

***“My Doctor Says I Have
Gestational Diabetes...”***

What Do I Do Now?



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Gestational Diabetes

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This guide will answer your questions about gestational diabetes and explain the steps you can take to help you have a normal pregnancy and healthy baby.

What is Gestational Diabetes?

Gestational diabetes is a type of diabetes that occurs only in pregnancy and usually disappears after the birth of the baby. It is present in less than 15% of all pregnancies and is usually detected at 24-28 weeks of pregnancy.¹



Who is Likely to Have It?

Your chances of developing gestational diabetes increase if you:

- Have a family history of diabetes
- Had a previous birth of a very large baby or a stillbirth
- Are overweight
- Had an earlier pregnancy with gestational diabetes
- Have too much amniotic fluid (polyhydramnios)
- Are older than 25 years

Pregnant women are usually screened for gestational diabetes between 24-28 weeks. Women with a strong family history of diabetes or with gestational diabetes in an earlier pregnancy may be tested at 16-20 weeks. Just because you did not have the condition in your first pregnancy does not mean you will not develop it in later pregnancies.

What is the Cause?

Gestational diabetes prevents your body from using carbohydrate properly. Carbohydrate is a nutrient found in foods that is turned into glucose by the body. Foods that contain carbohydrates include sweet foods such as table sugar, honey, jams, sweets, soft drinks and starchy foods such as bread, cereal, pasta, potatoes, fruit and milk. The inability to use carbohydrate properly results in blood glucoses that are not within normal levels.

When you eat food, your body breaks down carbohydrates into glucose during digestion and the glucose enters your blood stream. Your body needs glucose to provide energy just like your car needs gasoline to run. Energy is needed by your brain for thinking and by your muscles for activity. The pancreas, located behind your stomach, senses how much glucose is present in the blood and delivers the right amount of a hormone called insulin. Insulin lowers blood glucose by allowing glucose to enter your body's cells.

¹Jovanovic, L, ed. *Medical Management of Pregnancy Complicated by Diabetes*, 4th ed. Alexandria, VA: American Diabetes Association; 2004.

Insulin Resistance

In all pregnancies, the placenta creates hormones that work against the action of insulin, reducing its effectiveness. This is called "insulin resistance." These pregnancy hormones are at their highest level at about 24-28 weeks of pregnancy. As pregnancy progresses and the placenta grows, more hormones of pregnancy are produced and there is even greater insulin resistance. In most women the pancreas is able to make extra insulin to overcome insulin resistance. If your pancreas cannot make enough insulin and your blood glucose remains too high, this is known as gestational diabetes. Your body's organs cannot use the glucose for energy and an unhealthy level builds up in your blood. Your body tries to rid itself of the glucose through the urine.

What Could Happen to My Baby?

When gestational diabetes is detected early, it can be managed and controlled to prevent complications for both you and your baby. The key is to keep your blood glucose at normal levels as soon as gestational diabetes is detected. You will learn how to do this by using the following tools:

- Meal Planning
- Blood Glucose Monitoring
- Medication (if needed)

When blood glucose is not kept under control, two conditions could affect your baby: macrosomia and hypoglycemia.

Large baby (Macrosomia) – Your baby receives nutrients directly from your blood through the placenta. If your blood has more glucose than normal, your baby responds by producing its own insulin. The baby's insulin could cause your baby to grow faster and bigger, a condition called macrosomia. Although the baby grows larger, it does not mature more rapidly, so a normal size baby may still be premature. Occasionally, a baby grows so large that a cesarean section delivery becomes necessary. An ultrasound test is usually done to determine the size of your baby and the best method of delivery. Macrosomia can be avoided by keeping your blood glucose level as close to normal as possible.

Low blood glucose (Hypoglycemia) – Once your baby is born, the baby's pancreas is still making insulin to compensate for the mother's lack of insulin. This can cause a sudden drop in your baby's glucose. As a safeguard, your baby's glucose level will be checked at birth and several times afterwards. Your baby may be fed glucose water and placed in a special care nursery for observation.



Keeping your blood glucose at a normal level during pregnancy can prevent low blood glucose in your baby at birth.



What about birth defects – You should not worry that gestational diabetes will cause birth defects in your baby. Birth defects that can occur as a result of diabetes usually happen during the first trimester or first 13 weeks of pregnancy. The insulin resistance that develops as a result of gestational diabetes does not begin until about the 24th week of pregnancy.

Could my baby be born with diabetes? – Having gestational diabetes does not cause your baby to have diabetes. Your child's risk of developing diabetes is related to family history, body weight and lifestyle choices, such as eating habits and exercise.

What Are the Other Types of Diabetes?

Gestational diabetes is different than other types of diabetes, because it only occurs during pregnancy and usually disappears after the baby is born. Research studies have shown that 40-60% of women with a history of gestational diabetes will develop type 2 diabetes later in life.² They are less likely to develop type 2 diabetes if they are able to achieve and maintain a healthy weight.

Type 1 diabetes – This type of diabetes occurs primarily in children and young adults. About 10% of people with diabetes have type 1. In type 1 diabetes, the pancreas produces little to no insulin. Therefore, diabetes pills cannot be used as a treatment and insulin injections are necessary for survival. A well-balanced meal plan, exercise program and insulin are necessary to control type 1 diabetes.

Type 2 diabetes – People diagnosed with type 2 diabetes are usually over 40 years of age, but the condition has also been seen in overweight and inactive children and may occur earlier in groups at high risk such as Latino-Americans. Approximately 90% of those with diabetes have type 2 diabetes. They tend to have a family history of diabetes, be overweight and not very active. In type 2 diabetes, the pancreas produces insulin. However, either there is not enough insulin or the insulin that is made is not working properly. Many of these people can control their diabetes by following a well-balanced meal plan, exercising and if necessary, taking diabetes pills. Some may also require insulin in order to control their blood glucose levels and to feel better.

² Coustan DR, Carpenter MW, O'Sullivan PS, Carr SR. Gestational diabetes: predictors of subsequent disordered glucose metabolism. *Am J Obstet Gynecol* 1993;168:1139-44.

How Do I Take Care of My Baby and Myself?

You can help control your blood glucose by taking these five steps:

- Checking your blood glucose
- Appropriate exercise
- Testing for ketones
- Insulin or diabetes pills, if necessary
- Following a special meal plan

NOTE: Diabetes pills such as metformin and glyburide have been shown to be effective in controlling blood glucose in women with gestational diabetes however they have not been approved for use in pregnancy.³

Your doctor may recommend that you see a registered dietitian and diabetes educator to help you understand how to use these vital tools to successfully manage your gestational diabetes. The following information will help you learn more.

Checking Your Blood Glucose

Self-blood glucose monitoring is a simple way to check your blood glucose. Several types of glucose meters are available to help you check your blood glucose levels. Most current glucose meters read plasma blood. Plasma readings are closer to the results you will receive in the laboratory. Your diabetes educator or doctor will help you select the one that is best for you, teach you how to use it and record the results.

Your blood glucose readings will change throughout the day, depending on what you eat, your activity level and the action of your hormones. Your doctor and the other members of your health care team may ask you to check your blood glucose several times a day to better understand these changes and develop the right treatment plan for you.

When to test – Ask your doctor or diabetes educator how often you should check your blood glucose each day. Most doctors suggest that you test four times a day: before eating in the morning and one or two hours after each meal. Your blood glucose will reach its highest level one-hour after you eat, so testing at this time will let you know the highest amount of blood glucose to which your baby has been exposed.

Using a logbook – Your healthcare team will provide you with a special logbook that you must bring to each visit with your doctor and diabetes educator. It is important to carefully record your blood glucose readings. The logbook should indicate the date, time of test and result. Any changes from your normal meal plan should also be noted. Your doctor will use this information to make decisions about

your treatment. Most glucose meters have computer software available to download blood glucose results. This software provides another way of providing information to you and your doctor.

The doctor will look for patterns in your blood glucose records over a period of time. For example, are your readings higher in the morning than the evening? Are they related to your meal plan or activity or do you require more insulin at that time of day?

See the sample logbook below:

Self Blood Glucose Monitoring Logbook

Date	Before Eating AM	Insulin	After Breakfast 1 hr	2 hr	After Lunch 1 hr	2 hr	Insulin	After Dinner 1 hr	2 hr	Insulin	Ketones	Notes
Mon.	90	2R - 5N	135			118	5R		122	8N	N	
Tues.	94	2R - 5N		121	128		5R	133		8N	N	Ate Birthday Cake for Snack
Wed.	115	2R - 5N		117		124	5R		118	8N	N	
Thurs.	92	2R - 5N	130			122	5R		119	8N	N	
Fri.	90	2R - 5N		115		118	5R		115	8N	N	

Ideal blood glucose results – The goal of treatment is to keep your blood glucose as close to normal as possible. Your blood glucose results should be in the following ranges:

Target Blood Glucose Results ⁴	Plasma Blood Glucose		Your Blood Glucose Targets	
	Fasting Blood Glucose (Before Breakfast)	Less than or equal to 95 mg/dl		
	1 hour after meals	Less than or equal to 140 mg/dl		
	2 hours after meals	Less than or equal to 120 mg/dl		

Recent studies have shown that the plasma levels should even be lower before breakfast (less than 90 mg/dl) and lower one hour after meals (less than 120 mg/dl). Women with gestational diabetes who have blood glucoses at these lower levels have been found to reduce their chances of giving birth to large babies. Check with your doctor or healthcare team to set the correct target values for you.

Testing for Ketones

Your doctor may ask you to test your urine for ketones. Ketones occur when the body begins to break down fat for energy instead of glucose and weak acid substances are formed as a result. These substances may “spill” over into the urine or leave the body through the urine. Ketones may be found in the urine if one or more of the following circumstances occur:

- Your blood glucose is out of control
- You did not eat enough carbohydrate
- You did not eat enough calories
- You skipped a meal or snack
- You did not eat for more than 10 hours (between bedtime and breakfast)



⁴American Diabetes Association. Standards of medical care in diabetes - 2010. *Diabetes Care*. 2010; 33 (suppl 1):S11-S61.

³ Nicholson W, Bolen S, Witkop CT, et al. Benefits and risks of oral diabetes agents compared with insulin in women with gestational diabetes; a systematic review. *Obstet Gynecol*. 2009 Jan;113(1):193-205.

You can buy ketone test strips at your local drugstore. The test strip has a chemically-treated pad that is passed through a stream of urine or dipped into a container with urine. It is then compared to a color chart on the bottle with a scale. The result should be noted in your logbook. Ketones should be tested first thing in the morning, if you are sick, when you have not eaten enough or when your blood glucose is high (greater than 200 mg/dl).

Large amounts of ketones in the blood can cause a condition called ketosis that may harm your baby. There should be no ketones present in your urine. It is important to report any positive ketone tests to your doctor.

Will I Need to Follow a Special Diet?

What you eat and how much you eat will affect your blood glucose. Most women with gestational diabetes can control blood glucose by following a healthy meal plan. A healthy meal plan is a guide to help you select the right types and amounts of food and includes a variety of foods such as bread, starches, fruit, milk, meat and vegetables. A registered dietitian can help you develop a meal plan specifically designed to meet your individual needs. A meal plan should take into consideration your likes and dislikes as well as your usual food habits. The goals of your meal plan are:

- To provide the necessary nutrition for you and your baby.
 - To keep blood glucose levels within a normal range.
 - To allow for adequate weight gain.
 - To avoid spilling ketones in your urine.
- If you are not eating enough throughout the day or if you are not eating enough food for your bedtime snack, you may detect ketones in your urine.



To find a qualified dietitian:

- Ask your doctor or local hospital
- Call your local chapter of the American Diabetes Association
- Check the American Dietetic Association Customer Service (1-800-877-1600 ext. 5000) or web page www.eatright.org
- See the American Association of Diabetes Educators web page www.aadenet.org.

Healthy Weight Gain – How much weight you should gain during pregnancy is determined by what you weighed before you became pregnant. (see table below). The total amount is not as important as your weekly weight gain. If you were gaining two pounds per week before you were diagnosed, slowing down to one pound per week may help blood glucose levels return to normal.

Many women, after learning they have gestational diabetes, may find they lose weight or stay at the same weight for one to two weeks after they change their meal plan. If this happens to you (and you are not spilling ketones) this is not cause for concern.

Pre-Pregnancy Weight	Recommended Weight Gain ⁵
Normal Weight	25 - 35 pounds
Underweight	28 - 40 pounds
Overweight	15 - 25 pounds
Obese	15 pounds
Twin Pregnancy	35 - 45 pounds

This may happen because:

- You reduced the carbohydrates in your diet by eating fewer sweets and carbohydrate rich foods
- You may be eating fewer calories

However, if you do not begin to gain weight two weeks after changing your eating habits, you may need to discuss this with your doctor or dietitian. Remember, even if you were overweight before you became pregnant, now is not the time to lose weight. During the second and third trimester you should gain approximately 3/4 to 1 pound per week if you were at a normal weight before becoming pregnant and slightly less weight per week if you were overweight. Your doctor or dietitian can help you determine how much weight you should gain each week.

Calories – In order to determine the right number of calories for you, your height, pre-pregnancy weight, age, number of weeks pregnant and activity level must be taken into consideration. A detailed diet history can help your dietitian determine the right calorie level for you so you continue to gain weight at the rate you should.

How Does Food Affect My Blood Glucose? – Food is made up of three nutrients: carbohydrate, protein and fat. Each of these nutrients supplies calories but has an effect on your blood glucose level. Remember that when you eat a meal or a snack your body breaks down food into glucose and eventually, with the help of insulin, it is turned into energy so you can perform the activities of daily living. When you have gestational diabetes your body can not use glucose properly. Glucose builds up into the bloodstream and results in a high blood glucose level that is not healthy for you and your baby.

⁵Jovanovic, L, ed. *Medical Management of Pregnancy Complicated by Diabetes*, 4th ed. Alexandria, VA: American Diabetes Association; 2004.

Carbohydrates – Carbohydrates has the greatest effect on your blood glucose because it is completely turned into glucose one to two hours after eating. Complex carbohydrates include foods such as bread, bagels, potatoes, corn, peas and lima beans. Simple carbohydrates (sometimes called simple sugars) include foods such as fruit, juice, milk, cake, cookies, candy, honey, sugar, ice cream and soft drinks.



Complex vs. simple carbohydrates – You may have heard that foods with simple carbohydrate will raise your blood glucose quicker and higher than food with complex carbohydrate. Therefore, some women will avoid simple carbohydrates such as milk and fruit that are an important source of needed vitamins and minerals, to avoid high blood glucose. Everyone handles food differently. It is not necessary to eliminate foods such as these unless they cause problems with your blood glucose. This is why it is important to test your blood glucose one to two hours after a meal in order to see how specific foods affect your blood glucose.

Carbohydrate control – Avoid eating large amounts of simple carbohydrates such as cake, cookies, candy, soft drinks and sweeteners such as sugar and honey because they are of little nutritional value and high in carbohydrate. They are not good carbohydrate choices. Regardless of the type of carbohydrate you eat it will turn into glucose. It is important for you to control the amount of carbohydrate and eat the same amount of carbohydrate at the same times each day in order to control blood glucose.



Protein – Protein has very little effect on blood glucose levels. Protein foods include meat, fish, chicken, cheese, eggs and peanut butter.

Fat – Fat has very little impact on blood glucose, however foods high in fat content are high in calories. If eaten in excess they can lead to unwanted weight gain. Some examples of fat are butter, margarine, oil, mayonnaise, salad dressing, bacon and nuts.

Food servings – Your dietitian will help you decide how many servings you should eat from each food group and when to eat meals and snacks. Non-starchy vegetables such as broccoli, cauliflower, carrots, string beans and lettuce greens are low in carbohydrate, fat and calories. They may be eaten more freely than other foods. Check with your dietitian to find out how many servings to eat each day. Remember it is important for you to eat a variety of foods to meet your nutritional needs while you are pregnant.

Timing of meals and snacks – Your meal plan will probably include three meals and three snacks daily. It is helpful to divide the food you eat at meals into frequent smaller meals to prevent blood glucose from getting too high. Frequent small meals may also help prevent heartburn. Your dietitian or doctor may ask you to eat less carbohydrate in the morning because this is when "insulin resistance" is the greatest and therefore you can tolerate less carbohydrate at this time. It will be important for you to include a bedtime snack to help prevent urine ketones in the morning. As your pregnancy progresses, you may need a bigger bedtime snack or more calories during the day to prevent morning urine ketones.



Sweeteners – There are two types of sweeteners added to foods: nutritive and non-nutritive sweeteners. Nutritive sweeteners have calories and can raise your blood glucose if consumed in excess. These sweeteners include sucrose, dextrose, corn syrup, fructose and honey. Sugar alcohols such as sorbitol, xylitol and mannitol also contain calories, but may not raise your blood glucose as much as other nutritive sweeteners. In some people sugar alcohols may cause a laxative side effect (bloating, cramping and diarrhea). Non-nutritive sweeteners do not contain calories or raise blood glucose. Aspartame (Nutrasweet® or Equal®), Acesulfame K (Sunette or Sweet-One®) and Sucralose (Splenda®) are non-nutritive sweeteners that are considered to be safe for use during pregnancy in small amounts. Saccharin (Sweet'N Low® or Sugar Twin®) is a non-nutritive sweetener that crosses the placenta so health experts do not recommend using it during pregnancy. Stevia (Rebaudioside A) is a natural non-nutritive sweetener that does not contain calories and does not raise blood glucose. It has been designated by the FDA as being generally safe. (Source: ADA Standards of Medical Care in Diabetes – 2010) Talk to your doctor about the use of these sweeteners during pregnancy.



Portion control – When you begin following your meal plan it is advisable to measure foods to make sure you are eating the right amount. The measuring equipment you will need includes measuring cups, measuring spoons and a food scale. If you eat too much at one meal or snack, especially carbohydrate-rich foods, your blood sugar may be high after that meal or snack.

Food Groups

Carbohydrate Group

Each of the following is equal to one serving of carbohydrates:

Bread and Starches

1/2 - 3/4 cup dry cereal
1/2 cup cooked cereal
1 slice of bread
1/2 small bagel (1oz.)
1/3 cup rice
1/3 cup pasta
3 oz. potato
5 crackers
3/4 oz. pretzels
1 small roll
1/2 cup corn or peas
1 small ear corn

Milk

1 cup milk
1 cup plain yogurt
1 cup fruited yogurt
sweetened with
aspartame

Fruit

1/2 cup fruit juice
1/2 large or 1 small
banana
Small piece of fruit
1-1/4 cup berries
1/2 grapefruit

Protein Group

Each of the following is equal to one serving of protein:

1 ounce meat, fish or poultry (chicken, turkey)
1 ounce cheese
1 egg
2 tablespoons peanut butter
4 ounces Tofu

Fat Group

Each of the following is equal to one serving of fat:

1 teaspoon butter, margarine, oil or mayonnaise
1 tablespoon salad dressing
2 tablespoon reduced calorie salad dressing
2 tablespoons cream cheese



Sample Meal Plan - 2200 Calories

Breakfast

- 1 egg or 1/4 cup cottage cheese
- 1 cup skim or 1% lowfat milk
- 2 slices toast or 1 English muffin
- 2 teaspoons margarine or butter
- Decaffeinated tea or coffee

Morning Snack

- Small piece of fruit
- 5 Saltine crackers

Lunch

- 3 ounces lean meat, fish or poultry
- 1 cup skim or 1% low-fat milk
- 2 slices bread or 2 ounce roll
- 2 teaspoons mayonnaise or oil
- Lettuce and tomato
- 1-1/4 cup strawberries or small banana (1/2 large banana)

Afternoon Snack

- 1 cup skim or 1% low-fat milk
- 3 graham crackers

Dinner

- 4 ounces lean meat, fish or poultry
- 1 cup pasta or 1 cup rice or 1-1/2 cup starchy vegetable or large potato
- 2 teaspoon oil or margarine or 2 tablespoons salad dressing
- Water or decaffeinated coffee or tea
- 1 cup vegetable or tossed salad

Bedtime Snack

- 1 cup skim or 1% low-fat milk
- 1/2 - 3/4 cup dry cereal

Will Exercise Help Control My Blood Glucose?

Exercise is important for a healthy pregnancy. Daily exercise protects against back pain, maintains muscle tone, strength and endurance. For women with gestational diabetes, exercise also serves to increase the efficiency of the body's own insulin. Often called "invisible insulin," exercise helps to lower blood glucose without medication. If insulin is required, exercise may allow you to use a smaller dose. You should discuss your exercise program with your doctor. Your doctor will alert you to any activity limitations, warning signs or special considerations.

Duration and timing - Exercising four to five days per week for 20 to 30 minutes is necessary to see the effect of "invisible insulin" on your blood glucose levels. The best time to exercise is right after a meal when your blood glucose level is at its highest. If you are taking insulin, this is also the safest time to exercise.

How Do I Know If I Need to Take Insulin?

If your blood glucose is over the acceptable ranges, you may need insulin to bring them to normal ranges. These readings do not mean that you are not following your meal plan or exercising. They just indicate that you do not have enough insulin working properly. If necessary, your doctor will start you on insulin injections and may ask you to see a diabetes educator who will teach you how to inject insulin, as well as how, when and where it should be given.

Important facts about insulin – Insulin works to lower your blood glucose. Your doctor will determine your insulin dose, when and how often it should be given. The dose of insulin you take and how often you take it is based on your blood glucose records. As your pregnancy progresses, the placenta will make more pregnancy hormones; larger doses of insulin will be needed to keep blood glucose within acceptable ranges. It is common for women to take two to three injections of insulin a day.

Insulin adjustment – Often women will begin taking one or two shots of NPH insulin. NPH is intermediate acting insulin that works to meet the body's constant need for insulin. As insulin requirements increase, there may be a need to combine NPH insulin with Regular insulin, a short-acting insulin. The short-acting insulin works to lower your blood glucose quickly after a meal. By combining short-acting and long-acting insulin, there is 24-hour insulin coverage of blood glucose. Insulin analogs, such as lispro (Humalog®) and aspart (Novolog®) or glargine (Lantus®) and detemir (Levemir®) may be prescribed during pregnancy by healthcare professionals, however, they have not been studied in pregnant women and are not intended for use during pregnancy.⁶ Lispro and Aspart are rapid acting insulins. Glargine and detemir are long-acting insulins. The following table describes how these insulins work.⁷

Name of Insulin	Type of Insulin	Starts Working	Lowers Blood Glucose the Most	Stops Working
lispro, glulisine, aspart	Rapid Acting	5 minutes	1 hour	4 hours
Humulin R®, Novolin R®	Regular	30 minutes	2-3 hours	6 hours
NPH	Intermediate	2 - 4 hours	4 - 12 hours	12 - 18 hours
glargine, detemir ⁸	Long Acting	6-10 hours	Evenly over 24 hours	10 - 16 hours

⁶ Humalog {package insert} Indianapolis, IN: Eli Lilly and Company; 2009.

Novolog {package insert} Princeton, NJ: Novo Nordick A/S; 2009.

Lantus {package insert} Bridgewater, NJ: Sanofi-Aventis; 2007.

Levemir {package insert} Princeton, NJ: Novo Nordick A/S; 2008.

⁷ American Diabetes Association. *Living with diabetes: Insulin Basics*.

<http://www.diabetes.org/living-with-diabetes/treatment-and-care/medication/insulin/insulin-basics.html>. Accessed April 26, 2010.

⁸ Pregnancy category C: Use during pregnancy if the potential benefit justifies the potential risk to the fetus.

How do I take Insulin? Where do I give it? – The thought of taking insulin by injection might cause you some concern. After you give the first injection, you will be surprised at how comfortable it can be. Today's insulin needles are very thin and short. Your educator or doctor will teach you how to give yourself the injection.



How do I store insulin? – Insulin can be stored at room temperature or in the refrigerator. Cold insulin tends to hurt, so if you do keep it in the refrigerator, let it sit at room temperature for 15 minutes before you give yourself an injection. Insulin needs to be stored away from extremes of hot or cold. It cannot be frozen. If the temperature is greater than 70 degrees and you are traveling in a car, you should put it in a cooler. Never use insulin that is expired. The expiration date stated on the label refers only to a bottle that has never been opened. Once an insulin bottle is opened, it is only good for 28 days. For that reason you should write the date when the bottle was opened on the label and check it frequently to ensure that you do not use it after 28 days.

Are there any dangers in giving insulin? – When using insulin, a “low blood glucose reaction” or hypoglycemia may occur if you do not eat enough food, skip a meal, do not eat at the right time of day, or exercise more than usual. Remember that insulin and exercise both lower blood glucose, while food raises blood glucose. Hypoglycemia is a very uncomfortable feeling. It is a medical emergency and should be treated immediately.

Common signs and symptoms of low blood glucose:

- Sudden hunger
- Headache
- Sweating
- Shaking
- Fast heartbeat
- Dizziness
- Fatigue
- Irritability



Treatment for low blood glucose – If low blood glucose is not treated you may start to feel confused or even pass out. If you think you are having a low blood glucose reaction, you should:

- If possible, verify blood glucose by checking your blood glucose
- If your blood glucose is less than 60 mg/dl, treat with 15 grams of carbohydrate (10-oz. glass of skim milk or 4 oz. of juice). Wait 15 minutes and retest. If your blood glucose is still less than 60mg/dl, treat with another 15 grams of carbohydrate.
- If you are away from home you can take glucose tablets, four ounces of orange juice or six ounces of regular soda.
- If you are unable to check your blood glucose, treat as described above and wait 15 minutes. If you do not feel better repeat the treatment.
- All treatment for hypoglycemia should be followed by the next meal or snack. If a meal or snack is not scheduled for 30-60

minutes, eat a snack that includes 15 grams of carbohydrate (five crackers, a piece of fruit or a slice of bread). If your next meal is more than an hour away, eat 15 grams of carbohydrate and one ounce of protein (such as 5 crackers and one ounce low fat cheese).

All hypoglycemia reactions should be reported to your doctor and noted in your logbook. If you cannot identify a cause for the low blood glucose, such as a delayed meal or not eating enough, contact your doctor immediately. An adjustment in your insulin dose may be necessary. You can avoid low blood glucose reactions by eating on time and eating the right amount of food as outlined in your meal plan.

Low blood glucose and exercise – Since both insulin and exercise lower blood glucose; following are some additional steps you should take to prevent hypoglycemia reactions during exercise.

- Always carry some form of sugar such as glucose tablets or hard candies
- One serving of fruit or the equivalent of 15 grams of carbohydrate should be eaten for most activities lasting about 30 minutes.
- One serving of fruit and one serving of starch or the equivalent of 30 grams of carbohydrate should be consumed for activities that last longer than 60 minutes.
- If you exercise right after a meal, eat the snack after the exercise. If you exercise two hours or more after a meal, eat the snack before the exercise.

Will My Labor and Delivery Be Different Because I Have Gestational Diabetes?

Your labor and delivery should be similar to any pregnant woman who does not develop complications. Gestational diabetes should not prevent you from delivering your baby normally. As long as your baby is growing normally and is not too large you should be able to deliver close to your due date. A very large baby may need to be delivered by Cesarean section. Your blood glucose will be monitored every one to two hours during labor. If you are taking insulin and your blood glucose is less than 90 mg/dl, the insulin will probably be stopped. Labor is like exercise and it should lower your blood glucose to a point where you need no or very little insulin during this process. Once the baby is born and the placenta is removed, your blood glucose should return to normal.



What Happens to My Baby After Delivery?

Your baby's blood glucose will be tested immediately after birth. If the blood glucose is low the baby will be given glucose water to drink or by intravenous feeding (IV). Usually, babies of mothers with gestational diabetes are sent to a special care nursery for observation of low blood glucoses for the first few hours after birth as a precaution.



What Happens to My Diabetes After I Deliver My Baby?

After the placenta is delivered, the pregnancy hormones are also removed and your blood glucose should fall back into normal range. However, there are a very small percentage of people for whom this is not true. You should have another blood test six weeks after the baby is born to be sure that your blood glucose is normal. It is important to remember that women who develop diabetes in one pregnancy, have a 30-70% chance of developing it in following pregnancies.⁹ You should discuss this with your doctor at each pregnancy.

Chances of developing type 2 diabetes later – Women with gestational diabetes have a greater than 68% chance of developing type 2 diabetes later in life.¹⁰ The best way to avoid this is to reach and maintain a healthy body weight and be physically active. Achieving the right body weight for you will reduce your chances of developing type 2 diabetes to 25%.¹¹ You should be alert to the signs and symptoms of diabetes and your blood glucose should be checked every year.

Signs and symptoms of diabetes include:

- Extreme thirst
- Excessive urination
- Extraordinary hunger
- Sudden weight loss
- Numbness and tingling in hands and feet
- Feeling tired
- Changes in eye sight
- Frequent infections
- Slow healing of cuts or sores

This may seem like a great deal of information and a lot of things to do but remember there are many people who can help you. Your doctor and other members of your healthcare team are available to answer your questions and help you take care of yourself and your baby. It is important to remember that all this work will result in a beautiful healthy baby! Take one step at a time and read this book as often as you need to remember how to take care of your gestational diabetes.

⁹ Yogeve Y, Langer O. Recurrence of gestational diabetes: pregnancy outcome and birth weight diversity. *Jnl Maternal-Fetal and Neonatal Med.* 2004;15:56-60.

¹⁰ Major CA, deVeciana M, Weeks J, Morgan MA. Recurrence of gestational diabetes: who is at risk? *Am J Obstet Gynecol.* 1998;179:1038-1042.

¹¹ Coustan DR, Carpenter MW, O'Sullivan PS, Carr SR. Gestational diabetes: predictors of subsequent disordered glucose metabolism. *Am J Obstet Gynecol.* 1993;168:1139-44.

Treatment Plan For _____

Health Care Team:

Doctor: _____ Phone #: _____

Nurse Educator: _____ Phone #: _____

Nutrition Educator: _____ Phone #: _____

Fax #: _____

Target Blood Glucose Range:

Fasting: _____

One hour after meals: _____

Two hours after meals: _____

Bedtime: _____

Blood Glucose Monitoring: Check your blood glucose at the following times:

Fasting (Before Breakfast): _____

One hour after meals:

Breakfast: _____

Lunch: _____

Dinner: _____

Two hours after meals:

Breakfast: _____

Lunch: _____

Dinner: _____

Urine Ketones: Check your urine ketones at the following times:

Meal Plan Instructions:

Insulin: You should take the following dose of insulin at the times listed below:

Type of Insulin and Dose:	Time of Day:
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Contact your doctor or healthcare team:

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