

Kaiser Permanente

# healthy beginnings

**DIABETES AND PREGNANCY** 

## ► INTRODUCTION

Congratulations on your pregnancy! This newsletter is written just for you, a pregnant woman with diabetes. At Kaiser Permanente we want to give you as much help and support as you need during this important time in your life and the life of your family. Doctors, nurses, dietitians, and other members of your health care team will work with you to keep your blood sugar as close to normal as possible. This will give you the best opportunity to have a healthy baby.

Kaiser Permanente provides several programs to help you with diabetes in pregnancy. Health care professionals at individual facilities offer classes about diabetes, meal planning, use of a blood glucose monitor, and other important information for pregnant women. A doctor, nurse, dietitian, or diabetes educator will work with you individually during office visits and over the telephone to help keep you and your baby healthy. Remember, you are the most important member of your health care team. We are here to help.

## How will diabetes affect my baby?

There are no absolute guarantees, but with careful lifestyle changes, including wise food choices, physical activity, and good blood sugar control, it is less likely that there will be any problems in pregnancy due to diabetes. If you have gestational diabetes, the major risk is having a large baby (macrosomia) that may be too big for a vaginal birth. Some babies born to mothers with high blood sugar levels have a sudden drop in blood sugar (hypoglycemia) during their first few hours of life. While some babies may have problems, your health care team and your baby's doctor will be there to assist you and your baby.

It is important to be aware of the following conditions that could occur if diabetes during preganancy isn't managed.

*Macrosomia* (large baby) happens when the baby grows too big due to receiving too much blood sugar from the mother. The growing baby changes the extra blood sugar to fat and may grow too large to fit through the birth canal. To avoid possible injury to the baby during a vaginal delivery, your doctor may recommend a cesarean section (C-section).

Hypoglycemia (low blood sugar) may occur if the mother's blood sugar levels have been consistently high during pregnancy. This causes the fetus to develop high levels of insulin in the blood. After delivery, the baby no longer has the high level of sugar from the mother but continues to produce high levels of insulin. As a result, the newborn's blood sugar becomes very low. Immediately after birth, your baby's blood sugar level will be checked. If it is too low, the baby may need to be fed right away. We will provide special monitoring in the nursery if your baby needs it.

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## What is diabetes?

Diabetes is a condition that affects the body's natural way of storing and using energy. It causes an overload of glucose (sugar) in the bloodstream, which may lead to many health problems. In pregnancy, an overload of glucose can cause the baby to grow too large, making a natural delivery difficult. The baby may also have problems after delivery, and may need to be cared for in a special care nursery. This is why it's so important to control your blood sugar while you are pregnant.

There are 3 types of diabetes that a woman can have during pregnancy.

Gestational diabetes is the most common form of diabetes in pregnant women. It is a temporary type of diabetes caused by genetic risk factors and the body's changes during

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pregnancy. Because women can have gestational diabetes without knowing it, all women are tested for diabetes during pregnancy. Your chances of having diabetes in pregnancy are higher if you:

- Had high blood sugar during a previous pregnancy.
- Had other babies who weighed more than 9 pounds at birth.

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## What should I do if I have diabetes during pregnancy?

By taking steps that will keep your blood sugar levels as close to normal as possible, you will be doing all that you can do to have a healthy and normal pregnancy. One important step is healthy eating to get all the nutrition you need without extra sugars and fats that can cause your diabetes to become out of control. In addition, physical activity will help your body to lower blood sugar levels, better control your rate of weight gain, and will help improve your overall well-being. Walking is the easiest and most convenient form of physical activity. Many women also enjoy yoga, swimming, and water exercise during pregnancy.

Women who have diabetes during pregnancy may have a greater chance of developing high blood pressure (preeclampsia). Please review the warning signs listed in *Healthy Beginnings*, Issue 5 (24–28 weeks), and call your doctor right away if you develop any of these.

Kaiser Permanente has many resources to help you keep active. Call your local Health Education center for more information on starting an exercise program. Be sure to talk with your clinician before starting an exercise routine.



## ▶ Will I need medication?

Sometimes making changes in your diet and activity level is not enough to keep your blood sugar in control. Your doctor or other medical professional may also prescribe insulin or oral medication. This could be necessary if your blood sugar is too high, even though you are making wise food choices and exercising.

If you need to use insulin or oral medication, you will get the help you need to learn how to take this medication.

## ▶ Glossary

#### **CARBOHYDRATES**

Nutrients in food that provide fuel for our bodies and affect our blood sugar. Carbohydrates are mainly found in starches, milk, yogurt, and fruits.

#### **FAT**

One of three nutrients that supply calories to the body. There are "healthy fats," like the type found in avocados, olive oil, and nuts, and there are "unhealthy fats," like the type found in butter and fried foods

#### **HORMONE**

A chemical that regulates the activity of a specific tissue inside the body. Estrogen, cortisol, and human placental lactogen are hormones produced by the placenta. They help the mother's body to prepare her for pregnancy and birth. They also have an anti-insulin effect. (See "Insulin Resistance" below.)

#### **HYPOGLYCEMIA**

A condition when the blood sugar level is less than 60 mg/dL for an adult. This can be dangerous and requires immediate treatment.

#### **INSULIN**

A hormone made by the pancreas. Insulin helps glucose (sugar) leave the blood and enter muscles and other tissues to provide fuel.

#### **INSULIN RESISTANCE**

The body is producing insulin, but is not using it effectively. This can be caused by hormones or by excessive weight gain.

#### **PANCREAS**

A long gland that lies behind the stomach. The pancreas makes insulin and digestive enzymes.

#### **PLACENTA**

A special organ that develops to provide the baby with water, oxygen, and food (nutrients) from the mother's blood.

#### **PROTEIN**

A nutrient that is important for growth and development. High protein foods include meat, poultry, fish, eggs, hard cheese, cottage cheese, yogurt, and milk. Nonanimal sources of protein include nuts and seeds, peanut butter, legumes, soybeans, and tofu.

#### **SELF BLOOD-GLUCOSE MONITORING**

A way to test blood sugar at home. A drop of blood is placed on a chemically treated test strip. A machine (or blood glucose/sugar meter) is used to read the blood sugar value of that drop of blood.

## Self blood-glucose monitoring

Daily testing of blood sugar using a small monitor is extremely important for pregnant women with diabetes.

You can test your blood sugar by taking a small drop of blood from your finger. The drop of blood is placed on a test strip in the blood glucose meter. The meter then "reads" the blood sugar level and displays it for you. Your clinician can help you learn how various foods affect your blood sugar.

#### Some things to remember about testing your blood sugar:

- Wash and dry your hands well before testing.
- Do your first test of the day before you eat or drink anything.
- Do your after-meal blood sugar test 1 hour after you begin your meal.
- Do the finger-stick (to obtain the blood drop) on the sides of your fingertips, not the end or middle of the fingertips.
- There are fine or ultra-fine sized lancets (the needle that pokes your finger to get the blood drop). Try the ultra-fine sized one if the fine size bothers your fingers.
- All blood glucose meters need to be checked frequently. Make sure the meter is coded correctly before using it for the first time. You should also check it again every time you change to a new bottle of test strips. Do a quality control check of the strips with the solution provided in your test kit. Read through the instructions that come with your meter for more details.

If you need assistance learning how to test your blood sugar, please talk to your clinician.

## Nutrition tips

**Meal planning:** Try eating every 2 to 3 hours. This can work out to be 3 meals and 3 to 4 snacks daily. Do not let more than 10 hours pass between your bedtime snack and breakfast the following day. Spread out the carbohydrates (starches, milk, and fruit) you eat throughout the entire day.

**Serving size:** Be careful. Measuring out the correct serving size for certain foods can be difficult or confusing at first, but it will get easier with practice. Using measuring cups and spoons can help. Your dietitian can show you the serving sizes you should be using.

**Breakfast meal:** Avoid milk, ready-to-eat cereal, and fruit first thing in the morning since most likely your body will not be able to handle the sugars in these foods. Instead, choose starches that are high in fiber, such as old-fashioned rolled oats or whole-grain toast and lean protein, like egg whites.

**Calcium needs:** Calcium is very important for bone health, especially during pregnancy. Remember to count milk and yogurt as carbohydrate foods. You may need to take a calcium supplement (1,000–1,200 mg) if you are not able to eat these foods. Try eating 3 to 4 servings of calcium-rich foods per day. 1 serving = 1 cup (8 oz) nonfat or low-fat milk or calcium-enriched soy milk, or 6 oz light yogurt or 1.5 oz cheese.

**Purchasing packaged foods:** Be sure to read the food labels on prepared food items, such as frozen meals, packaged foods, and snacks. Ingredients are listed in order of how much is in the food. If any of the first 4 ingredients are sugar, corn syrup, honey, or fructose then that food product probably contains too much sugar for someone with diabetes. It may raise your blood sugar too high. Whenever possible, eat fresh food that you prepare at home.

Fast food and restaurant food: Think carefully about your choices and ask questions. If you know that the portions are too large, pack half of the food in a to-go box before you start eating. Also be aware of the ingredients. Many sauces and dressings have extra sugar, fat, or starch that you may not know about unless you ask.

**Empty calories:** Limit sugary desserts and snacks. These foods tend to raise the blood sugar too high. The artificial sweeteners Splenda, Equal, and NutraSweet (aspartame) are safe to consume in moderation during pregnancy. Also, avoid drinking calories by completely eliminating or limiting your intake of sodas, fruit juices, and high-calorie caffeine drinks.

## ▶ Carbohydrates

- Found in the starch, fruit, and milk food groups
- Eaten at every meal and snack
- Turn into sugar in your body
- Give you energy by fueling your brain, muscles, and organs

Eating too many carbohydrates at once will cause your blood sugar to go too high. Measure your portion sizes of carbohydrates to keep your blood sugar under control. Remember that starchy vegetables, like corn, peas, winter squash, potatoes, beans, yams, taro, and lotus root, are in the starch group.

### ► Protein

- Found in chicken, pork, beef, fish, eggs, cheese, nuts, legumes, soybeans, and tofu
- Eaten at every meal and snack
- Does not raise your blood sugar
- Helps you feel full longer
- Helps with growth and development
- 3 oz of meat looks like the size of a deck of cards, and 1 oz of cheese is about the size of 4 dice

## ► Sample meal plan

		·				
	7 a.m.	Breakfast: 1 cooked egg , ½–1 cup cooked old-fashioned oatmeal				
	10 a.m.	Snack: 1 oz cheese, 1 tortilla, 1 small apple (tennis ball size)				
	1 p.m.	<b>Lunch:</b> 2 oz turkey slices, 2 slices whole-grain bread, lettuce, tomato, mustard, pickle, 1 cup salad with 2 Tbsp balsamic vinegar and oil, 6 oz light yogurt				
	4 p.m.	Snack: 1 oz nuts, 6 whole-wheat crackers, ½ banana				
	7 p.m.	<b>Dinner:</b> 3 oz baked chicken, 1 small potato (tennis ball size), ½ cup corn, 1 cup nonfat milk, ½ cup steamed broccoli, garlic				
	10 p.m.	<b>Snack:</b> 1–2 Tbsp natural peanut butter, 1 slice whole-grain bread, 1 cup nonfat milk				

## ► Diabetes menu choices

Look at the boxes across the chart. When you're deciding what to eat for your meals and snacks, be sure to choose items similar to the items listed in each box.

	Protein group	Starch group	Milk group	Fruit group	Nonstarchy vegetables group****
BREAKFAST	<ul> <li>1 egg OR</li> <li>2 egg whites OR</li> <li>1/8 cup nuts OR</li> <li>1-2 Tbsp peanut butter (natural) OR</li> <li>1 oz cooked lean meat</li> <li>1-2 oz cheese</li> </ul>	<ul> <li>1–2 slices whole-grain bread OR</li> <li>½–1 cup cooked oatmeal OR</li> <li>1–2 (6") corn or wheat tortillas OR</li> <li>½–1 whole-wheat English muffin</li> </ul>	Do not have at breakfast.	Do not have at breakfast.	As desired
MORNING	<ul> <li>1 oz cooked lean meat, chicken, or fish** OR</li> <li>¼ cup cottage cheese OR</li> <li>1 oz cheese OR</li> <li>¼ cup paneer</li> </ul>	<ul> <li>1 slice whole-grain bread OR</li> <li>6 (2") whole-wheat crackers OR</li> <li>1 (6") corn or wheat tortilla OR</li> <li>1 (6") chapati OR</li> <li>½ (6") pita OR</li> <li>1 cup poha (rice flakes)</li> </ul>		<ul> <li>½ large banana OR</li> <li>½ cup mango OR</li> <li>1 small piece fresh fruit (tennis ball size) OR</li> <li>1 cup diced cantaloupe OR</li> <li>½ large grapefruit OR</li> <li>1 large kiwi</li> </ul>	As desired
LUNCH	<ul> <li>2 oz cooked meat, chicken, fish, or shellfish (crab, clams, lobster, or shrimp)** OR</li> <li>½ cup cottage cheese OR</li> <li>2 oz light tuna canned in water** OR</li> <li>1 cup tofu OR</li> <li>2 oz cheese OR</li> </ul>	<ul> <li>1 cup starchy vegetables*** OR</li> <li>2 slices whole-grain bread OR</li> <li>2 (6") corn or wheat tortillas OR</li> <li>²/3 cup cooked pasta, cooked rice, or baked beans OR</li> <li>1 medium potato OR</li> <li>½ naan of 8" x 2" OR</li> <li>2 (6") chapati OR</li> <li>1 cup cooked beans or lentils* OR</li> <li>¹/3 cup cooked taro or lotus root</li> </ul>	<ul> <li>1 cup nonfat/low-fat milk OR</li> <li>1 cup low-fat plain or light soy milk with calcium OR</li> <li>6 oz nonfat/low-fat plain or light yogurt</li> </ul>		As desired
AFTERNOON SNACK	<ul> <li>1 egg OR</li> <li>2 egg whites OR</li> <li>1 oz cooked lean meat OR</li> <li>1 oz cheese OR</li> <li>1/8 cup nuts OR</li> <li>1/4 cup cottage cheese</li> </ul>	<ul> <li>1 slice whole-grain bread OR</li> <li>6 (2") whole-wheat crackers OR</li> <li>1 (6") corn or wheat tortilla OR</li> <li>1 (6") chapati OR</li> <li>1½ cup puffed rice OR</li> <li>½ (6") pita</li> </ul>		<ul> <li>1 small piece fresh fruit (tennis ball size) OR</li> <li>½ cup unsweetened canned fruit drained OR</li> <li>17 small grapes OR</li> <li>1¼ cups cubed watermelon</li> </ul>	As desired
DINNER	<ul> <li>3 oz chicken, turkey, beef, or lamb OR</li> <li>3 oz cooked fish** OR</li> <li>1½ cups tofu OR</li> <li>¾ cup tempeh OR</li> <li>¾ cup paneer OR</li> <li>4 medium sardines OR</li> <li>2 Tbsp grated parmesan cheese</li> </ul>	<ul> <li>²/3 cup cooked pasta, cooked rice, or baked beans OR</li> <li>1 whole-wheat dinner roll and ½ cup cooked corn, peas, or winter squash*** OR</li> <li>1 small potato (tennis ball size) and ½ cup cooked starchy vegetables*** OR</li> <li>1 cup cooked dhal or legumes*</li> </ul>	<ul> <li>1 cup nonfat/low- fat milk OR</li> <li>1 cup low-fat, plain or light soy milk with calcium OR</li> <li>6 oz nonfat/low-fat plain or light yogurt</li> </ul>		As desired
EVENING	<ul> <li>1 oz cheese OR</li> <li>1 oz cooked lean meat OR</li> <li>1-2 Tbsp peanut butter (natural) OR</li> <li>1/4 cup cottage cheese</li> </ul>	<ul> <li>1 slice whole-grain bread OR</li> <li>6 (2") whole wheat crackers OR</li> <li>½ cup cooked oatmeal</li> </ul>	<ul> <li>1 cup nonfat/ low- fat milk OR</li> <li>1 cup low-fat plain or light soy milk with calcium</li> </ul>		As desired

<sup>\*</sup> Equals 2 starch and 2 protein servings.

<sup>\*\*</sup> Do not eat swordfish, shark, king mackerel, tilefish, or raw fish. Limit canned white albacore tuna to 6 oz per week only. These fish may contain dangerous levels of mercury, which may be harmful to your baby. Eat up to 12 oz per week of a variety of fish and shellfish that are lower in mercury.

<sup>\*\*\*</sup> Starchy vegetables such as corn, peas, winter squash, potatoes, beans, plantains, and yams are in the starch group.

<sup>\*\*\*\*</sup> Nonstarchy vegetables: lettuce, cucumber, cabbage, radishes, celery, mushrooms, zucchini, bell peppers, chili peppers, bok choy, broccoli, spinach, eggplant, okra **Foods to avoid:** sugar, jam, honey, syrup, regular sodas, Kool-Aid, lemonade, all juices including orange, apple, cranberry, grape, etc.

## Should I breastfeed?

#### We strongly encourage breastfeeding.

Breastfeeding is the best way to provide your baby with all the nutrients and antibodies she or he needs. The American Academy of Pediatrics and Kaiser Permanente recommend that you exclusively breastfeed for the first 6 months of your baby's life. Breastfeeding can help protect:

- Your baby from certain illnesses and conditions.
- You from certain types of cancers like cervical and breast cancer, and your body can recover more quickly after giving birth.

Breastfeeding can also be especially helpful for women who have diabetes. By 6 weeks after delivery, women who breastfeed usually have lost an average of 4 pounds more than women who bottle feed. This means that breastfeeding can help you with managing your weight to help control your diabetes.

If you have had gestational diabetes, you should be able to breastfeed your baby without any complications. The amount and type of milk your body makes is the same as a woman who did not have gestational diabetes.

If you took insulin before you were pregnant, your insulin needs may be different while breastfeeding. Women with type 1 diabetes may experience a drop in blood sugar during or after nursing. You may need to:

- Check your blood sugars before and after feedings during the first few weeks of breastfeeding.
- Eat snacks to prevent low blood sugar, especially during the night.

Oral medications used to control blood sugar are usually not recommended during breastfeeding. If you took one of these medications before pregnancy, talk to your clinician before taking it again.

## How will diabetes affect my baby?

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**Polyhydramnios** (excess amniotic fluid) happens in a relatively small number (about 10 percent) of women with pre-existing diabetes. Excess fluid can cause premature labor or other complications.

Respiratory distress syndrome, also known as breathing difficulty, is due to the baby's lungs not developing at a normal rate.

Your doctor may do special tests to see if your baby's lungs are developed before your baby is born.

Babies born to mothers whose blood sugar was high at the beginning of pregnancy have a greater chance of complications, including birth defects. However, this risk can be lowered if blood sugars are well controlled before pregnancy. Mothers who have diabetes before pregnancy have a slightly increased chance of stillbirth. Special monitoring usually starts between 32 and 34 weeks for mothers who are taking insulin or other medications. If a mother is not on medication, then special monitoring usually starts by the 40th week of pregnancy.

## Delivery of the baby

When the mother's blood sugar remains normal throughout the pregnancy, diabetes should not affect the delivery of the baby. Sometimes a cesarean section (C-section) may be necessary to deliver a baby that is too big to fit through the birth canal. Decisions about delivery are made based on each woman's unique circumstances. Discuss any questions or concerns you may have with your clinician.

## What is diabetes?

(continued from page 1)

- Have a close relative, such as a parent, brother, or sister with diabetes.
- Are part of an at-risk ethnic group, including African American, Asian American, Hispanic/Latina, Native American, Native Alaskan, and Pacific Islander.
- Have prediabetes or glucose intolerance.

Gestational diabetes usually begins after the first trimester of pregnancy. Most women with this type of diabetes have normal blood sugar in the first part of pregnancy.

Type 2 diabetes is the second most common form of diabetes in pregnancy. Type 2 diabetes is usually diagnosed in adulthood. It has become more common in childhood and adolescence due to the increase in childhood obesity. This type of diabetes can be managed with lifestyle changes (diet and exercise) or with medications such as insulin or oral medication. Women with type 2 diabetes should see their doctor before they become pregnant to discuss steps they can take to ensure a safe pregnancy and a healthy baby. Women with type 2 diabetes should also be seen as soon as they find out they are pregnant, so that blood sugar levels can be monitored carefully.

**Type 1 diabetes** is less common but more likely to cause problems in pregnancy. Type 1 diabetes is usually diagnosed in children and young adults. In type 1 diabetes, the body does not produce insulin, a hormone that is needed to change glucose (sugar), starches, and other food into energy that the body needs to function. Type 1 diabetes can be managed with diet, exercise, and insulin to control blood sugar.

## What happens after pregnancy?

Once you have delivered your baby, the impact of diabetes often changes.

If you have gestational diabetes, you will probably not need insulin or other medications after delivery. However, as many as 60 percent of women with gestational diabetes will develop type 2 diabetes later in life. It is important that you have a blood sugar test in the laboratory 6 weeks after delivery to see if you still have diabetes. You may need to do this test again after you stop breastfeeding. If you have prediabetes, healthy food choices and exercise can help delay the onset of type 2 diabetes. If your blood test is normal, remember that you have an increased risk of developing diabetes later in life, especially if you gain weight.

If you took insulin or other medications to treat your diabetes before you were pregnant, you might have a decrease in your insulin needs immediately after birth. However, your body will gradually increase the need for insulin over the coming days. That's why it is important to check your blood sugar before meals to know when to adjust your medication. Since oral medications are not recommended during breastfeeding, breastfeeding moms are encouraged to use insulin to control their blood sugars.

To decrease your risk for diabetes, remember the following:

- Try to reach or maintain a healthy weight. Losing the weight you gained during pregnancy will help decrease your risk.
- Try to eat plenty of fruits, vegetables, and whole grains.
- Aim for at least 30 minutes of physical activity each day.
- Have a yearly laboratory test of your blood sugar to see if you have developed diabetes.
- Plan your pregnancies and consult with your clinician before getting pregnant again to be sure your blood sugar is normal.
   Very high blood sugars in early pregnancy may cause miscarriages and birth defects. If your blood sugar is in control before you get pregnant, miscarriages and birth defects can usually be prevented.

This information is not intended to diagnose health problems or to take the place of medical advice or care you receive from your physician or other health care professional.

If you have persistent health problems, or if you have additional questions, please consult with your doctor. If you have questions or need more information about your medication, please speak to your pharmacist