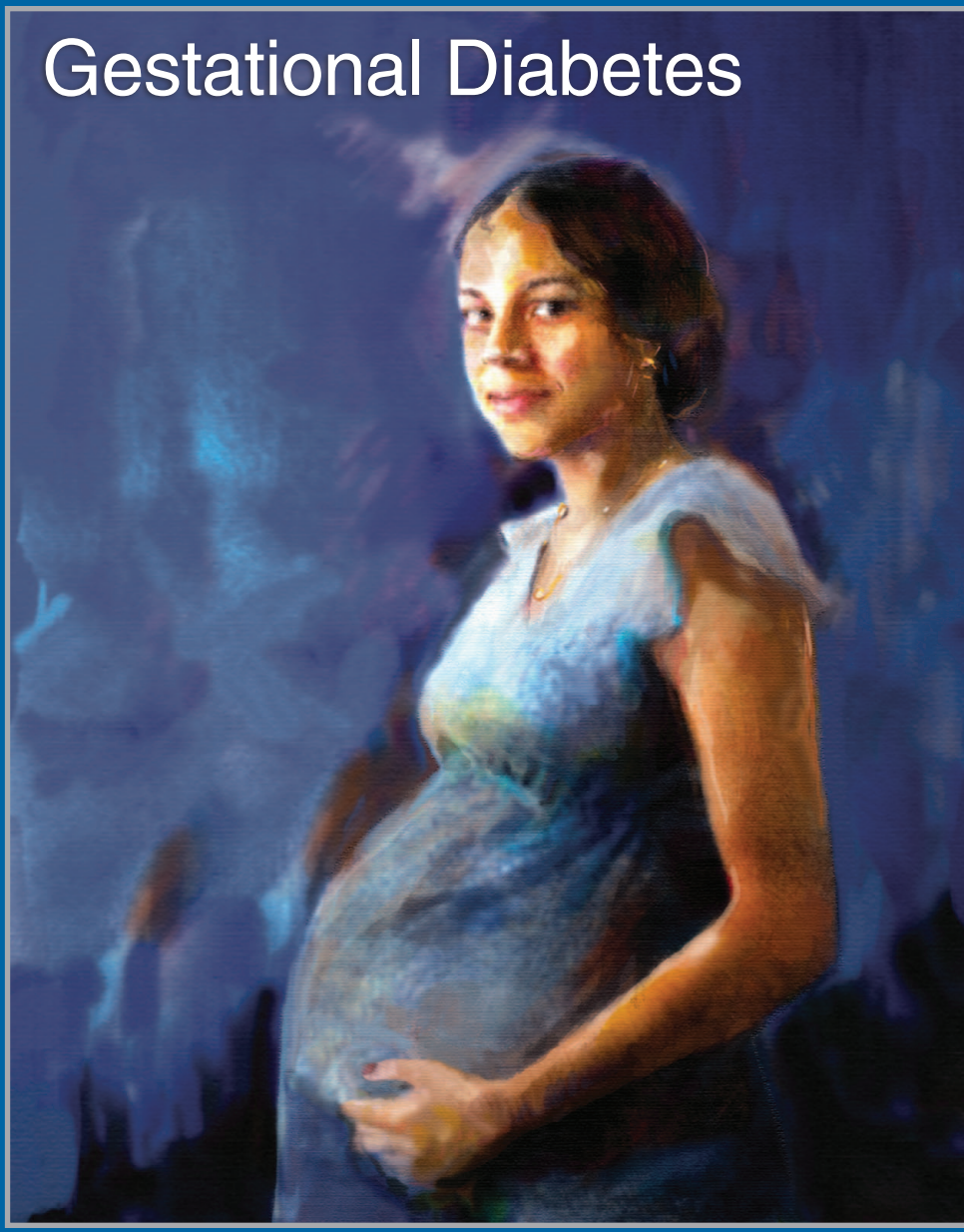
What I need to know about

Gestational Diabetes



National Institute of Diabetes and Digestive and Kidney Diseases

National Diabetes Information Clearinghouse

What I need to know about Gestational Diabetes

Contents

What is gestational diabetes?

Gestational* diabetes is a type of diabetes that develops only during pregnancy. Diabetes means your blood glucose, also called blood sugar, is too high. Your body uses glucose for energy. Too much glucose in your blood is not good for you or your baby.

Gestational diabetes is usually diagnosed during late pregnancy. If you are diagnosed with diabetes earlier in your pregnancy, you may have had diabetes before you became pregnant.

Treating gestational diabetes can help both you and your baby stay healthy. You can protect your baby and yourself by taking action right away to control your blood glucose levels.

Gestational diabetes is a type of diabetes that develops only during pregnancy.

*See page 32 for tips on how to say the words in **bold** type.

If you have gestational diabetes, a health care team will likely be part of your care. In addition to your **obstetrician-gynecologist,** or OB/GYN—the doctor who will deliver your baby—your team might include a doctor who treats diabetes, a diabetes educator, and a **dietitian** to help you plan meals.

For Women with Type 1 or Type 2 Diabetes

If you already have type 1 or type 2 diabetes and are thinking about having a baby, talk with your doctor before you get pregnant. Untreated or poorly controlled diabetes can cause serious problems for your baby. Read more in *What I need to know about Preparing for Pregnancy if I Have Diabetes* at *www.diabetes.niddk.nih.gov* or call 1–800–860–8747 and request a copy.

What causes gestational diabetes?

Gestational diabetes happens when your body can't make enough **insulin** during pregnancy. Insulin is a hormone made in your **pancreas,** an organ located behind your stomach. Insulin helps your body use glucose for energy and helps control your blood glucose levels.

During pregnancy, your body makes more hormones and goes through other changes, such as weight gain. These changes cause your body's cells to use insulin less effectively, a condition called insulin resistance. Insulin resistance increases your body's need for insulin. If your pancreas can't make enough insulin, you will have gestational diabetes.

All pregnant women have some insulin resistance during late pregnancy. However, some women have insulin resistance even before they get pregnant, usually because they are overweight. These women start pregnancy with an increased need for insulin and are more likely to have gestational diabetes.

What are my chances of getting gestational diabetes?

Your chances of getting gestational diabetes are higher if you

- ❑ are overweight
- ❑ have had gestational diabetes before
- ❑ have given birth to a baby weighing more than 9 pounds
- ❑ have a parent, brother, or sister with type 2 diabetes
- ❑ have prediabetes, meaning your blood glucose levels are higher than normal yet not high enough for a diagnosis of diabetes
- ❑ are African American, American Indian, Asian American, Hispanic/Latina, or Pacific Islander American
- ❑ have a hormonal disorder called **polycystic ovary syndrome,** also known as PCOS

How can I lower my chances of getting gestational diabetes?

If you are thinking about getting pregnant and are overweight, you can lower your chances of getting gestational diabetes by

- losing extra weight
- increasing your physical activity level before you get pregnant

Taking these steps can improve how your body uses insulin and help your blood glucose levels stay normal.

Once you are pregnant, you should not try to lose weight. You need to gain some weight for your baby to be healthy. However, gaining too much weight too quickly may increase your chances of getting gestational diabetes. Your doctor will tell you how much weight gain and physical activity during pregnancy are right for you.

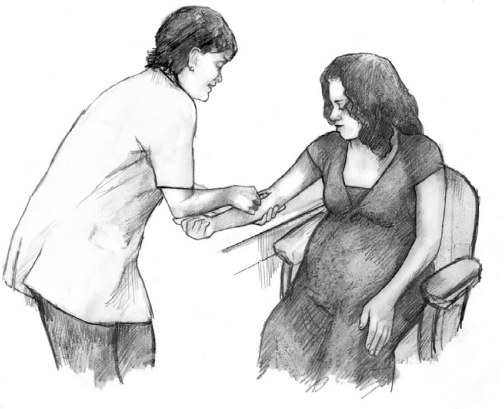
When will I be tested for gestational diabetes?

You will probably be tested for gestational diabetes between weeks 24 and 28 of your pregnancy.

If you have a higher chance of getting gestational diabetes, your doctor may test for diabetes during the first visit after you become pregnant. If your blood glucose level is above normal at that time, you may be diagnosed with diabetes rather than gestational diabetes.

How is gestational diabetes diagnosed?

Doctors use blood tests to diagnose gestational diabetes. All diabetes blood tests involve drawing blood at a doctor's office or a commercial facility. Blood samples are sent to a lab for analysis.



Screening Glucose Challenge Test

For this test, you will drink a sugary beverage and have your blood glucose level checked an hour later. This test can be done at any time of the day. If the results are above normal, you may need to have an oral glucose tolerance test.

Oral Glucose Tolerance Test

You will need to fast for at least 8 hours before the test. Fasting means having nothing to eat or drink except water. Your doctor will give you other instructions to follow before the test.

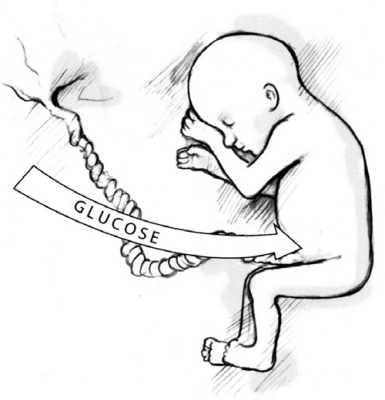
Your fasting blood glucose level will be checked before the test begins. Then you will drink a sugary beverage. Your blood glucose levels will be checked 1 hour, 2 hours, and possibly 3 hours later. Your doctor will use your test results to find out whether you have gestational diabetes.

How will gestational diabetes affect my baby?

If you have high blood glucose levels because your gestational diabetes is not under control, your baby will also have high blood glucose. Your baby's pancreas will have to make extra insulin to control the high blood glucose. The extra glucose in your baby's blood is stored as fat.

Untreated or uncontrolled gestational diabetes can cause problems for your baby, such as

- being born with a larger than normal body—a condition called **macrosomia**—which can make delivery difficult and more dangerous for your baby



- having low blood glucose, also called **hypoglycemia,** right after birth
- having breathing problems, a condition called **respiratory distress syndrome**
- having a higher chance of dying before or soon after birth

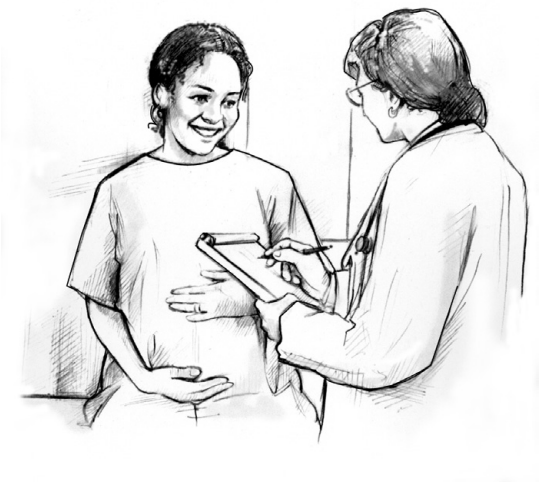
Your baby also might be born with **jaundice.** Jaundice is more common in newborns of mothers who had diabetes during their pregnancy. With jaundice, the skin and whites of the eyes turn yellow. Jaundice usually goes away, but your baby may need to be placed under special lights to help. Making sure your baby gets plenty of milk from breastfeeding will also help the jaundice go away.

Your baby will be more likely to become overweight and develop type 2 diabetes as he or she grows up.

Will I need extra tests during pregnancy to check my baby's health?

If you have gestational diabetes, your doctor may recommend that you have some extra tests to check your baby's health, such as

- ultrasound exams, which use sound waves to make images that show your baby's growth and whether your baby is larger than normal
- a nonstress test, which uses a monitor placed on your abdomen to check whether your baby's heart rate increases as it should when your baby is active
- kick counts to check the time between your baby's movements



How will gestational diabetes affect me?

Gestational diabetes may increase your chances of

- having high blood pressure and too much protein in the urine, a condition called **preeclampsia**
- having surgery—called a **cesarean** section or c-section—to deliver your baby because your baby may be large
- becoming depressed
- developing type 2 diabetes and the problems that can come with this disease

Preeclampsia

Preeclampsia occurs during the second half of pregnancy. If not treated, preeclampsia can cause problems for you and your baby that could cause death. The only cure for preeclampsia is to give birth. If you develop preeclampsia late in your pregnancy, you may need to have a cesarean section to deliver your baby early. If you develop preeclampsia earlier, you may need bed rest and medicines, or you may have to be hospitalized to allow your baby to develop as much as possible before delivery.

Depression

Depression can make you too tired to manage your diabetes and care for your baby. If during or after your pregnancy you feel anxious, sad, or unable to cope with the changes you are facing, talk with your health care team. Depression can be treated. Your health care team may suggest ways you can get support and help to feel better. Remember, in order to take care of your baby, you must first take care of yourself.

Checkups

Keep up with your checkups. "Feeling fine" does not mean you should skip any appointments. Women with gestational diabetes often have no symptoms. Your health care team will be on the lookout for any problems from gestational diabetes.

After Giving Birth

Your diabetes will probably go away after your baby is born. However, even if your diabetes goes away after the birth, you

- may have gestational diabetes if you get pregnant again
- will be more likely to have type 2 diabetes later in your life

How is gestational diabetes treated?

Treating gestational diabetes means taking steps to keep your blood glucose levels in a target range. Targets are numbers you aim for. Your doctor will help you set your targets. You will learn how to control your blood glucose using

- healthy eating
- physical activity
- insulin shots, if needed

Using a healthy eating plan will help your blood glucose stay in your target range.

Eating, Diet, and Nutrition

Your health care team will help you make a healthy eating plan with food choices that are good for both you and your baby. These choices are good for you to follow throughout pregnancy and after, as you raise your family.

Using a healthy eating plan will help your blood glucose stay in your target range. The plan will help you know which foods to eat, how much to eat, and when to eat. Food choices, amounts, and timing are all important in keeping your blood glucose levels in your target range.

Read more in *What I need to know about Eating and Diabetes* at *www.diabetes.niddk.nih.gov.*

Physical Activity

Physical activity can help you reach your blood glucose targets. Talk with your doctor about the type of activity that is best for you. If you are already active, tell your doctor what you do. Being physically active will also help lower your chances of having type 2 diabetes—and its problems—in the future. Now is the time to develop good habits for you and your baby.

- Be as physically active as you can. Aim for at least 30 minutes most days of the week.
- Do **aerobic** activities, which use your large muscles to make your heart beat faster. Try brisk walking, swimming, dancing, or low-impact aerobics.

Physical activity can help you reach your blood glucose targets.

- Ask your doctor if you may continue some higher intensity sports to strengthen muscles and bone if you were already doing them before becoming pregnant, such as lifting weights or jogging.
- Avoid activities in which you can get hit in the stomach, such as basketball or soccer.
- Avoid activities that may cause you to fall, such as horseback riding or downhill skiing.
- Do not exercise on your back after the first trimester. This kind of physical activity can put too much pressure on an important vein and limit blood flow to your baby.

For more information about physical activity and pregnancy, visit *www.womenshealth.gov/pregnancy.*

Insulin Shots

If you have trouble meeting your blood glucose targets, you may need to take a medicine called insulin, along with following a healthy meal plan and being physically active. Your health care team will show you how to give yourself insulin shots. Insulin will not harm your baby.

How will I know whether my blood glucose levels are on target?

Your health care team may ask you to use a small device called a blood glucose meter to check your blood glucose levels on your own. You will learn

- how to use the meter
- how to prick your finger to obtain a drop of blood
- what your blood glucose target range is
- when to check your blood glucose

Each time you check your blood glucose, write down the results.

You may be asked to check your blood glucose

- when you wake up
- just before meals
- 1 or 2 hours after breakfast
- 1 or 2 hours after lunch
- 1 or 2 hours after dinner

This chart shows target blood glucose numbers for women who have gestational diabetes.

Target Blood Glucose Numbers (mg/dL) for Women with Gestational Diabetes	
Time of Day	**Targets**
Before meals and when you wake up	95 or lower
1 hour after eating	140 or lower
2 hours after eating	120 or lower

Ask your doctor whether these targets are right for you.

Each time you check your blood glucose, write down the results in a record book. Ask your health care team for a blood glucose record book or use an electronic blood glucose tracking system on the Internet or on your cell phone. Always bring your blood glucose meter and your record book to your checkups so you can talk with your health care team about reaching your target blood glucose levels.

Will I need to do other tests on my own?

Your health care team may teach you how to test for chemicals called **ketones** in your morning urine or in your blood. High levels of ketones are a sign that your body is using your body fat for energy instead of the food you eat. Using fat for energy is not recommended during pregnancy. Ketones may be harmful for your baby.

If your ketone levels are high, your doctor may suggest that you change the type or amount of food you eat. Or you may need to change your meal or snack times.

After I have my baby, how can I find out whether I still have diabetes?

You will need to visit your doctor to have a blood glucose test 6 to 12 weeks after your baby is born to see whether you still have diabetes. For most women, blood glucose levels return to normal after pregnancy. However, in 5 to 10 percent of women with gestational diabetes, blood glucose levels do not return to normal. Testing shows that these women have diabetes, usually type 2 diabetes. They will need to manage their diabetes through diet, physical activity, and medicines if needed.

Even if your blood glucose levels return to normal after your pregnancy, your chances of having diabetes—usually type 2 diabetes—later in life are high. Therefore, you should be tested at least every 3 years for diabetes or prediabetes.

How can I prevent or delay type 2 diabetes later in life?

You can do a lot to prevent or delay type 2 diabetes by making these lifestyle changes:

- Reach and stay at a healthy weight. Try to reach your prepregnancy weight 6 to 12 months after your baby is born. Then, if you still weigh too much, work to lose at least 5 to 7 percent of your body weight and keep it off. For example, if you weigh 200 pounds, losing 10 to 14 pounds can greatly reduce your chance of getting diabetes.
- Be physically active for at least 30 minutes most days of the week.
- Follow a healthy eating plan. Eat more grains, fruits, and vegetables. Cut down on fat and calories. Your health care team can help you design a meal plan.

- Ask your doctor if you should take the diabetes medicine metformin. Metformin can lower your chances of having type 2 diabetes, especially if you are younger and heavier and have prediabetes or if you have had gestational diabetes.

These changes can help you enjoy a longer, healthier life. Your health care team can give you information and support to help you make these changes.

By delaying or preventing type 2 diabetes, you will also lower your chances of having heart and blood vessel disease and other problems as you get older.

Talk with your doctor if you are thinking about having another baby. For the safety of your baby, your blood glucose needs to be at healthy levels before you get pregnant again. Your doctor can help ensure you are ready for your next child.

How can I give my baby a healthy start?

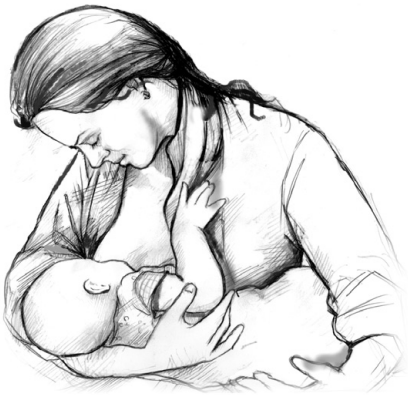
You can give your baby a healthy start by breastfeeding. Breast milk provides the best nutrition for your baby and protection against certain illnesses.

To help prepare for breastfeeding,

- talk with your health care team about your plans to breastfeed. Ask if the place where you plan to deliver your baby has the staff and setup to support successful breastfeeding.
- take a breastfeeding class. Pregnant women who learn about how to breastfeed are more likely to be successful than those who do not.
- ask your doctor to recommend a lactation consultant to help you with breastfeeding. A lactation consultant is trained to help with breastfeeding.
- talk with friends who have breastfed or consider joining a breastfeeding support group.

After you have your baby, these steps can help you get off to a great start:

- Breastfeed as soon as possible after birth. The sucking instinct is very strong within the first hour of life.
- If you don't already have a lactation consultant, ask for one at the hospital to come help you.
- Ask the hospital staff not to give your baby other food or formula, unless it is medically necessary.



- Allow your baby to stay in your hospital room all day and night so that you can breastfeed often. Or, ask the nurses to bring you your baby for feedings.
- Try to avoid giving your baby any pacifiers or artificial nipples so your baby gets used to latching onto just your breast.

Many leading health organizations suggest that your baby should not have any foods or liquids other than breast milk for the first 6 months. After the first 6 months, babies can begin to eat other foods along with breast milk.

Read more in *Breastfeeding and Breast Milk Overview* at *www.nichd.nih.gov/health/topics/breastfeeding* or visit *www.womenshealth.gov/breastfeeding.*

How can I help my child be healthy in the future?

You can help your child be healthy by showing your child how to make healthy lifestyle choices, including being physically active, limiting screen time in front of the TV or video games, eating a healthy diet, and staying at a healthy weight.

Read more about helping your child learn healthy habits in *Helping Your Child, Tips for Parents* at *www.win.niddk.nih.gov/publications/child.htm.*

A healthy lifestyle can help your child from becoming overweight or obese and having type 2 diabetes later on.

For more information about diabetes, contact the National Diabetes Information Clearinghouse (NDIC) at 1–800–860–8747 for free copies of these publications, or read them online at *www.diabetes.niddk.nih.gov:*

Managing Diabetes

- *What I need to know about Diabetes Medicines*
- *What I need to know about Eating and Diabetes*
- *What I need to know about Physical Activity and Diabetes*
- *Your Guide to Diabetes: Type 1 and Type 2*

Preventing Type 2 Diabetes

- *Am I at risk for type 2 diabetes? Taking Steps to Lower Your Risk of Getting Diabetes*

The National Diabetes Education Program's publications include a tip sheet for women with a history of gestational diabetes, available at *www.yourdiabetesinfo.org* or by calling 1–888–693–NDEP (1–888–693–6337):

- *It's Never Too Early to Prevent Diabetes. A Lifetime of Small Steps for a Healthy Family.*

Points to Remember

- Gestational diabetes is a type of diabetes that develops only during pregnancy. Diabetes means your blood glucose, also called blood sugar, is too high.
- Gestational diabetes happens when your body can't make enough insulin during pregnancy. Insulin is a hormone made in your pancreas, an organ located behind your stomach. Insulin helps your body use glucose for energy and helps control your blood glucose levels.
- You will probably be tested for gestational diabetes between weeks 24 and 28 of your pregnancy. If you have a higher chance of getting gestational diabetes, your doctor may test you for diabetes during your first visit after you become pregnant.
- If you have high blood glucose levels because your gestational diabetes is not under control, your baby will also have high blood glucose.

- Untreated or uncontrolled gestational diabetes can cause problems for your baby.
- Treating gestational diabetes means taking steps to keep your blood glucose levels in a target range.
- Even if your blood glucose levels return to normal after your pregnancy, your chances of getting diabetes—usually type 2 diabetes—later in life are high. Therefore, you should be tested at least every 3 years for diabetes or prediabetes.
- You can give your baby a healthy start by breastfeeding.
- You can help your child be healthy by showing your child how to make healthy lifestyle choices, including being physically active, limiting screen time in front of the TV or video games, eating a healthy diet, and staying at a healthy weight.

Hope through Research

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) conducts and supports research on diabetes, including type 1, type 2, and gestational diabetes. Researchers are working to find better ways to diagnose, treat, and prevent diabetes and to improve pregnancy outcomes for women with diabetes.

The NIDDK, in collaboration with the Phoenix Indian Medical Center, is conducting the Healthy Lifestyle in Pregnancy Study, funded under National Institutes of Health (NIH) clinical trial number NCT01585454, to evaluate how to best improve the health of pregnant women and their children. They will do so by providing healthy lifestyle counseling for women receiving prenatal care at the Phoenix Indian Medical Center. The women will be overweight or obese and may or may not have diabetes.

The Walking Exercise and Nutrition to Reduce Diabetes Risk for You (WENDY) Study, funded under NIH clinical trial number NCT01247753, will be looking to find out whether giving women with gestational diabetes both a pedometer and nutrition coaching is more successful in preventing type 2 diabetes.

The Pedometers for Gestational Diabetes (PEG) Study, funded under NIH clinical trial number NCT00862602, also is looking at whether a pedometer program for women with gestational diabetes is effective in preventing type 2 diabetes after delivery. The NIDDK, in collaboration with the University of Michigan Health System, is adapting a web-based pedometer program to women with recent gestational diabetes. The program also provides educational information about exercise, diet, and nutrition.

Clinical trials are research studies involving people. Clinical trials look at safe and effective new ways to prevent, detect, or treat disease. Researchers also use clinical trials to look at other aspects of care, such as improving the quality of life for people with chronic illnesses. To learn more about clinical trials, why they matter, and how to participate, visit the NIH Clinical Research Trials and You website at *www.nih.gov/health/clinicaltrials.* For information about current studies, visit *www.ClinicalTrials.gov.*

Pronunciation Guide

cesarean (seh-ZAY-ree-uhn)

dietitian (dy-uh-TISH-uhn)

gestational (jess-TAY-shuhn-uhl)

hypoglycemia (HY-poh-gly-SEE-mee-uh)

insulin (IN-suh-lin)

jaundice (JAWN-diss)

ketones (KEE-tohnz)

macrosomia (MAK-roh-SOH-mee-uh)

obstetrician-gynecologist (OB-stuh-TRISH-uhn) (GY-nuh-KOL-uh-jist)

pancreas (PAN-kree-uhss)

polycystic ovary syndrome (POL-ee-SISS-tik) (OH-vuh-ree) (SIN-drohm)

preeclampsia (PREE-ee-KLAMP-see-uh)

respiratory distress syndrome (RESS-pih-ruh-TOHR-ee) (dis-TRESS) (SIN-drohm)

For More Information

American Association of Diabetes Educators
200 West Madison Street, Suite 800
Chicago, IL 60606
Phone: 1–800–338–3633
Internet: www.diabeteseducator.org

American Diabetes Association
1701 North Beauregard Street
Alexandria, VA 22311
Phone: 1–800–DIABETES (1–800–342–2383)
Email: askADA@diabetes.org
Internet: www.diabetes.org

Academy of Nutrition and Dietetics
120 South Riverside Plaza, Suite 2000
Chicago, IL 60606–6995
Internet: www.eatright.org

***Eunice Kennedy Shriver* National Institute of Child Health and Human Development Information Resource Center**
P.O. Box 3006
Rockville, MD 20847
Phone: 1–800–370–2943
TTY: 1–888–320–6942
Fax: 1–866–760–5947
Email: NICHDInformationResourceCenter@mail.nih.gov
Internet: www.nichd.nih.gov

Acknowledgments

Publications produced by the Clearinghouse are carefully reviewed by both NIDDK scientists and outside experts. The NDIC would like to thank the following individuals for providing scientific and editorial review or facilitating field-testing of the original version of this publication:

Boyd E. Metzger, M.D.
Northwestern University
Evanston, IL

Susan A. Biastre, R.D., L.D.N., C.D.E.
Women & Infants Hospital
Providence, RI

Beverly Gardner, R.D., L.D.N., C.D.E.
Outpatient Nutrition & Diabetes Education Center
Durham Regional Hospital
Durham, NC

National Diabetes Education Program

1 Diabetes Way
Bethesda, MD 20814–9692
Phone: 1–888–693–NDEP (1–888–693–6337)
TTY: 1–866–569–1162
Fax: 703–738–4929
Email: ndep@mail.nih.gov
Internet: www.ndep.nih.gov
www.yourdiabetesinfo.org

The National Diabetes Education Program is a federally funded program sponsored by the U.S. Department of Health and Human Services' National Institutes of Health and the Centers for Disease Control and Prevention and includes over 200 partners at the federal, state, and local levels, working together to reduce the morbidity and mortality associated with diabetes.

National Diabetes Information Clearinghouse

1 Information Way
Bethesda, MD 20892–3560
Phone: 1–800–860–8747
TTY: 1–866–569–1162
Fax: 703–738–4929
Email: ndic@info.niddk.nih.gov
Internet: www.diabetes.niddk.nih.gov

The National Diabetes Information Clearinghouse (NDIC) is a service of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The NIDDK is part of the National Institutes of Health of the U.S. Department of Health and Human Services. Established in 1978, the Clearinghouse provides information about diabetes to people with diabetes and to their families, health care professionals, and the public. The NDIC answers inquiries, develops and distributes publications, and works closely with professional and patient organizations and Government agencies to coordinate resources about diabetes.

This publication is not copyrighted. The Clearinghouse encourages users of this publication to duplicate and distribute as many copies as desired.

This publication is available at *www.diabetes.niddk.nih.gov.*

This publication may contain information about medications and, when taken as prescribed, the conditions they treat. When prepared, this publication included the most current information available. For updates or for questions about any medications, contact the U.S. Food and Drug Administration toll-free at 1–888–INFO–FDA (1–888–463–6332) or visit *www.fda.gov*. Consult your health care provider for more information.

National Institute of
Diabetes and Digestive
and Kidney Diseases

NIH Publication No. 13–5129
August 2013

The NIDDK prints on recycled paper with bio-based ink.