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Female Reproductive System

Answers and Explanations

I. Introduction to the Female Reproductive System

A. Multiple Choice Questions

1. (b) – Gonads are primary sex organs of both males and females; the ovaries are the female gonads and the testes are the male gonads.
2. (a) – The vagina is a secondary sex organ because it matures at puberty in response to ovarian hormones, and it is a necessary structure in the reproductive process.
3. (b) – Female secondary sex characteristics include fat deposition in the breasts and hips.
4. (a) – The onset of puberty in females occurs about 1 year earlier than in males, and generally occurs between the ages of 12 and 14.
5. (b) – Secondary sex characteristics are considered sexual attractants but do not contribute to the formation or delivery of a baby.

B. True–False Questions

1. False – In most women, menstruation occurs about 14 days after ovulation.
2. True – Most women experience menopause at about age 50, when there is termination of both menstruation and ovulation.
3. False – The gonads (ovaries) are the only primary sex organs in a female.
4. True – The secondary sex characteristics become apparent as a female goes through puberty.
5. True – The mammary glands secrete milk for the nourishment of the young; the amount of milk produced is not associated with breast size.

II. Structure and Function of the Ovaries

A. Multiple Choice Questions

1. (a) – Generally, the ovaries cannot be palpated, unless they are enlarged with a cyst or a tumor.
2. (d) – The mesovarium is a supporting membrane of the uterine tube and uterus.
3. (a) – The stroma is the highly vascular area near the center of the ovary that contains the follicles.
4. (d) – A female is born with all of the gametes she will ever have. The gametes are stored in an undeveloped state within primordial follicles.
5. (e) – Gonadotrophin stimulation causes the follicular epithelium of the secondary follicles to develop and the corona radiata to form.
6. (b) – Once stimulated, an ovarian follicle progresses through a precise sequence of development, rupture, and regression.
7. (c) – Estrogen and progesterone secreted by the corpus luteum maintain the female sexual traits.
8. (e) – Estrogen is secreted by both the follicular epithelium of the secondary follicles and by the corpus luteum.

B. True–False Questions

1. False – The ovarian fossa is a shallow depression in the posterior abdominal wall in which the ovary is situated.
2. False – The right ovarian vein empties into the inferior vena cava, whereas the left ovarian vein drains into the left renal vein.
3. False – The ovaries have both sympathetic and parasympathetic innervation from the ovarian plexus.
4. True – Although all of the oogonia are formed prenatally, not all survive. Those that do are stimulated to mature one at a time in an ovulation cycle.
5. True – The cumulus oophorus and the corona radiata are important structures in the maturation of an egg within the ovary.
6. False – Only a single secondary oocyte gets all the cytoplasm; the other cell becomes a polar body.

7. True – A sperm cell contains digestive enzymes in the acrosome and must penetrate through the corona radiata and the zona pellucida of a secondary oocyte in order for fertilization to occur.
8. True – Secretion from two sources ensures that there will be adequate amounts of estrogen to maintain female traits and reproductive function.

III. Secondary Sex Organs

A. Multiple Choice Questions

1. (a) – An ovulated egg must pass through the infundibulum to enter the uterine tube.
2. (c) – The mucosa lines the lumen of the uterine tube.
3. (e) – The ampulla is an expanded region of the uterine tube.
4. (e) – The suspensory ligaments support the ovaries.
5. (b) – It is the stratum functionale of the uterus, composed of simple columnar epithelium, that is sloughed off monthly as the menses.
6. (c) – Only the thin outer epithelial layer of the endometrium is shed as the menses.
7. (d) – Vaginal rugae permit distension of the vagina during coitus.
8. (a) – The vagina is an internal organ and not part of the external genitalia.
9. (d) – Enclosed within the vaginal vestibule is the clitoris, urethral opening, and vaginal orifice.
10. (b) – Expansion and elongation of the vagina during sexual arousal facilitates coitus.

B. True–False Questions

1. True – Although they are synonymous terms, uterine tube is preferred.
2. True – *Salpinx* is an old anatomical term derived from a Greek word meaning “trumpet” or “tube.”
3. True – Generally, an ectopic pregnancy will not develop normally, and it may be a threat to the woman’s life.
4. True – It is through the uterine ostium that sperm cells must enter for fertilization to occur, and through which menses pass during menstruation or a baby during parturition.
5. True – The uterus is maintained in position by muscular support and four paired ligaments that extend from the pelvic girdle or body wall to the uterus.
6. True – Having both sympathetic and parasympathetic innervation provides antagonistic stimulation.
7. False – Only the stratum functionale of the endometrium is shed monthly as menses.
8. False – The pudendal cleft is the longitudinal cleft of the vulva between the labia majora.
9. True – The clitoris of the female and the glans penis of the male are homologous structures, derived from similar developmental tissue.
10. False – Sympathetic impulses cause the erectile tissues to return to their original size.

IV. Mammary Glands

A. Multiple Choice Questions

1. (d) – As modified sweat glands, the mammary glands within the breasts are structurally considered part of the integumentary system.
2. (a) – Elevated levels of estrogen during puberty is important for the maturation of secondary sex organs and the expression of secondary sex characteristics.
3. (b) – Innervation of the breast is through sensory somatic neurons that are especially important in stimulating the release of milk from the mammary glands to a suckling infant.

B. True–False Questions

1. True – Once secreted from the mammary alveoli, the milk passes through mammary ducts into the ampullae, and to the surface of the nipple.
2. True – An erect nipple facilitates an infant’s suckling.
3. False – The secretions of the areolar glands keep the nipple and areola soft and pliable.

V. Ovulation and Menstruation

A. Multiple Choice Questions

1. (d) – The menstrual cycle is generally initiated 14 days after ovulation.
2. (a) – The endometrium disintegrates and is sloughed off when levels of ovarian hormones are low.
3. (e) – Estrogen and progesterone are the hormones that maintain the female reproductive system.
4. (a) – A surge in LH from the anterior pituitary causes the mature follicle to swell rapidly and rupture.
5. (d) – The luteal phase refers to changes in the corpus luteum that are brought on by increased amounts of progesterone.

B. True–False Questions

1. False – The follicular phase of the ovaries occurs primarily during the proliferative phase of the uterus.
2. True – Ovulation and menstruation are precise phases of the female reproductive cycle that are controlled by precise hormonal regulators.
3. True – If an ovulated egg is not fertilized and implanted, menstruation occurs, and then ovulation.
4. True – The secretion of estrogen and progesterone following menstruation permits replenishment of the endometrium.
5. True – When the ovarian hormones are at low levels, the anterior pituitary hormones can affect the uterus.

VI. Developmental Exposition of the Female Reproductive System

A. Multiple Choice Questions

1. (c) – The uterus and the uterine tubes are organs of the genital tract.
2. (c) – The hymen varies considerably in structure, and it sometimes persists even after coitus.
3. (d) – Both the genital tubercle and phallus cannot be distinguished as male or female in the developing embryo. In a female, the phallus becomes the clitoris. In a male, the phallus becomes the glans penis.
4. (d) – The clitoris of the female and the glans penis of the male are homologous structures.
5. (d) – The labia minora of the female and the spongy urethra of the male are homologous structures.

B. True–False Questions

1. True – There are many similarities in structure and function of the female and male reproductive systems.
2. True – The oogonia are formed prenatally, and their number continuously decreases after birth.
3. False – High levels of estrogen cause feminization of the female embryo.
4. True – Although formed prenatally, the external genitalia of a female do not mature and become functional until puberty.
5. False – The structure of the hymen is extremely variable from one female to another; some females have little or no hymen tissue.

VII. Clinical Considerations

A. Multiple Choice Questions

1. (a) – Because the hormonal activities in the reproductive system of a female are more complicated than those in the reproductive system of a male, females are more prone to dysfunctions and diseases of the reproductive organs.
2. (c) – A hysterosalpingogram permits visualization of the lumina of the uterine tubes to determine their patency. If both uterine tubes are blocked, the woman is infertile.
3. (a) – An ectopic pregnancy in the uterine tube is referred to as a tubular pregnancy.
4. (d) – Amenorrhea is the absence of menstruation. It is common in women who have very little body fat, those who are engaged in rigorous exercise programs, and those who are under extreme stress.
5. (e) – The various causes of female infertility can be treated with varying success.
6. (d) – A spontaneous abortion is usually related to developmental problems and occurs most often during the first trimester. An induced abortion is termination of an unwanted pregnancy, usually during the first trimester.
7. (a) – Without ovulation, an ovum is not available for fertilization.
8. (d) – During the luteal phase of the reproductive cycle, progesterone and estrogen levels are high, which maintains the endometrium.

B. True–False Questions

1. True – A monthly breast self-examination (BSE) by a woman is important for early detection of breast cancer.
2. False – The ovaries are susceptible to cysts and nonmalignant neoplasms. These benign occurrences are more frequent than malignant neoplasms.
3. True – Secondary amenorrhea is a symptom of other physiological concerns that should be treated.
4. True – Polyps and fibroid masses are common neoplasms of the uterus.
5. True – The backflow of menses through the uterine tubes and subsequent attachment onto the outside of the uterus and uterine tubes is the primary cause of endometriosis. If untreated, this abnormal tissue will continue to grow and may eventually cause sterility.
6. True – Dysplasia is fibrocystic disease of the breast. Most neoplastic masses are small, remain undetected, and are not of medical concern.

VIII. Chapter Review

A. Completion Questions

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| 1. parturition | 12. vulva |
| 2. paramesonephric | 13. vestibular |
| 3. clitoris | 14. lobes/alveoli |
| 4. ovarian fossa | 15. proliferative/ovulatory |
| 5. broad ligament | 16. estrogen/estrogen/progesterone |
| 6. secondary oocyte | 17. Gynecology/obstetrics |
| 7. vesicular ovarian follicle | 18. breast self-examination, Pap smear |
| 8. salpinx | 19. Ectopic pregnancy |
| 9. uterine ostium | 20. Endometriosis |
| 10. rectouterine | 21. indifferent |
| 11. functionale | |

B. Matching Questions

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| 1. (i) | 6. (g) |
| 2. (d) | 7. (c) |
| 3. (a) | 8. (h) |
| 4. (b) | 9. (j) |
| 5. (e) | 10. (f) |