

## What is gestational diabetes?

Gestational diabetes occurs when a pregnant woman develops blood glucose levels that are higher than normal.

In most cases of gestational diabetes, blood glucose levels return to normal after the baby is born. As gestational diabetes generally occurs later in a pregnancy, it generally does not cause birth defects. Complications of gestational diabetes are usually preventable with good blood glucose management as soon as possible after diagnosis.



## What causes gestational diabetes?

Your body changes most of the food you eat into glucose, a form of sugar your body's cells need for energy. Insulin is a hormone that helps glucose move from your blood into your cells.

In gestational diabetes, pregnancy hormones increase glucose levels to meet your baby's growth needs. When you eat, your blood glucose levels stay high for a longer period of time compared to when you weren't pregnant. Your body tries to produce more insulin to handle the added glucose you are producing, but it is still not enough. You have developed a problem called insulin resistance. The result is high blood glucose levels during pregnancy – or gestational diabetes.

Gestational diabetes occurs in about 7% of all pregnancies. As part of routine prenatal care, women usually have a blood test between the 24th to 28th week of pregnancy to determine if their blood glucose levels are in the normal range. Those at high risk for gestational diabetes may have this test earlier in their pregnancy.

Managing high blood glucose levels is important to reduce you and your baby's risk for diabetes-related complications. Your healthcare provider and diabetes-care team will help you develop a diabetes treatment plan with the goal of keeping your glucose levels in the normal range.

## What are the risks of gestational diabetes?

If high blood glucose levels are not managed during pregnancy, it can cause problems for both you and the baby. Your baby receives nutrients, including glucose, from your blood. If you have high blood glucose levels, your baby is getting too much glucose and stores the extra glucose as fat. High glucose levels also put added stress on the baby's pancreas as more insulin is required to handle the baby's increased blood glucose levels. If gestational diabetes is not treated, the baby can gain too much weight and become too large (a medical condition called macrosomia).

### The baby has a higher risk for:

- Shoulder and other injuries during delivery
- Low blood glucose after delivery
- Breathing problems
- Jaundice
- Stillbirth

### Babies of mothers with gestational diabetes have an increased risk for long-term health problems also, such as:

- obesity
- type 2 diabetes
- impaired intellectual and neurological development

### A woman with gestational diabetes is at greater risk for:

- high blood pressure
- early labor
- Caesarean section

Maintaining blood glucose levels in the normal range during pregnancy can help to reduce the risk of these complications.



## Managing gestational diabetes

The goal when treating gestational diabetes is to keep your blood glucose levels as close to normal as possible.

### Three things you can do to keep blood glucose levels as close to normal as possible are:

- Eat your meals and snacks according to your meal plan
- Get regular physical activity
- Take your medication, if necessary, as directed



## Meal planning for gestational diabetes

Although you want to avoid having too large a baby, it is important that you eat enough calories so you and your baby get the energy and nutrients you need. Skipping meals or losing weight is not safe or recommended during pregnancy. Often, meal planning is all that is necessary to manage gestational diabetes.

### The goal of meal planning is to:

- Eat the right amount of calories and nutrients to support the growth of your baby
- Manage blood glucose levels

The calories in food come from carbohydrate, protein, and fat. Of these, carbohydrate is the one that raises blood glucose levels the most. Protein and fat have little effect on your blood glucose level. During pregnancy, carbohydrate seems to raise the blood glucose even more – especially after breakfast.

Meal planning for gestational diabetes includes healthy meals that limit carbohydrate, spread carbohydrate intake throughout the day with meals and snacks, limits sweets and sugar, and reduces the consumption of juices and sweetened beverages. You and your registered dietitian will work together to develop a meal plan that is right for you. There is a sample meal plan at the end of this section.

## Do I need to monitor my blood glucose?

Your healthcare provider may recommend that you check your blood glucose levels often to ensure your levels are as close to normal as possible. Common times to check include when you first wake up before you eat (a fasting test) and 1 to 2 hours after meals (postprandial testing). Your healthcare provider may also recommend that you check before your meals if you take insulin. Record your blood glucose levels in a logbook or diary and bring it to your office visits.

**Recommended blood glucose levels for a woman with gestational diabetes are:**

### Plasma Glucose Goals During Pregnancy:\*

Time	Plasma Level
Fasting	less than 105 mg/dL
1 hour after meals	less than 155 mg/dL
2 hours after meals	less than 130 mg/dL

\* Values for whole blood glucose meter readings are about 10% lower.

Please refer to the instruction manual of your glucose meter to determine whether it reports the results as plasma or whole blood glucose.

Source: American Diabetes Association 2006

Your body may also produce chemicals called ketones if you do not have enough insulin. Ketones, if not treated promptly, can cause serious medical problems. Your healthcare provider will teach you how to reduce your risk for ketones and how to treat this problem if it occurs.

## Physical activity can help

Physical activity can help you manage your blood glucose levels and manage weight gain. And it can improve your strength, muscle tone, and endurance level – all of which can help with labor and delivery. Your healthcare provider and diabetes-care team will help you develop an exercise plan that is right for you

Be sure to check with your healthcare provider before beginning or changing your exercise program.



## What about medication?

For some women, meal planning and physical activity are not enough to keep their blood glucose levels in the normal range. They need insulin. (Diabetes pills are not recommended during pregnancy.) Some women are reluctant to take insulin, but you will find that the needles and insulin delivery devices used today are easy to use and almost painless. Insulin does not pass through the placenta to your baby nor does it harm your baby. Your healthcare provider will determine what type and how much insulin you will take and when you will take it.



## What about insulin side effects?

Hypoglycemia, the medical word for low blood glucose, is the most common side effect of insulin therapy. Low blood glucose can happen if you take too much insulin, skip a meal, or are more physically active than usual. If you take insulin, it is important to have a treatment for hypoglycemia available. This is a serious problem and must be treated right away.

### The warning signs of low blood glucose are:

- weak or shaky
- nervous
- sweaty or clammy
- irritable or confused
- hungry
- blurry vision
- dizzy or uncoordinated

If you have any of these signs, check your blood glucose right way. If you cannot check, treat for low blood glucose anyway to be safe. Eat or drink a fast-acting carbohydrate snack, such as 1/2 cup (4 oz.) of regular fruit juice or 1/2 can of regular (not diet) soft drink. If not treated promptly, hypoglycemia can cause a seizure or make you pass out. Keep a glucagon emergency kit handy and make sure that your family, friends, and co-workers know where to find and how to use the injection kit. Teach them before an emergency arises.

## What to expect during and after delivery

When you go into labor and arrive at the hospital, they will check your blood glucose and carefully monitor your health during delivery. If you took insulin during your pregnancy, insulin is rarely needed during labor and delivery because your body is using your glucose supply to help you deliver the baby.

After delivery, your pregnancy hormone levels drop and blood glucose levels usually return to normal. Immediately after delivery, your baby's glucose level will be checked to ensure it is in the normal range.

Your doctor will check your blood glucose at your 6-week check up to make sure your blood glucose is normal. Because you had gestational diabetes, you are at greater risk of developing diabetes later in life (usually type 2). Your healthcare provider may recommend a blood glucose test every 1 to 3 years to ensure your glucose levels remain in the normal range.

Your risk of developing type 2 diabetes later may be reduced by continuing to eat healthy, exercise regularly, and manage your weight. Ask your healthcare provider for more information on how to lower your risk for diabetes now – and for the rest of your life!

Source: American Association of Diabetes Educators Core Curriculum for Diabetes Education (4th Edition) 2001



## Sample Menu

**2,000 Calories** Carbohydrate: 225 g (45%), Protein: 110 g (22%), Fat: 70 g (33%)

<b>Breakfast</b> (2 carbohydrate servings)	1 slice whole wheat toast 1 egg or 1 tablespoon peanut butter 1 teaspoon margarine 1 cup skim milk
<b>Morning Snack</b> (1 carbohydrate serving)	6 saltine crackers 1 ounce cheese
<b>Lunch</b> (4 carbohydrate servings)	2 slices bread 2 ounces lean beef 2 teaspoons margarine 1/2 banana 1 cup skim milk raw carrot and celery sticks
<b>Afternoon Snack</b> (2 carbohydrate servings)	3 cups popped corn 1/2 cup orange juice
<b>Evening Meal</b> (4 carbohydrate servings)	3 ounce chicken breast 1/2 large baked potato with 2 tablespoons sour cream 1/2 cup cooked broccoli small dinner salad with 1 tablespoon salad dressing 1 cup skim milk 1 medium sized chocolate chip cookie
<b>Evening Snack</b> (2 carbohydrate servings)	3 graham cracker squares 1 cup skim milk

Adapted from The American Dietetic Association Nutrition Care Manual, 2006.

**For more information, call the Novo Nordisk Diabetes Tip Line at 1-800-260-3730  
or visit us on line at [ChangingDiabetes-us.com](http://ChangingDiabetes-us.com).**