Development After Implantation

- Chorionic villi (projections of the blastocyst) develop
  - Cooperate with cells of the uterus to form the placenta
- The embryo is surrounded by the amnion (a fluid filled sac)
- An umbilical cord forms to attach the embryo to the placenta

Development After Implantation

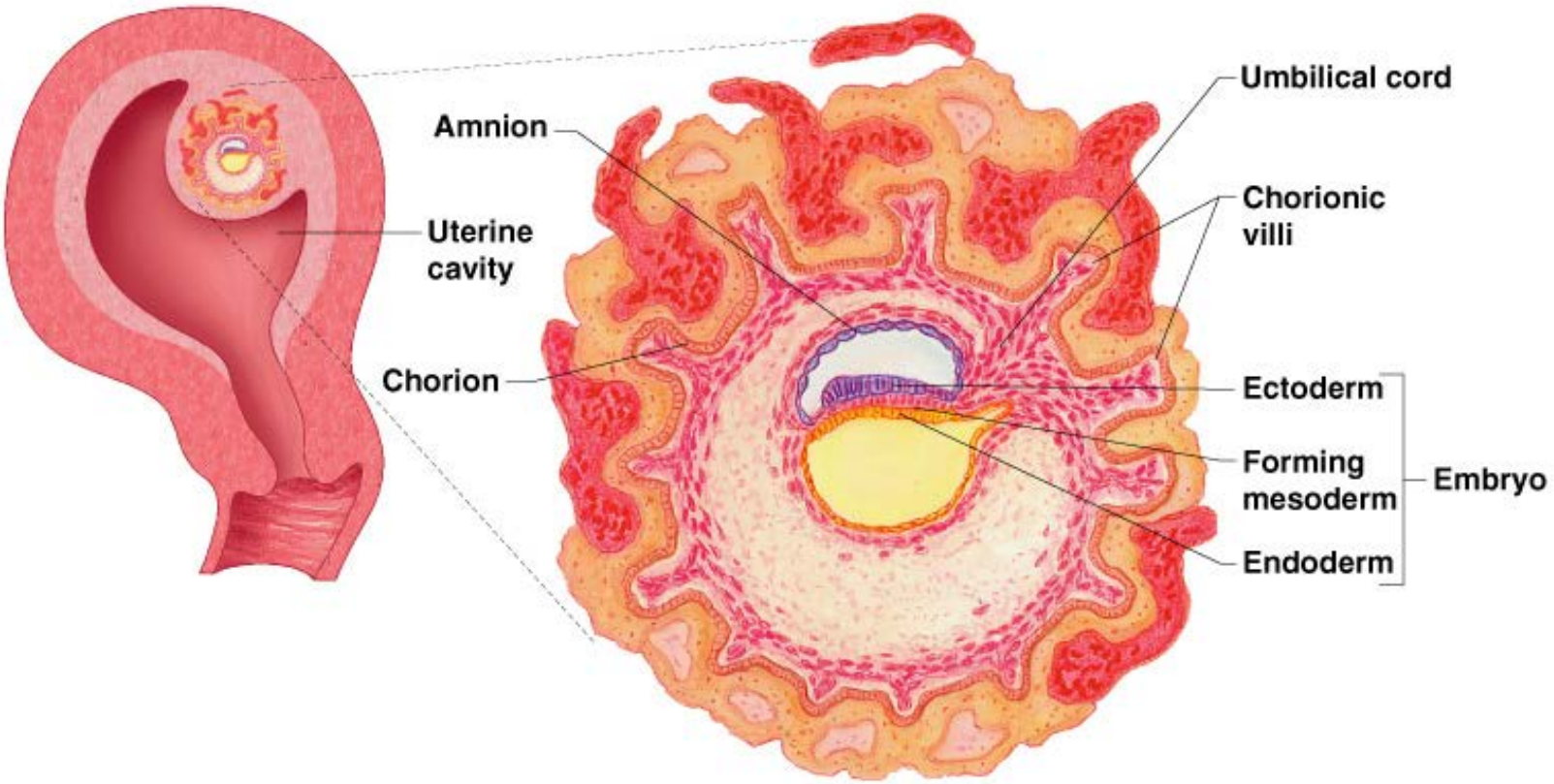


Figure 16.16

Functions of the Placenta

- Forms a barrier between mother and embryo (blood is not exchanged)
- Delivers nutrients and oxygen
- Removes waste from embryonic blood
- Becomes an endocrine organ (produces hormones) and takes over for the corpus luteum
  - Estrogen
  - Progesterone
  - Other hormones that maintain pregnancy

The Fetus (Beginning of the Ninth Week)

- All organ systems are formed by the end of the eighth week
- Activities of the fetus are growth and organ specialization
- A stage of tremendous growth and change in appearance

The Effects of Pregnancy on the Mother

- Pregnancy – period from conception until birth
- Anatomical changes
  - Enlargements of the uterus
  - Accentuated lumbar curvature
  - Relaxation of the pelvic ligaments and pubic symphysis due to production of relaxin

Effects of Pregnancy on the Mother

- Physiological changes
  - Gastrointestinal system
    - Morning sickness is common due to elevated progesterone
    - Heartburn is common because of organ crowding by the fetus
    - Constipation is caused by declining motility of the digestive tract

Effects of Pregnancy on the Mother

- Physiological changes
  - Urinary System
    - Kidneys have additional burden and produce more urine
    - The uterus compresses the bladder

Effects of Pregnancy on the Mother

- Physiological changes
  - Respiratory System
    - Nasal mucosa becomes congested and swollen
    - Vital capacity and respiratory rate increase

Effects of Pregnancy on the Mother

- Physiological changes
  - Cardiovascular system
    - Body water rises
    - Blood volume increases by 25 to 40 percent
    - Blood pressure and pulse increase
    - Varicose veins are common

Childbirth (Partition)

- Labor – the series of events that expel the infant from the uterus
- Initiation of labor
  - Estrogen levels rise
  - Uterine contractions begin
  - The placenta releases prostaglandins
  - Oxytocin is released by the pituitary
  - Combination of these hormones produces contractions

Initiation of Labor

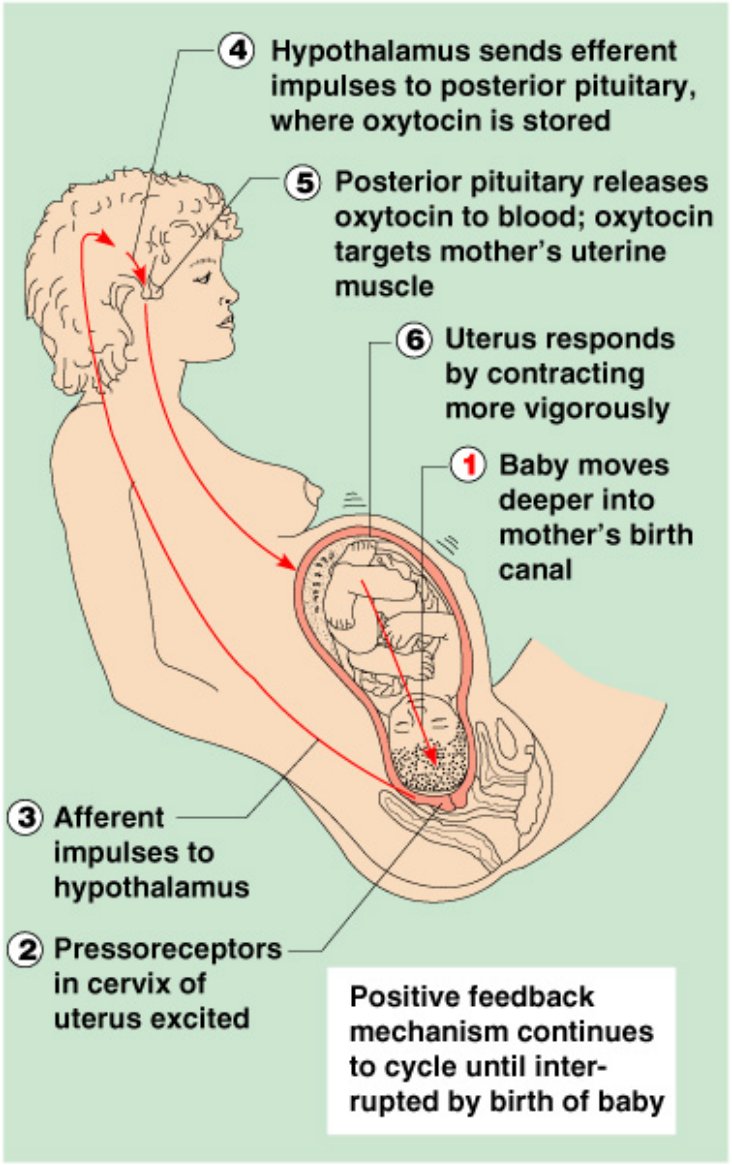


Figure 16.18

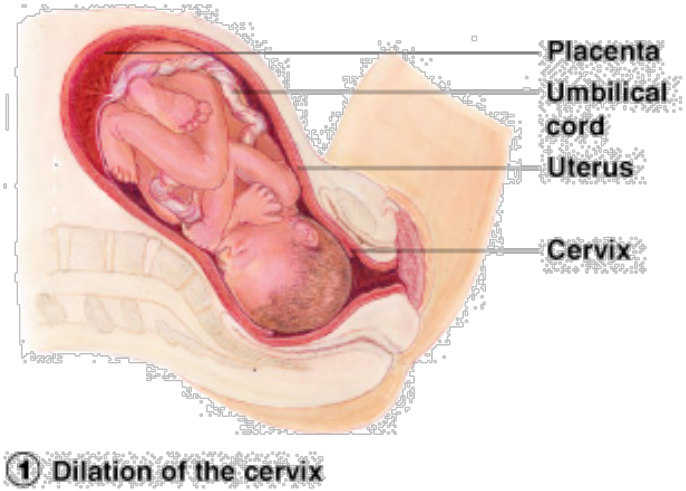
Stages of Labor

- Dilation
  - Cervix becomes dilated
  - Uterine contractions begin and increase
  - The amnion ruptures

Stages of Labor

- Expulsion
  - Infant passes through the cervix and vagina
  - Normal delivery is head first
- Placental stage
  - Delivery of the placenta

Stages of Labor



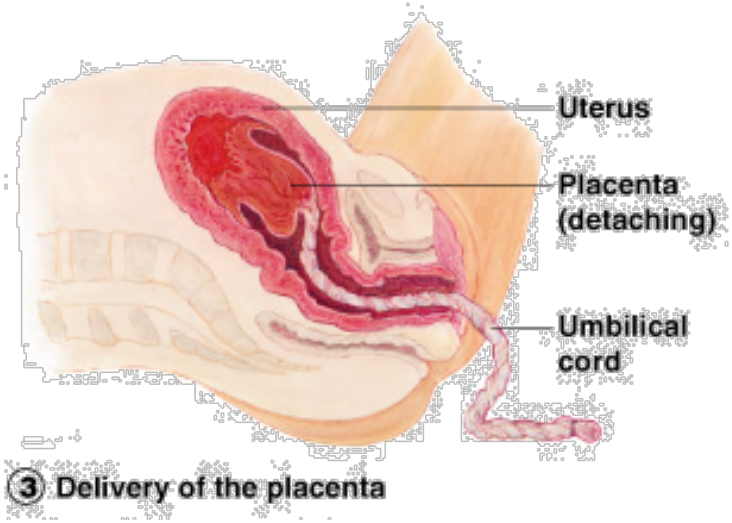


Figure 16.19

Developmental Aspects of the Reproductive System

- Gender is determined at fertilization
  - Males have XY sex chromosomes
  - Females have XX sex chromosomes
- Gonads do not begin to form until the eighth week

Developmental Aspects of the Reproductive System

- Testes form in the abdominal cavity and descend to the scrotum one month before birth
- The determining factor for gonad differentiation is testosterone

Developmental Aspects of the Reproductive System

- Reproductive system organs do not function until puberty
- Puberty usually begins between ages 10 and 15
- The first menses usually occurs about two years after the start of puberty
- Most women reach peak reproductive ability in their late 20s

Developmental Aspects of the Reproductive System

- Menopause occurs when ovulation and menses cease entirely
  - Ovaries stop functioning as endocrine organs
- There is a no equivalent of menopause in males, but there is a steady decline in testosterone