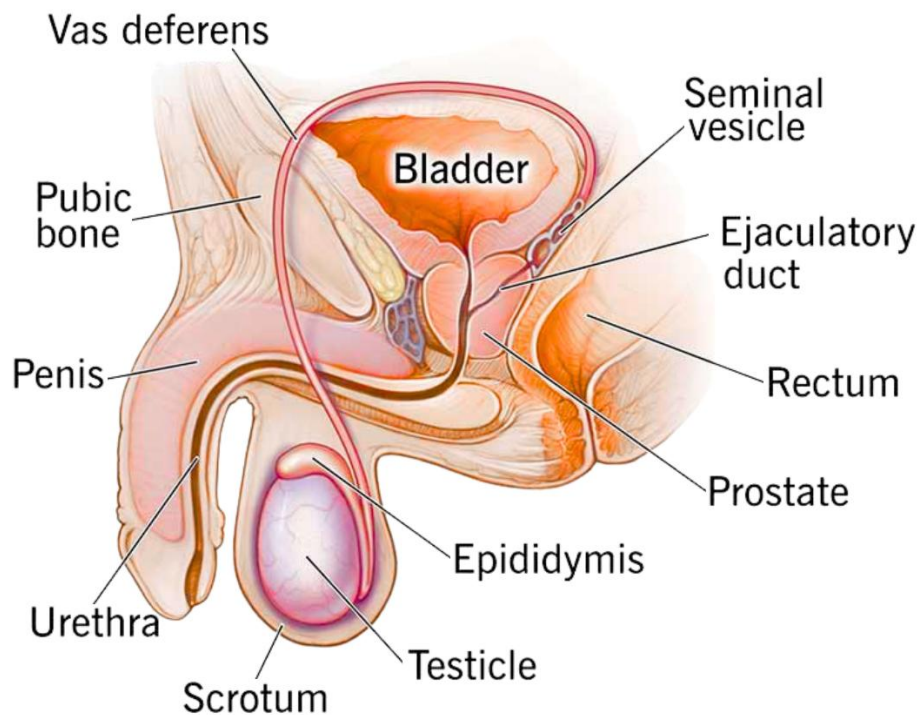
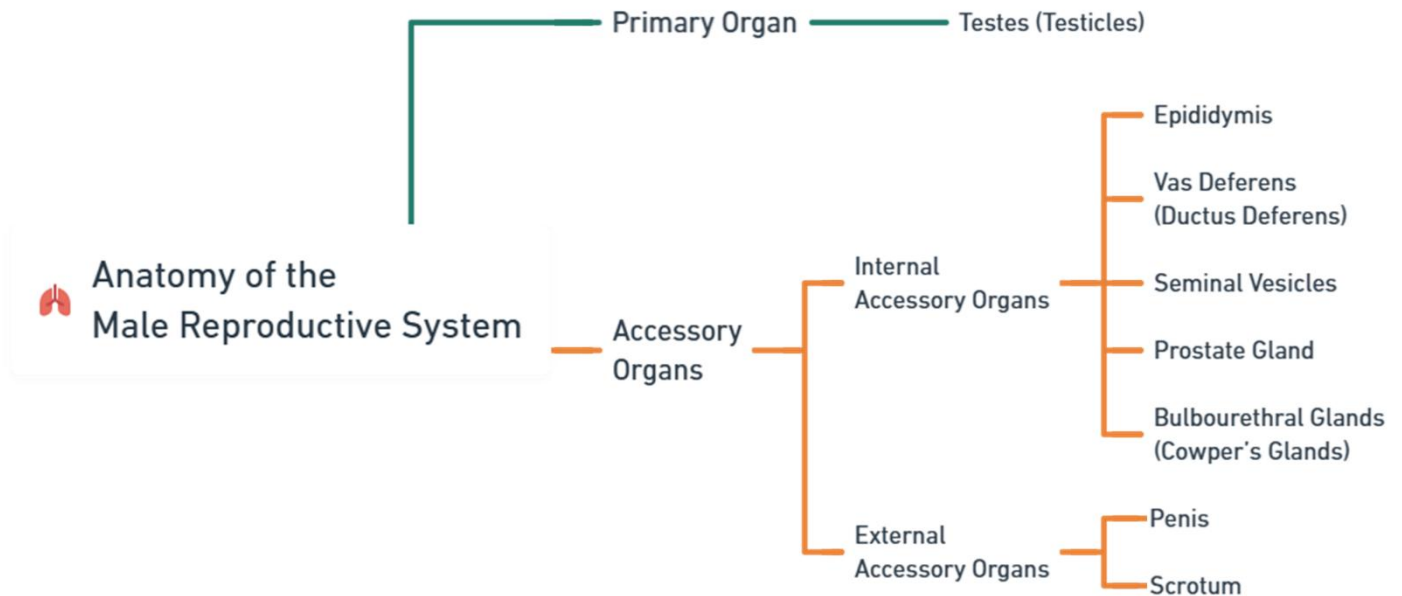


Reproductive System

Anatomy of Male Reproductive System

- The male reproductive system is responsible for producing, storing, and transporting sperm and hormones needed for reproduction.
- It consists of both internal and external organs that work together to facilitate these functions.
- Here's a detailed look at the male reproductive system and its organs, classified as either primary or accessory organs:



Primary Organ:

1. Testes (Testicles):

- Located in the scrotum, the testes are the primary male reproductive organs.

- They produce sperm (spermatozoa) and secrete testosterone.
- Inside the testes, **seminiferous tubules** are where sperm is produced, while **Leydig cells** in surrounding tissue produce testosterone.

Accessory Organs:

Internal Accessory Organs:

1. Epididymis:

- A coiled tube behind each testicle, it stores and matures sperm after they leave the seminiferous tubules.

2. Vas Deferens (Ductus Deferens):

- A muscular tube that transports sperm from the epididymis to the ejaculatory duct during ejaculation.

3. Seminal Vesicles:

- Paired glands near the bladder that produce a thick, fructose-rich fluid, which nourishes sperm and forms semen.

4. Prostate Gland:

- A walnut-sized gland beneath the bladder that secretes an alkaline fluid.
- This fluid helps neutralize the acidic environment of the female reproductive tract and improves sperm motility.

5. Bulbourethral (Cowper's) Glands:

- Small glands under the prostate that release pre-ejaculate fluid, which lubricates the urethra and neutralizes any acidic urine.

External Accessory Organs:

1. Penis:

- The male organ for sexual intercourse and urine excretion.
- It contains erectile tissue that fills with blood during arousal, enabling sperm delivery during intercourse.

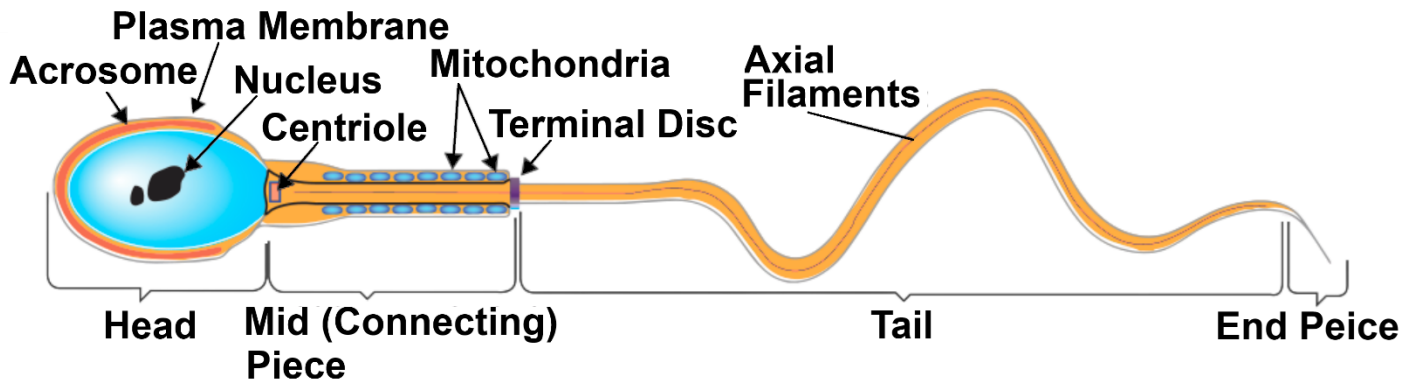
2. Scrotum:

- A pouch of skin holding the testes outside the body to maintain a lower temperature for optimal sperm production.

Sperm (Spermatozoa)

- Sperm, or spermatozoa, are male reproductive cells that fertilize the female egg (ovum) to create an embryo, leading to the development of a fetus.

Structure of Sperm



Sperm cells have a specialized structure consisting of three main parts:

1. Head:

- Contains the nucleus with genetic material (DNA) passed to the offspring.
- Covered by the **acrosome**, a cap-like structure with enzymes to help the sperm penetrate the egg.

2. Midpiece:

- Connects the head to the tail and houses mitochondria, providing energy for sperm movement.

3. Tail (Flagellum):

- A whip-like structure that propels the sperm, allowing it to swim through the female reproductive tract.

Sperm Production

- Sperm are produced in the seminiferous tubules within the testes through spermatogenesis:
 - **Spermatogonia** (precursor cells) undergo mitosis and meiosis to form mature sperm with half the chromosomes of normal body cells, ensuring correct chromosomal count after fertilization.

Maturation and Storage

- After spermatogenesis, sperm move to the epididymis, a coiled tube where they mature and are stored until ejaculation.

Ejaculation and Fertilization

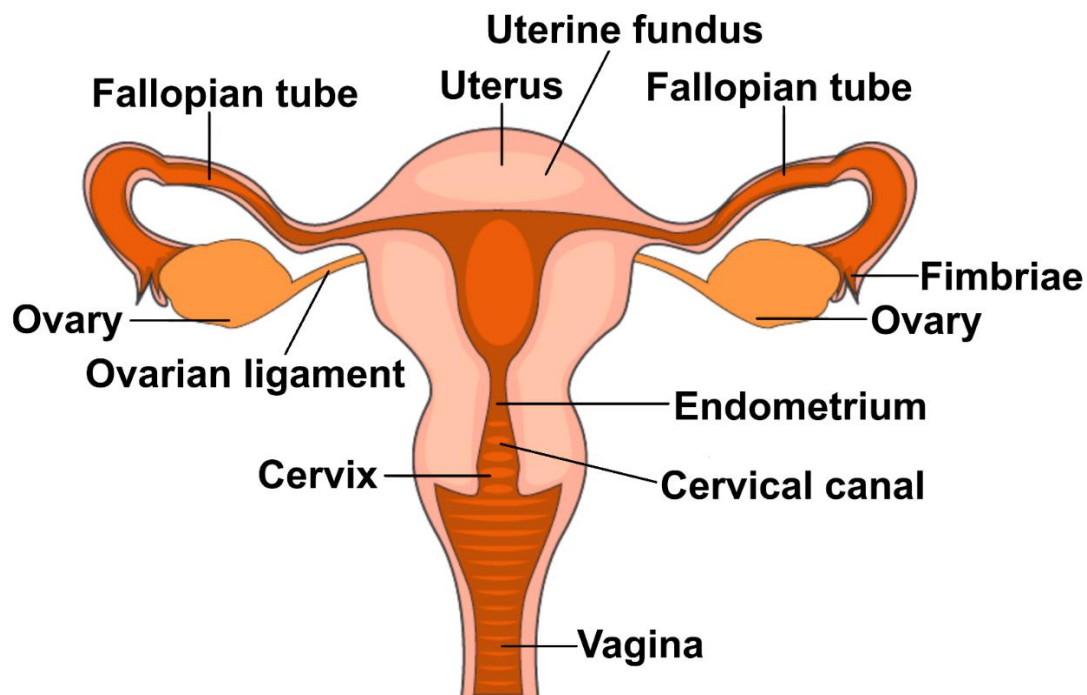
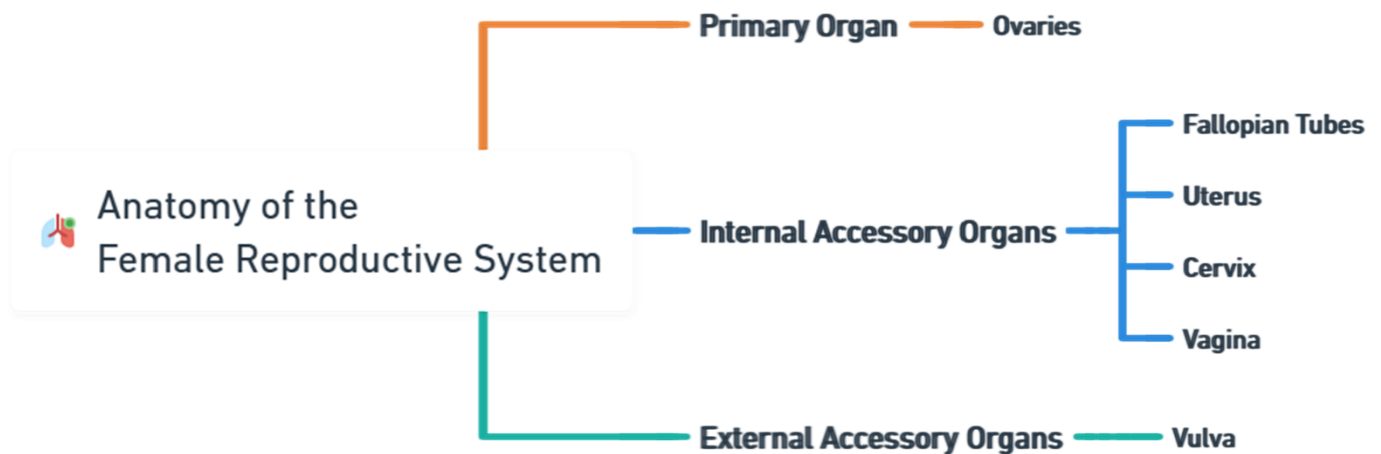
- During ejaculation, sperm mix with fluids from the seminal vesicles, prostate, and bulbourethral glands to form semen.
- The sperm travel through the female reproductive tract, and if they reach the fallopian tubes where an ovum is present, they use acrosomal enzymes to penetrate the egg.

- One sperm fuses with the ovum, combining their genetic material in a process called fertilization, resulting in a zygote that can develop into an embryo.

Anatomy of Female Reproductive System

- The female reproductive system consists of internal and external organs that function together for reproduction, hormone regulation, and the menstrual cycle.

These organs are categorized into primary and accessory organs.



Primary Organ:

1. Ovaries:

- The primary reproductive organs in females, responsible for producing ova (eggs) and secreting the hormones **estrogen** and **progesterone**.
- Each ovary contains thousands of follicles, which are small sacs containing immature eggs. During each menstrual cycle, one or more follicles mature, and one egg is released during ovulation.

- **Position:**
 - Located on either side of the lower abdomen, adjacent to the lateral pelvic wall.
- **Structure:**
 - Almond-shaped organs containing numerous follicles (small sacs that contain immature eggs).
 - Ovarian stroma, the connective tissue, contains blood vessels, nerves, and hormone-producing cells.
- **Function:**
 - **Production of ova (eggs)** through the process of oogenesis.
 - Secretion of hormones **estrogen** and **progesterone** to regulate the menstrual cycle, support pregnancy, and maintain secondary sexual characteristics.

Accessory Organs:

Internal Accessory Organs

1. Fallopian Tubes (Oviducts):

- Two narrow tubes that extend from the ovaries to the uterus.
- Each tube has finger-like projections called **fimbriae** that guide the egg from the ovary into the tube. Fertilization typically occurs here.
- **Position:**
 - Extending from the ovaries to the uterus.
- **Structure:**
 - Lined with ciliated epithelial cells and smooth muscle.
 - The fimbriae are at the end near the ovary to help capture the egg.
- **Function:**
 - To transport the egg from the ovary to the uterus.
 - To provide a suitable environment for fertilization.

2. Uterus (Womb):

- A muscular, pear-shaped organ that houses and nourishes a developing foetus during pregnancy.
- The **endometrium** (inner lining of the uterus) thickens during the menstrual cycle to prepare for pregnancy, and if fertilization does not occur, the endometrium is shed during menstruation.
- **Position:**
 - Located in the lower abdomen between the bladder and rectum.
- **Structure:**



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