



[Home](#) → [Medical Encyclopedia](#) → Fetal development

URL of this page: //medlineplus.gov/ency/article/002398.htm

Fetal development

Learn how your baby is conceived and how your baby develops inside the mother's womb.

Information

WEEK BY WEEK CHANGES

Gestation is the period of time between conception and birth when a baby grows and develops inside the mother's womb. Because it's impossible to know exactly when conception occurs, gestational age is measured from the first day of the mother's last menstrual cycle to the current date. It is measured in weeks.

This means that during weeks 1 and 2 of pregnancy, a woman is not yet pregnant. This is when your body is preparing for a baby. A normal gestation lasts anywhere from 37 to 42 weeks.

Week 1 to 2

- The first week of pregnancy starts with the first day of a woman's menstrual period. She is not yet pregnant.
- During the end of the second week, an egg is released from an ovary. This is when you are most likely to conceive if you have unprotected intercourse.

Week 3

- During intercourse, sperm enters the vagina after the man ejaculates. The strongest sperm will travel through the cervix (the opening of the womb, or uterus), and into the fallopian tubes.
- A single sperm and the mother's egg cell meet in the fallopian tube. When the single sperm enters the egg, conception occurs. The combined sperm and egg is called a zygote.
- The zygote contains all of the genetic information (DNA) needed to become a baby. Half the DNA comes from the mother's egg and half from the father's sperm.
- The zygote spends the next few days traveling down the fallopian tube. During this time, it divides to form a ball of cells called a blastocyst.
- A blastocyst is made up of an inner group of cells with an outer shell.
- The inner group of cells will become the embryo. The embryo is what will develop into your baby.
- The outer group of cells will become structures, called membranes, which nourish and protect the embryo.

Week 4

- Once the blastocyst reaches the uterus, it buries itself in the uterine wall.
- At this point in the mother's menstrual cycle, the lining of the uterus is thick with blood and ready to support a baby.
- The blastocyst sticks tightly to the wall of the uterus and receives nourishment from the mother's blood.



Watch this video about:
Cell division

Week 5

- Week 5 is the start of the "embryonic period." This is when all the baby's major systems and structures develop.
- The embryo's cells multiply and start to take on specific functions. This is called differentiation.
- Blood cells, kidney cells, and nerve cells all develop.
- The embryo grows rapidly, and the baby's external features begin to form.
- Your baby's brain, spinal cord, and heart begin to develop.
- Your baby's gastrointestinal tract starts to form.
- It is during this time in the first trimester that your baby is most at risk for damage from things that may cause birth defects. This includes certain medicines, illegal drug use, heavy alcohol use, infections such as rubella, and other factors.

Weeks 6 to 7

- Arm and leg buds start to grow.
- Your baby's brain forms into 5 different areas. Some cranial nerves are visible.
- Eyes and ears begin to form.
- Tissue grows that will become your baby's spine and other bones.
- Your baby's heart continues to grow and now beats at a regular rhythm. This can be seen by vaginal ultrasound.
- Blood pumps through the main vessels.

Week 8

- Your baby's arms and legs have grown longer.
- Hands and feet begin to form and look like little paddles.
- Your baby's brain continues to grow.
- The lungs start to form.

Week 9

- Nipples and hair follicles form.
- Arms grow and elbows develop.

- Your baby's toes can be seen.
- All of your baby's essential organs have begun to grow.

Week 10

- Your baby's eyelids are more developed and begin to close.
- The outer ears begin to take shape.
- Your baby's facial features become more distinct.
- The intestines rotate.
- At the end of the 10th week of pregnancy, your baby is no longer an embryo. It is now a fetus, the stage of development up until birth.
- Fetal heart tones may be detectable by Doppler testing

Weeks 11 to 14

- Your baby's eyelids close and will not reopen until about the 28th week.
- Your baby's face is well-formed.
- Limbs are long and thin.
- Nails appear on the fingers and toes.
- Genitals appear.
- Your baby's liver is making red blood cells.
- The head is very large -- about half of your baby's size.
- Your little one can now make a fist.
- Tooth buds appear for the baby teeth.

Weeks 15 to 18

- At this stage, your baby's skin is almost transparent.
- Fine hair called lanugo develops on your baby's head.
- Muscle tissue and bones keep developing, and bones become harder.
- Your baby begins to move and stretch.
- The liver and pancreas produce secretions.
- Your little one now makes sucking motions.

Weeks 19 to 21

- Your baby can hear.
- Your baby is more active and continues to move and float around.
- The mother may feel a fluttering in the lower abdomen. This is called quickening, when mom can feel their baby's first movements.
- By the end of this time, your baby can swallow.

Week 22

- Lanugo hair covers baby's entire body.
- Meconium, your baby's first bowel movement, is made in the intestinal tract.
- Eyebrows and lashes appear.
- Your baby is more active with increased muscle development.
- The mother can feel the baby moving.
- Your baby's heartbeat can be heard with a stethoscope.
- Nails grow to the end of your baby's fingers.

Weeks 23 to 25

- Bone marrow begins to make blood cells.
- The lower airways of the baby's lungs develop.
- Your baby begins to store fat.

Week 26

- Eyebrows and eyelashes are well-formed.
- All parts of your baby's eyes are developed.
- Your baby may startle in response to loud noises.
- Footprints and fingerprints are forming.
- Air sacs form in your baby's lungs, but lungs are still not ready to work outside the womb.

Weeks 27 to 30

- Your baby's brain grows rapidly.
- The nervous system is developed enough to control some body functions.
- Your baby's eyelids can open and close.
- The respiratory system, while immature, produces surfactant. This substance helps the air sacs fill with air.

Weeks 31 to 34

- Your baby grows quickly and gains a lot of fat.
- Rhythmic breathing occurs, but baby's lungs are not fully mature.
- Your baby's bones are fully developed, but are still soft.
- Your baby's body begins storing iron, calcium, and phosphorus.

Weeks 35 to 37

- Your baby weighs about 5 1/2 pounds (2.5 kilograms).
- Your baby keeps gaining weight, but will probably not get much longer.

- The skin is not as wrinkled as fat forms under the skin.
- Your baby has definite sleeping patterns.
- Your little one's heart and blood vessels are complete.
- Muscles and bones are fully developed.

Week 38 to 40

- Lanugo is gone except for on the upper arms and shoulders.
- Fingernails may extend beyond fingertips.
- Small breast buds are present on both sexes.
- Head hair is now coarse and thicker.
- In your 40th week of pregnancy, it has been 38 weeks since conception, and your baby could be born any day now.

Alternative Names

Zygote; Blastocyst; Embryo; Fetus

References

Feigelman S, Finkelstein LH. Assessment of fetal growth and development. In: Kliegman RM, St. Geme JW, Blum NJ, Shah SS, Tasker RC, Wilson KM, eds. *Nelson Textbook of Pediatrics*. 21st ed. Philadelphia, PA: Elsevier; 2020:chap 20.

Ross MG, Desai M, Ervin MG. Fetal development, physiology, and effects on long-term health. In: Landon MB, Galan HL, Jauniaux ERM, et al, eds. *Gabbe's Obstetrics: Normal and Problem Pregnancies*. 8th ed. Philadelphia, PA: Elsevier; 2021:chap 2.

Review Date 8/23/2023

Updated by: LaQuita Martinez, MD, Department of Obstetrics and Gynecology, Emory Johns Creek Hospital, Alpharetta, GA. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.

Learn how to cite this page



A.D.A.M., Inc. is accredited by URAC, for Health Content Provider (www.urac.org). URAC's [accreditation program](#) is an independent audit to verify that A.D.A.M. follows rigorous standards of quality and accountability. A.D.A.M. is among the first to achieve this important distinction for online health information and services. Learn more about A.D.A.M.'s [editorial policy](#), [editorial process](#), and [privacy policy](#).

Health Content
Provider
06/01/2028

The information provided herein should not be used during any medical emergency or for the diagnosis or treatment of any medical condition. A licensed medical professional should be consulted for diagnosis and treatment of any and all medical conditions. Links to other sites are provided for information only – they do not constitute endorsements of those other sites. No warranty of any kind, either expressed or implied, is made as to the accuracy, reliability, timeliness, or correctness of any translations made by a third-party service of the information provided herein into any other language. © 1997-2025 A.D.A.M., a business unit



National Library of Medicine 8600 Rockville Pike, Bethesda, MD 20894 U.S. Department of Health and Human Services

National Institutes of Health