SECOND TRIMESTER
Second Trimester

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Easing Back Pain During Pregnancy

- What causes back pain during pregnancy?
- What can I do to prevent back pain during pregnancy?
- What can I do to ease back pain?
- When should I contact my health care provider about back pain?

What causes back pain during pregnancy?
Back pain in pregnancy has many possible causes. It usually is caused by strain on the back muscles. In mid-pregnancy, when your uterus becomes heavier, your center of gravity changes. Your posture changes in response. Most women begin to lean backward in the later months of pregnancy, which makes their back muscles work harder.

Weakness of the abdominal muscles also can cause back pain. The abdominal muscles normally support the spine and play an important role in the health of the back. During pregnancy, these muscles become stretched and may weaken, causing some back pain. These changes also make you more prone to injury when you exercise.

Pregnancy hormones may contribute to back pain. To make your baby's passage through your pelvis easier, a hormone relaxes the ligaments in the strong, weight-bearing joints in the pelvis. This loosening makes the joints more flexible, but it can cause back pain if the joints become too mobile.

What can I do to prevent back pain during pregnancy?
To help prevent or ease back pain, be aware of how you stand, sit, and move. Here are some tips that may help:

- Wear low-heeled (but not flat) shoes with good arch support.
- Ask for help when lifting heavy objects.
- When standing for long periods, place one foot on a stool or box.
- If your bed is too soft, have someone help you place a board between the mattress and box spring.
- Do not bend over from the waist to pick things up—squat down, bend your knees, and keep your back straight.
- Sit in chairs with good back support, or use a small pillow behind the low part of your back.
- Try to sleep on your side with one or two pillows between your legs for support.

What can I do to ease back pain?
Apply heat or cold to the painful area or massage it. Exercises for the back can help lessen backache. They strengthen and stretch muscles that support the back and legs and promote good posture—keeping the muscles of the back, abdomen, hips, and upper body strong. These exercises not only will help ease back pain but also will help prepare you for labor and delivery. Staying active during pregnancy can help with back pain. Water exercise and walking are safe to do during pregnancy and are great for the back.

When should I contact my health care provider about back pain?
If you have severe pain, or if pain persists for more than 2 weeks, you should contact your health care provider. Do not try to treat yourself. Back pain also can be caused by other problems. Back pain is one of the main symptoms of preterm labor. You also should contact your health care provider if you are having fever, burning during urination, or vaginal bleeding.
If you have further questions, contact your obstetrician–gynecologist.

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Gestational Diabetes

- What is gestational diabetes?
- What is diabetes mellitus?
- What causes gestational diabetes?
- Will I be tested for gestational diabetes?
- If I develop gestational diabetes, will I always have diabetes mellitus?
- Who is at risk of gestational diabetes?
- How can gestational diabetes affect pregnancy?
- What are the risks to babies born to mothers with gestational diabetes?
- What are the long-term effects of gestational diabetes for both mothers and babies?
- If I have gestational diabetes, how can I control it?
- If I have gestational diabetes, will I have to take medication?
- Will gestational diabetes affect the delivery of my baby?
- If I had gestational diabetes, is there anything I should do after my pregnancy?
- Glossary

What is gestational diabetes?

**Gestational diabetes is diabetes mellitus** that develops in women for the first time during pregnancy. Some women found to have gestational diabetes actually may have had mild diabetes before pregnancy that was not diagnosed.

What is diabetes mellitus?

Diabetes mellitus (also called “diabetes”) is a condition that causes high levels of **glucose** in the blood (see the FAQ Diabetes and Women). Glucose is a sugar that is the body's main source of energy. Health problems can occur when glucose levels are too high.

What causes gestational diabetes?

Gestational diabetes is caused by a change in the way a woman's body responds to **insulin** during pregnancy. Insulin is a **hormone**. It moves glucose out of the blood and into the body's cells where it can be turned into energy. During pregnancy, a woman's cells naturally become slightly more resistant to insulin's effects. This change is designed to increase the mother's blood glucose level to make more nutrients available to the baby. The mother's body makes more insulin to keep the blood glucose level normal. In a small number of women, even this increase is not enough to keep their blood glucose levels in the normal range. As a result, they develop gestational diabetes.

Will I be tested for gestational diabetes?

All pregnant women are screened for gestational diabetes. You may be asked about your medical history and risk factors or you may have a blood test to measure the level of glucose in your blood. This test usually is done between 24 weeks and 28 weeks of pregnancy. It may be done earlier if you have risk factors.
If I develop gestational diabetes, will I always have diabetes mellitus?
For most women, gestational diabetes goes away after childbirth. However, they remain at high risk of having diabetes later in life. For women who had mild diabetes before pregnancy, it is a lifelong condition.

Who is at risk of gestational diabetes?
Gestational diabetes is more likely in women who

- are older than 25 years
- are overweight
- have had gestational diabetes before
- have had a very large baby
- have a close relative with diabetes
- have had a stillbirth in a previous pregnancy
- are African American, American Indian, Asian American, Hispanic, Latina, or Pacific Islander

How can gestational diabetes affect pregnancy?
Gestational diabetes increases the risk of having a very large baby (a condition called macrosomia) and possible cesarean birth. High blood pressure and preeclampsia are more common in women with gestational diabetes.

What are the risks to babies born to mothers with gestational diabetes?
Babies born to mothers with gestational diabetes may have problems with breathing, low glucose levels, and jaundice. With proper prenatal care and careful control of glucose levels, the risk of these problems decreases.

What are the long-term effects of gestational diabetes for both mothers and babies?
Women who have had gestational diabetes are at higher risk of having diabetes in the future, as are their children. Women with gestational diabetes will need to have regular diabetes testing after pregnancy. Their children also will need to be monitored for diabetes risks.

If I have gestational diabetes, how can I control it?
If you have gestational diabetes, you will need to keep your blood glucose level under control. Controlling your blood glucose level may require daily tracking of your glucose level, eating healthy foods, exercising regularly, and sometimes, taking medications.

If I have gestational diabetes, will I have to take medication?
Gestational diabetes often can be controlled with diet and exercise. If diet and exercise are not enough, medication may be needed to control your blood glucose level. Some women may take oral medications; others may need insulin.

Will gestational diabetes affect the delivery of my baby?
Most women with gestational diabetes are able to have a vaginal birth but are more likely to have a cesarean delivery than women without diabetes to prevent delivery problems. Labor also may be induced (started by drugs or other means) earlier than the due date.

If I had gestational diabetes, is there anything I should do after my pregnancy?
You should have a test for diabetes 6–12 weeks after you give birth. If your postpartum glucose test result is normal, you need to be tested for diabetes every 3 years. Your child also should be checked throughout childhood for risk factors for diabetes, such as obesity.

Glossary

**Cesarean Birth:** Birth of a baby through surgical incisions made in the mother’s abdomen and uterus.

**Diabetes Mellitus:** A condition in which the levels of sugar in the blood are too high.

**Gestational Diabetes:** Diabetes that arises during pregnancy.

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

**Hormone:** A substance made in the body by cells or organs that controls the function of cells or organs. An example is estrogen, which controls the function of female reproductive organs.

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

**Jaundice:** A buildup of bilirubin that causes a yellowish appearance.

**Macrosomia:** A condition in which a fetus grows very large.

**Preeclampsia:** A condition of pregnancy in which there is high blood pressure and protein in the urine.

**Stillbirth:** Delivery of a dead baby.
If you have further questions, contact your obstetrician–gynecologist.

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Preeclampsia and High Blood Pressure During Pregnancy

- What is blood pressure?
- How can high blood pressure affect pregnancy?
- What is chronic high blood pressure?
- How is chronic high blood pressure managed during pregnancy?
- I have chronic high blood pressure. Are there steps I can take before pregnancy to make pregnancy safer?
- What is gestational hypertension?
- What is preeclampsia?
- What causes preeclampsia?
- What happens if a woman has preeclampsia?
- How is preeclampsia treated?
- Glossary

What is blood pressure?

Blood pressure is vital for the body’s circulatory system—the heart, arteries, and veins—to function. It is created in part by the steady beating of the heart. Each time the heart contracts, or squeezes, it pumps blood into the arteries. The arteries carry the blood to the body’s organs. The veins return it to the heart.

Small arteries, called arterioles, also affect blood pressure. These blood vessels are lined with a layer of muscle. When the blood pressure is normal, this muscle is relaxed and the arterioles are dilated (open) so that blood can flow through them easily. However, if a signal is sent to increase the blood pressure, the muscle layer tightens and the arterioles narrow. This makes it harder for the blood to flow. The pressure then increases in the arteries. This is called high blood pressure.

High blood pressure also is called hypertension.

How can high blood pressure affect pregnancy?

When a woman has high blood pressure in pregnancy, it may cause less blood to flow to the placenta. The fetus receives less of the oxygen and nutrients it needs. This can cause the growth of the fetus to slow down.

What is chronic high blood pressure?

When high blood pressure has been present for some time before pregnancy, it is known as chronic, or essential, hypertension. This condition remains during pregnancy and after the birth of the baby. It is vital that chronic hypertension be controlled because it can lead to health problems such as heart failure or stroke.

How is chronic high blood pressure managed during pregnancy?

During pregnancy, chronic hypertension also may affect the growth of the fetus. If you take medication to control your blood pressure, your health care provider will determine whether it is safe to use during pregnancy. Many women with chronic hypertension can stop taking medication during pregnancy because their blood pressure returns to normal. Other women need to continue treatment during their pregnancies. In some cases, a woman may need to switch to a different medication that still helps control her blood pressure, but is safe to use during pregnancy.
I have chronic high blood pressure. Are there steps I can take before pregnancy to make pregnancy safer?

The following steps may help make pregnancy safer:

- Lose weight through diet and exercise.
- Take blood pressure medication as prescribed.
- Ask your health care provider if your medication is safe to use during pregnancy.

What is gestational hypertension?

When high blood pressure first occurs during the second half of pregnancy, it is known as gestational hypertension. This type of high blood pressure goes away soon after the baby is born. You may need to see your health care provider more often to have your blood pressure checked. When gestational hypertension occurs with other findings, it is called preeclampsia.

What is preeclampsia?

Preeclampsia is a serious medical condition affecting all organs of the body. For example, preeclampsia causes stress on the kidneys, which results in increased amounts of protein in the woman's urine. Other signs of preeclampsia may include:

- Headaches
- Visual problems
- Rapid weight gain
- Swelling (edema) of the hands and face

What causes preeclampsia?

It is not known why some women get preeclampsia. However, some women are at a higher risk than others. The risk of developing preeclampsia is increased in women who

- are pregnant for the first time
- have had preeclampsia in a previous pregnancy
- have a history of chronic hypertension
- are 35 years or older
- are carrying more than one fetus
- have certain medical conditions such as diabetes or kidney disease
- are obese
- are African American
- have certain immune disorders, such as lupus, or blood diseases

What happens if a woman has preeclampsia?

A woman with preeclampsia may need to stay in the hospital so that she and her baby can be monitored. In some cases, the baby may be delivered early. When preeclampsia becomes severe, the woman's organs can be damaged, including the kidneys, liver, brain, heart, and eyes. In some cases, seizures will occur. This is called eclampsia.

How is preeclampsia treated?

If preeclampsia develops, the only real cure is having the baby. The decision to deliver the baby depends on the risks to the woman and to the baby. Labor may occur naturally or labor may be induced (brought on). Sometimes a cesarean birth is needed depending on the health of the woman and baby.

Before deciding to deliver your baby early, your health care provider may want to see if your condition improves. During labor you may be given medication to help prevent seizures or decrease your blood pressure.

Glossary

- **Cesarean Birth:** Delivery of a baby and the placenta through an incision made in a woman’s abdomen and uterus.
- **Eclampsia:** Seizures occurring in pregnancy and linked to high blood pressure.
- **Placenta:** Tissue that provides nourishment to and takes away waste from the fetus.
- **Preeclampsia:** A condition of pregnancy in which there is high blood pressure, and protein is present in the urine.

If you have further questions, contact your obstetrician–gynecologist.

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Cord Blood Banking

- What is cord blood?
- What are stem cells?
- How are cord blood stem cells used?
- What are the limits to stem cell use?
- How is cord blood stored?
- How do public cord blood banks operate?
- How do private cord blood banks operate?
- How is cord blood collected?
- What are some situations when it is not possible to collect cord blood?
- What should be considered when deciding whether to store cord blood?
- Glossary

What is cord blood?
Cord blood is blood from the baby that is left in the umbilical cord and placenta after birth. It contains cells called hematopoietic (blood-forming) stem cells that can be used to treat some diseases.

What are stem cells?
Most cells can make copies only of themselves. A skin cell can make another skin cell, for example. Stem cells are like blank slates. They can mature into different kinds of cells. The blood-forming stem cells found in cord blood make new blood cells to replace old ones in the body.

How are cord blood stem cells used?
Blood-forming stem cells in cord blood can be used to treat some types of illnesses, such as disorders of the blood, immune system, and metabolism. They also are used to offset the effects that cancer treatments have on the immune system.

Stem cells occur in places other than cord blood. They are found in blood and bone marrow in adults and children. Using cord blood to treat disease has some benefits over using bone marrow. For example, it is harder to collect bone marrow than it is to collect cord blood. Collecting bone marrow poses some risks and can be painful for the donor.

What are the limits to stem cell use?
Stem cells are not a "miracle cure." Only a few diseases can be treated with stem cells. There also are other limitations:
- If a baby is born with a genetic disease, the stem cells from the cord blood cannot be used for treatment because they will have the same genes that cause the disorder.
- A child's stem cells cannot be used to treat that child's leukemia, a cancer of the blood. However, stem cells from a healthy child can be used like any other donated organ to treat another child's leukemia. The recipient and donor are carefully matched to make sure that the stem cells will work.

How is cord blood stored?
Cord blood is kept in one of two types of banks: public or private. They differ in important ways that may affect your choice.

How do public cord blood banks operate?
Public cord blood banks operate like blood banks. Cord blood is collected for later use for anyone who needs it. The stem cells in the donated cord blood can be used by any person who "matches." The cord blood is tracked in a database so that a unit can be found quickly when needed. Public banks do not charge to collect cord blood.

Donors to public banks must be screened before birth. Screening entails a detailed medical history of the mother and father and their families. The goal is to learn of any blood or immune system disorders or other problems. Donors also are asked about their lifestyles. Many people will not meet these screening standards.

How do private cord blood banks operate?
Private banks store cord blood for "directed donation." The blood is held for use in treating your baby or relatives. Private banks most often charge a yearly fee for storage. There also will be a fee for collecting the cord blood. Some doctors may have a financial or other conflict of interest in a private bank.

How is cord blood collected?
Cord blood is collected by your health care provider or the staff at the hospital where you give birth. Not all hospitals offer this service. Some charge a separate fee that may or may not be covered by insurance. The process used to collect cord blood is simple and painless. After the baby is born, the umbilical cord is clamped. Blood is drawn from the cord with a needle that has a bag attached. After the bag is sealed, the placenta is delivered. The process takes about 10 minutes.

What are some situations when it is not possible to collect cord blood?
Sometimes, not enough cord blood can be collected. This problem can occur if the baby is premature or if there is more than one baby and they share a placenta. It also can occur for no reason. If an emergency occurs during delivery, it may not be possible to collect cord blood.

Problems with the mother may not allow any cord blood to be collected. These problems make it more likely for cord blood to carry an infection:
- Herpes or genital warts
- Infection of the placenta or amniotic fluid

What should be considered when deciding whether to store cord blood?
There are some points to think about when making a decision about storing cord blood:
- Many diseases cannot be treated with a person's own stem cells.
- The chance that cord blood stem cells will be needed to treat your child or a relative is very low—about 1 in 2,700. However, research is being done into new uses for stem cells. Research also may uncover new ways of treating disease that do not involve stem cells.
- Currently, it is not known how long cord blood can successfully be stored.

If you decide to store cord blood, you will need to choose a cord blood bank. Listed are some questions to ask yourself when deciding on a bank:
- What will happen to the cord blood if a private bank goes out of business?
- Can you afford the collection fee and yearly storage fee for a private bank?
- What are your options if results of the screening tests show you cannot donate to a public bank?

Glossary
Cell: The smallest units of a structure in the body; the building blocks for all parts of the body.
Bone Marrow: The spongy tissue in bone cavities that produces new blood cells.
Genes: DNA "blueprints" that code for specific traits, such as hair and eye color.
Immune System: The body's natural defense system against foreign substances and invading organisms, such as bacteria that cause disease.
Metabolism: The physical and chemical processes in the body that maintain life.
Placenta: Tissue that provides nourishment to and takes waste away from the fetus.
Umbilical Cord: A cordlike structure containing blood vessels that connects the fetus to the placenta.

If you have further questions, contact your obstetrician–gynecologist.
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1411 Walnut St.
Philadelphia, PA 19102
(215) 864-0400
www.corcell.com

**Cord Blood Registry**
1200 Bayhill Dr., Suite 301 (3rd floor)
San Bruno, CA 94066
(888) 932-6568
www.cordblood.com

**Cord Partners, Inc.**
501 Santa Monica Blvd, Suite 700
Santa Monica, CA 90401
(310) 432-4090

**Coriell Institute for Medical Research**
403 Haddon Ave
Camden, NJ 08103
(856) 966-7377
www.coriell.org

**Cryo-Cell International, Inc.**
700 Brooker Creek Blvd, Suite 1800
Oldsmar, FL 34677
(813) 749-2100
*Donations Accepted*
www.cryo-cell.com

**Cryobank International**
270 Northlake Blvd, Suite 1012
Altamonte Springs, FL 32701
(800) 869-8608
www.lifeforcecryobanks.com

**Cryobank For Oncologic & Reproductive Donors**
100 Crystal Run Rd, Suite 102
Middletown, NY 10941
(845) 692-2673

**Eli Katz Umbilical Cord Blood Program**
102 Chestnut Ridge Rd.
Montvale, NJ 07645
(866) SAVCORD - (866-728-2673)
*Donations Accepted*
www.communitybloodservices.org

**Lifebank**
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