The Second Trimester of Pregnancy
Weeks 13 through 28

You're Adjusting to the Precious New Life Inside of You.

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Fetal Development: Second Trimester

Weeks 14 thru 16- Gestational Age (Fetal age- Weeks 12 thru 14)

The fetus's skin is transparent and a fine hair called *lanugo* begins to form on the head. The fetus begins sucking and swallows bits of amniotic fluid. Fingerprints which individualize each human being have now developed on the tiny fingers of the fetus. *Meconium* is made in the intestinal tract and will build up to be the baby's first bowel movement. Flutters may be felt in the mom's growing abdomen as the fetus begins to move around more. Sweat glands have developed, and the liver and pancreas produce fluid secretions. The fetus has reached 6 inches in length and weighs about 4 oz.

Weeks 17 thru 20- Gestational Age (Fetal Age- Weeks 15 thru 18)

The baby has reached a point where movements are being felt more often by the mom. The eyebrows and eyelashes grow in and tiny nails have begun to grow on the fingers and toes. The skin of the fetus is going through many changes and begins to produce *vernix* at the twentieth week. *Vernix* is a white pasty substance that covers the fetus's skin to protect it from amniotic fluid. A fetal heartbeat could be heard by a stethoscope now. The fetus has reached a length of 8 inches and weighs about 12 oz.

Weeks 21 thru 23- Gestational Age (Fetal Age- Weeks 19 thru 21)

Lanugo now covers the fetus's entire body. The fetus is beginning to have the look of a newborn infant as the skin becomes less transparent while fat begins to develop. All the components of the eyes are developed. The liver and pancreas are working hard to develop completely. The fetus has reached about 10-11 inches in length and weighs about 1 - 1 ¼ lbs.

Weeks 24 thru 26- Gestational Age (Fetal Age- Weeks 22 thru 24)

If your baby was delivered now, it could survive with the assistance of medical technology. The fetus has developed sleeping and waking cycles and mom will begin to notice when each of these takes place. The fetus has a startle reflex, and the air sacs in the lungs have begun formation. The brain is developing rapidly over the next few weeks. The nervous system has developed enough to control some functions. The fetus has reached about 14 inches in length and weighs about 2 ¼ lbs.

The Fetal Life-Support System: Placenta, Umbilical Cord, & Amniotic Sac

Your baby will develop inside your uterus with the help of a fetal life-support system composed of the placenta, the umbilical cord, and the amniotic sac filled with amniotic fluid.

What is the placenta and what does it do?

The placenta has been described as a pancake-shaped organ that attaches to the inside of the uterus and is connected to the fetus by the umbilical cord. The placenta produces pregnancy-related hormones, including chorionic gonadotropin (hCG), estrogen, and progesterone. The placenta is responsible for working as a trading post between the mother's and the baby's blood supply. Small blood vessels carrying the fetal blood run through the placenta, which is full of maternal blood. Nutrients and oxygen from the mother's blood are transferred to the fetal blood, while waste products are transferred from the fetal blood to the maternal blood, without the two blood supplies mixing. The placenta is expelled from the uterus in a process called the after-birth. One possible problem in pregnancy is placenta previa, where the placenta is attached near or over the cervix. As the fetus grows, pressure on the placenta can cause bleeding. This condition requires medical management to ensure a safe delivery for you and your baby.

What is the umbilical cord and what does it do?

The umbilical cord is the life-line that attaches the placenta to the fetus. The umbilical cord is made up of three blood vessels: two smaller arteries which carry blood to the placenta and a larger vein which returns blood to the fetus. It can grow to be 60 cm long, allowing the baby enough cord to safely move around without causing damage to the cord or the placenta. After the baby is born, the cord is cut (something the baby's father may wish to do); the remaining section will heal and form the baby's belly button. During pregnancy you may find out that the umbilical cord is in a knot, or wrapped around a part of your baby's body. This is common and cannot be prevented, and it usually does not pose any threats to the baby.

What is the amniotic sac and what does it do?

The amniotic sac is filled with the amniotic fluid. This sac is your baby's home, gymnasium, and protection from outside knocks, bumps, and other external pressures. The amniotic sac allows the fetus ample room to swim and move around which helps build muscle tone. To keep the baby cozy, the amniotic sac and fluid maintain a slightly higher temperature than the mother's body, usually 99.7 F. At week 10, there is around 30 ml of fluid present. The amniotic fluid will reach its peak around weeks 34-36 at about 1 liter. When your water breaks, it is this sac that ruptures and this fluid that leaves the body. Your baby's life is still being supported by the umbilical cord, and you should be meeting your baby soon!

Covering the basics

Your health care provider will check your blood pressure and weight at every visit. Mention any signs or symptoms you've been experiencing. Then it's time for your baby to take center stage. Your health care provider may:

Track your baby's growth. By measuring your abdomen from the top of your uterus to your pubic bone, your health care provider can gauge your baby's growth. This measurement in centimeters often equals the number of weeks of pregnancy.

Listen to your baby's heartbeat. You'll hear your baby's heartbeat, too, thanks to a special device called a Doppler.

Assess fetal movement. Tell your health care provider when you begin noticing flutters or kicks— often by 20 weeks.

WHAT IT'S CALLED	WHAT IT MEASURES & WHY	WHAT IT DOES OR DOESN'T TELL YOU
SECOND TRIMESTER TESTS		
ULTRASOUND	Second trimester ultrasounds are usually done to more accurately estimate gestational age, confirm the number of babies in the womb, determine the location of the placenta, and to scan the baby's body to look for normal or abnormal anatomy. First trimester ultrasounds may be done when there are problems with bleeding, possible miscarriage or to rule out ectopic pregnancies. Third trimester ultrasounds may be focused on the infant's growth, size, quantity of amniotic fluid, position and fetal well-being.	There is no evidence that ultrasounds should be routinely done in low-risk, healthy pregnancies. Rather, they should be done only when there is an indication. However, 60-70% of all women have at least one ultrasound during their pregnancies. The American College of Obstetricians and Gynecologists concludes that ultrasounds should be performed for specific indications, including unknown last menstrual period (poor dating), suspected twins, the uterus is bigger or smaller than expected or unexplained vaginal bleeding, etc. The March of Dimes reports that there are no physical risks for mother or baby that have been found to be directly associated with the ultrasound procedure.
MATERNAL SERUM GENETIC SCREEN (Triple Screen or Triple Marker) Test Done at 16-18 Weeks	This test uses a blood sample from the mother to screen for possible genetic disorders in the baby. For mothers over 35, these tests will be highly encouraged since the risk of these genetic disorders increases with age. It is called the triple screen because it tests for three things: 1) Maternal alpha-fetoprotein (a substance produced in baby's liver that can be detected in mother's blood) 2) unconjugated estriol and 3) human chorionic gonadatropin — two hormones of pregnancy. The values of the three tests are calculated along with the mother's age to suggest a risk status for such genetic problems as Down Syndrome, neural tube defects and Trisomy 18. A fourth test for dimeric Inhibin-A is being evaluated. This substance should increase the test's ability to more accurately screen for Down Syndrome.	This is an optional test. However, if done, it must be performed between 15-20 weeks in the pregnancy, and is best when done between 16-18 weeks. When combined with an accurate due date, it will detect 70% of the babies at risk for Down Syndrome, 75% of those at risk for neural tube defects, and 60-80% at risk for Trisomy 18. When the fourth test is added, it is estimated that 75-80% of the babies at risk for Down Syndrome will be identified. However, while it is fairly effective at screening for actual problems, its ability to detect the absence of problems is low. As a screening test for Down Syndrome, it has been estimated that as many as 80% of abnormal test are false positives (e.g., the test result indicates a problem but the fetus does not actually have Down Syndrome). This is due, in part, to the fact that the test is so reliant on accurate gestational dating and maternal age. Other factors such as undiagnosed multiple pregnancies, maternal conditions and lab errors add to this problem. By the same token, the test will not detect all babies with a genetic defect. When the test is positive, further genetic screening tests are offered. Those include high-resolution ultrasound, amniocentesis, etc., which will give more accurate information.
DIABETES SCREEN GLUCOLA SCREEN Post Prandial Test Done at 24-28 Weeks	During pregnancy, a small number of women (1.5-2%) will develop difficulty in processing the normal sugars (carbohydrates) in their bloodstreams. This can lead to what is called Gestational Diabetes Mellitus (GDM). If not detected and treated, GDM can cause serious problems for both the mother and the baby. This test screens for the possible presence of GDM. The basic test is called the One Hour Diabetes Screen or One Hour Glucola Test. A sweet drink (Glucola) is given to the mother after she has fasted for 12 hours. Then, one hour later blood is drawn to see if the mother's system appropriately cleared the sugar from her system.	The test will indicate how your body did in clearing that one dose of sugar. It will not tell you if you have diabetes or not. If the blood sugar level was still high after the one-hour test, a second test, the three-hour screening test will be offered. Done on a different day, this test will check your blood-sugar level before the drink (after fasting), and then once each hour for three hours afterwards. If two of the levels measured are high, you are considered to have GDM. Some women with GDM are able to control their blood sugar with diet changes and exercise, while others may require insulin. Some professionals feel the combination of the required fasting and the use of the Glucola is not the best measure of the body's response to normal food, and may lead to a high number of false positives. An alternative test called the Post Prandial Test (meaning "after a meal") is offered in some areas. In this case, you eat a prescribed diet and a specified breakfast and then have your blood drawn two hours later.

What is the first-trimester screening test (Ultra screen)?

Some providers offer a first-trimester screening test for Down syndrome (affected children have mental retardation, characteristic facial features, and often, heart defects and other physical problems) and trisomy 18 (affected babies have severe mental retardation, heart defects and numerous other birth defects). This test also may show if a baby is at increased risk for heart defects.

This test is done between 11 and 13 weeks after a woman's last menstrual period. It is called the combined test because the test has two parts: a blood test and an ultrasound examination (a test that uses sound waves to take a picture of the fetus). The provider sends the blood sample to the lab, which measures the levels of two substances in the mother's blood: free-beta hCG (a specific form of the pregnancy hormone human chorionic gonadotropin) and pregnancy-associated protein A (PAPP-A). Levels of PAPP-A tend to be decreased, and hCG increased, with Down syndrome.

The woman also will have a special ultrasound exam to measure the thickness at the back of the baby's neck (called nuchal translucency). Increased thickness is associated with Down syndrome, other chromosomal abnormalities and heart defects.

The lab will calculate a woman's risk of chromosomal birth defects, using the combined results of her blood test and ultrasound exam. Studies show that this test can detect about 82 to 87 percent of pregnancies affected by Down syndrome and up to 95 percent of those affected by trisomy 18.

What is the second-trimester screening test?

Most women are offered a second-trimester screening test, which is done 15 to 20 weeks after a woman's last menstrual period. This test has a number of names, including maternal serum (blood) screening test, multiple marker screening test, triple screen and

quad screen. This test screens for Neural Tube Defects (NTD), chromosomal birth defects and certain uncommon abdominal birth defects.

The laboratory calculates a woman's individual risk for NTDs, Down syndrome and trisomy 18 based on the levels of the three or four substances plus the woman's age, weight, race, number of fetuses (e.g., twins) and whether she has diabetes requiring insulin treatment. These last four factors influence MSAFP levels.

Along with maternal serum alpha-fetoprotein (MSAFP) levels, the test measures the levels of hCG and another pregnancy hormone called estriol. When the test measures these three substances, it's called the triple screen. Most laboratories in the United States measure the level of a fourth hormone called inhibin A. When this substance is included, the test is called a quadruple (quad) screen. Both the triple and quad screen can detect about 75 to 80 percent of pregnancies affected by spina bifida, and nearly 95 percent of those affected by a related NTD called anencephaly.

Women who have the first-trimester screening test for Down syndrome should be screened for NTDs in the second trimester by checking MSAFP levels or having an ultrasound exam.

Providers may offer women the option of taking both the first- and second-trimester screening tests. This is called integrated screening if a woman does not receive her results until after the second-trimester test, or sequential screening if she receives results after both parts of the test. Studies show that these tests together can detect about 95 percent of cases of Down syndrome.

Does an abnormal result on the first- or second-trimester screening test mean the baby has a birth defect?

No. These tests cannot diagnose a birth defect; they only can indicate increased risk. An abnormal screening test result simply means that additional testing is recommended. Out of every 100 women who take a screening test, about 5 will have an abnormal result. However, only about 2 to 3 percent of women whose test results show an increased risk for Down syndrome will actually have a baby with Down syndrome. Similarly, only a very small number of women whose test results show an increased risk for spina bifida and related birth defects will actually have an affected baby. A woman's provider can give her a better estimate of the risk to her baby, based on her test results.

For many women, an abnormal result on the second-trimester screening test simply indicates that the fetus is either a few weeks older or younger than the woman and her provider thought. This can account for an abnormal result because what is considered a normal amount of AFP varies depending on a woman's stage of pregnancy. An ultrasound exam can show the correct gestational age of the fetus. Another common cause of an abnormal second-trimester test result is a multiple pregnancy (twins, triplets, etc.).

Weight Gain During Pregnancy

How much weight should I gain during my pregnancy?

Most women need to gain 25 to 35 pounds during pregnancy. How much weight you should gain depends on how much you weighed before you got pregnant. If you are very slim, you need to gain more. If you are very heavy, you need to gain less. The chart on the other side of this page can help you decide how many pounds you should gain. Talk with your health care provide about the right weight gain for you. Then use the chart to track your weight during pregnancy.

I don't feel hungry. Do I have to eat if I don't feel hungry?

Many women do not feel hungry early in pregnancy. This is because of hormone changes in the body. Later in pregnancy, it may be hard to eat because your stomach has less room between your baby and your lungs. You will feel better all through your pregnancy if you try to eat something every 1 to 2 hours. Eating a big meal may make you feel sick. Eating just a slice of apple, a carrot stick, or a bit of whole wheat bread will help you feel better if your stomach is upset. It is important to remember that what you put in your mouth goes to your baby. If you don't put anything in your mouth, your baby gets nothing to eat.

People tell me I'm "eating for two." Does this mean I have to eat twice as much?

No. Most women only have to add about 200 calories every day to their diet. Many women can eat less and still be very healthy and grow a healthy baby. Your baby depends on you for all of its food, so you do have to eat well. Make healthy changes in you diet—eat lots of fruit and vegetables, eat only whole wheat bread. and cut down on fats. You don't have to eat much more than you normally do.

What happens if I don't gain enough weight?

If you do not gain enough weight, your baby may be too small. Babies that are too small can have problems right after they are born. They may have trouble breathing or eating. Some babies who are too small at birth have trouble learning when they get older and go to school. Talk with your health care provider about how many pounds you should gain to make sure your baby is not too small.

What happens if I gain too much weight?

If you gain too much, you will have more weight to lose after the baby is born. Women who gain a lot of extra weight have a higher chance of needing a cesarean birth.

Should I gain the same amount every week?

The baby will gain most of its weight during the last 2 months of your pregnancy. You should try not to gain much weight at first. Plan to gain most of your weight in the last months of your pregnancy.

Round Ligament Pain

Round ligament pain is most common during the second trimester. Women begin complaining of a sharp pain in their abdomen or hip area that is either on one side or both. Some women even report pain that extends into the groin area. Round ligament pain is considered a normal part of pregnancy as your body goes through many different changes.

What causes round ligament pain? No one knows the exact cause of this type of pain, but it is thought that it is caused by the stretching of the round ligament. The round ligament supports the uterus. It connects the front portion of the uterus to the groin. These ligaments contract and relax like muscles, but much more slowly. Any movement (including going from a sitting position to standing position quickly, laughing, or coughing) that stretches these ligaments by making the ligaments contract quickly, can cause a woman to experience pain. Round ligament pain should only last for a few seconds.

What can be done to alleviate round ligament pain? Rest is one of the best ways to help with this kind of pain. Changing positions slowly allows the ligaments to stretch more gradually and can help alleviate any pain. If you know that you are going to sneeze, cough, or laugh you can bend and flex your hips, which can reduce the pull on the ligaments. If you are having consistent round ligament pain your healthcare provider may recommend doing daily stretching exercises. The most common exercise is done by placing your hands and knees on the floor, lowering your head to the floor, and keeping your bottom in the air.

When should I call my healthcare provider? If the pain persists after resting or it is accompanied by severe pain you would want to notify your healthcare provider. When the pain last for more than a few minutes you should contact your provider immediately. You would also want to notify your provider if the pain is accompanied by any bleeding, cramping, fever, chills, nausea, vomiting, or change in vaginal discharge.

Kegel Exercises

Kegel exercises, also called pelvic floor exercises, help strengthen the muscles that support the uterus, bladder, and bowels. Kegel exercises also help strengthen vaginal muscles. Pregnant women who perform Kegel exercises often find they have an easier birth. Strengthening these muscles during pregnancy can help you develop the ability to control your muscles during labor and delivery. Toning all of these muscles will also minimize two common problems during pregnancy: bladder leaks and hemorrhoids. Kegel exercises are also recommended after pregnancy to promote perineal healing, regain bladder control, and strengthen pelvic floor muscles. The best thing about Kegel exercises is that they can be done anywhere, and no one knows you're doing them.

How to do Kegel Exercises

1) To find the correct muscles, practice stopping the flow of urine when urinating.

2) Contract pelvic floor muscles for 10 seconds, then relax, repeating 10-20 times.

3) Breathe normally during the exercises and do this at least three times a day.

4) Try not to move your leg, buttock, or abdominal muscles during the exercises.

Ideas for when to do Kegel Exercises

- When you're stopped at a red light
- In the waiting room at the birth center
- Drive thru's such as the bank, fast food, and pharmacy

Gestation Diabetes

Somewhere around your 24th week, your health care provider will probably have you drink a very sweet liquid. Then in 1 hour your blood will be taken and your glucose measured. It's an important test, especially for women who are older than 25 years of age and / or who have family history of diabetes.

Gestational diabetes is a form of diabetes that occurs only during pregnancy. It is a disorder that prevents the body from using food properly. Normally, your body gets its major source of energy from glucose, a simple sugar that comes from carbohydrates. Insulin enables your body to use glucose. When you have diabetes, your body either doesn't make insulin (Type I), or doesn't use the insulin properly. (Type II and gestational). So you wind up with too much glucose in your blood and not enough in your cells. Gestational diabetes exposes the baby to high glucose, resulting in an abnormally large fetal pancreas and an abnormally large baby. This increases your risk of having delivery complications or a cesarean section. Also, too much sugar can be toxic to the fetus. And when the baby is born, the loss of all that sugar it's been used to could lead to hypoglycemia – low blood sugar. Left untreated, it could result in seizures and other complications.

After the baby is born, gestational diabetes disappears; however, it has been reported that women who develop gestational diabetes have a greater chance of developing overt (Type II) diabetes later in life. The biggest part of treating gestational diabetes is controlling your blood sugar levels. There are things you and your health care provider can do in order to control your levels and keep them at a safe and normal amount:

- Diet and exercise management
- Close monitoring of you and your baby
- Self monitoring of blood glucose levels
- Insulin therapy, if necessary