

GESTATIONAL DIABETES

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- Gestational Diabetes develops in up to 10% of pregnancies.
 - Diabetes affects your body's ability to use the sugar (glucose) you take in.
 - In **Gestational Diabetes** blood glucose is too high.
 - Usually occurs in the second half of pregnancy

CAUSES

- ⦿ Pregnancy changes how the body uses glucose.
- ⦿ Food is broken down (digested) and sugar (glucose) enters the blood stream.
- ⦿ The Pancreas produces Insulin to help glucose move from the blood stream into the cells where it is used for energy.

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- In pregnancy the placenta produces hormones that effect how insulin works.
 - More glucose stays in your blood and crosses the placenta.

RISK FACTORS

- Age > 25
- Personal or family History of Diabetes
- Being Overweight
- Nonwhite race (Asian Hispanic, Black, Indian)

COMPLICATIONS

- ◎ Most women with **Gestational Diabetes** deliver healthy babies.
- ◎ **Gestational Diabetes** that is not carefully managed can lead to high blood glucose levels that can cause problems for both **YOU & YOUR BABY.**

COMPLICATIONS FOR BABY

- Excessive Birth Weight
- Preterm Delivery
- Respiratory Distress Syndrome
- Low Blood Sugar
- Type 2 Diabetes Later in Life

COMPLICATIONS FOR MOM

- High Blood Pressure, Preeclampsia & Eclampsia
- Up to a **30%** chance of developing **Diabetes** later in life

TREATMENT

- It is very important to monitor & control blood glucose to keep your baby healthy & avoid complications during pregnancy and delivery.

TESTING YOUR BLOOD SUGAR

- ⦿ You will be asked to test your blood sugar 4 times each day;
- ✓ **FASTING** first thing in the morning before you eat anything.
- ✓ ****It is NOT necessary to fast for prolonged periods****
- ✓ **2** hours after breakfast
- ✓ **2** hours after lunch
- ✓ **2** hours after dinner

GLUCOSE GOALS

- ⦿ FASTING less than 95
- ⦿ Two Hours after a meal less than 120

HEALTHY DIET

- ⦿ Eating healthy is the best way to control your blood sugar
- ⦿ A healthy diet include **LOTS** of fruits, vegetables, & whole grains
- ⦿ The American Diabetes Association has a helpful website
- ⦿ A healthy diet may eliminate the need for medication

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- Exercise helps to move glucose into your cells and out of the blood stream.
 - It is recommended that women with Gestational Diabetes exercise for 30 minutes each day
 - Walking, cycling and swimming are good choices during pregnancy

MEDICATION

- ⦿ If you are not able to control your blood sugar with diet & exercise you may need medication.
- ⦿ **Glyburide** is an oral medication
- ⦿ **Insulin** is an injection you give yourself

GESTATIONAL DIABETES

DEFINITION

Gestational Diabetes occurs in 5-10% of pregnancies. Diabetes interferes with how your body is able to use the sugar (carbohydrates) you take in. Women with gestational diabetes have elevated blood glucose levels. Gestational Diabetes occurs in the last half of pregnancy.

CAUSES

Pregnancy affects how the body processes or uses up glucose. Your body breaks down the foods you eat to produce sugar (glucose) that enters your bloodstream. The pancreas produces *insulin*, a hormone that moves the glucose from your bloodstream into the cells where it is used for energy.

In pregnancy the placenta produces hormones that may interfere with how insulin works. Hormones produced by the placenta make it more difficult for insulin to carry the glucose in your bloodstream into your cells where it can get used for energy. This causes the level of glucose in the blood to be increased. As pregnancy progresses the placenta produces more and more insulin blocking hormones. In gestational diabetes these hormones cause the blood sugar to rise to levels that can affect the growth and welfare of the baby.

RISK FACTORS

Age >25	Being Overweight (BMI >30)
Personal or Family History of Diabetes	Nonwhite Race (Asian, Hispanic, Indian, African American)

COMPLICATIONS

Most women with gestational diabetes deliver healthy babies. However gestational diabetes that is not carefully managed can lead to high blood sugar levels that can cause problems for both the mother and baby.

Complications that may affect the baby:

- Excessive birth weight. Extra glucose (sugar) in your blood stream crosses the placenta easily. Babies that are exposed to extra glucose gain extra weight. Large babies are more likely to experience injury during delivery and may need to be delivered by C section.
- Preterm delivery: A mother's high blood sugar can increase the risk for early labor.
- Respiratory distress syndrome. A condition that affects the baby's ability to breathe normally.
- Hypoglycemia (low blood sugar). Sometimes babies born to mothers with gestational diabetes experience low blood sugar soon after birth. Severe episodes of hypoglycemia can lead to seizures in newborns. If the baby does not respond to feedings they may need an IV with a glucose solution.

Type 2 diabetes later in life. Babies of mothers with gestational diabetes have an increased risk of developing type 2 diabetes (adult onset) later in life.

Complications that may affect you:

- High blood pressure, preeclampsia and eclampsia. Gestational diabetes increases your risk for developing high blood pressure during pregnancy. It also raises your risk for developing preeclampsia and eclampsia. Two serious complications of pregnancy that can threaten the lives of both the baby and mother.
- Future diabetes. If you have gestational diabetes in one pregnancy it is more likely that you can have gestational diabetes in future pregnancies, It is also more likely that you may develop overt diabetes later in life.

TREATMENT

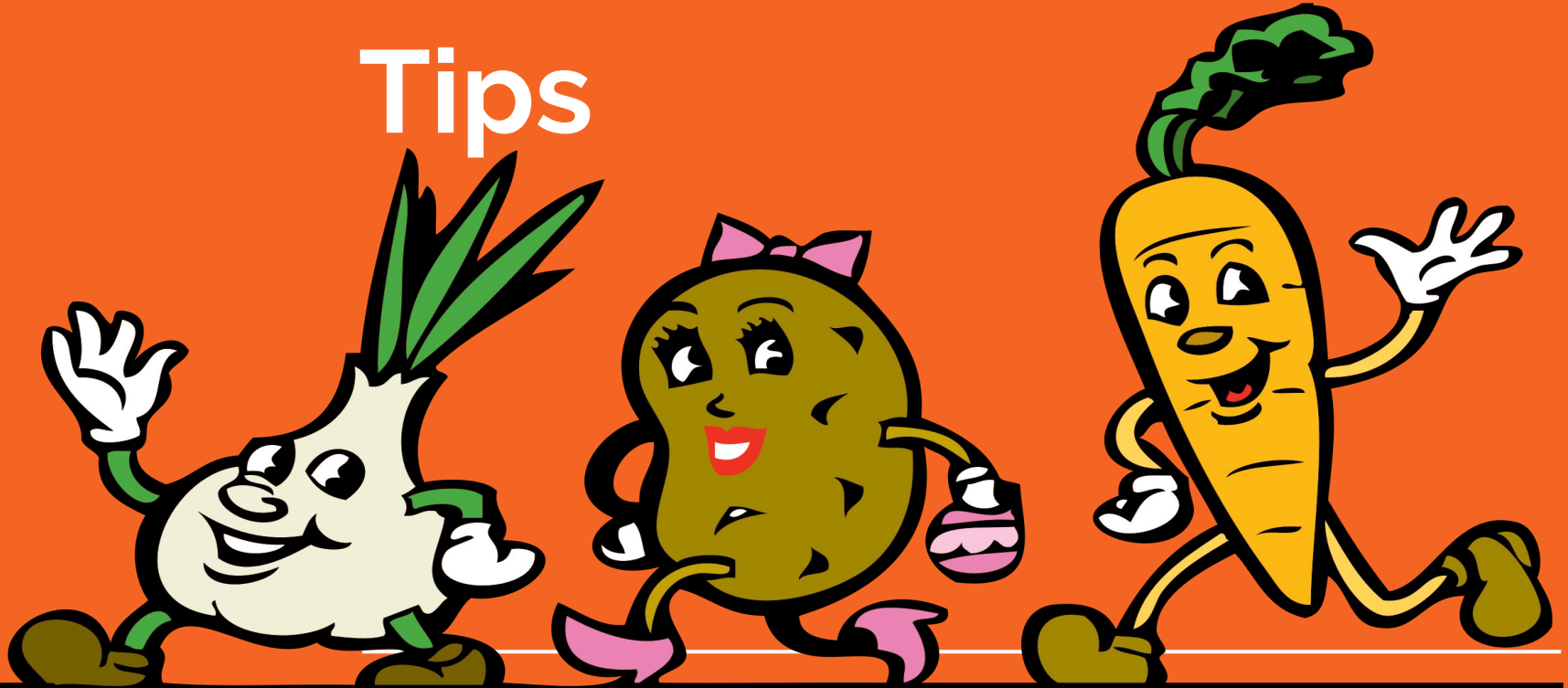
It is very important to monitor and control your blood sugar to keep your baby healthy and avoid complications during your pregnancy and delivery.

- Monitoring your blood sugar. You will be asked to check and record your blood sugar four times each day. Fasting, first thing in the morning *before* having anything to eat or drink and 2 hours *after* each meal. Although this may sound inconvenient and difficult please remember that this is the best way to monitor gestational diabetes and prevent complications for both you and your baby.
- Healthy diet. Eating the right kinds and amounts of foods is the best way to control your blood sugar. A healthy diet focuses on fresh fruits, vegetables and whole grains; foods that are high in nutrition and low in fat and calories and low in

refined carbohydrates. The American Diabetes Association has a helpful website. It is important to remember that making good food choices can help eliminate the need for medication.

- Exercise. Regular physical activity is important to health and wellness. Exercise lowers your blood sugar by stimulating your body to move glucose into your cells. Women with gestational diabetes should exercise for 30 minutes each day. Walking, cycling and swimming are great exercise for pregnant women.
- Medication. If diet and exercise are not successful in maintaining a healthy blood sugar, you may need medication. Two medications commonly used in pregnancy are glyburide (a pill) and insulin (an injection).

Nutrition Tips



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- ❑ Our bodies get energy from 3 different sources;
 - Carbohydrates
 - Fats
 - Proteins

**EACH OF THESE SOURCES IMPACT YOUR BLOOD SUGAR
DIFFERENTLY**

CARBOHYDRATES

- These are the foods that have the greatest impact on blood sugar
 - Carbohydrates are the **ONLY** source that significantly raises blood sugar
 - **For this reason CARBOHYDRATES are the nutrient we watch most closely in women with Gestational Diabetes**
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Foods High in Carbohydrates

- Breads
 - Pastas
 - Cereals
 - Crackers
 - Starchy Vegetables; potatoes, sweet potatoes, winter squash, peas & corn
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Carbohydrate Portions

“Counting Carbs”

The easiest way to understand how carbohydrates are impacting your blood sugar is to measure them.

The “portion” method is a widely used helpful tool for monitoring carbohydrates

One portion equals 15 grams of carbohydrate

15 grams of carbohydrate

- ★ 1 slice of bread
 - ★ 1 small (6 inch) tortilla
 - ★ ½ cup of cereal
 - ★ ½ cup of cooked pasta
 - ★ ½ cup of cooked rice
 - ★ ½ cup of cooked oatmeal
 - ★ 1 cup of milk
 - ★ ½ cup of fresh fruit
 - ★ 1 cup of berries
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Counting Carbohydrates

Food Labels are a very helpful tool to help determine the amount of carbohydrate in foods.

- **ALWAYS CHECK THE SERVING SIZE**
 - Check the total carbohydrate
 - Check the dietary fibre
 - Check the protein content
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Sample Label for
Macaroni and Cheese

Nutrition Facts

Serving Size 1 cup (228g)
Servings Per Container 2

Amount Per Serving

Calories 250 Calories from Fat 110

% Daily Value*

Total Fat 12g	18%
Saturated Fat 3g	15%
Trans Fat 1.5g	
Cholesterol 30mg	10%
Sodium 470mg	20%
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
Protein 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%

* Percent Daily Values are based on a 2,000 calorie diet.
Your Daily Values may be higher or lower depending on
your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Start Here

Limit these
Nutrients

Get Enough
of these
Nutrients

Footnote

Quick Guide
to % DV

5% or less
is low
20% or more
is high

Foods that do not raise your Blood Sugar

- ★ **VEGETABLES**
 - ★ **FATS & PROTEINS**
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Non Starchy Vegetables

- Artichokes
 - Asparagus
 - Peppers
 - Broccoli
 - Celery
 - Cucumbers
 - Tomatoes
 - Greens
 - Summer squash, zucchini
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Fats & Proteins

Foods that are mostly made up of proteins and fat do not raise blood sugar

These nutrients help to stabilize blood sugar

Fat & Protein Sources

- Meats; Beef, Poultry, Pork
 - Fish & Seafood
 - Eggs & Dairy
 - Nuts & Seeds
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The Plate Method

The plate method is a way to visually portion out your meals without strictly measuring portions

It can be helpful in situations where you may not have access to a food label

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- One half of your plate should be composed of **non-starchy** vegetables
 - One quarter of your plate **lean** proteins
 - One quarter of your plate from carbohydrates
(generally no more than 1 cup or 30 grams of carbohydrates at one sitting)
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Nutrition Tips

In order for you to control your blood sugar it is essential to understand how different foods affect the amount of glucose (sugar) in your blood. Our bodies get energy from three sources; carbohydrates, fats, and protein. Each of these energy sources impact your blood sugar differently.

Carbohydrates

Carbohydrates affect your blood sugar the most; in fact they are the only energy source that significantly raises blood sugar. **For this reason carbohydrates are the nutrient we watch closely in women with Gestational Diabetes.**

Foods High in Carbohydrates

- Grains; whole grains, refined grains, and anything made with flour (pasta, bread, tortillas, pancakes, crackers, cereals, granola)
- Starchy vegetables; potatoes, sweet potatoes/yams, winter squash, peas, corn

Carbohydrate Portions

Measuring or “**counting**” carbohydrate portions helps in understanding how carbohydrates affect blood sugar. The simplest way to do this is to use the portion method. One portion equals **15 grams** of carbohydrate. The amount of food that contains 15 grams of carbohydrate varies.

One portion or 15 grams of carbohydrate is equivalent to:

- ★ 1 slice of bread
- ★ 1 small corn tortilla
- ★ ½ cup of cereal
- ★ ½ cup of cooked pasta
- ★ ½ cup of cooked rice, oatmeal or other grain
- ★ ½ cup of beans (cannellini, pinto, garbanzo)
- ★ ½ cup of sweet potatoes, white potatoes, corn, peas or other starchy vegetable
- ★ 1 cup of milk
- ★ 1 cup of plain yogurt
- ★ ½ cup of fresh fruit (baseball sized piece of fruit)
- ★ ½ of a large banana
- ★ 1 cup of berries

Counting Carbohydrates

Food Labels are a good way to accurately identify the amount of carbohydrates in a particular food.

Sample Label for
Macaroni and Cheese

Nutrition Facts	
Serving Size 1 cup (228g)	
Servings Per Container 2	
Amount Per Serving	
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% Daily Value*	
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Cholesterol 30mg	10%
Sodium 470mg	20%
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
Protein 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%

Start Here

Limit these Nutrients

Get Enough of these Nutrients

Footnote

Quick Guide to % DV

5% or less is low

20% or more is high

* Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Steps for Reading a Food Label;

1. Always check the serving size
2. Check the amount of carbohydrate in a serving
3. Next check how much fibre the food contains per serving. It is recommended that women consume 21-25 grams of fibre a day.
4. Finally check how much protein is in each serving. It is recommended that pregnant women consume between 75-100 grams of protein each day.

Foods That DON'T Raise Your Blood Sugar

Vegetables

Aside from starchy vegetables like potatoes, sweet potatoes, winter squash, peas and corn, most vegetables have little effect on blood sugar. The non-starchy vegetables should make up the bulk of your vegetable intake **AND** the bulk of your diet.

Non-Starchy Vegetables

- ★ Artichokes
- ★ Asparagus
- ★ Peppers
- ★ Broccoli
- ★ Brussels sprouts
- ★ Cabbage
- ★ Cauliflower
- ★ Celery
- ★ Cucumber
- ★ Eggplant
- ★ Greens
- ★ Tomatoes
- ★ Lettuce; endive, escarole, spinach
- ★ Summer squash
- ★ Zucchini

Fats & Proteins

Foods that are mostly made up of proteins and fat do not raise your blood sugar. These nutrients stabilize blood sugar, preventing it from going too high or low.

Fat & Protein Sources

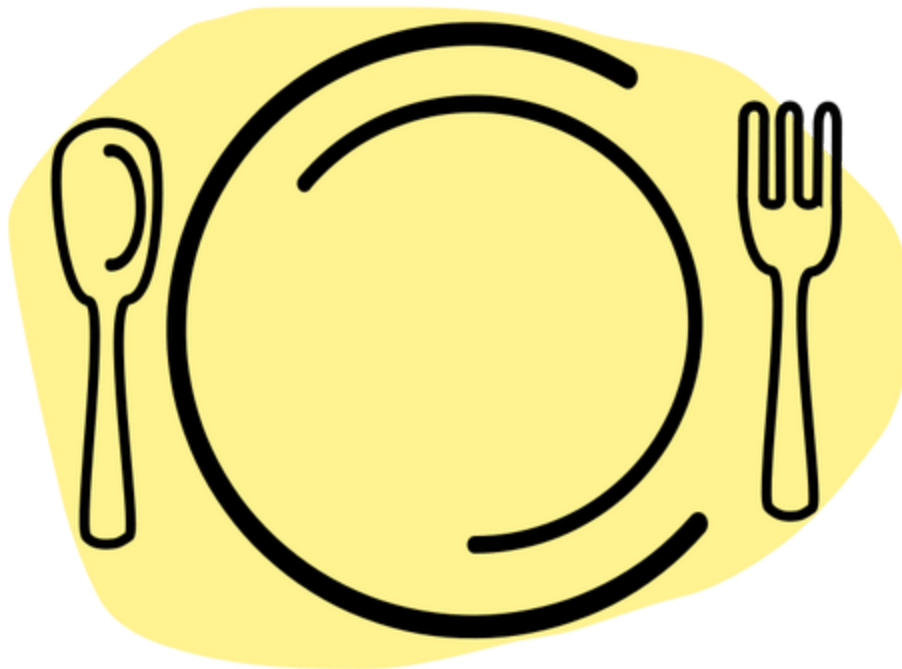
- ★ Meats; beef, poultry, pork
- ★ Fish & Seafood
- ★ Eggs & Dairy
- ★ Nuts & Seeds

Combining Foods

It is important to ALWAYS have a protein/fat source to help stabilize blood sugar levels. For example eating an apple alone will cause your blood sugar to spike BUT if you add some nuts your blood sugar will not rise as drastically.

THE PLATE METHOD

The plate method is a way to visually plan out your meals without strictly measuring portions. One half of your plate should be **non-starchy vegetables**, one quarter of your plate should be lean proteins and the remaining quarter carbohydrates. **Generally no more than 1 cup total, or 30gms of carbohydrates at one sitting.** Some women may have to consume less than 30 grams of carbohydrate to maintain normal blood sugar.



Gestational Diabetes Diet Guidelines

- To be successful in controlling your blood sugars you will have to limit your carbohydrate portions each meal. In general when you first begin testing your blood sugars you should not have more than **30** grams of carbohydrate each meal.
- Most women have more insulin resistance in the morning; this means that you may have the most difficult time keeping your blood sugar below 120 after breakfast. This may be a meal that you may need to restrict your carbohydrates to less than 30 grams, or be prepared to exercise after breakfast.
- **NEVER** have carbohydrates without protein. Protein helps to slow the breakdown of carbohydrates and prevents your body from releasing a large amount of sugar into your bloodstream all at once.
- Fiber also helps to slow the breakdown of carbohydrates
- Eating a low carbohydrate snack before bed will help to maintain your fasting glucose in the normal range, below 95.** Remember a prolonged fast 10-12 hours is not helpful for maintaining a fasting glucose below 95.**
- Exercise helps your body to move glucose (sugar) from your bloodstream into your cells where your body can use it for energy.
Women with gestational diabetes should exercise **every day**
- It is helpful if you can follow a schedule for meals, trying to have meals at approximately the same time each day.
- Test your fasting sugar first thing in the morning, do not wait until right before breakfast or after you take a shower. Test your blood sugars after a meal 2 hours after taking the **first** bite of the meal.
- You may be hungry between meals. When carbohydrates are limited so are calories. Low carbohydrate snacks can be added to your diet. The best time to add a snack is right after testing your blood sugar.

Low-Carb Snacks

- ❖ String cheese
- ❖ Celery stuffed with cream cheese
- ❖ Green or black olives
- ❖ Half of a Hass avocado
- ❖ Beef or Turkey Jerky, cured without sugar
- ❖ Hard boiled egg
- ❖ Deviled egg
- ❖ Lettuce leaf wrapped around grated cheddar cheese
- ❖ Sliced tomatoes topped with grated mozzarella & fresh basil
- ❖ Fruit kabob - strawberries, swiss cheese, grapes
- ❖ Cottage cheese topped with sugar free salsa
- ❖ Tree nuts; pistachios, cashews, almonds, walnuts *1/4 cup*
- ❖ Hummus with vegetables
- ❖ Cucumber boat stuffed with cottage cheese or ricotta
- ❖ Cherry tomatoes
- ❖ Light Greek Yogurt