Fetal Growth Restriction

What is fetal growth restriction?

Fetal growth restriction (FGR) is a condition in which the fetus is much smaller than expected for the gestational age. Out of 10 fetuses at the same gestational age, a growth-restricted fetus weighs less than 9 of them. FGR can lead to health problems for the baby. Infants born with FGR are more likely to spend time in the neonatal intensive care unit with breathing problems, low blood sugar, and problems staying warm. There is an increased risk of stillbirth or the baby dying after birth. FGR has been linked to an increased risk of certain health issues later in life, such as heart disease and diabetes. Other problems, such as learning disabilities and problems with behavior, have been linked to FGR. It is important to note, though, that these problems do not happen in all cases of FGR.

Do all fetuses who are small have FGR?

No. Some fetuses whose estimated fetal weight is below the 10th percentile are just small. These babies may be born small but do not have any health problems.

How is FGR diagnosed?

Your pregnancy care professional will check how your fetus is growing during your regular prenatal care visits. Fetal growth can be estimated in a few different ways:

- **Fundal height:** In the second half of pregnancy, your pregnancy care professional will check how your fetus is growing during your prenatal care visits. This is done by measuring your abdomen from the pubic bone to the top of the uterus (the fundus). This measurement is called the **fundal height**. Your fundal height in centimeters should be about the same as the number of weeks of pregnancy. For example, at 24 weeks of pregnancy, your fundal height should be around 24 centimeters. Fundal height measurement may not work as well in people who are obese or who are pregnant with more than 1 baby.

- **Ultrasound exam:** Certain parts of the fetus are measured during an ultrasound exam, such as how big around the head and abdomen are and the length of the thigh bone. These measurements are used along with gestational age to estimate the fetal weight.

What causes FGR?

Although not all fetuses that measure less than the 10th percentile are growing abnormally, your care team will look for reasons why the fetus may be smaller than expected. FGR can be caused by certain problems with the mother’s health, problems with the fetus, or problems with the placenta. The following health conditions in the mother...
have been shown to increase the risk of FGR:
- Preexisting diabetes, heart disease, kidney disease, or lupus
- High blood pressure that occurs during pregnancy
- Smoking, using illegal drugs, or drinking alcohol
- Certain infections that can pass to the fetus
- Taking certain medications or being exposed to certain harmful chemicals

Fetal health conditions that can cause FGR include the following:
- Conditions caused by a problem with chromosomes
- A problem that affects a body structure, like the heart or the digestive tract

A problem with the placenta is the most common cause of FGR. If the placenta is not working well, the fetus may not get enough nutrients to grow normally.

Being pregnant with more than one baby is also a common cause of FGR. The odds of twins being born too small is as high as 1 in 5. For triplets, the odds are 3 in 5.

What does not cause FGR?
FGR is not caused by working too much, worrying, or a vegetarian diet. Eating a balanced diet, being active and getting exercise, and avoiding smoking and street drugs can help the fetus grow well. If you do have an underlying health condition (such as diabetes or high blood pressure), following your treatment plan to keep it under control can also help. In most cases, FGR isn’t related to anything you’ve done or haven’t done.

Can the size of my baby bump tell whether I have FGR?
It’s actually hard to diagnose FGR just by looking at someone. If you’re concerned about your size, though, tell your pregnancy care professional.

Can FGR be treated?
There is no treatment for FGR, but it is possible to manage the condition to increase the chance that the fetus is born at the right time with as few complications as possible. Sometimes, this means delivering the fetus earlier than the due date by labor induction or possibly by cesarean delivery. Early delivery is recommended when continuing the pregnancy might increase the risk of stillbirth.

When FGR is first diagnosed, you may have tests to try to find the cause of the growth problem, particularly if it is early in pregnancy. In the third trimester, fetal testing can also be used to check the fetus’s well-being and decide the best time to deliver. The following tests may be offered to manage and monitor FGR depending upon the time in your pregnancy when FGR is diagnosed:
- Detailed ultrasound exam: This ultrasound exam looks at the fetus’s body in detail to see if there are any physical abnormalities. The amount of amniotic fluid is also measured.
- Genetic testing with amniocentesis: This test is offered if there is a concern that a chromosomal disorder may be present.
- Electronic fetal heart rate monitoring: This test involves putting monitors on your abdomen to assess the fetal heart rate and contractions over time. Changes in the fetal heart rate can tell your care providers if the placenta is working as expected. It may be performed weekly or more often if necessary.
- Biophysical profile and Doppler ultrasound: This type of ultrasound exam measures the baby’s movements, breathing, fluid, and blood flow through an artery in the umbilical cord, which helps assess how the placenta is working.

Is bed rest recommended to treat FGR?
No. Bed rest should not be used to treat FGR. Research does not show that bed rest improves outcomes. In fact, bed rest can cause harm by increasing your risk of bone loss, muscle loss, and blood clots.

How are the results of these tests used to make delivery decisions?
The goal of monitoring is to help you and your health care professional decide the best time to deliver the baby. If test results show that the fetus is not doing well, early delivery may be recommended to avoid stillbirth. If delivery is before term, there can be another set of problems related to prematurity. Deciding the right time for delivery involves balancing the risks of being born too early versus the risks of staying in the uterus. These decisions can be very difficult. You and your health care professional will make the decision together after you have been given all of the facts about the fetus’s condition and the risks and benefits of waiting to deliver versus early delivery.

What do the experts say about when a fetus with FGR should be delivered?
Delivery decisions are based on the cause of the FGR (if known), gestational age, and results of tests for fetal well-being. Here are the current guidelines, presuming that you do not have preeclampsia or other issues with your health:
- 38 to 39 weeks if testing shows the fetus is doing well
- Before 37 weeks when the results of testing show that the fetus may have an increased risk of complications. The higher the risks of complications or stillbirth, the earlier delivery may be recommended.

If delivery before 34 weeks is likely, or if you are between
34 and 37 weeks and there is a chance that you may deliver in the next 7 days, you may be given medications called corticosteroids. Corticosteroids help the fetus's lungs and other organs mature. They may improve the outcome if your baby is born preterm.

To find a maternal-fetal medicine subspecialist in your area, go to https://www.smfm.org/members/search.

The Society for Maternal-Fetal Medicine’s Patient Education Series reflects the content of current, published SMFM practice guidelines. Each series document has undergone extensive internal review prior to publication. Patient Education documents should not be used as a substitute for the advice and care of a medical professional.

**Glossary**

**Amniocentesis:** A procedure in which a sample of amniotic fluid is removed from the uterus during pregnancy and tested to look for genetic problems in the fetus.

**Biophysical Profile:** A prenatal test that checks the fetal heart rate, movement, muscle tone, breathing, and the amount of amniotic fluid.

**Amniotic Fluid:** The fluid in the sac that surrounds the fetus during pregnancy.

**Cesarean Delivery:** Surgery in which a baby is delivered through a cut (incision) in the mother’s uterus.

**Chromosomes:** The structures inside cells that carry genes, the pieces of hereditary material passed down from parents to offspring.

**Corticosteroids:** Medication that can help a fetus’s lungs and other organs mature, usually given if a preterm delivery is anticipated within the next 7 days.

**Diabetes:** A condition in which a person’s blood sugar is too high. It can be caused by a lack of insulin, a chemical in the body that helps move sugar from the bloodstream into cells. It also can be caused when cells do not respond properly to insulin.

**Doppler Ultrasound:** A special type of ultrasound exam that measures blood flow through a blood vessel.

**Electronic Fetal Heart Rate Monitoring:** A procedure that assesses the rate and rhythm of the fetal heartbeat. A belt with sensors is placed around a pregnant person’s abdomen, and these sensors continuously record the fetal heartbeat.

**Fetal Growth Restriction:** A condition in which a fetus is measuring much smaller than expected for the gestational age.

**Fundal Height:** A measurement of the pregnant abdomen taken from the top of the pubic bone to the top of the uterus. It is one method to help track the growth of the fetus after about 24 weeks of pregnancy.

**Gestational Age:** The age of a pregnancy, usually given in weeks. A pregnancy is often dated from the first day of the last menstrual period. A standard length of pregnancy is 40 weeks.

**Labor Induction:** The process of starting your labor (by the use of drugs or other means such as breaking your water), as opposed to labor starting on its own.

**Neonatal Intensive Care Unit:** A special unit in the hospital that cares for sick newborns.

**Placenta:** A special organ made by a woman's body during pregnancy. It allows the transfer of nutrients, antibodies, and oxygen to the fetus from the woman. It also makes hormones that sustain the pregnancy.

**Preeclampsia:** A disorder that can occur during pregnancy in which the blood pressure goes too high. It can damage many organs in the body, including the kidneys, brain, and liver.

**Stillbirth:** Death of a fetus prior to delivery.

**Ultrasound:** Use of sound waves to create images of internal organs or the fetus during pregnancy.

**Umbilical Cord:** The cord that links the growing fetus to the placenta; it contains blood vessels that bring oxygen and nutrients to the fetus and removes waste products.