



The American College of
Obstetricians and Gynecologists



FREQUENTLY ASKED QUESTIONS
FAQ098
PREGNANCY

Special Tests for Monitoring Fetal Health

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Why may special tests be needed during pregnancy?

Special testing during pregnancy most often is done when the **fetus** is at increased risk of problems that could result in pregnancy complications or lead to **stillbirth**. This can occur in the following situations:

- High-risk pregnancy (a woman has had complications in a previous pregnancy or has a preexisting health condition such as **diabetes** or heart disease)
- Problems during pregnancy, such as fetal growth problems, **Rh sensitization**, or high blood pressure
- Decreased movement of the fetus
- Pregnancy that goes past 42 weeks (**postterm pregnancy**)
- **Multiple pregnancy** with certain complications

When during pregnancy are special tests performed?

Special testing usually is started between week 32 and week 34 of pregnancy. Testing may be started earlier if problems are particularly serious or there are multiple risk factors.

How often are special tests done?

How often the tests are done depends on the condition that prompted the testing, whether the condition remains stable, and results of the testing. Some tests are repeated weekly. In certain situations, tests may be done twice weekly.

What are the types of special tests?

The tests used to monitor fetal health include fetal movement counts, the nonstress test, biophysical profile, modified biophysical profile, contraction stress test, and **Doppler ultrasound** of the umbilical artery.

What are fetal movement counts?

If you have felt fetal movement less often than what you think is normal, your health care provider may ask you to keep track of the fetus's movements. Fetal movement counting (also called "kick counts") is a test that you can do at home. There are different ways kick counts can be done. Your health care provider will tell you how often to do it and when to notify him or her.

What is a nonstress test?

The nonstress test measures the fetal heart rate in response to fetal movement over time. The term "nonstress" means that during the test, nothing is done to place stress on the fetus.

How is the nonstress test performed?

This test may be done in the health care provider's office or in a hospital. The test is done while you are reclining or lying down and usually takes at least 20 minutes. A belt with a sensor that measures the fetal heart rate is placed around your abdomen. The fetal heart rate is recorded by a machine.

What do the results of a nonstress test mean?

If two or more **accelerations** occur within a 20-minute period, the result is considered reactive or "reassuring." A reactive result means that for now, it does not appear that there are any problems. A nonreactive result is one in which not enough accelerations are detected in a 40-minute period. It can mean several things. It may mean that the baby was asleep during the test. If this happens, the test may last 40 more minutes, or the baby may be stimulated to move with sound projected over the mother's abdomen. A nonreactive result can occur if the woman has taken certain medications. It also can mean that the fetus is not getting enough **oxygen**.

What is a biophysical profile?

A biophysical profile (BPP) may be done when results of other tests are nonreassuring. It uses a scoring system to evaluate fetal well-being in these five areas:

1. Fetal heart rate
2. Fetal breathing movements
3. Fetal body movements
4. Fetal muscle tone
5. Amount of **amniotic fluid**

Each of the five areas is given a score of 0 or 2 points, for a possible total of 10 points.

How is the BPP performed?

A BPP involves monitoring the fetal heart rate (the same way it is done in a nonstress test) as well as an **ultrasound exam**. During an ultrasound exam, a device called a **transducer** is rolled gently over your abdomen while you are reclining or lying down. The transducer creates sound waves that bounce off of the internal structures of the body. The transducer receives these echoes, which are converted into images displayed on a computer screen for the technician to view.

What do the results of a BPP mean?

A score of 8–10 is reassuring. A score of 6 is equivocal (neither reassuring nor nonreassuring). If you have an equivocal score, depending on how far along you are in your pregnancy, you may have another BPP within the next 12–24 hours, or it may be decided to deliver the baby. A score of 4 or less means that further testing is needed. Sometimes, it means that the baby should be delivered early or right away.

No matter what the score is, not enough amniotic fluid means that more frequent testing should be done or delivery may need to be considered.

What is a modified BPP?

A modified BPP is done for the same reasons that a BPP is done. The modified BPP combines a nonstress test with an amniotic fluid assessment that is performed using ultrasound. It is less cumbersome but can be just as useful as the BPP in predicting fetal well-being.

How is the modified BPP performed?

The fetal heart rate is monitored in the same way it is done for the nonstress test. Ultrasound is used to measure how much amniotic fluid there is in four areas of your **uterus**.

What do the results of a modified BPP mean?

If test results are nonreactive, it could mean that the fetus is having trouble getting enough oxygen. Results of the amniotic fluid measurement give an idea of how well the **placenta** is working. If the amniotic fluid level is low, it could mean that there is a problem with blood flow in the placenta. A full BPP or contraction stress test may be needed to confirm results.

What is a contraction stress test?

The contraction stress test helps your health care provider see how the fetal heart rate reacts when the uterus contracts. The contraction stress test sometimes is used if other test results are positive or unclear.

How is the contraction stress test performed?

In this test, belts with sensors that detect the fetal heart rate and uterine contractions are placed across your abdomen. To make your uterus contract mildly, you may be asked to rub your nipples through your clothing or you may be given **oxytocin**.

What do the results of a contraction stress test mean?

If the fetal heart rate does not decrease after a contraction, the result is normal (negative). A decrease in heart rate after most contractions is a positive result (the results are concerning to the health care provider). Results also can be equivocal (the results are not clear) or unsatisfactory (there were not enough contractions to produce a meaningful result).

What is a Doppler ultrasound exam of the umbilical artery?

Doppler ultrasound is used to check the blood flow in the umbilical artery, a blood vessel located in the **umbilical cord**. Doppler ultrasound is used with other tests when the fetus shows signs of not growing well.

How is the Doppler ultrasound exam performed?

You will be reclining or lying down for this test. A transducer is rolled gently over your abdomen to project sound waves. An image of the artery that is being examined is shown on a computer screen.

What do the results of a Doppler ultrasound exam mean?

A normal test result is one that shows normal blood flow in the umbilical artery. If the test shows problems with the blood flow in the placenta, it can mean that there is a decrease in the amount of oxygen being delivered to the fetus.

Glossary

Accelerations: Increases in the fetal heart rate.

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

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

Doppler Ultrasound: A type of ultrasound in which sound waves are used to detect how fast an object is moving. Doppler ultrasound can be used to detect the heartbeat of a fetus or how fast blood is moving through a vein or artery.

Fetus: The developing organism in the uterus from the ninth week of pregnancy until the end of pregnancy.

Multiple Pregnancy: A pregnancy in which there are two or more fetuses.

Oxygen: A gas that is necessary to sustain life.

Oxytocin: A hormone used to help bring on contractions of the uterus.

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

Postterm Pregnancy: A pregnancy that extends beyond 42 weeks.

Rh Sensitization: A condition in which an Rh-negative mother makes antibodies against Rh proteins. These antibodies can react against the baby's Rh factor if the baby is Rh positive, causing anemia, jaundice, and other problems.

Stillbirth: Delivery of a dead baby.

Transducer: A device that emits sound waves and translates the echoes into electrical signals.

Ultrasound Exam: A test in which sound waves are used to examine internal structures. During pregnancy, it can be used to examine the fetus.

Umbilical Cord: A cord-like structure containing blood vessels that connects the fetus to the placenta.

Uterus: A muscular organ located in the female pelvis that contains and nourishes the developing fetus during pregnancy.

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

FAQ098: Designed as an aid to patients, this document sets forth current information and opinions related to women's health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to the institution or type of practice, may be appropriate.

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