

# Information About Fetal Development



**Kentucky Public Health**  
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**This publication is provided by the Department for Public Health, Cabinet for Health and Family Services in accordance with KRS 311.725.**

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The information contained in this publication describes normal human development. The descriptions and pictures give basic information about pregnancy. Fetal development typically follows a predictable course. Keep in mind that measurements are approximate. This document is provided to help a woman track the baby's development from fertilization to term pregnancy.

Information regarding public and private agencies and other resources for pregnant women who need assistance is available at <https://chfs.ky.gov/agencies/dph/dwh/Pages/default.aspx> or from your healthcare provider.

*Source for information and most graphics:  
<https://www.mayoclinic.org/healthy-lifestyle/pregnancy-week-by-week/in-depth/fetal-development/art-20045997>*



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## Weeks 35-37: Not a lot of room left

**Thirty-five weeks:** The skin is becoming pink and smooth. The limbs have a chubby appearance.

**Thirty-six weeks:** The crowded conditions inside the uterus might make it harder for the fetus to give the mother a punch. However, she will still feel lots of stretches, rolls, and wiggles.

**Thirty-seven weeks:** The fetus has a firm grasp. To prepare for birth, the head or other presenting part (for example, the buttocks if the fetus is breech) might start descending into the pelvis. If the fetus isn't head down, the healthcare provider will talk to the mother about ways to deal with this issue.

## Weeks 38-40: The due date and labor is approaching

**Thirty-eight weeks:** The head and abdomen are about the same size. The toenails have reached the tips of the toes. Most of the fine hair has fallen off.

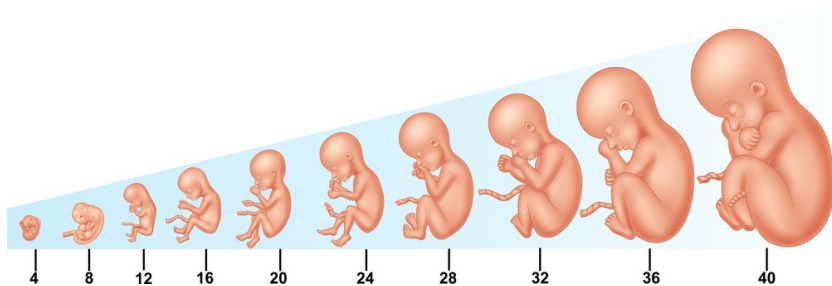
**Thirty-nine weeks:** The chest is becoming more prominent. For boys, the testes continue to descend into the scrotum. Fat is being added all over the body to keep him or her warm after birth.

**Forty weeks:** The fetus has an approximate crown to rump length of around 14 inches or crown to foot length of 20 inches. While weight at this point varies greatly, the baby will weigh approximately 6 to 8 pounds.



Remember that healthy babies come in different sizes.

## Fetal Growth From 4 to 40 Weeks



## Fetal development

### The 1st trimester (weeks 1-12)

#### Weeks 1 and 2: Getting ready

It might seem strange, but a woman is not actually pregnant the first week or two of the time allotted to the pregnancy. Yes, you read that correctly!

Conception typically occurs about two weeks after the last menstrual period begins. To calculate the due date, the health care provider will count ahead 40 weeks from the start of the last period. This means the period is counted as part of the pregnancy — even though the woman wasn't pregnant at the time.

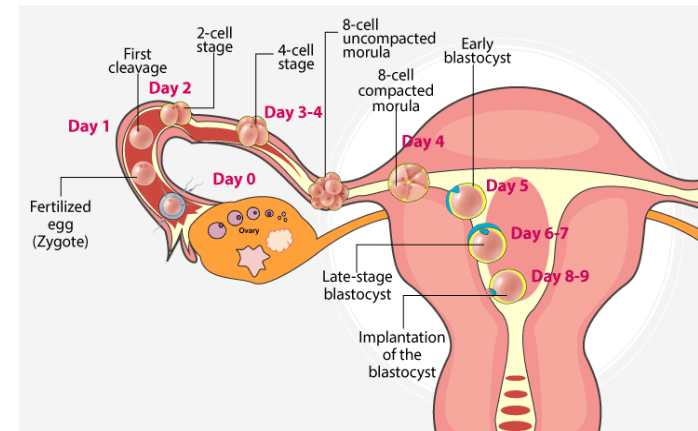
#### Week 3: Fertilization

##### Fetal development begins soon after conception (fertilization).

The sperm and egg unite in one of the fallopian tubes to form a one-celled entity called a zygote. If more than one egg is released and fertilized or if the fertilized egg splits into two, you might have multiple zygotes (twins).

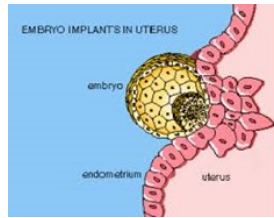
The zygote typically has 46 chromosomes — 23 from the biological mother and 23 from the biological father. These chromosomes help determine the baby's sex and physical traits.

Soon after fertilization, the zygote travels down the fallopian tube toward the uterus. At the same time, it will begin dividing to form a cluster of cells, called a morula, resembling a tiny raspberry.



## Week 4: Implantation occurs

The rapidly dividing ball of cells — now known as a blastocyst — has begun to burrow into the uterine lining (endometrium). This process is called implantation.



Within the blastocyst, the inner group of cells will become the embryo. The outer layer will give rise to part of the placenta, which will provide nourishment throughout the pregnancy.

## Week 5: Hormone levels increase



The levels of the hormone, human chorionic gonadotropin (HCG), produced by the blastocyst quickly increase. This signals the ovaries to stop releasing eggs and produce more estrogen and progesterone. Increased levels of these hormones stop the menstrual period, often the first sign of pregnancy, and fuel the growth of the placenta.

The embryo is now made of three layers. The top layer will give rise to the outermost layer of skin, central and peripheral nervous systems, eyes, and inner ears.

The foundation for the heart and circulatory system will form in the middle layer of cells. This layer of cells will also serve as the foundation for the bones, ligaments, kidneys, and much of the reproductive system.

The inner layer of cells is where the lungs and intestines will develop.

## Week 6: The neural tube closes

Growth is rapid this week. The neural tube along the back is closing. The brain and spinal cord will develop from the neural tube. The heart and other organs also are starting to form.

Structures necessary to the development of the eyes and ears develop. Small buds appear that will soon become arms. The body begins to take on a C-shaped curvature.

By this week most women notice they have missed their period.



## The 3rd trimester (weeks 28-40)

The end of the pregnancy is near! By now, the mother is eager to meet the baby face to face. The uterus, however, is still a busy place.

### Weeks 28-30: Kicks, stretches, and growing hair

**Twenty-eight weeks:** The eyelids can partially open and eyelashes have formed. The central nervous system can direct rhythmic breathing movements and control body temperature.

**Twenty-nine weeks:** The fetus can kick, stretch, and make grasping movements.

**Thirty weeks:** The eyes can open wide. The fetus might have a good head of hair by this week.



Babies born at this time may have trouble breathing because the lungs are still not fully developed.

By now the fetus is approximately 10 1/2 inches long from crown to rump and weighs about 3 pounds (1,300 grams).

### Weeks 31-34: Rapid weight gain & detecting light

**Thirty-one weeks:** Most of the major development is done and now it's time to gain weight.

**Thirty-two weeks:** Weight gain continues and the toenails are visible. The layer of soft, downy hair that has covered the skin for the past few months starts to fall off this week.

The fetus is now approximately 11 inches long from crown to rump and weighs about 3 3/4 pounds (1,700 grams).

**Thirty-three weeks:** The pupils can change size in response to light. The bones are getting stronger but the skull remains soft and flexible.

**Thirty-four weeks:** The fingernails have reached the fingertips.

By now the fetus is approximately 12 inches (300 millimeters) long from crown to rump — about the size of a cantaloupe — and weighs more than 4 1/2 pounds (2,100 grams).

Babies born at this age have fewer long-term medical problems.

## Weeks 21-23: Hair becomes visible & fingerprints and footprints form

**Twenty-one weeks:** The fetus is completely covered with a fine, downy hair called lanugo. The sucking reflex also is developing, enabling the fetus to suck his or her thumb.

**Twenty-two weeks:** The eyebrows and hair are visible. Brown fat also is forming. Brown fat is the site of heat production. For boys, the testes have begun to descend.

**Twenty-three weeks:** Rapid eye movements begin. Ridges also form in the palms of the hands and soles of the feet that will later create the foundation for fingerprints and footprints. The fetus might begin hiccupping, causing jerking movements.

By now the fetus is approximately 7 1/2 inches long from crown to rump and weighs about 1 pound (460 grams).

## Weeks 24-27: Responding to sound and lungs develop

**Twenty-four weeks:** The skin is wrinkled, translucent, and pink to red because of visible blood in the capillaries. If the baby is born at this time, it might survive but will need special medical care because the lungs and nervous systems are not fully developed.

**Twenty-five weeks:** The fetus might be able to respond to familiar sounds with movement. A lot of time is spent sleeping in rapid eye movement (REM) sleep, when the eyes move rapidly even though the eyelids are closed.

**Twenty-six weeks:** The lungs are developing and beginning to produce surfactant, the substance that allows the air sacs in the lungs to function properly.

By now the fetus is approximately 10 inches long from crown to rump — about the size of cabbage — and weighs about 2 pounds (820 grams).

**Twenty-seven weeks:** This week marks the end of the second trimester. The nervous systems are continuing to mature. The fetus is also gaining fat, which helps the skin look smoother.



## Week 7: The head develops

The brain and face are growing. Depressions that will give rise to nostrils become visible, and the beginnings of the retinas form. Lower limb buds that will become legs appear and the arm buds that sprouted last week now take on the shape of paddles.



## Week 8: The nose forms



The lower limb buds take on the shape of paddles. Fingers have begun to form. Small swellings outlining the external parts of the ears develop and the eyes become obvious. The upper lip and nose have formed. The trunk and neck begin to straighten.

By the end of this week, the embryo is approximately 1/2 inch long from crown to rump — about half the size of a quarter.

## Week 9: The toes appear

The arms grow and elbows appear. Toes are visible and eyelids form. The head is large but still has a poorly formed chin.

By the end of this week, the embryo is approximately 3/4 inch long from crown to rump — the size of a penny.



## Week 10: The elbows bend



The head has become more round. The elbows can now bend. Toes and fingers lose their webbing and become longer. The eyelids and external ears continue to develop. The umbilical cord is clearly visible.

## Week 11: The genitals develop

At the beginning of the 11th week of pregnancy, the head still makes up about half of the length. However, the body is about to catch up.

Buds for future teeth appear. By the end of this week, the external genitalia will start developing into a penis or clitoris and labia.

*The baby is now officially described as a fetus and will be called this until birth.*

By now the fetus is approximately 2 inches long from crown to rump — about the size of a lime.



## Week 12: The fingernails form

The fetus is sprouting fingernails. The face now has taken on a more developed profile. The intestines are in the abdomen.

By now the fetus is approximately 2 1/2 inches long from crown to rump — about the size of a plum — and weighs about 1/2 ounce (14 grams).



## The 2nd trimester (weeks 13-27)

As the pregnancy progresses, the fetus might begin to seem more real. Two months ago, it was a cluster of cells. Now there are functioning organs, nerves, and muscles.

### Weeks 13 & 14: Urine forms & the sex becomes apparent



**Thirteen weeks:** The fetus is beginning to make urine and release it into the amniotic sac, making amniotic fluid. Bones are beginning to harden especially in the head, legs, and arms. The skin is still thin and transparent, but will start to thicken soon.

**Fourteen weeks:** The neck has become more defined and the lower limbs are well-developed. The sex will become apparent this week or in the coming weeks.

By now the fetus is approximately 3 1/2 inches (87 millimeters) long from crown to rump — about the size of a lemon — and weighs about 1 1/2 ounces (45 grams).

### Weeks 15 to 17: The eyes move & toenails develop

**Fifteen weeks:** The fetus is growing rapidly. Bone development continues and will become visible on ultrasound images in a few weeks. The scalp hair pattern also is forming.

**Sixteen weeks:** The head is now upright. The eyes can slowly move. The ears are close to reaching their final position. The limb movements are becoming coordinated and can be detected during ultrasound exams. However, these movements are still too slight to be felt.

**Seventeen weeks:** The fetus is becoming more active in the amniotic sac, rolling and flipping. Toenails appear. The heart is pumping about 100 pints of blood each day.

## Weeks 18 & 19: Hearing begins & a protective coating develops

**Eighteen weeks:** The ears begin to stand out on the sides of the head and might begin to hear. The eyes are beginning to face forward. The baby's digestive system has started working.

**Nineteen weeks:** Growth slows. A greasy, cheese-like coating called vernix caseosa begins to cover the fetus. This coating helps protect the delicate skin from abrasions, chapping, and hardening that can result from exposure to amniotic fluid. For girls, the uterus and vaginal canal are forming.

By now the fetus is approximately 5 1/2 inches long from crown to rump — about the size of a mango — and weighs about 7 ounces (200 grams).

### Week 20: The halfway point

Halfway into the pregnancy movements may be felt (called quickening). The fetus is regularly sleeping and waking and might be awakened by noises or by movements.

By now the fetus is approximately 6 1/3 inches long from crown to rump — about the size of a banana — and weighs more than 11 ounces (320 grams).

