

Nutritional Management Gestational Diabetes Mellitus



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Objective

- To understand GDM, its physiology and screening
- Nutrition Therapy (NT)

Gestational Diabetes (GDM)

- “Any degree of glucose intolerance with onset or first recognition during pregnancy.”

(WHO & ADA)

- The term GDM is not used for type 1 or type 2 DM diagnosed before conception or to the continuation of the diabetic state after the pregnancy is over.



Physiology

<http://www.careflash.com/video/gestational-diabetes>

Risk Factors for Developing GDM

- Family history
- African American, American Indian, Asian American, Hispanic/Latino
- 25 years old+
- Overweight
- Previously had gestational diabetes
- Pre-diabetes
- Polycystic ovary syndrome
- Pregnancy-induced HTN (PIH)



Prevalence

- Globally:

- 0.6 – 15% of all pregnancies (J Pak Med Assoc, 2009 July)
- higher rates among some ethnic groups (Blacks, Hispanics & Asians)

- Pakistan:

- 8% prevalence (Eur J Clin Nutr, 2007)
- 4.19%

Prevalence of GDM in Patients of Sir Syed Diabetic Clinic, 2005

Variables	No of Patients	Percentage (%)
Total no of Pregnant Females	405	-
Number of females with abnormal 50gm glucose tolerance test	72	17.7
Pregnant females with abnormal 100gm OGTT	25	6.17
PF with normal 100gm OGTT	47	11.60
PF with GDM	17	4.19
PF with IGT	08	1.97

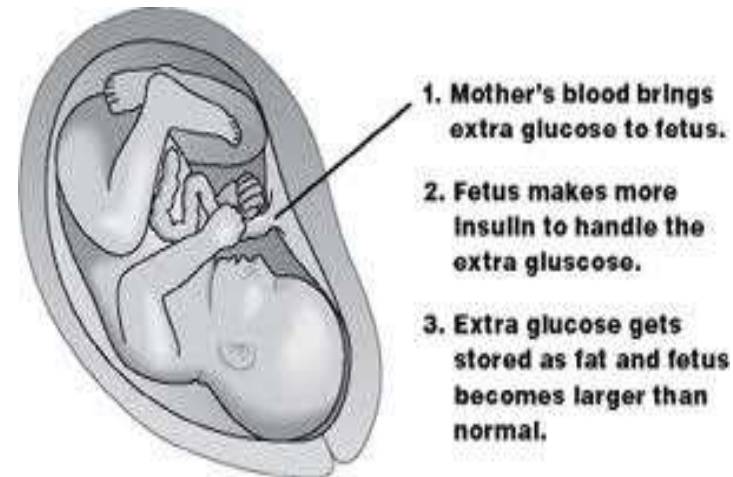
Effects on Mother

- 90% women become normoglycemic after pregnancy
- Increased risk of Type 2 DM (35-60%)*
- Hypertension
- Pre-eclampsia (HTN, proteinuria, edema)
- Cesarean Section

**(J Pak Med Assoc, 2009 July)*

Effects on Baby

- No physical deformities
- Hyperglycemia during pregnancy
- Hypoglycemia after pregnancy
- Macrosomia (wt =8-9 lb)
- Breathing difficulties
- Jaundice
- Obesity risk increased
- Still birth



Screening

- All women should be screened for GDM between 24-28 weeks*
 - vs. risk factor based approach which can miss up to ½ the cases of GDM
 - Fasting blood glucose >126mg/dL or random blood glucose of 200mg/dL is indicative
- Women with multiple risk factors should be screened in the first trimester

*2012 Academy of Nutrition and Dietetics-Evidence Analysis Library (AND-EAL)

Role of Nutrition

- Body fat %, physical inactivity & diet quality are important modifiable risk factors for GDM.

(Eur J Clin Nutr. 2007)

- The Dietitian should monitor
 - weight gain, nutritional intake and physical activity.



(2012 A.N.D-EAL)

Your baby is what you eat!

Goals of NT

- To normalize fetal growth and birth weight
 - By controlling blood glucose levels
 1. intake of carbohydrates
 2. saturated fats

- Ensuring adequate nutrition without excessive weight gain

NT and You

- Initiate NT within one week after diagnosis
- Include a minimum of three nutrition visits
- Research indicates that NT results in
 - improved maternal and neonatal outcomes, especially when diagnosed and treated early

(2012 A.N.D-EAL)

Steps of NT

- Assess
- Instruct
- Evaluate



Assess



- Weight History
- Physical Activity
- Current Food Habits & Preferences



Weight History

- Of previous pregnancies
- Weight fluctuations
- During and Prior to pregnancy
- Dietary habits



Weight Gain

- Normal and Underweight Women
 - Encourage adequate calories consumption to promote appropriate weight gain, with guidance from the Dietary Reference Intakes (DRI) for pregnant women.

Weight Gain

- Overweight/Obese Women
 - weight loss in pregnancy is not recommended
 - Encourage modest energy restriction
 - Caloric restriction
 - ~70% of the DRI for pregnant women

(2012 A.N.D-EAL)

Weight Gain Recommendations

Weight for Height Category	Recommended Total Weight Gain
Underweight (<19.8)	28 - 40 lbs
Normal/Healthy Weight (19.8-26)	25 - 35 lbs
Overweight (26.1-29)	15 - 25 lbs
Obese (>29)	15 lbs
Twin Gestation	35 – 45l bs
Triplets	50 lbs

*A.N.D Manual of Clinical Dietetics, 6th Edtion

Physical Activity Assessment

- Type
- Duration
- Frequency





Diet Assessment

- Determine trends & preferences through 24 hr recall
- Prenatal vitamin intake
- Food allergies or intolerances
- Discuss cooking ability
- Determine food availability

Instruct

- Nutrient Balancing
- Meal Distribution
- Portion Sizes
- Weight Gain
- Physical Activity




Nutrient Balancing

- Carbohydrates:
 - understanding, choosing and counting
- Fat & Protein
- Vitamins and Minerals



Role of Carbohydrate

- Provision of glucose to the fetal brain and to prevent ketosis.
- CHO intake affects postprandial blood glucose levels;
 - ↑ postprandial blood glucose levels are associated with ↑ incidence of large-for-gestational age infants and ↑ rate of Cesarean sections.
- Research is limited regarding fiber intake and GI in women with GDM.



Typical GDM Carbohydrate (~35-40% of Energy)

Breakfast	15-20 grams
Morning snack	10-15 grams
Lunch	45-60 grams
Afternoon snack	10-15 grams
Dinner	45-60 grams
Night Snack	10-15 grams

Meal Distribution

- Start with 175 grams* of carbohydrate
 - about 12 carbohydrate choices
- Distribute evenly throughout the day
 - Smaller, more frequent meals
- Watch timing:
 - 2 hours between meals
 - No more than 10-12 hours between last evening meal and morning meal

Break-fast

- Blood glucose elevated in the AM
- CHO 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



Artificial Sweeteners

- Inform them that only FDA-approved non-nutritive sweeteners should be consumed
- Moderation should be encouraged
- Research in this area is extremely limited

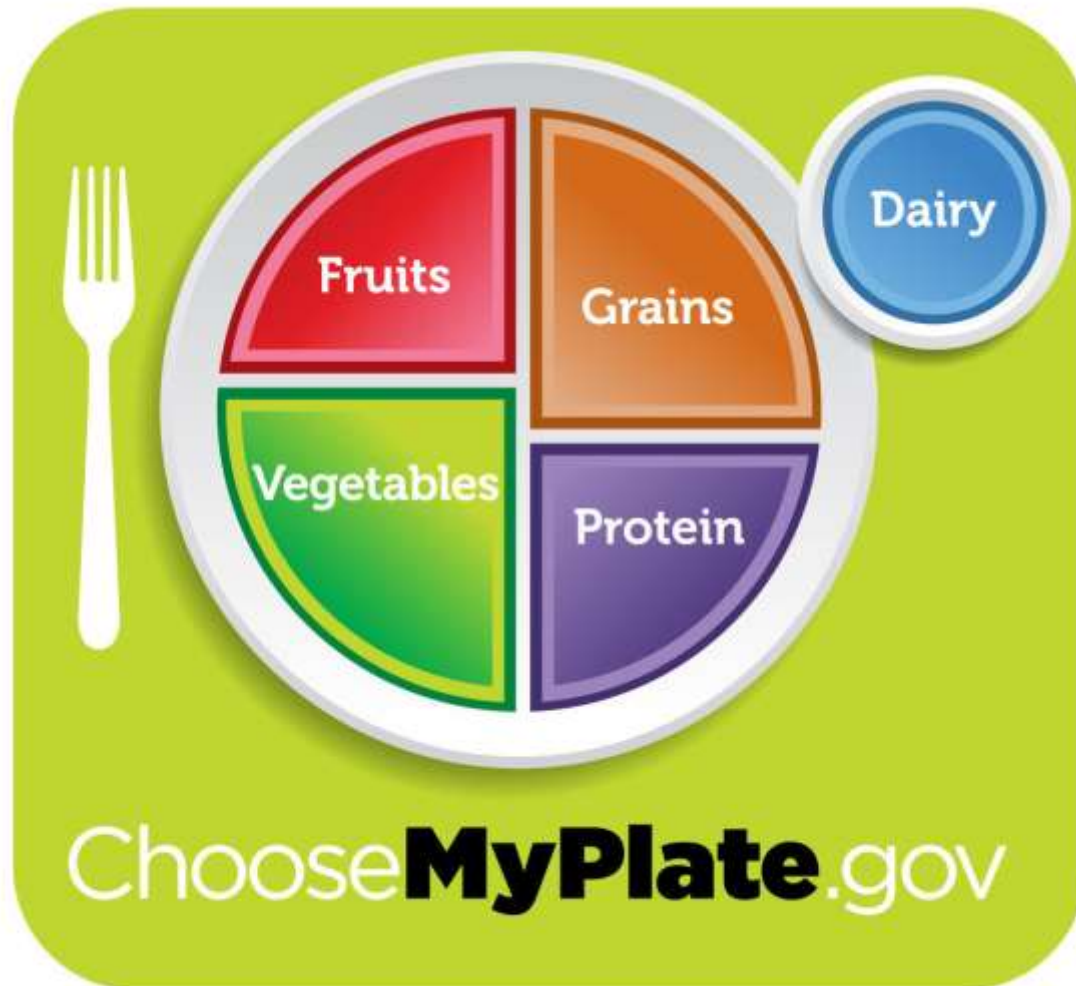


Dietary Fat in GDM

- Choose food source which are lower in saturated and trans fats
- Increased polyunsaturated fat intake

(Diabetes Care, 2000 Apr)

Portion Control



Physical Activity

- *Aim for 30 minutes/day, 3 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

(*2012 A.N.D-EAL)

Evaluate

- Weight Gain
 - Food Record
- and.....



Evaluate

- Self Monitoring Blood Glucose
 - Fasting <95 mg/dl
 - 1 hour postprandial <130-140 mg/dl
 - 2 hour postprandial <120 mg/dl
 - Allow up to 2 weeks for BG levels to respond to nutrition therapy
 - Glucose intolerance increases as pregnancy progresses




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

GDM: Our responsibility

- Prevent the development of GDM per se
- Organize programs for reducing the incidence of type 2 DM in this high risk group (J Pak Med Assoc, July 2009)
- BF improves glucose metabolism in mother and reduces risk of type 2 DM in child (2012 A.N.D-EAL)



THANK
YOU