Chapter 17
The Reproductive System
The Human Life Cycle

- **Puberty**
  - Occurs between ages of 11 and 13 for females
  - Occurs between ages of 14 and 16 for males

- **Functions of the reproductive organs**
  - To deliver ____________________ & receive __________________________
  - The uterus houses the __________ and allows it to ______________________________
  - Production of __________________________
Meiosis -

- **Reduction division**
- Takes place in the __________
- Has the same ________________:
  - Prophase
  - Metaphase
  - Anaphase
  - Telophase
Testes-

Produce _____ and the ______________________

Located outside of the ________________ within the ________________

Anatomy of a Testis

• Enclosed by a __________ ______________________________

• Divided into __________ that each contain ______ __________________

• Seminiferous tubules ______________________________
Spermatogenesis

- Two types of cells in the seminiferous tubules:
  - Sustentacular (Sertoli) cells
  - Germ cells

  Sustentacular (Sertoli) cells:
  - Spermatogonia
  - Primary spermatocytes
  - Secondary spermatocytes
  - Spermatids

  Germ cells:
  - Spermatogonia
  - Primary spermatocytes
  - Secondary spermatocytes
  - Spermatids
Spermatids-

- Sperm have three distinct parts:
  - Head – contains
  - Middle piece –
  - Tail –
- Sperm typically survive
Male Reproductive System

- **Seminal Vesicles**
  - Secrete an alkaline fluid that
    __________________________
    __________________________

- **Prostate**
  - Encircles the urethra
  - Secretes a fluid that helps
    __________________________
    __________________________

- **Bulbourethal glands**
  - Inferior to prostate gland
  - Secrete __________________
  - __________________________
  - Penis-____________________
    __________________________
Regulation of Male Hormone Levels

- At ____________________ the ________________ begins to increase its production of gonadotropin-releasing hormone (GnRH)

- GnRH stimulates the ___________________________

  - FSH (follicle-stimulating hormone) ___________________________
  - LH (luteinizing hormone) - ___________________________
Negative feedback Mechanisms

- Maintains
- Maintains
- Testosterone
  - Necessary for the
  - Secondary sex characteristics
    - Activity of
    -
Ovary-

- Lie on either side ______________
- Follicles contain an ______________
Oogenesis-

- Includes the process of meiosis
  - A ___________________________ undergoes meiosis I
  - Primary oocyte ___________ and produces two cells
    - _______________________ & _______________________
  - A _______________ undergoes meiosis II only

- Ovulation –
Female Reproductive System

- The secondary oocyte (egg) will be released from the ovary.
- If fertilization occurs, meiosis II will commence and produce two daughter cells.
- Corpus luteum –
  - If pregnancy does not occur, it will involute after about 10 days.
  - If pregnancy does occur, the corpus luteum secretes progesterone and estrogen.
-extend from uterus to ovaries (fallopian tubes)

- Egg is propelled toward the ________________ by ____________________ and ____________________

- Fertilization normally occur in the upper one-third of a uterine tube

- An ectopic pregnancy occurs
Uterus-

- **Location of**

- **Endometrium**-

- **Placenta**-

- Three sections:
  - Fundus, Body, Cervix

- **Vagina**-
Regulation of female hormone levels

- At the start of puberty, the ____________ begins to increase ________________________________________
- GnRH stimulates the __________________________ to produce the ______________________________________

  - Stimulate the ovaries to ___________________________________________
  - Cause elevated ___________ and ______________ production by the ovaries
    - Estrogen- needed for ___________________________________________
    - Stimulates ___________________________________________
    - Needed for ___________________________________________
    - Causes the development _______________________________________
    - Both estrogen and progesterone are needed for _______
      ________________________________________________________
Menstrual Cycle -

0 several follicles begin developing in the ovary
0 Only one follicle continues
0 more GnRH is released from the ___________ leading to LH surge causes ____________________
0 First _________________________________

Copyright © The McGraw-Hill Companies, Inc. Permission required for reproduction or display.
Post-ovulation-

- Secretes __________ and some __________
- Increased ______________________________ & the corpus luteum begins to _______________
- Secretory phase begins in _______________
  ▪ Endometrium ______________________
  ▪ Uterine glands _________________ and produce ______ ______________
  ▪ If ____________ and ________________ occur, human chorionic gonadotropin (HCG) is released by the _________________________________
Menopause - menstrual cycle ceases

- Ovaries secrete low levels of ________ and ______________________
- Uterine cycle ___________________
- Hormonal changes cause physical symptoms
  - ___________________________
  - ___________________________
  - ___________________________
  - ___________________________
  - ___________________________
Breast development occurs ________________

- **During pregnancy,** ____________________________________

- **Usually ____________ is produced during pregnancy**

- **Prolactin is needed ____________________________________**
  - After birth, prolactin
  - Colostrum is produced
  - Continued production of milk

![Breast anatomy diagram](https://via.placeholder.com/150)
Control of Reproduction

- **Contraception**
  - A health care provider should be consulted
  - Methods: p.394-396
    - Natural
    - Non-prescription
    - Prescription hormonal
    - Prescription barrier
    - Surgical sterilization
  - **Abstinence**
    - Most
    - Also prevents
Emergency contraception

- “Morning after pill”
- Prevents ____________________________
- Medication upsets the normal ____________________________, preventing ____________________________
- Estimated to be 80% effective
- Side effects
  - Nausea
  - Vomiting
  - Abdominal pain
  - Fatigue
  - Headache
- Mifepristone (RU-486)
  - Causes ____________________________
  - 95% effective in terminating an early pregnancy
Infertility-

- **Causes**
  - Male - Low
    - ________________
    - ________________
    - ________________
  - Females
    - Body weight ________________
    - Blocked uterine tubes ________________

- **Assisted Reproductive Technologies**
Sexually Transmitted Diseases

- Caused by ________________________________
- Humans cannot ____________________________ to any STDs
- Any person exposed to an STD should _________
- A latex or polyurethane condom should _________
- Treatment of viral STDs will not _______________
- Only ___________________________ are curable with antibiotics
Sexually transmitted diseases

• **Genital warts**
  □ Caused by ________________________________
  □ New vaccine has been released for the HPV that most commonly causes ________
  □ Genital warts are associated ____________________________________________________________________________

• **Genital herpes**
  □ Caused by ________________________________
  □ Type 1 usually __________________________________________
  □ Type 2 causes __________________________________________
STDs

- **Hepatitis**
  - Infests ____________________________
  - A combined vaccine is available for ____________________________
- **Chlamydia- bacterium Chlamydia trachomatis**
  - Causes ____________________________
  - Pelvic inflammatory disease (PID)________
More STDs

- **Gonorrhea**
  - Caused by ________________________________
  - Latent infection can lead to ________________________________
  - Oral/genital contact can lead to infection of the mouth, throat, and tonsils
  - Resistance to ________________________________

- **Syphilis**
  - Caused by ________________________________
  - Penicillin ________________________________
  - *Congenital syphilis* – caused by ________________________________
Effects of Aging

- Sex
- Menopause
- In men,
  - May be the cause of enlargement
  - _______________declines, but men can remain fertile well into old age
- Chances of _______________increases
Homeostasis

- Estrogen promotes ___________________________
  - Energy
  - Insulation

- Estrogen
  - Induces the liver to ___________________________
  - Induces synthesis ___________________________

- Androgens
  - Stimulate synthesis of ___________________________
    _______________________________________________________________________
  - Affect the activity of ___________________________ in the ___________________________