Reproductive System

Answers to Workbook Activities

A. Describe the functions of the reproductive system.

The reproductive system has the organs necessary to accomplish reproduction. It also manufactures hormones necessary for the development of the reproductive organs and secondary sex characteristics. In females, estrogen and progesterone are produced, and in males, testosterone is produced.

B. Select the letter of the choice that best completes the statement.

1. The specialized sex cells or germ cells are also known as

d. gametes.

2. In the formation of the germ cells, the specialized cell division process is known as

c. meiosis.

3. In the male, there is one pair of single sex chromosomes, an X and Y, and

a. 22 autosomal pairs.

4. Spermatozoa entering the female reproductive tract live for

a. 1–2 days.

5. In one ejaculation, 100 million sperm may be deposited in 1 ml of seminal fluid. A person is considered sterile if the count is less than \_\_\_\_ million per milliliter.

b. 20

6. Sperm may die before they can approach the ovum for all the following reasons, *except*

c. specialized lining of the uterus.

7. For fertilization to occur, the layer of epithelial cells must fall away from the ovum. This layer is called the

a. corona radiate.

8. True fertilization occurs when the sperm nucleus and the egg nucleus unite to form a fertilized egg cell, or

c. zygote.

9. The process that gives rise to all three germ layers is known as

c. gastrulation.

10. The gender of the child is determined by

a. the chromosome of the male parent.

C. Label the structure of the sperm and ovum. Place the name of the structure on the line provided.

Labels are as follows:

1. head

2. neck

3. middle piece

4. principal piece

5. flagellum

6. sperm

7. zona pellucida

8. cell membrane

9. cytoplasm

10. nucleus

11. corona radiata (made up of epithelial cells)

12. ovum

D. Complete the following statements regarding fetal development.

1. For the first 2 months, the embryo develops without a sexual identity.

2. The structure that anchors the placenta to the uterine wall is the chorionic villi**.**

3. Implantation of the zygote occurs 7 to 12 days after ovulation.

4. The embryonic germ layers that form 13 to 28 days after ovulation are the ectoderm**,** mesoderm**,** and endoderm**.**

5. The skin, pituitary glands, and parts of the nervous system derive from the ectoderm layer.

6. The lining of the lungs, urethra, digestive tract, and bladder derive from the endoderm layer.

7. The muscles, bones, blood, heart, and lungs derive from the mesoderm layer.

8. The thick layer of hair covering the fetus is called lanugo**.**

9. The protective covering of the skin of the fetus at the end of the 5th month is calledvernix caseosa.

10. A baby born at the end of the 7th month can live outside the uterus.

E. The undifferentiated external genitalia develop into fully differentiated structures. Complete the following statements.

In the male:

1. The tubercle becomes the glans penis.

2. The folds become the penile shaft.

3. The swelling becomes the scrotum.

In the female:

1. The tubercle becomes the clitoris.

2. The folds become the labia minora.

3. The swelling becomes the labia majora.

F. Label the female organs of reproduction. Place the name of the structure on the line provided.

Labels are as follows:

1. cervix of the uterus
2. fimbriae
3. fallopian tube/oviduct
4. fundus of uterus
5. ovary
6. endometrium
7. myometrium
8. perimetrium
9. internal os
10. external os
11. vaginal canal

G. Match the description of the structure with the preceding diagram and delete the reference to the letter.

ovary 1. Produce ova and the hormones estrogen and progesterone

fallopian tube 2. Oviducts; carry the ova to the uterus

myometrium 3. Smooth, muscular layer of the uterus

endometrium 4. Inner mucous layer of the uterus

vagina 5. Short canal that extends from the cervix to the vulva

fundus 6. Bulging, rounded part of the uterus

cervical canal 7. The narrow portion of the uterus that extends into the vagina

fimbriae 8. Outer end of the oviduct that curves over the top edge of each ovary with fringe-like folds

H. Name three functions of estrogen and three functions of progesterone.

Estrogen: (1) affects the development of the fallopian tubes, ovaries, uterus, and vagina; (2) produces secondary sex characteristics; and (3) prepares the uterus for the fertilized egg. Progesterone: (1) develops the secretory portion of the mammary glands; (2) thickens the uterine lining so it can receive the developing embryo egg; and (3) decreases uterine contractions during pregnancy.

I. Mark the following statements either true or false. Correct any false statements.

 T  1. The reproductive years begin at the time of puberty and menarche.

 F  2. Fertilization of the ovum takes place in the inner third of the oviduct. Fertilization of the ovum takes place in the outer third of the oviduct

 T  3. The hymen found at or near the entrance to the vaginal canal has some openings that allow for the menstrual flow.

 T  4. The external female genitalia is also called the vulva.

 F  5. The area surrounding the urethra and the vagina is called the vestibule, and the urethra is inferior to the vagina.            
The area surrounding the urethra and the vagina is called the vestibule and the urethra is superior to the vagina

 T  6. Above the urethral opening is the clitoris, which contains many nerve endings.

 F  7. Extending posteriorly from the mons pubis are two longitudinal folds of hair-covered skin called the labia minora.             
Extending posteriorly from the mons pubis are two longitudinal folds of hair-covered skin called the labia majora.

 T  8. The Bartholin glands are found on either side of the vaginal orifice.

 T  9. The area surrounding the nipple is called the areola.

 F  10. Prolactin from the posterior lobe of the pituitary gland stimulates the mammary glands to secrete milk following childbirth.   
Prolactin from the anterior lobe of the pituitary gland stimulates the mammary glands to secrete milk following childbirth.

J. Select the appropriate word or words about the menstrual cycle from the following list to complete the statements. A word may be used more than once.

corpus luteum uterus discharged decrease

estrogen decreasing fallopian tube follicle

endometrium FSH LH menstruation

follicles implantation ovulation pituitary

one ovaries ruptures uterine

progesterone puberty

4 5 10

12 14 15 17

1. The menstrual cycle starts at puberty. The average age for menstruation to begin is between 12 and 15.

2. Changes that occur during the menstrual cycle involve hormones from the pituitary gland and the ovaries.

3. The four stages of the menstrual cycle are follicle, ovulation, corpus luteum, and menstruation.

4. FSH from the pituitary gland is secreted on day 5 of the cycle.

5. It reaches the ovary through the bloodstream and stimulates several follicles; however, usually only one matures.

6. As the follicle grows, an egg cell develops inside, and the follicle fills with a fluid containing estrogen.

7. The estrogen stimulates the endometrium lining of the uterus to thicken with mucus and a rich supply of blood vessels to prepare the uterus for the implantation of a fertilized egg.

8. This follicle stage lasts 10 days.

9. When the estrogen level increases in the blood, the pituitary stops secreting FSH.

10. The LH hormone is now secreted by the pituitary.

11. The three hormones circulating in the blood at this time are FSH, estrogen, and LH in different concentrations.

12. On about day 14, this combination stimulates the mature follicle to rupture, releasing the egg into the fallopian tube.

13. This event is called ovulation.

14. After ovulation, LH stimulates the cells of the ruptured follicle to divide quickly; this mass of cells is now called the corpus luteum.

15. The corpus luteum produces a hormone called progesterone, which maintains the growth of the endometrium.

16. Progesterone inhibits the release of FSH.

17. The corpus luteum stage lasts about 14 days.

18. If fertilization does not occur, the progesterone reaches a level in the bloodstream that inhibits LH secretion from the pituitary.

19. With the drop in LH, the corpus luteum breaks down, decreasing progesterone levels.

20. As the progesterone level decreases, the endometrial lining breaks away from the uterine wall and is discharged from the body with the unfertilized egg.

21. This is the menstrual stage and lasts about 4 days.

22. The estrogen level is also decreasing at this time, which then stimulates the pituitary to secrete FSH, and the cycle begins again.

K. Label the ovary, showing the development of the graafian follicle. Place the name of the structure on the line provided.

Labels are as follows:

1. follicular cavity

2. mature follicle

3. immature ovum

4. ovulation

5. ovum discharged

6. corpus luteum (early)

7. corpus luteum (mature)

L. Answer the following questions about menopause.

1. Define menopause.

Menopause is also called the “change of life.” It occurs when a female’s monthly menstrual cycle comes to an end. It usually occurs between the ages of 45 and 55. It signals the end of follicle growth and ovulation. Childbearing is over, but the libido remains normal.

2. Describe the anatomical changes that occur during menopause.

The following anatomical changes occur: atrophy of the internal reproductive organs (uterus, fallopian tubes, ovaries); atrophy of the external genitalia and vaginal mucous membrane; vagina becomes conical in shape; reduction of the secretory activity of the glands associated with the reproductive system.

3. Describe the physiological changes that occur during menopause.

The physiological changes that occur include “hot flashes,” dizziness, headaches, rheumatic pains in joints, sweating, and susceptibility to fatigue.

4. Describe the psychological changes that occur during menopause.

The psychological changes include abnormal fears, depression, excessive irritability, and a tendency to worry.

M. Label the male reproductive system. Place the name of the structure on the line provided.

Labels are as follows:

1. scrotum

2. testis

3. epididymis

4. ductus deferens

5. seminal vesicle

6. ejaculatory duct

7. prostate gland

8. bulbourethral gland

9. urethra

10. penis

N. Select the letter of the choice that best completes the statement.

1. The testes produce the male gametes and the male hormone testosterone; they are encased in a pouch called the

c. scrotum.

2. The pathway of sperm is through a series of ducts in which of the following orders?

a. Epididymis, seminal ducts, ejaculatory ducts, and urethra

3. The testes are attached to an overlying structure called the

a. epididymis.

4. Each testicular lobule contains seminiferous tubules that produce sperm under the influence of

b. FSH.

5. In males, mature sperm formation requires about \_\_\_ days.

d. 74

6. The seminiferous tubules are supported by tissue called \_\_\_\_\_, which produces testosterone.

d. interstitial

7. The vas deferens are continuations of the

c. epididymis.

8. The seminal vesicle has a duct that leads away from it to join the vas deferens and form the

b. ejaculatory duct.

9. The ejaculatory ducts descend into the prostate gland to join with the

c. urethra.

10. The prostate gland is located

b. inferior to the bladder.

O. Compare and contrast the following:

1. Prostate gland/bulbourethral gland

The prostate gland is located just under the bladder. It secretes a thin, milky fluid that enhances sperm motility. The alkaline prostatic fluid neutralizes the acidic semen. Bulbourethral glands are located on either side of the urethra; they add an alkaline secretion to the semen.

2. Progesterone/testosterone

Progesterone is a female hormone produced by the ovary that thickens the uterine lining to receive a fertilized egg, and decreases uterine contractions during pregnancy.

Testosterone is the male hormone that stimulates the growth and development of the male reproductive system, and is responsible for secondary sex characteristics.

3. Menstruation/menarche

Menstruation is the monthly degeneration of the lining of the endometrium if fertilization does not occur.

Menarche is the initial menstrual discharge of the lining of the endometrium.

4. IVF/GIFT

IVF stands for *in vitro fertilization*. After taking fertility drugs, mature eggs are removed from the ovary by laparoscopy. The eggs are then combined with the sperm. When an egg is fertilized and reaches the four- or eight-cell stage, it is transferred to the uterus.

GIFT stands for *gamete intrafallopian transfer*. It is similar to IVF, with the exception that the eggs are combined with the sperm and are placed in the fallopian tubes of the woman using a laparoscope.

5. Primary impotence/secondary impotence

Primary impotence refers to the fact that the person has never had an erection.

Secondary impotence refers to the fact that the person who is currently impotent has had erections in the past.

P. Circle the correctly spelled word in each of the following statements.

1. Benign tumors of the uterus are known as (fibroids, fiboids).

2. Breast cancer can be detected in its early stage if women have routine mammograms done and do breast exams by (palpitating, palpatating) their breasts.

3. A mammogram is recommended on an (anuall, annual) basis for all women over the age of 40.

4. (Cervical, Cervixal) cancer is seen in women between the ages of 30 and 50.

5. To diagnose cancer of the cervix, a (Papinacolaou, Papanicolaou) smear is done.

Q. Match the word or words in Column A with the correct descriptions in Column B.

Column A Column B

d 1. PID a. failure to sustain an erection

j 2. toxic shock syndrome b. humanpapilloma virus

f 3. vaginal yeast infection c. blister-like areas in the genitals

b 4. genital warts d. pelvic inflammatory disease

h 5. prostatitis e. most common STD

a 6. impotence f. itching and burning of the vulva

i 7. endometrial ablation g. test to determine cervical cancer

c 8. genital herpes h. inflammation of the prostate

g 9. Pap smear i. treatment for menorrhagia

e 10. chlamydia j. staphylococcus bacterial infection

R. Find the word that matches each description and then use it in the crossword puzzle. Definition blanks indicate the number of letters in the answer.

1. Term used to describe the absence of the menstrual cycle

amenorrhea

2. Term used to describe painful menstruation

dysmenorrhea

3. Minor surgical procedure to allow for direct visualization of the abdominal cavity

laparoscopy

4. Procedure to remove only the tumor in breast cancer

lumpectomy

5. Abnormal or excessive bleeding

menorrhagia

6. Inflammation of the testicle

orchitis

7. Inflammation of the fallopian tubes

salpingitis

8. Treatment for prostate cancer that freezes and destroys cancer cells

cryosurgery

9. A genital sore that occurs in syphilis

chancre

10. Endometrial tissue that is found outside the uterus

endometriosis

11. A sexually transmitted disease that may be asymptomatic in females

gonorrhea

12. Failure to conceive despite effort for at least 1 year

infertility