

# Monitoring Fetal Health During Pregnancy



All pregnant women are monitored as a part of prenatal care. Early prenatal care gives your doctor a chance to check on your health and the progress of your pregnancy and on the well-being of your fetus.

Based on the results of routine prenatal care, your doctor may suggest further tests to check the health of the fetus. Most of the time, these tests offer reassurance that all is going well. When problems arise, the tests can pinpoint them early. This pamphlet details the special techniques used to monitor you during your pregnancy.

## How Does Monitoring Work?

Some of the tests used for monitoring check the movement, heartbeat, and rate of growth of the fetus. Some tests show an image of the fetus in the uterus. Others create a sound or recording of the fetus's heartbeat. Your doctor may combine these tests to capture both sounds and images.

## Special Tests

Five tests may be used to monitor the well-being of the fetus before birth:

- Kick count
- Ultrasound exam
- Nonstress test
- Contraction stress test
- Biophysical profile

### *Kick Count*

You can keep track of your fetus's movements yourself by keeping a *kick count* in late pregnancy. You simply note the number of times



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the fetus moves over a certain time. Your doctor can tell you when and how to do this test and what the results mean. If your fetus does not move in a 12-hour time frame, let your doctor know.

### Ultrasound Exam

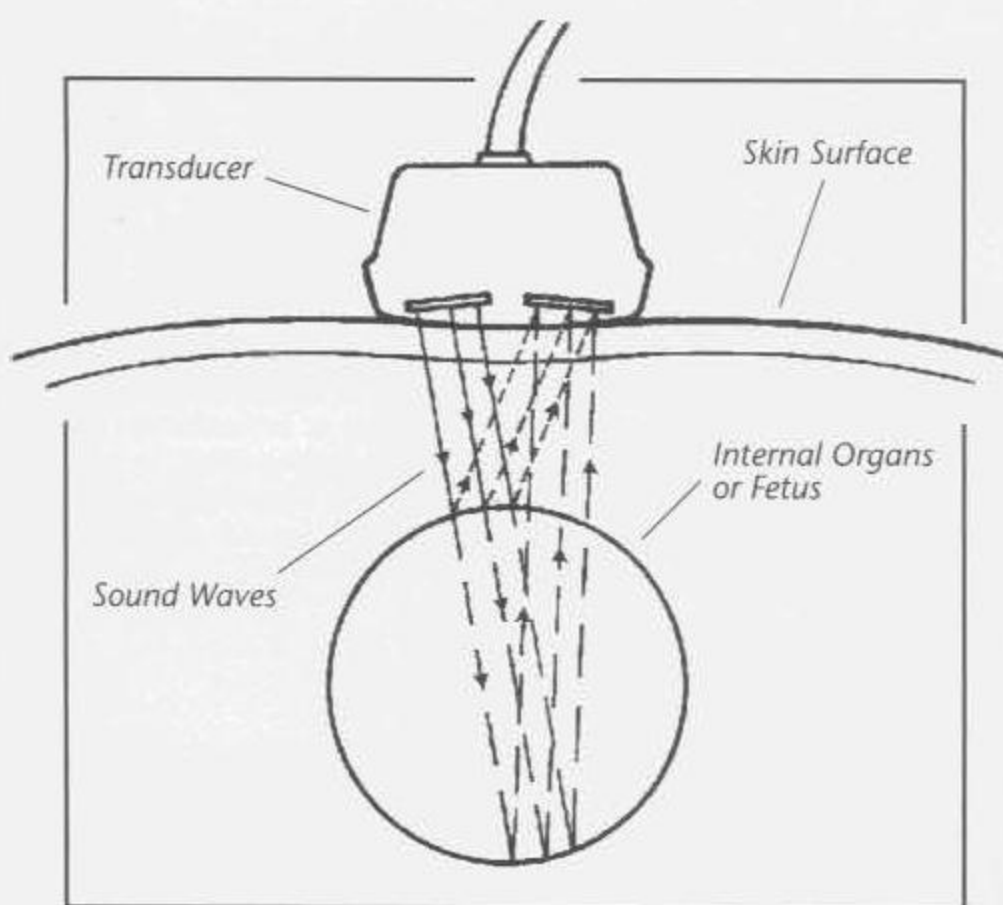
**Ultrasound** exam is a test in which pictures (called sonograms) of the fetus are made from sound waves. It is used in almost all major hospitals and in many doctors' offices. From these pictures, your doctor can learn about the fetus and its health.

A small device called a **transducer** is used to perform an ultrasound exam. There are two types of transducers:

- A handheld transducer that is moved along your abdomen
- A vaginal transducer that is placed in the vagina

The transducer sends out waves that are echoed back from the fetus. These waves are then turned into an image of the fetus on a monitor.

**Doppler** ultrasound tests use sound waves to create signals of the fetal heartbeat. These signals are shown on a graph rather than in the form of pictures.



Energy in the form of sound waves reflects off internal organs or, during pregnancy, the fetus. The reflected sound waves are transformed into an image on a TV-type screen.

Ultrasound exams can be used alone or can be combined with other tests to gain knowledge of the fetus's growth and health. They do not harm the mother or fetus.

### Nonstress Test

The **nonstress test** measures the heart rate of the fetus in response to its own movements. It's common for the fetus's heart to beat faster when the fetus moves.

For this test, a belt is placed around your abdomen. Transducers are attached to the belt. During the test, which usually takes 20–40 minutes, the fetus's heart rate is measured by Doppler ultrasound. You push a button each time you feel the fetus move. This causes a mark to be made on a paper recording. Sometimes the fetus's movements may be noted by a doctor or nurse.

If the fetus does not move for a time during the nonstress test, it does not always mean there is a problem. The fetus may be asleep. If this happens, your doctor or nurse may try waking the fetus with a buzzer or by having you eat or drink.

Sometimes the results of a nonstress test suggest that there is a problem, when in fact the fetus is healthy. If the nonstress test shows no change in the fetal heart rate in response to fetal movement, your doctor most likely will want to do another test to confirm that the first test results were correct.

### Contraction Stress Test

The **contraction stress test** measures the fetus's heart rate response when the uterus contracts. These contractions are mild and are induced (brought on) during the test. They are not like the strong contractions that occur during labor. These mild contractions cause a brief decrease in blood flow to the placenta.

The contractions can be brought on in one of two ways. A low dose of the drug oxytocin may be given intravenously (by vein). Or, the patient may be asked to gently massage one of her nipples. This will cause mild contractions.

The fetus's heart rate is measured by Doppler ultrasound, as it is during the nonstress test. The contraction stress test can last about 1–2 hours. A normal response to this test implies that the fetus is getting enough oxygen.



An ultrasound exam creates a picture—called a sonogram—of the fetus from sound waves.

### Biophysical Profile

The *biophysical profile* combines an ultrasound with a nonstress test. Most often, five factors of the fetus are studied:

- Heart rate
- Breathing
- Body movement
- Muscle tone
- Amount of amniotic fluid (the liquid surrounding the fetus inside the uterus)

Each of these items is given a score, and the total is added. The test may be done again, if needed. The score will help determine whether you need special care or whether your baby should be delivered early.

### Who Should Get Special Tests?

Your doctor may advise you to have more tests to check the growth and health of the fetus. It depends on the stage of your pregnancy, your history, and the results of routine tests.

Some women have a higher risk of having problems during pregnancy because of a medical condition. They need more monitoring than other



During an ultrasound exam, a handheld transducer is moved along your abdomen to examine the fetus.

women. Some of the conditions that may signal a need for more frequent prenatal testing include:

- High blood pressure
- Diabetes
- Postterm pregnancy (pregnancy that lasts more than 2 weeks past the due date)
- Too much or too little amniotic fluid, as shown by ultrasound exam
- Kidney or heart disease
- Multiple pregnancy (two or more fetuses)

Ultrasound exam, the nonstress test, contraction stress test, and biophysical profile provide useful information that will help your doctor decide what treatment is best for you. The goal is to keep you and your baby as healthy as possible.

### Finally . . .

Monitoring helps you and your doctor during your pregnancy by giving important information about the well-being of the fetus. If a test result suggests that there may be a problem, this does not always mean that the fetus is in trouble. It may simply mean that you need special care. Discuss any questions you have about monitoring with your doctor.

### Glossary

**Biophysical Profile:** An assessment of fetal heart rate, fetal breathing, fetal body movement, fetal muscle tone, and the amount of amniotic fluid. Heart rate is determined by the nonstress test. Ultrasound is used for the other four measurements.

**Contraction Stress Test:** A test in which mild contractions of the mother's uterus are induced and the fetus's heart rate in response to the contractions is recorded, using an electronic fetal monitor.

**Doppler:** A form of ultrasound that reflects motion—such as the fetal heartbeat—in the form of audible signals.

**Kick Count:** A record kept during late pregnancy of the number of times a fetus moves over a certain period.

**Nonstress Test:** A test in which fetal movements felt by the mother or noted by the doctor or nurse are recorded, along with changes in the fetal heart rate, using an electronic fetal monitor.

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

**Ultrasound:** A test in which sound waves are used to examine the fetus or view the internal organs.