

Information
Regarding
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Anatomical
and
Physiological
Stages during
Pregnancy
including
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Abortion and
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Introduction

As required by Session Law 2011-405, this handbook provides information regarding the probable anatomical and physiological characteristics during the stages of pregnancy. This handbook also provides information regarding abortion methods and the risks of both abortion and childbirth.

As required by Session Law 2011-405, the handbook and a directory of public and private agencies and services are available upon request at **www.wrtk.ncdhhs.gov**.

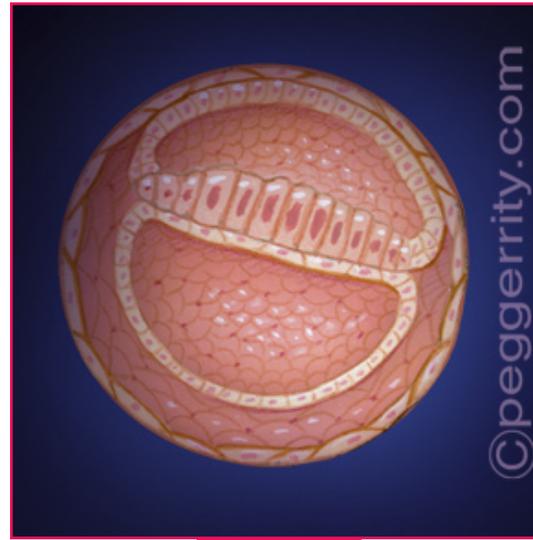
Stages of Pregnancy

Unless otherwise noted, all prenatal ages in this booklet are referenced from the start of the last normal menstrual period. This age is two weeks greater than the age from conception, also referred to as fertilization. Full-term pregnancy typically lasts for 40 weeks from the first day of a woman's last normal menstrual period, which is actually approximately 38 weeks from fertilization.



The First Two Weeks

- Shortly after a woman's menstrual period begins, her body begins preparing for a possible pregnancy.
- Approximately two weeks after her period, a woman releases an egg from one of her ovaries into her adjacent Fallopian tube.
- Fertilization is now possible for the next 24 hours or so.
- If fertilization occurs, a single-cell embryo forms, which has a diameter of approximately 4/1000 of an inch.



2 to 4 Weeks

- The cells of the embryo repeatedly divide as the embryo moves through the Fallopian tube into the uterus.
- During the fourth week after menstruation, the embryo may implant into the wall of the uterus. If this happens, pregnancy begins. If the embryo does not implant, the woman resumes having menstrual periods.

4 to 6 Weeks

- At four weeks, the embryo is less than 1/100 of an inch long.
- By five weeks, development of the brain, spinal cord, and heart is underway.
- The heart begins beating at approximately five weeks and one day. It is visible by ultrasound almost immediately.





6 to 8 Weeks

- At six weeks, the embryo measures less than $\frac{1}{4}$ of an inch long from head to rump.
- By six weeks, the heart is pumping the embryo's own blood to the brain and body.
- All four chambers of the heart are present and functioning.
- The head, chest and abdominal cavities have formed and the beginnings of the arms and legs can be seen; the fingers and toes start to develop.
- Rapid brain development continues with the appearance of the cerebral hemispheres at about seven weeks.

8 to 10 Weeks

- At eight weeks, the embryo measures about $\frac{1}{2}$ inch from head to rump.
- Brainwaves have been measured and recorded before eight and a half weeks.
- The bones of the jaw and collar bone begin to harden.
- By nine weeks, the hands move and the neck turns.
- Ovaries and testes have formed.
- The embryo's heart rate peaks at about 170 beats per minute. The heart is nearly fully formed.





10 to 12 Weeks

- After 10 weeks, the embryo is now called a fetus.
- The 10-week fetus weighs less than $\frac{1}{2}$ of an ounce and measures slightly less than $1\frac{1}{4}$ inches from head to rump.
- By 10 weeks, kidneys begin to produce and release urine, and intermittent breathing motions begin. The fingers and toes have formed.
- More movements of the hands and feet can be seen on ultrasound.
- Experts estimate the 10-week fetus possesses approximately 90 percent of the 4,500 body parts found in adults.
- By 11 weeks, the head moves forward and back, the jaw actively opens and closes.
- In the female fetus, ovaries now contain reproductive cells and the uterus is now present.

12 to 14 Weeks

- The 12-week fetus weighs less than 1 ounce and measures about 3 inches from head to heel.
- Fingerprints start forming at 12 weeks; fingernails and toenails begin to grow.
- The bones are hardening in many locations.
- The lips and nose are fully formed.



14 to 16 Weeks

- The 14-week fetus weighs about 2 ounces and measures slightly less than 5 inches from head to heel.
- Taste buds have developed on the tongue, and tooth development is underway.
- The fetus now produces a wide variety of hormones.
- Arms reach final proportion to body size.





16 to 18 Weeks

- At 16 weeks, the fetus is about 7 inches long and weighs about 4 ounces.
- A pregnant woman may begin to feel fetal movement at about 18 weeks.
- Production of a variety of digestive enzymes is underway.
- Around 17 weeks, blood cell formation moves to inside the bone marrow and the fetus begins to store energy in body fat.



18 to 20 Weeks

- The 18 week fetus weighs around 6 ounces and is about 8 inches long.
- By 18 weeks, the breathing passages, called the bronchial tree, are formed.

20 to 22 Weeks

- The 20-week fetus weighs about 9 ounces and is about 10 inches long.
- By 20 weeks, almost all the organs have been formed.
- By 20 weeks, the larynx or voice box begins moving. The skin has developed sweat glands and is covered by a greasy white substance called “vernix.”
- At 21 weeks, body movements and heart rate begin to follow daily cycles called circadian rhythms.



22 to 24 Weeks

- The 22-week fetus weighs slightly less than 1 pound and is about 11 inches long.
- By 22 weeks, the sense of hearing begins to function and the fetus may move in response to sound. The cochlea, the organ of hearing, reaches adult size. All skin layers and structures are complete.
- Eye movements begin.





24 to 26 Weeks

- The 24-week fetus weighs about 1¼ pounds and is about 12 inches long.



26 to 28 Weeks

- The 26-week fetus weighs almost 2 pounds and is about 14 inches in length.
- The lungs produce a substance necessary for breathing after birth.

28 to 30 Weeks

- The 28-week fetus weighs more than 2½ pounds and is about 15 inches long.
- By 28 weeks, the sense of smell is functioning and eyes produce tears.
- By 29 weeks, pupils of the eyes can react to light.

30 to 32 Weeks

- The 30-week fetus weighs about 3¼ pounds and measures about 16 inches long.
- Wrinkles in the skin are disappearing as more fat deposits are formed.





32 to 34 Weeks

- The 32-week fetus weighs about 4 pounds and is about 17 inches long.



34 to 36 Weeks

- The 34-week fetus weighs about 5 pounds and is about 18 inches long.
- The lung tissue continues to develop.

36 to 38 Weeks

- The 36-week fetus weighs about $5\frac{3}{4}$ pounds and is about $18\frac{1}{2}$ inches in length.
- By 37 weeks, the fetus has a firm hand grip.



38 to 40 Weeks

- The 38-week fetus weighs about 6 pounds and is about 19 inches in length.
- At term, the umbilical cord is typically 20 to 24 inches long.
- Labor is initiated by the fetus, ideally around 40 weeks, leading to childbirth.
- At full-term, newborn babies typically weigh between 6 and 9 pounds and are between 18 and 21 inches long.



Abortion Methods

If a woman makes a decision to have an abortion, she and her doctor will need to consider how long she has been pregnant before deciding which abortion method to use. Her doctor is required to use ultrasound equipment to establish the estimate of gestational age.

Approximately 88 percent of all abortions are performed prior to 12 weeks of pregnancy. About 10 percent are performed from 13 to 20 weeks and less than 1 percent are performed after 20 weeks.

Based on data from the Centers for Disease Control and Prevention (CDC), the risk of maternal death as a direct result of a legally induced abortion is less than one per 100,000.

Early Non-Surgical (Medical) Abortion

Medical abortion can be done up to nine weeks of pregnancy. A drug is given to stop the development of the pregnancy. A second drug is given by mouth or placed in the vagina, 24 to 48 hours later, causing the uterus to contract and expel the pregnancy. After receiving these drugs, women might experience cramping of the uterus, pelvic pain or bleeding, and pass clots and tissue within hours or days. Medications are given for the pain, cramping and nausea. A follow-up visit is necessary 12 to 18 days after the medications are administered.

Vacuum Aspiration

This type of abortion is usually done before 14 weeks of pregnancy. Different kinds of pain control can be used, as decided by the patient and her doctor. After pain medication has been given, the opening of the cervix is gradually stretched. This is done by the insertion of a series of dilators, each one thicker than the previous one, into the opening of the cervix. The thickest dilator used is about the width of a fountain pen. After the opening is stretched, a clear plastic tube is inserted into the uterus and attached to a suction system. The pregnancy is then removed. After the tube has been removed, a spoon-like instrument called a curette may be used to gently scrape the walls of the uterus to be sure it has been completely emptied of the pregnancy.

Dilatation and Evacuation (D&E)

This type of abortion is usually done after 14 weeks of pregnancy. The D&E procedure requires more dilation (opening) of the cervix, so it is done in two steps, first dilating the cervix, then removing the pregnancy from the uterus. Dilating the cervix can be done either by placing small sticks, called laminaria, into the cervix or by placing a medication into the vagina to soften the cervix. Laminaria work by expanding slowly to open the cervix. They will remain in place for several hours or overnight. Occasionally, a second or third application of the laminaria may be necessary. Once the cervix has been adequately prepared, requiring from a few hours to a few days, pain medication is provided and the pregnancy is removed from the uterus using medical instruments such as forceps and vacuum.

Labor Induction

This type of abortion is used after 13 weeks of pregnancy. Labor induction abortion requires a hospital stay. Drugs are given to start labor in one of several ways: by mouth, in the vagina, in the rectum, or by a needle through the abdominal wall into the uterus.

Appropriate pain medication is given. Usually the labor induction abortion is completed within 24 hours, but occasionally the abortion can take longer than 48 hours. Sometimes the placenta (afterbirth) is not completely removed during labor induction, in which case either more labor induction medication can be given or the doctor can empty the uterus using suction.

Pregnancy and Childbirth

To promote the best possible pregnancy outcome for mother and baby, a woman should visit her doctor before becoming pregnant, early in her pregnancy, and at regular intervals throughout her pregnancy.

Women with pre-existing chronic diseases, women with lifestyle risk factors such as smoking, alcohol and drug use and women who don't receive early and ongoing prenatal care are at higher risk for poorer outcomes, for both their baby and themselves.

Pregnancy outcomes are best if women enter their pregnancies in their best possible state of health, which means treating any chronic diseases; stopping smoking, alcohol or drug use; eating a healthy diet; and living a healthy, active life.

Medical Risks

Procedure/Status	Risks and Side Effects
Abortion Procedures	
Early Non-Surgical (Medical) Abortion	<ul style="list-style-type: none"> ■ nausea, vomiting, diarrhea, warmth or chills ■ headache, dizziness, fatigue ■ excess bleeding, infection
Vacuum Aspiration	<ul style="list-style-type: none"> ■ excess bleeding, infection ■ tear to cervix or uterus ■ anesthetic complication
Labor Induction	<ul style="list-style-type: none"> ■ excess bleeding, infection ■ tear to cervix or damage to uterus ■ anesthetic complication
Dilation and Evacuation	<ul style="list-style-type: none"> ■ excess bleeding, infection ■ tear to cervix or damage to uterus ■ anesthetic complication
General Abortion Risk Information	
<ul style="list-style-type: none"> ■ fewer than 1 in 100 women have complications from an early abortion; ■ risk of death from abortion: less than 1 per 100,000 women ■ possible increased risk of mental health problems 	

Procedure/Status	Risks and Side Effects
Continued Pregnancy	<ul style="list-style-type: none">■ nausea, vomiting■ high blood pressure/ preeclampsia■ increased risk for diabetes■ excess bleeding, infection■ anesthetic complication■ pregnancy-related and postpartum depression■ risk of death from pregnancy and childbirth: less than 13 per 100,000 live births

Finding Services

The North Carolina Department of Health and Human Services publication, “Woman’s Right to Know Act” Resource Directory, includes state, county and local health and social service agencies and organizations that may be available to assist. The publication is available online at www.wrtk.ncdhhs.gov.

Medical Assistance Benefits for Prenatal Care, Childbirth and Care for Baby

An individual may qualify for financial help for medical care depending on income. For people who qualify, programs such as Medicaid may help pay bills for a doctor, clinic, hospital and other related medical expenses for prenatal care, childbirth/delivery services and care for newborns. For information about Medicaid, including how to apply for benefits, visit www.ncdhhs.gov/dma/medicaid/families.htm#pregnant.

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References

American Congress of Obstetrics and Gynecology (ACOG) Patient Education Brochure, “How Your Baby Grows During Pregnancy” (2010)



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