

# Diabetes and Pregnancy

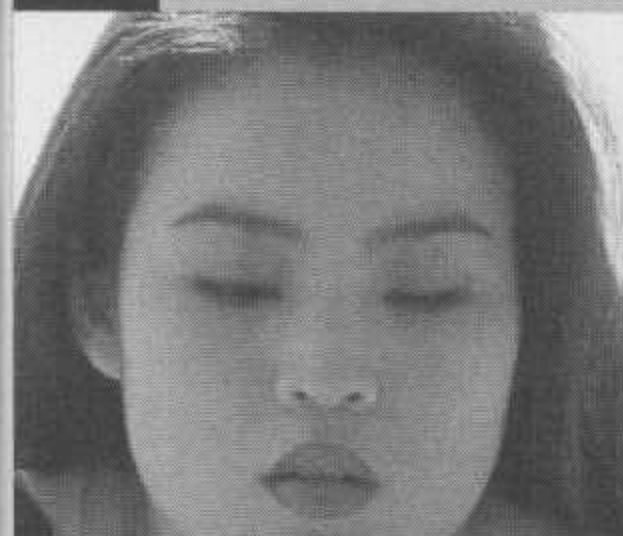


**D**iabetes is a condition that causes high levels of glucose in the blood. **Glucose** is a sugar that is the body's main source of fuel. Health problems can arise when the glucose levels are too high or not well controlled. Diabetes is of special concern during pregnancy. Diabetes can occur in women who are not pregnant, or it can start during pregnancy. When it occurs during pregnancy it is called **gestational diabetes**. Either type of diabetes requires special care.

*This pamphlet will explain:*

- *How diabetes can affect your pregnancy*
- *What you can do to control it*
- *What special care you will need before, during, and after pregnancy*

Most women with diabetes deliver healthy babies.





## Causes

Diabetes occurs when there is a problem with the way the body makes or uses **insulin**. Insulin is a hormone that converts the glucose in food into energy. When the body doesn't make enough insulin, or when insulin is not being used properly by the body, the level of glucose in the blood becomes too high. This is called **hyperglycemia** (high sugar levels in the blood). The opposite is called **hypoglycemia** (low sugar levels in the blood).

During pregnancy, the hormones produced by the **placenta** can change the way insulin works. As a result, gestational diabetes may occur. Or, diabetes that existed before pregnancy may be harder to control.

Gestational diabetes can occur even when no risk factors or symptoms are present. For this reason, many doctors test all pregnant women for diabetes (see box). Gestational diabetes usually goes away after the baby is born. However, more than half of women who have gestational diabetes will develop diabetes many years later. You should tell your doctor if you have had gestational diabetes.

The risk of diabetes increases with age. It is also more likely in women who:

- Are obese
- Have high blood pressure
- Have one or more family members with diabetes

### Testing for Diabetes

The test for diabetes is safe and simple. Samples of your blood are taken after you drink a sugar solution. Then, the glucose level is measured. A high level suggests that there may be a problem with glucose control. If you have a high level of glucose, you will receive a diagnostic test. This test will detect diabetes if you have it.

Many doctors test for diabetes only in women with risk factors. Other doctors find that diabetes is common in the women they care for, so they test all women. In some groups of people, such as Native Americans, diabetes is so common that some doctors go right to the diagnostic test.

## Effects During Pregnancy

The risk of problems during pregnancy is greatest when diabetes is not well controlled. Some of these problems may increase the chance of a **cesarean birth**. This is why you need good blood sugar control during pregnancy. Good control of glucose levels, before and during pregnancy, can lower the risks.

If you have diabetes or if you are at risk of developing gestational diabetes, you should be aware of the problems that may arise:

- Birth defects—such as heart defects, kidney problems, and spinal defects—occur more often in babies of women whose diabetes was not well controlled before pregnancy.
- Macrosomia (very large baby) occurs when the mother's blood sugar level is high. This allows too much sugar to go to the fetus. It can cause the fetus to grow too large. A too large baby can make delivery difficult. For instance, there may be problems delivering the baby's shoulders.
- Preeclampsia is high blood pressure during pregnancy. This can pose problems for the mother and the baby. It may require the baby to be delivered early. A woman with a mild form of preeclampsia may need to stay in the hospital so that she and her fetus can be monitored. Severe preeclampsia can lead to seizures.
- Hydramnios occurs when there is too much **amniotic fluid** in the sac that surrounds the fetus. This can cause some women discomfort. It may result in preterm labor (labor before 37 weeks) and delivery.
- **Urinary tract infections** can occur without symptoms. If the infection is not treated, it may spread from the bladder to the kidneys. This can harm the woman and her fetus.
- **Respiratory distress syndrome** can make it harder for the baby to breathe after birth. The risk of this condition is greater in babies of mothers with diabetes.

## Preparing for Pregnancy

If you have diabetes, preparing for pregnancy can improve your health and that of your future child.



Plan to see your doctor *before* you get pregnant to discuss your care. You should try to have good control over your sugar levels a number of weeks before you become pregnant. Your doctor may suggest changes in your care (see box).

The organs of a fetus begin to develop as soon as you become pregnant, before you may even know you are pregnant. This development can be affected by poorly controlled glucose levels in the weeks before conception or the first few weeks of your pregnancy.

Your doctor will help you monitor your blood glucose levels both before and during your preg-

### **Health Care for Women with Diabetes Planning a Pregnancy**

Your doctor may want to make some changes to your health care to better control your glucose levels. He or she may suggest you:

- Monitor glucose levels more often. You may be asked to check your glucose level more times a day than you have been doing.
- Increase folic acid. You may be advised to take more than the recommended 0.4 milligrams a day of folic acid. Folic acid may help prevent certain birth defects called neural tube defects. It can be taken as a vitamin or can be found in certain foods such as leafy, dark-green vegetables, citrus fruits, beans, and bread.
- Change in work and lifestyle. You may be asked to stop any strenuous work and to stop any habits that could harm the pregnancy.
- Change your diet. The kinds of food you eat as well as how often a day you eat will affect your glucose levels. Your doctor may make changes in your diet to control your levels.
- Change in medications. If you're taking certain medications, you may need to switch to others. This may include those bought over-the-counter.

nancy. If your glucose levels are high, you may be advised to wait until they are in the normal range before you get pregnant. The normal range for pregnancy may be lower than if you aren't pregnant. It may take weeks or months to get your blood glucose to a normal level and keep it stable throughout the day. Be patient. This control is vital for the growth of a healthy baby.

### **Diabetes Control**

There are a number of ways that you can measure your glucose level. All are safe and simple to use on a daily basis. You may need to check your glucose often each day to keep it at a normal level. To be most effective, the results should be kept accurately and reported to your doctor.

Glucose can be controlled with diet and exercise and, in some cases, by taking insulin. You and your doctor will decide together on the best method or mixture of methods for you.

#### **Home Monitoring**

Glucose meters or strips can be used to measure glucose levels. In either method, a simple device is used to obtain a small drop of blood, most often from the tip of your finger. The glucose level then is read with the meter or strip.

Because it is normal for the glucose level to change throughout the day, you may need to check it several times a day. Your doctor will tell you how often to check. Urine tests are not a good way to monitor glucose levels.

#### **Diet**

A balanced diet is key in pregnancy. The fetus depends on the food you eat for its growth and nourishment. This is even more important if you have diabetes. Not eating properly can cause glucose levels to change.

The number of calories in your diet will depend on your weight, stage of pregnancy, age, and level of activity. Your doctor may adjust your diet from time to time to improve glucose control or to meet the needs of the growing fetus. In most cases the diet consists of small meals and snacks spread throughout the day. A bedtime snack will help keep glucose levels stable during the night.

## ***Exercise***

Moderate exercise is always good. For women with diabetes it is even more important. Regular exercise reduces the amount of insulin needed to keep blood glucose levels normal. The amount of exercise that is right for each woman varies. You and your doctor will decide how much and what type of exercise you need.



## ***Insulin***

Some women with diabetes need to use insulin shots to keep their glucose at normal levels. Insulin shots can be safely used during pregnancy to control diabetes.

The amount of insulin needed to control glucose levels throughout the day varies from woman to woman and depends on many factors. Often the insulin dose needs to be changed for good control of glucose levels. Home monitoring of glucose levels helps set the insulin dose.

In many cases, insulin must be taken twice a day or more. Your doctor will tell you about how to use insulin and how many daily shots you'll need. The amounts you need may change during pregnancy.

Some women take pills instead of insulin. The use of pills to control diabetes is not advised during pregnancy. The medicine in such pills may affect the fetus. Women who control their diabetes

by taking these pills often need to switch to insulin shots during pregnancy. When insulin is needed to control diabetes during pregnancy, the diet and the insulin dose must be balanced at all times to prevent harmful highs and lows in glucose levels.



## ***Prenatal Care***

You play a key role in controlling your diabetes. Prenatal care helps monitor your condition as well as that of the fetus. You may need to see your doctor often for regular check-ups and tests.



A woman with diabetes often needs to have certain tests done more often in her pregnancy. These tests can help the doctor be aware of any problems and take steps to correct them. Your doctor can answer questions and tell you more about these tests:

- Hemoglobin A<sub>1C</sub> is a substance in the woman's blood. Its levels may be higher when the woman's glucose level has been too high. Regular checking of hemoglobin A<sub>1C</sub> can tell the doctor how well the glucose levels have been controlled during the past 2–3 months.
- Alpha-fetoprotein (AFP) is a substance made by a growing fetus. In a normal pregnancy, some AFP passes into the amniotic fluid and the mother's blood. Certain birth defects may cause abnormal amounts of AFP in the amniotic fluid and in the woman's blood. The AFP test is a blood test that detects AFP. Many pregnancies with high AFP levels are normal. If the AFP is not normal, more tests may be offered.
- Ultrasound uses sound waves to create a picture of the fetus. This allows the doctor to check its growth and development.
- A kick count is a record of how often you feel your fetus move. A healthy fetus tends to move the same amount each day. You may be asked to keep track of this movement in the latter part of pregnancy and to contact your doctor if the baby is not active. It could mean the need for more tests and sometimes even early delivery of your baby.
- Electronic fetal monitoring helps your doctor detect signs of problems the fetus may be having late in pregnancy. Monitors are placed on the woman's abdomen. The heartbeat and activity of the fetus, as well as contractions of the woman's uterus, then are measured and recorded.
- Amniocentesis is a procedure used to obtain a small amount of amniotic fluid from the sac that surrounds the fetus. In early pregnancy, this can be done to detect certain birth defects. In late pregnancy, this procedure can help check whether the fetus's lungs are mature. This helps plan when your baby will be delivered. It also helps prevent respiratory distress syndrome.

A team of health care experts, including a dietitian and special nurses, may help your doctor care for you during your pregnancy. Your doctor may consult with them or other doctors from time to time to handle special problems. You may need to stay in the hospital for special care.

## **Delivery**

In most cases, women with diabetes go into labor normally when the time comes. They may require special monitoring of the baby and of glucose levels. Most women, though, have a normal vaginal delivery. If there are problems during pregnancy, labor may need to be induced (brought on) early.

## **Postpartum Care**

### ***Problems in the Newborn***

After birth, your baby may need to spend a number of days in a special care nursery for the care of high-risk newborns. Some problems your baby may have include:

- Low glucose levels
- Low blood calcium and magnesium levels
- An excess of red blood cells
- Neonatal jaundice (yellow discoloration of the skin)
- Breathing problems

These problems are not serious in most cases. They are all treated fairly easily soon after birth.

### ***Breastfeeding***

Women with diabetes can breastfeed their babies in most cases. If you decide to breastfeed, you may need to monitor your glucose levels more often.

### ***Contraception***

Women with diabetes or gestational diabetes need to plan future pregnancies with care. Because you can become pregnant just weeks after childbirth, you should begin using a form of birth control right away. In general, women with diabetes can use most of the available methods. Your doctor can help you make a choice that will be safe and work well.





### **Glucose Control**

If you have been taking insulin during pregnancy, the amount of insulin you use will change after delivery. If you had gestational diabetes, you are more likely to develop diabetes later in life. This is an important part of your medical history. Be sure to tell other doctors you see about it. You also should be tested from time to time for diabetes.

### **Weight Control**

Weight loss during pregnancy is not a good idea—even if you are overweight. You and your doctor should set up a program of diet and exercise for you to follow after delivery. For women with gestational diabetes, diet and exercise may lower the risk of developing diabetes again.

### **Finally...**

Most women with diabetes deliver healthy babies. You and your doctor can work together to plan your pregnancies and control your glucose level. Be sure to get counseling before pregnancy and regular prenatal care. These measures will help you to have a successful pregnancy and a healthy baby.

## **Glossary**

**Amniotic Fluid:** Water in the sac surrounding the fetus in the woman's uterus.

**Cesarean Birth:** Delivery of a baby through an incision made in the mother's abdomen and uterus.

**Gestational Diabetes:** Diabetes that arises during pregnancy; it results from the effects of hormones and usually subsides after delivery.

**Glucose:** A sugar that is present in the blood and is the body's main source of fuel.

**Hyperglycemia:** A condition that results when levels of glucose are too high.

**Hypoglycemia:** A condition that results when levels of glucose are too low.

**Insulin:** A hormone that controls the levels of glucose (sugar) in the blood.

**Placenta:** Tissue that connects woman and fetus and provides nourishment to and takes away waste from the fetus.

**Respiratory Distress Syndrome:** A condition of some babies in which the lungs are not completely mature.

**Urinary Tract Infections:** Infections of the bladder and urethra.