

Chapter 19 - Reproductive Systems

Reproductive System:

What is the function of the male and female reproduction systems?

Male:

The male sex organs are designed to transport sperm to eggs. _____ sex organs (gonads) produce sperm and hormones while _____ sex organs have a supportive function.

The Testes:

The testes are ovoid structures suspended in the skin-covered pouch called the _____.

Each of the testes is made up of about 250 lobules separated by connective tissue; each lobule holds one to four highly coiled _____. They are lined with stratified epithelium that produces _____.

_____ cells lie between the seminiferous tubules and produce the male hormones.

What is the function of the epididymis?

Spermatogenesis:

In the male embryo, the _____ cells are undifferentiated and are called _____; each contains 46 chromosomes.

During spermatogenesis, these cells enlarge and become primary _____.

These new cells undergo division by meiosis I and form haploid secondary _____ with 23 chromosomes. How does meiosis differ from mitosis?

These haploid cells divide again to form _____, each of which matures into a sperm cell.

Describe the parts of a sperm.

Male Accessory Organs:

The accessory organs of the male reproductive tract include the epididymides, vasa deferens, ejaculatory ducts, urethra, seminal vesicles, prostate gland, and bulbourethral glands.

Epididymis: Each epididymis is a tightly coiled tube lying adjacent to the _____ and leading from it to the _____.

What happens in the epididymis?

Ductus deferentia and spermatic cord: The ductus deferens is a muscular tube 45 centimeters in length leading from the epididymis up into the pelvic cavity to the _____, where it unites and empties its contents into the urethra.

Seminal vesicles: The seminal vesicle is a saclike structure attached to the _____ near the base of the urinary bladder.

During emission, seminal vesicles secrete an alkaline fluid containing _____ to nourish sperm and _____ to cause muscular contractions in the female tract to help propel sperm to the egg cell.

Prostate gland: The prostate gland is a chestnut-shaped structure surrounding the _____ at the base of the urinary bladder.

The prostate gland secretes a thin, milky alkaline fluid. What is its purpose?

The _____ are small structures located inferior to the prostate that secrete mucus to lubricate the tip of the penis during sexual arousal.

Semen: Using all of the above information, what is contained in semen?

Urethra: What is the reproductive function of the urethra?

Male External Reproductive Organs:

The male external reproductive structures are the scrotum, which houses the testes, and the penis.

Scrotum: Where is it located? What is its function?

Penis: The penis is a cylindrical organ made up of specialized erectile tissue (namely the two _____ and the _____) and is designed to convey both _____ and _____ to the outside. The enlargement at the distal end is called the _____.

Erection, Orgasm, and Ejaculation:

During sexual arousal, parasympathetic impulses trigger increased blood flow into the _____ tissues of the penis, producing an erection.

The culmination of sexual stimulation is orgasm, which in the male consists of _____ (movement of sperm cells and accessory gland secretions into the urethra) and _____ (forcing semen to the outside).

Male hormones:

<p><u>GnRH</u>: Which organ secretes this hormone? What is its function in the male?</p>
<p><u>FSH</u>: Which organ secretes this hormone? What is its function in the male?</p>
<p><u>LH (ICSH)</u>: Which organ secretes this hormone? What is its function in the male?</p>
<p><u>Testosterone</u>: Which organ secretes this hormone? What is its function in the male?</p>
<p><u>Regulation of male hormones</u>: How are these hormones regulated? (Hint, how are <i>most</i> hormones regulated?)</p>
<p>Female Reproductive System:</p> <p>The organs of the female reproductive system are specialized to produce and maintain the _____ cells, to transport these cells to the site of _____, to provide a favorable environment for a developing _____, to give birth, and to produce female sex hormones.</p>
<p><u>Primary sex organs</u> are the _____. The others are called _____ organs.</p>
<p>Ovaries:</p> <p>The ovaries are solid, ovoid structures located within the lateral _____ cavity. The ovaries are subdivided into an inner _____ and an outer _____.</p>
<p><u>Primordial Follicles</u>: During prenatal development, small groups of cells form millions of primordial follicles, each of which consists of a primary _____ surrounded by epithelial cells, called _____ cells.</p> <p>Early in development, the primary oocytes begin to undergo meiosis, but the process halts and does not resume until _____.</p> <p>Only 400,000 oocytes remain at puberty. What percentage will be released from the ovary during the reproductive life of the female? _____%</p>
<p><u>Oogenesis</u>: Beginning at puberty, some oocytes are stimulated to continue _____.</p> <p>When a primary oocyte undergoes this division, it gives rise to a large, haploid _____ oocyte and a smaller _____.</p>

A second, unequal cytoplasmic division gives rise to an egg cell and another _____.

What is the function of these smaller cells?

Follicle Maturation: At puberty, FSH initiates follicle maturation during which the follicle enlarges, follicular cells proliferate, and a fluid-filled cavity forms the secondary follicle.

The mature follicle contains the secondary _____ that is surrounded by the _____, attached to the corona _____.

Ovulation: A process called ovulation releases the secondary oocyte from the surface of the ovary surrounded by layers of follicular cells.

If the oocyte is not _____ shortly after its release, it will degenerate.

Female accessory organs:

The female internal accessory organs consist of a pair of uterine tubes, a uterus, and a vagina.

Fallopian tubes = uterine tubes = oviduct: These tubes lead to the _____.

Near each ovary, the uterine tube expands to form a funnel-like _____ with finger-like _____ on its margins.

The cells lining the tubes bear _____, which beat in unison, drawing the egg cell into the uterine tube.

Uterus: The upper two-thirds of the uterus is called the _____ and it has a dome-shaped top.

The lower one-third of the uterus is the _____ that extends into the vagina.

The uterine wall has three layers: an inner, glandular _____, a muscular wall or _____ and an outer _____.

Vagina: The vagina is a fibromuscular tube that extends from the _____ to the _____.

The vaginal orifice is partially covered by a membrane called the _____.

The vaginal wall consists of three layers: the inner _____ layer, a middle _____ layer, and an outer _____ layer.

Female External Reproductive Organs

The external organs of the female reproductive system (vulva) include the labia majora, labia minora, clitoris, and vestibular glands.

Vulva: The labia majora enclose and protect the other external reproductive organs; they correspond to the _____ of the male.

The labia minora are flattened, longitudinal folds between the labia majora that form a hood around the _____.

Clitoris: The clitoris is a mass of erectile tissue at the anterior end of the vulva between the labia minora. It corresponds to the _____ of the male and has a similar structure.

Female hormones:

Hormones secreted by the hypothalamus, the anterior pituitary, and the ovaries control female reproduction and development of secondary sexual characteristics.

GnRH: Where is it produced? When does it start to appear in the female? What does it do?

What are the hormones of the anterior pituitary that are involved in female reproduction? What is their general function?

What are the hormones produced by the ovaries? What is their general function?

Female Reproductive Cycle:

The _____ cycle is characterized by monthly changes in the uterine lining that lead to flow as the endometrium is shed.

This cycle is started by _____, which stimulates the maturation of a follicle in the ovary.

Follicular cells surrounding the developing oocyte secrete _____, which is responsible for maintaining secondary sexual characteristics as well as the thickening of the _____ lining.

Ovulation is triggered by a mid-cycle surge in _____.

Following ovulation, follicular cells turn into a glandular _____ that secretes increasing amounts of what two hormones?

If pregnancy does not occur, this structure degenerates, hormone levels decline, and the _____ lining disintegrates and is shed.

During the cycle, estrogen and progesterone inhibit the increased release of _____ and _____, when estrogen and progesterone levels fall, the secretion of _____ and _____ increases.

Menopause

Reproductive cycles continue throughout middle age until menopause, when the cycles cease. The cause of menopause is the aging of the ovaries when _____ no longer mature and _____ levels decline.

Mammary glands:

The mammary glands are accessory organs of the female reproductive system that are specialized to produce and secrete _____ after pregnancy.

A nipple is located at the tip of each breast surrounded by an area of pigmented skin called the _____.

A mammary gland is composed of irregularly shaped lobes containing glands and a _____ duct leading to the nipple.

Birth Control:

What is birth control?

Summarize the various methods outlined in the chapter.

Sexually Transmitted Diseases:

There are sexually transmitted infections (STIs), which are often silent or go unnoticed, especially in females. One possible complication of the STIs gonorrhea and chlamydia is _____ disease, which may lead to infection and sterility in females.

Acquired immune deficiency syndrome (AIDS) is a sexually transmitted disease most frequently transmitted during unprotected intercourse or by sharing needles.