropriate Weight Gain**
 - ◆ www.healthy-baby.org
- ☆ **Diabetes Education Society**
 - ◆ www.diabetesedu.org
- ☆ **International Diabetes Center Materials**
 - ◆ www.parknicollet.com/healthinnovations/
- ☆ **MyPyramid for Pregnant & Breastfeeding Women**
 - ◆ <http://www.mypyramid.gov/mypyramidmoms/index.html>
- ☆ **Portion Size Card**
 - ◆ <http://hp2010.nhlbi.nih.net/portion/servingcard7.pdf>
- ☆ **Safety of Artificial Sweeteners**
 - ◆ <http://www.americanpregnancy.org/pregnancyhealth/artificialsweetner.htm>
- ☆ **Table Top Nutrition**
 - ◆ <http://tabletopnutrition.com/01-tabletop-home.shtml>
- ☆ **Understanding Food Labels**
 - ◆ <http://www.cfsan.fda.gov/%7Edms/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

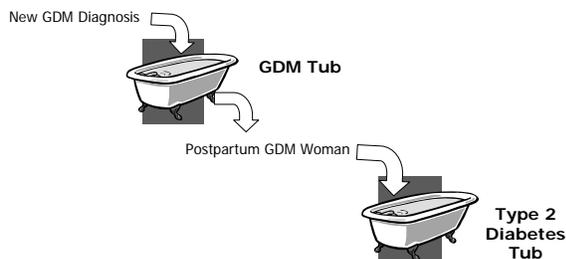


Prevent Childhood Obesity & Diabetes

- ☆ 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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