

Chapter 20 – Pregnancy, Growth, and Development

Introduction:

Development, which includes _____, is the continuous process by which an individual changes from one life phase to another.

The life phases are the _____ period, which begins at fertilization and ends at birth, and the _____ period, which begins at birth and ends at death.

Pregnancy

Pregnancy is the presence of developing offspring in the uterus, an event resulting from _____.

Transport of Sex Cells: Sperm cells must reach secondary _____ in the upper part of the uterine tubes for fertilization to occur.

Under the influence of _____ during the first half of the menstrual cycle, uterine secretions are _____, allowing sperm cells to swim easily toward their destination.

Fertilization:

With the aid of the _____ enzyme, the sperms cells erode away the _____ and _____ surrounding the secondary oocyte and one sperm cell penetrates the egg cell membrane.

What prevents the entry of additional sperm cells? _____

_____ of egg and sperm nuclei completes fertilization.

Fertilization results in a diploid cell called the _____.

Prenatal Period:

Early Embryonic Development: Cells undergo a period of mitosis called _____, when cells become smaller and smaller. The dividing mass of cells (called a _____) moves down the uterine tube to the uterus, where a stage called the _____ implants in the lining of the uterus.

The offspring is called an _____ during the first eight weeks of development, and a _____ after that time.

Some of the cells become the _____, which also secretes hormones.

Hormonal Changes during Pregnancy: The outer layer of cells called the _____ of the blastocyst stage secrete the hormone _____ (hCG), which maintains the corpus _____ and _____

thus also maintains the uterine lining and the pregnancy.

Levels of hCG remain high until the _____ can produce enough hormones on its own to maintain the pregnancy.

This structure also secretes placental _____ for breast development and estrogens.

Other hormonal changes during pregnancy include increased secretions of aldosterone (promotes fluid retention) and parathyroid hormone (to maintain a high calcium level in the blood).

Embryonic Stage: The embryonic stage lasts from the _____ to the _____ week of development, during which time the placenta develops, and all the main internal _____ and major external features appear.

During the second week, the embryo is now called a _____ and its inner cell mass transforms into the _____ disk, and layers form within it.

These layers become the three primary _____ layers and give rise to all organ systems.

_____ gives rise to the nervous system, portions of special sensory organs, the epidermis and epidermal derivatives, and the linings of the mouth and anal canal. _____ cells form all types of muscle tissue, bone tissue, bone marrow, blood, blood and lymphatic vessels, internal reproductive organs, kidneys, and epithelial linings of the body cavities.

_____ cells produce the epithelial linings of the digestive tract, respiratory tract, urinary bladder, and urethra.

As the embryo implants, the trophoblast sends out extensions that develop into _____.

By the _____ week, the heart is beating, the head and jaws appear, and limb buds form.

As the chorionic villi develop, exchanges of gases and nutrients occur through the placental membrane. By the _____ week, the trophoblast is now the chorion, a portion of which develops into the _____.

During this time, another membrane, the _____, is developing around the embryo and will hold cushioning _____ fluid.

How many umbilical arteries and veins does the umbilical cord contain?

Two other membranes form in association with the embryo. The yolk sac, formed during the second week, is the first site of blood cell formation and also gives rise to the stem cells of the _____ system. The _____ forms during the third week and joins the connecting stalk of the embryo; it forms blood cells and gives rise to the umbilical arteries and vein.

<p>By the beginning of the _____ week, the embryo is 30 millimeters in length and all essential body systems have formed.</p>
<p><u>Fetal Stage:</u> The fetal stage begins at the end of the eighth week of development and lasts until _____.</p> <p>During this period, _____ is rapid and body proportions change considerably.</p> <p>The bones begin to _____.</p> <p>When does the mother usually feel the fetus move?</p> <p>_____</p> <p>In the final trimester, _____ cells form rapidly and organs grow and mature as the fetus greatly increases in size.</p>
<p><u>Fetal Blood and Circulation:</u> Substances diffuse through the _____ membrane. _____ vessels carry them to and from the fetus; Fetal blood has a _____ oxygen-carrying capacity than maternal blood.</p> <p>The umbilical _____, transporting blood rich in oxygen and nutrients, enters the body and travels to the liver where half of the blood is carried into the liver and half bypasses the liver through the vessel called the _____ on its way to the inferior vena cava.</p> <p>An opening, called the _____, conveys a large portion of the blood entering the right atrium from the inferior vena cava, through the _____ septum, and into the left atrium, thus bypassing the _____.</p> <p>A second lung bypass is the _____, which conducts some blood from the pulmonary trunk directly to the aorta.</p> <p>Umbilical _____ carry blood from the internal iliac arteries to the placenta, where it can exchange wastes and again pick up nutrients and oxygen.</p> <p>What happens to these structures after birth?</p>
<p><u>Birth Process:</u></p> <p>Pregnancy continues for _____ weeks and terminates in the birth process.</p> <p>As the placenta ages, less _____ is produced, which normally inhibits uterine contractions.</p> <p>A decreasing progesterone concentration may stimulate the synthesis of _____, which may initiate labor.</p> <p>Stretching uterine tissues stimulates the release of _____ from the posterior pituitary, which stimulates uterine contractions.</p> <p>As the fetal head stretches the cervix, a _____ feedback mechanism results in stronger and stronger uterine contractions and a greater release of oxytocin.</p>

Positive feedback causes abdominal muscles to contract with greater force and the fetus is forced through the birth canal to the outside.

Following birth, the _____ is expelled by the continued uterine contractions (afterbirth).

Postnatal Period:

Following birth, mother and newborn experience physiological and structural changes.

Following childbirth, the action of _____ is no longer inhibited and the mammary glands are stimulated to produce large quantities of milk.

First milk called _____ is a watery fluid rich in proteins and _____.

Milk does not readily flow into the ductile system. What triggers it?

What is the best possible food for human babies?

Neonatal Period: The neonatal period begins abruptly at birth and lasts for _____ weeks.

The first breath must be forceful to inflate the lungs for the first time. A fluid called _____ in a full-term newborn reduces surface tension.

Why is the newborn susceptible to dehydration?

A number of changes occur in the newborn's circulation. The umbilical vessels, the ductus venosus, and the ductus arteriosus all _____ and the foramen ovale _____.

Review these changes from fetal circulation after birth. How soon after birth do these changes normally occur?