

Human Development

- All mammals start life as a tiny fertilized cell
- Over weeks or months, the new life grows and eventually becomes a collection of cells, tissues and organs
- Although all mammals look different, the process that produce them are very similar

Puberty in Humans

- Puberty usually begins in the early to mid-teens
- When puberty begins, the pituitary gland at the base of the brain starts to produce **FSH (Follicle Stimulating Hormone)**
- Other hormones help in the development and maintenance of additional characteristics

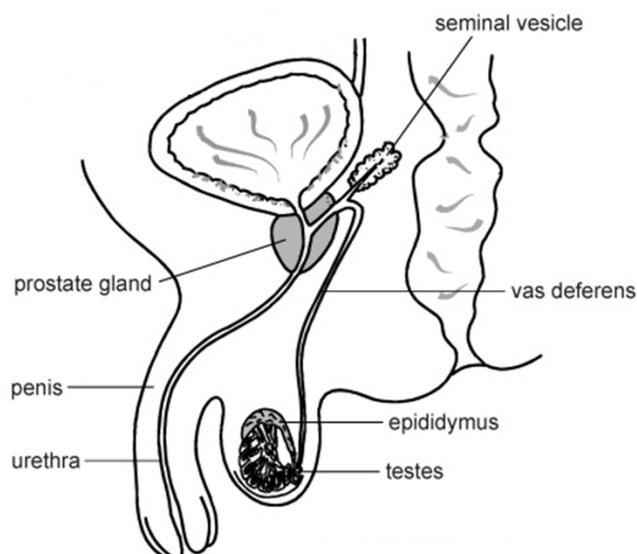
Puberty in Males

- FSH promotes the development of sperm cells
- FSH tells cells in the testes begin to produce **testosterone**
- Testosterone controls the development of secondary sexual traits:
 - Voice deepens
 - Growth of facial, underarm, and pubic hair
 - Shoulders broaden

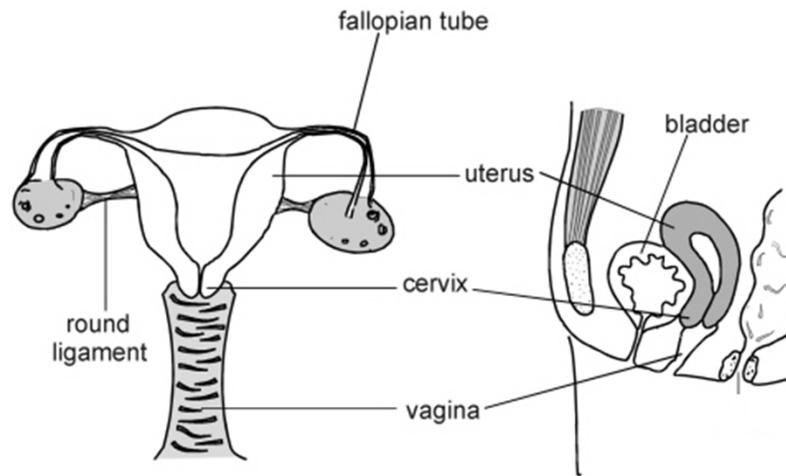
Puberty in Females

- FSH stimulates the ovaries to begin maturing and releasing eggs
 - Generally one egg per month
- FSH stimulates the ovaries to produce estrogen
- Estrogen is responsible for the appearance of secondary sexual characteristics:
 - Deposits of fat in the breasts and hips
 - Growth of underarm and pubic hair

Male Reproductive Anatomy



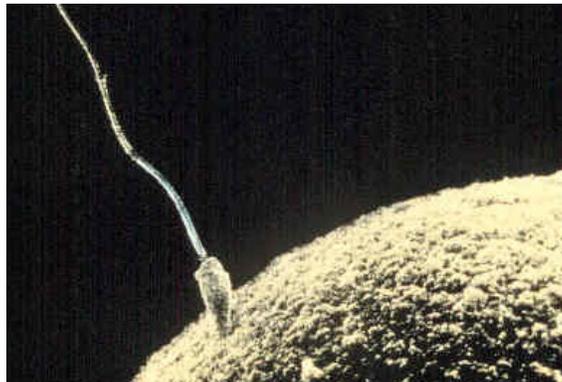
Female Reproductive Anatomy



FEMALE REPRODUCTIVE SYSTEM

Stages of Development

- Development begins with fertilization
 - the male gamete (sperm cell) and the female gamete (the egg) fuse to produce a zygote



- The zygote undergoes a series of rapid cell divisions on its way to the uterus
 - Cleavage
- By the time it reaches the uterus it has become an almost hollow ball of cells called a blastocyst
- The outer cells of the blastocyst will form the placenta and the inner cells form the embryo

- The embryo attaches itself to the thickened lining of the uterus
 - Implantation
- Implantation occurs approximately 6-10 days after fertilization and is considered to be the start of pregnancy

Development

- The time between fertilization and birth is known as the gestation period
 - 38 weeks
 - Divided into three periods called trimesters

First Trimester

- 4 weeks
 - limbs, eyes and spine begin to form
- 8 to 9 weeks
 - first bone cells form
 - now known as a **fetus**
- 12 weeks
 - all major organs have begun to develop
 - fetal length 100 mm
 - sex can be determined using an ultrasound

Second Trimester

- 16 weeks
 - skeleton begins to form
 - brain grows rapidly
 - nervous system starts to function
 - fetus begins to move
- 24 weeks
 - fetal length 300 mm
 - movements become more vigorous
 - most organs are formed but not yet developed

Third Trimester

- In the last three months
 - fetus rapidly increases in size
 - fetus moves around a lot
 - proper nutrition is even more important
- At the end of month 8 the fetus opens its eyes
- By the end of the third trimester
 - fetal length 500 mm
 - fetal weight 2.7 to 4.1 kg