

Gestational Diabetes

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Gestational Diabetes

- This diagnosis is given when a woman, who has never had diabetes before, gets diabetes or has high blood sugar, when she is pregnant.
- Its medical name is *gestational diabetes mellitus* or GDM.
- It is one of the most common health problems for pregnant women.
- The word “gestational” actually refers to “during pregnancy.”



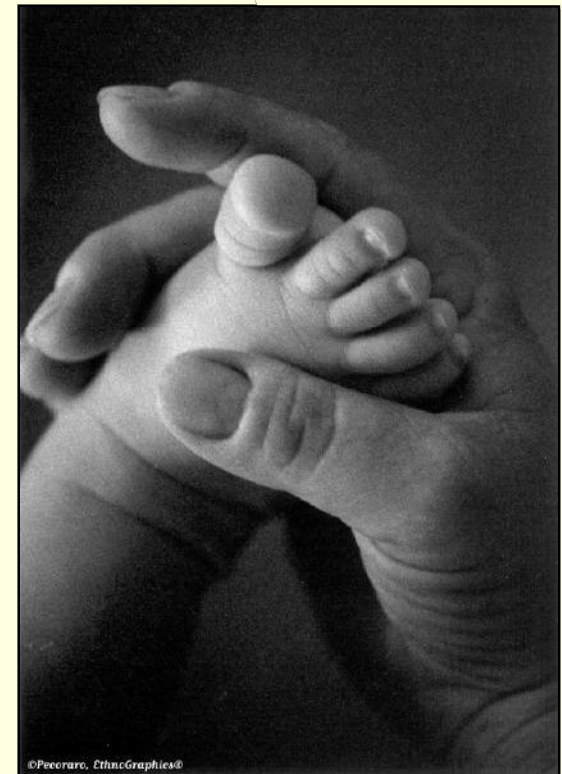
Gestational Diabetes

- It occurs in about 5% of all pregnancies, which is around 200,000 cases each year.
- If not treated, gestational diabetes can cause health problems for the mother and the fetus.



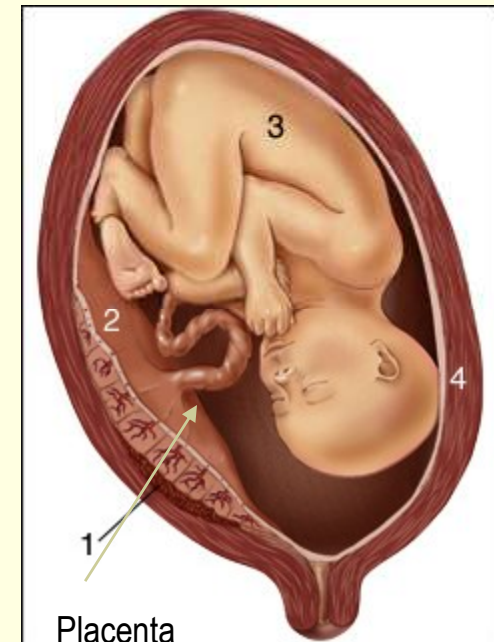
Why didn't I have diabetes before?

- During pregnancy, many physiological changes take place. Changes in metabolism can be seen. Insulin may not be as effective in moving sugar into the cells during pregnancy. Therefore, the cells can't get the sugar they need for energy. Increased sugar levels in the blood can lead to many problems.



Why isn't insulin doing its job?

- The placenta is a system of vessels that passes nutrients, blood, and water from mother to fetus.
- The placenta makes certain hormones that may prevent insulin from working the way that it should.
- When this condition happens, it is referred to as *insulin resistance*.
- In order to keep metabolism normal during pregnancy, the body has to make three times more insulin than normal to offset the hormones made by the placenta.



Why isn't insulin doing its job?

- For most women, the body's extra insulin is enough to keep their blood sugar levels in the healthy range.
- But, for about 5% of pregnant women, even the extra insulin is not enough to keep blood sugar levels normal.
- These women end up with high blood sugar or gestational diabetes at around the 20th to 24th week of pregnancy.



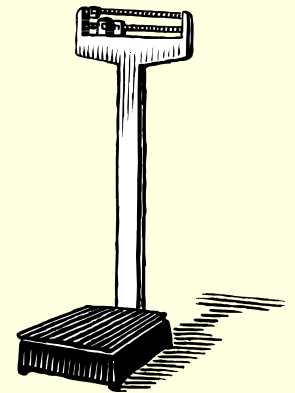


A Treatment Plan for GDM

May include these items:

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- Knowing your blood sugar (glucose) level and keeping it under control
- Eating a healthy diet, as outlined by your health care provider
- Getting regular, moderate physical activity
- Maintaining a healthy weight gain
- Keeping daily records of your diet, physical activity, and glucose levels
- Taking insulin and/or other medications as prescribed



Know your blood sugar level & keep it under control: Overview

- There are two parts:

- *Knowing your blood sugar level*

- Test to see how much glucose is in your blood

- *Keeping your blood sugar level under control*

- Keep the amount within a healthy range at all times

- ❖ This is important to do because blood sugar levels change throughout the day based on what foods eat.
- ❖ Your level of physical activity and when you do physical activity also influences blood sugar levels.



Know your blood sugar level & keep it under control

- Knowing your glucose levels at specific times of the day may become very important if insulin therapy becomes necessary.
- Insulin resistance can increase as a pregnancy progresses indicating a need for additional insulin to control glucose levels.



Measuring your blood sugar will give you information about...	For example
The amount of food you can eat	Can you have that extra ½ bagel for breakfast?
Foods that affect your glucose level	Does your body process different foods differently?
Times when your glucose level is high or low	You might have high blood sugar in the morning after breakfast; other women may have high blood sugar after dinner.
Times that physical activity is more likely to keep your glucose level in target	Does walking for 20 minutes after breakfast or dinner help to keep your glucose level within the healthy range?

Know your blood sugar level & keep it under control

- You may have to test four times a day:

1. In the morning before eating breakfast, referred to as the *Fasting* glucose level
2. 1 or 2 hours *after breakfast*
3. 1 or 2 hours *after lunch*
4. 1 or 2 hours *after dinner*



- You may also have to test your glucose level before you go to bed at night. This is referred to as your *nighttime* or *nocturnal* glucose test.

Know your blood sugar level & keep it under control

- Although your glucose levels change during the day, there is a healthy range that is normal. If your glucose level is outside of the healthy target range, speak with your health care provider.



Time of Blood Sugar Test	Healthy Target Levels (in mg/dl)
Fasting glucose level	No higher than 95
One hour after eating	No higher than 140
Two hours after eating	No higher than 120

Eating a healthy diet

Overview

- A healthy diet is one that includes a balance of foods from all the food groups, giving the nutrients, vitamins, and minerals necessary for a healthy pregnancy.
- For women with gestational diabetes, a healthy diet can help to keep blood sugar levels in the healthy target range.
- Carbohydrates are often the center of a healthy diet for a woman with gestational diabetes.

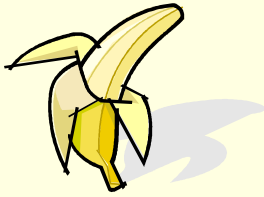
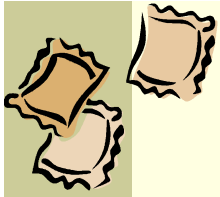


Eating a healthy diet

Carbohydrates

- Carbohydrates are nutrients which come from foods like grain products, fruits, and vegetables.
- During digestion, the body is able to break down most carbohydrates into simple sugars, like glucose.
- Eating carbohydrates affects blood sugar levels. Eating a large amount of carbohydrates at a meal will have a larger effect on blood glucose levels than eating a small amount of carbohydrates.
- It is important to balance between eating enough carbohydrates to receive the necessary amounts of energy and resultant glucose, and not consuming too

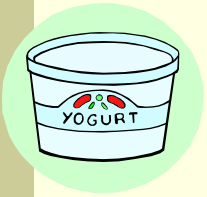




Eating a healthy diet

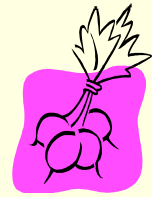
Meal Plans

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Carbohydrate counting

With this meal plan, the number of grams of carbohydrates that is eaten at each meal or snack is counted to make sure that they are within a certain range. A meal plan may be very specific, allowing a specified amount at each meal or snack, or it may be more general, with a daily carbohydrate total.



The exchange system

The exchange system groups each food consumed into one of the following food groups: bread/starches, fruits, vegetables, proteins, milk, and fats. Each food within a group has very similar amounts of carbohydrate, fat, protein, and calories, but the amounts of vitamins and minerals may vary. In this plan, the number of items from a food group that is eaten at each meal is counted. There is a designated amount for each group every day.



Eating a healthy diet to keep blood sugar in check:

Eat meals and snacks on a regular schedule throughout the day	Researchers recommend that women with gestational diabetes should eat at least three small-to-medium sized meals and two to four snacks every day.
Eat smaller amounts of carbohydrates at each meal	It is preferable to eat several small meals every day rather than one large meal. Carbohydrates will increase blood glucose level directly, therefore, eating a small amount of carbohydrates all through the day will help keep blood sugar from rising too high.
Add a nighttime snack to your meal plan	A snack of one or two servings of carbohydrates before bedtime will keep blood sugar at a healthy level during sleep. Some healthy examples could include: a piece of fruit, a handful of pretzels, or crackers.

Role of physical activity

- Women with gestational diabetes often need regular, moderate physical activity to help control their blood sugar levels by allowing insulin to work better.
- Examples include:
 - Walking
 - Prenatal aerobics classes
 - Swimming
- However, a consultation and approval by a health care provider is needed before beginning any physical activity during pregnancy.



Keep in mind that it may take 2 to 4 weeks before physical activity has an effect on blood sugar levels.

Role of moderate physical activity

How do I do it?

- Researchers are uncertain about the exact amount of physical activity required to control blood sugar during gestational diabetes.
- The amount that is usually recommended is based on how active an individual was before the pregnancy and whether or not there are any other health concerns.
- For some women with GDM, regular physical activity can include walking, swimming, or light running; whereas, for other women only slow walking may be recommended.
- A health care provider can offer advice on appropriate activities, and their duration and frequency to assure a healthy pregnancy.



Role of moderate physical activity

General Guidelines For Physical Activity

Do	Don't
Participate in moderate and regular physical activity unless prohibited by a health care provider	Get too tired while working out or doing physical activity
Choose activities like swimming, that don't require a lot of standing or balance	Do any activity while lying on your back when you are in your 2 nd or 3 rd trimester of pregnancy
Wear loose, light clothing that won't cause excessive sweating or increased body temperature	Perform activities in very hot weather
Drink a lot of water before, during, and after your activity	Perform activities that may bump or hurt your belly, or that may cause you to lose your balance
Eat a healthy diet and gain the right amount of weight	Fast (skip meals) or do physical activity when you are hungry
Watch your level of exertion (Can you talk easily?)	Over-exert yourself

Maintain a healthy weight

Overview

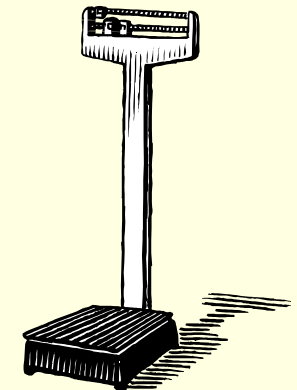
- Healthy weight gain can refer to your *overall weight gain* or your *weekly rate of weight gain*.
- Some health care providers focus only on overall gain or only on weekly gain, but some keep track of both types of weight gain.



Maintain a healthy weight

Overall Weight Gain Goals

Height		Weight Status Category			
Feet	Inches	A	B	C	D
4	9	92 or less	93-113	114-134	135 or more
4	10	94 or less	95-117	118-138	139 or more
4	11	97 or less	98-120	121-142	143 or more
5	0	100 or less	101-123	124-146	147 or more
5	1	103 or less	104-127	128-150	151 or more
5	2	106 or less	107-131	132-155	156 or more
5	3	109 or less	110-134	135-159	160 or more
5	4	113 or less	114-140	141-165	166 or more
5	5	117 or less	118-144	145-170	171 or more
5	6	121 or less	122-149	150-176	177 or more
5	7	124 or less	125-153	154-181	182 or more
5	8	128 or less	129-157	158-186	187 or more
5	9	131 or less	132-162	163-191	192 or more
5	10	135 or less	136-166	167-196	197 or more
5	11	139 or less	140-171	172-202	203 or more
6	0	142 or less	143-175	176-207	208 or more



Your overall weight gain goal for the pregnancy is:

35-40

30-35

22-27

15-20

Maintain a healthy weight

Weekly Rate Of Weight Gain

Time Frame	Expected Weight Gain
In the first trimester of pregnancy (the first 3 months)	Three to six pounds for the <i>entire three months</i>
During the second and third trimester (the last 6 months)	Between $\frac{1}{2}$ and 1 pound each week
If you gained too much weight early in the pregnancy	Limit weight gain to $\frac{3}{4}$ of a pound each week (3 pounds each month) to help get your blood sugar level under control

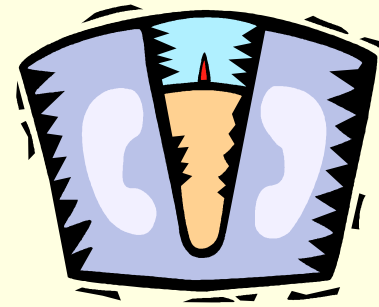


A weight gain of two pounds or more each week is considered high.

Maintain a healthy weight

Things to Keep in Mind

1. A weekly rate of weight gain may go up and down throughout the pregnancy.
2. A physician can assess whether weight gain is appropriate or not.
3. A *weight loss* can be dangerous during any part of the pregnancy, therefore any weight loss needs to be reported to a health care provider right away.
4. If weight gain slows or stop, and does not increase again after one-to-two weeks, it should be reported to a health care provider immediately. Adjustments in your treatment plan may be necessary.



Maintain a healthy weight

Additional tips

- Try to get more light or moderate physical activity, if your health care provider says that it is safe.
- Use the **Nutrition Facts** labels on food packages to make lower-calorie food choices that fit into a healthy meal plan.
- Eat fewer fried foods and "fast" foods.
- Eat healthy foods that fit into your meal plan, such as salads with low-fat dressings and broiled or grilled chicken.
- Use less butter and margarine on food, or don't use them at all.
- Use spices and herbs (such as curry, garlic, and parsley) and low-fat or lower calorie sauces to flavor rice and pasta.
- Eat smaller meals and have low-calorie snacks more often, to ensure that your body has a constant glucose supply, and to prevent yourself from getting very hungry.
- Avoid skipping meals or cutting back too much on breakfast or lunch. Eating less food or skipping meals could make you overly hungry at the next meal, causing you to overeat.



Keep daily records of your diet, physical activity, and glucose levels

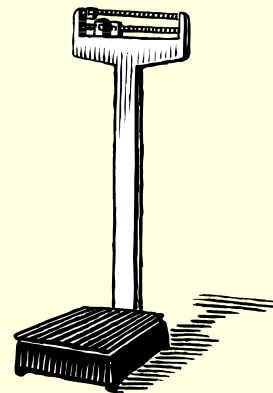
- Keeping records refers to writing down your blood sugar numbers, physical activities, and everything that you eat and drink in a *daily record book*.
- Recording everything that you eat and drink really means *everything* that you eat and drink. This refers to bites, nibbles, snacks, second helpings, and all liquids.
- It's easy to forget or underestimate how much snacking you really do.



Keep daily records of your diet, physical activity, and glucose levels

- Your health care provider might ask that you keep track of the following:

- Blood sugar level
- Food
- Physical wellness
- Physical activity
- Weight gain



Keep daily records of your diet, physical activity, and glucose levels

- It's a good idea to follow a schedule for writing in the record book.
- This lets you get used to writing in it and helps you to remember to do it.
- Daily records help to keep track of how well your treatment plan is working and what, if anything, should be changed.
- The information also reveals whether or not you will need insulin, and if so, how much will be needed.



Take insulin and/or other medications as prescribed

- Even if you do everything your health care provider recommends to manage your gestational diabetes, you may still need to take insulin during your pregnancy to keep it under control.
- The only way to get extra insulin into your body is to inject it under your skin with a needle.



Take insulin and/or other medications as prescribed

- You may have to include small amounts of insulin in your treatment plan if:
 - Your blood sugar level is too high
 - Your blood sugar level is frequently too high
 - Your blood sugar level remains high, and you are not gaining much weight even with proper eating habits
 - You cannot safely add physical activity to your treatment plan



Take insulin and/or other medications as prescribed

■ Things to know about insulin:

1. If you need to take insulin, it does not mean that you didn't try hard enough or that you failed at taking care of yourself.
2. Taking insulin does not mean that you have Type 1 diabetes.
3. An increase in the amount or dosage of insulin needed does not mean that your pregnancy is in danger.
4. You may need more insulin if you are under high amounts of stress or if you are sick because your blood sugar level gets higher on its own in these cases.



Take insulin and/or other medications as prescribed

- Special instructions for women taking insulin are to:
 - *Follow a regular eating schedule*
 - The timing of insulin shots and of eating meals needs to be correct. Your healthcare provider can tell you when to do both. It is very important not to skip or delay meals and snacks when taking insulin because this can affect your glucose-insulin balance.
 - *Know the symptoms of hypoglycemia*
 - If your blood sugar level drops below 60 at any time, you have hypoglycemia. This can be very dangerous. Hypoglycemia is already common in all women with gestational diabetes, but for women taking insulin for this condition, they are at greater risk.

* Before any physical activity is begun, you should test your blood sugar. If it is low, do not begin the activity. Eat something and test again to make sure it is higher before beginning.

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Take insulin and/or other medications as prescribed

Why does low blood sugar occur?

- Too much exercise
- Skipping meals or snacks
- Delaying meals or snacks
- Not eating enough
- Too much insulin

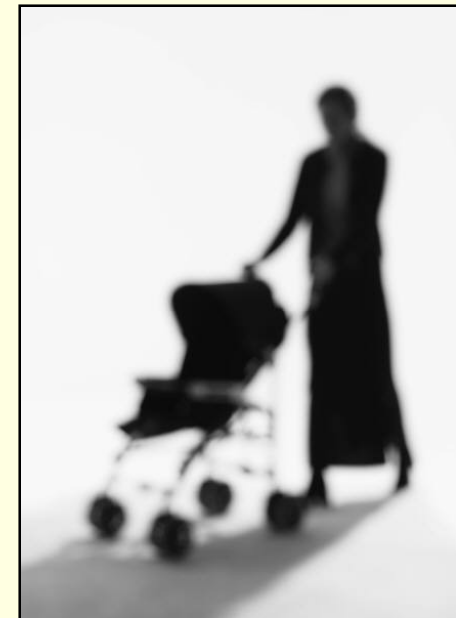
How might I feel if I have low blood sugar?

- Very hungry
- Very tired
- Shaky or trembling
- Sweating or clamminess
- Nervous
- Confused
- Like you're going to pass out or faint
- Blurred vision

* Report any abnormal blood sugar level to your health care provider right away, in case a change in your treatment plan is needed.

Will GDM hurt my baby?

- Most women with gestational diabetes give birth to healthy babies; this is especially true for women who have kept their blood sugar under control, maintained a healthy diet, engaged in regular, moderate physical activity, and had a healthy weight throughout the pregnancy.
- In some cases, however, the condition can affect the pregnancy.





Gestational Diabetes Mellitus

Associated Conditions

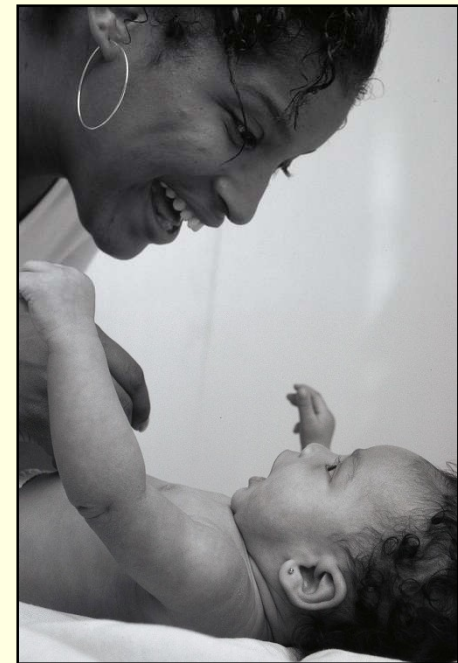
Macrosomia	In this condition, the baby's body is larger than normal. Large-bodied babies may be injured during natural delivery through the vagina, so the baby may need to be delivered through cesarean section.
Hypoglycemia	In this condition, the baby's blood glucose is too low. Breastfeeding may need to be started right away to get more glucose into the baby's system. If breastfeeding is not possible, then the baby may need to get glucose put directly into the blood through a thin, plastic tube in his or her arm.
Jaundice	In this condition, the baby's skin turns yellowish. The white parts of the eye may also change color slightly. If treated, this is not a serious problem.
Respiratory Distress Syndrome (RDS)	In this condition, the baby has trouble breathing. The baby may need oxygen or other help breathing if he or she has this condition.
Low Calcium and Magnesium Levels in Baby's Blood	In this condition, spasms in the hands and feet, or twitching and cramping of muscles can occur. The condition can be treated through supplementation with magnesium and calcium supplements.

Keep in mind that just because you have gestational diabetes,
it does not mean that these problems will occur.

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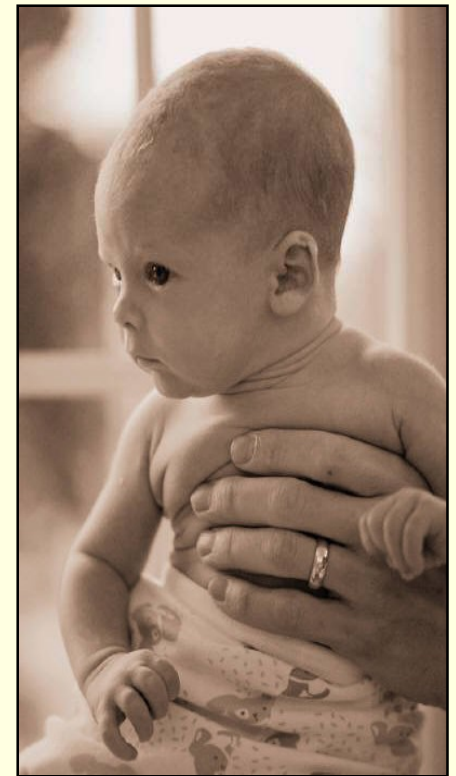
Could GDM hurt my baby in other ways?

- Gestational diabetes usually does *not* cause birth defects or deformities.
- Most developmental or physical defects happen during the first trimester of pregnancy, between the 1st and 8th week, and gestational diabetes typically develops around the 24th week of pregnancy.
- Therefore, women with gestational diabetes typically have normal blood sugar levels during the first trimester, allowing the body and body systems of the fetus to develop normally.



Could GDM hurt baby in other ways?

- The fact that have gestational diabetes will not cause diabetes in your baby.
- However, child will be at a higher risk for developing type 2 diabetes in adulthood and may get it at a younger age (younger than 30).
- As child grows, taking steps such as: eating a healthy diet, maintaining a healthy weight, and getting regular, moderate physical activity can help to reduce his or her risk.
- Macrosomic, or large-bodied babies are at higher risk for childhood and adult obesity.



Things to keep in mind about deliver

Blood Sugar and Insulin Balance	Keeping blood sugar levels under control during labor and delivery is vital for both you and your baby's health. If you did not have to take insulin during the pregnancy, then you won't need it during labor or delivery; however, if you did have to take insulin during pregnancy, then you may receive an insulin shot when labor begins <u>or</u> during labor.
Early Delivery	Gestational diabetes puts women at higher risk for a condition known as <i>preeclampsia</i> late in pregnancy. Preeclampsia is a condition associated with sudden blood pressure increases, which can be quite serious. Unfortunately, the only cure to preeclampsia is delivery of the baby, but delivery may not be the best option for your health or for the health of your baby. Your health care provider will keep you under close watch if this condition develops, determining whether early delivery is safe and needed.
Cesarean Delivery	This is a type of delivery used to deliver the baby, as opposed to natural delivery through the vagina. Cesarean delivery is also referred to as a cesarean section, or "C" section. Simply having gestational diabetes is not reason alone to have a C section, but your health care provider may have other reasons for choosing this option, such as changes in your health or your baby's health during delivery.

Will I have diabetes after having my baby?

- Shortly after the baby is born, the placenta is “delivered.”
- Since the placenta is what was causing the insulin resistance, when it is gone, gestational diabetes usually resolves as well.
- Just by having had gestational diabetes, you have a 40% higher chance of developing type 2 diabetes later in life than women who did not have the condition during pregnancy.
- Keeping your weight within a healthy range and keeping up regular, moderate physical activity after your baby is born can help lower your risk for developing type 2 diabetes.



What should I do after delivery?

- Six weeks after your baby is born, you should have a blood test to find out whether your blood sugar level is back to normal.
- Based on the results you will fall into one of the three categories:



If your category is...	You should...
Normal	Get checked for diabetes every 3 years
Impaired Glucose Tolerance	Get checked for diabetes every year, and talk with your health care provider to learn about ways to lower your risk for developing diabetes.
Diabetic	Work with your health care provider in setting up a treatment plan for your diabetes.

Importance of checking often

- Getting checked for diabetes is important because Type 2 diabetes shows few symptoms.
- The only way to know for sure is to have a blood test that reveals a higher-than-normal blood sugar level.
- If you notice any of these things, you should tell your health care provider right away:
 - Being very thirsty
 - Urinating often
 - Feeling constantly or overly tired
 - Losing weight quickly and/or without reason



Should I breastfeed having gestational diabetes?

- Yes, women with gestational diabetes should breastfeed their babies, if possible.
- Breastfeeding is not only beneficial to the baby, but it is also beneficial to the mother.
- Breastfeeding allows the body to use extra calories stored during pregnancy, allowing for weight loss.
- A weight loss after having the baby not only enhances overall health, but also helps to reduce the risk of developing type 2 diabetes later in life.
- Breastfeeding is also believed to help lower fasting blood glucose levels in mothers.

