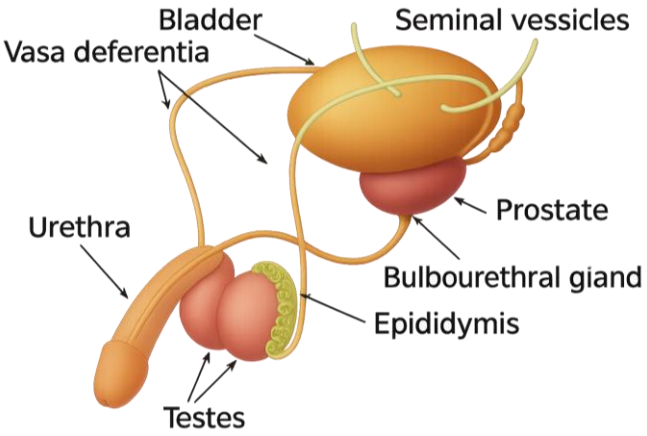
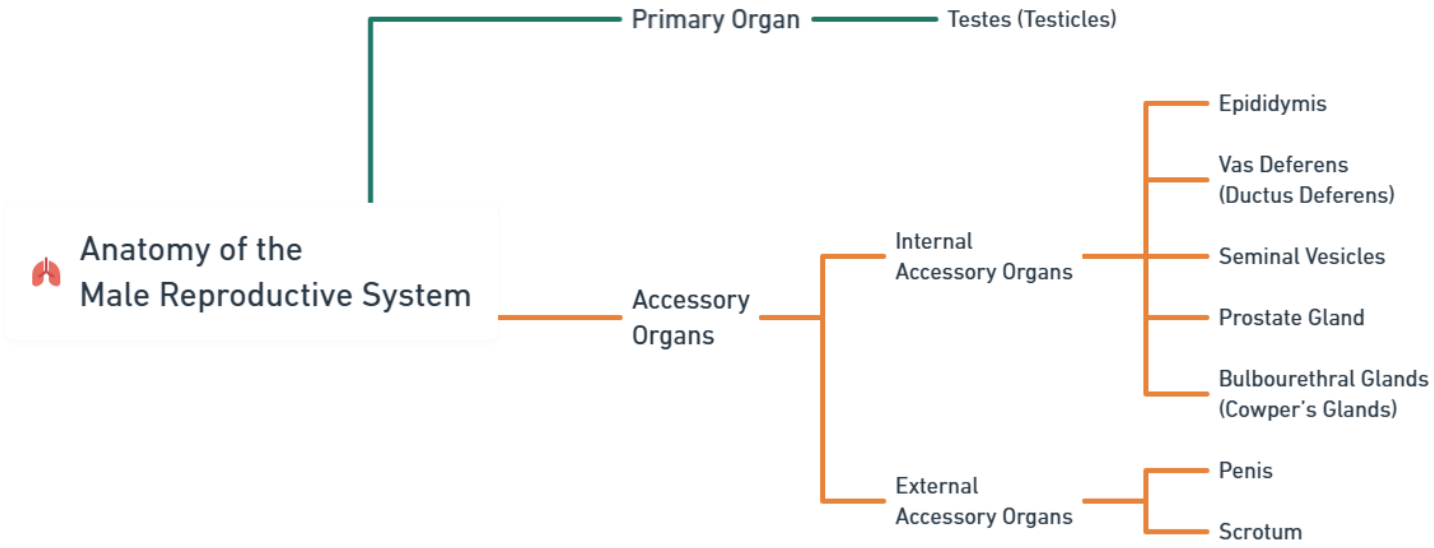
Reproductive system

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.

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Accessory Organs:

Internal Accessory Organs:

2. **Epididymis:**
   - A coiled tube behind each testicle, it stores and matures sperm after they leave the seminiferous tubules.
3. **Vas Deferens (Ductus Deferens):**
   - A muscular tube that transports sperm from the epididymis to the ejaculatory duct during ejaculation.
4. **Seminal Vesicles:**
   - Paired glands near the bladder that produce a thick, fructose-rich fluid, which nourishes sperm and forms semen.
5. **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.
6. **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:

7. **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.
8. **Scrotum:**
   - A pouch of skin holding the testes outside the body to maintain a lower temperature for optimal sperm production.

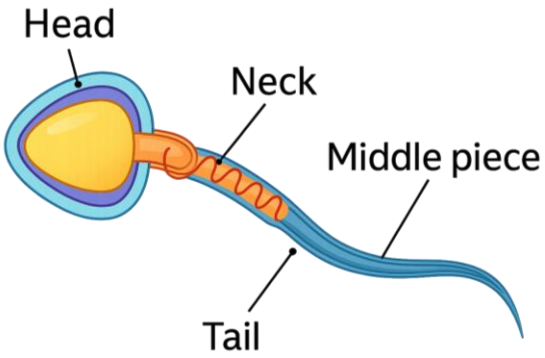
Sperm (Spermatozoa)

- **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:

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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.

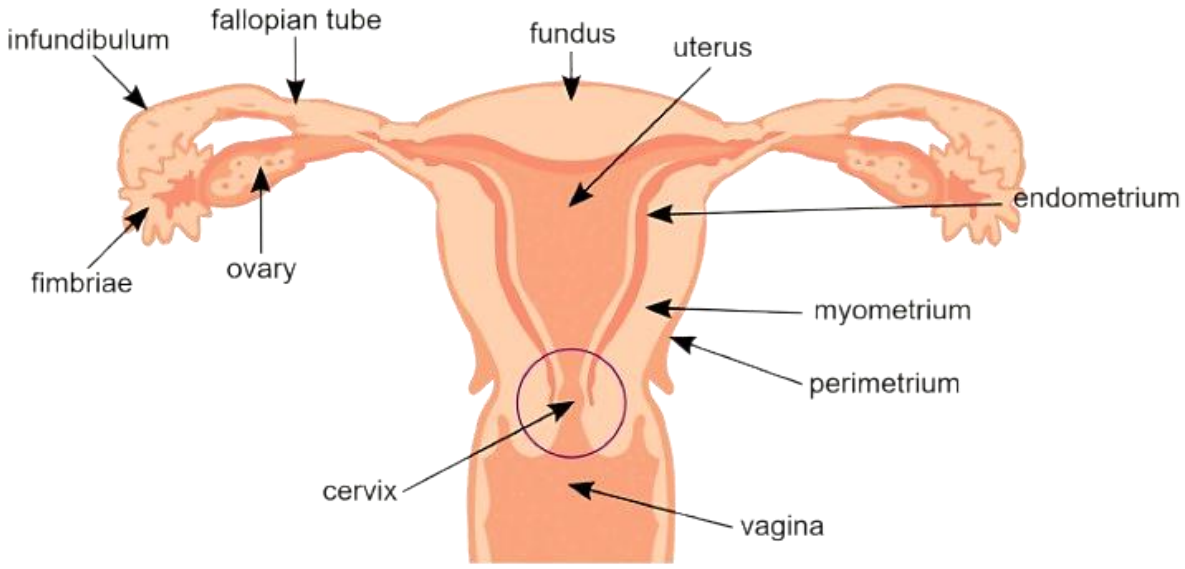
Ejaculation and Fertilization

- 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.

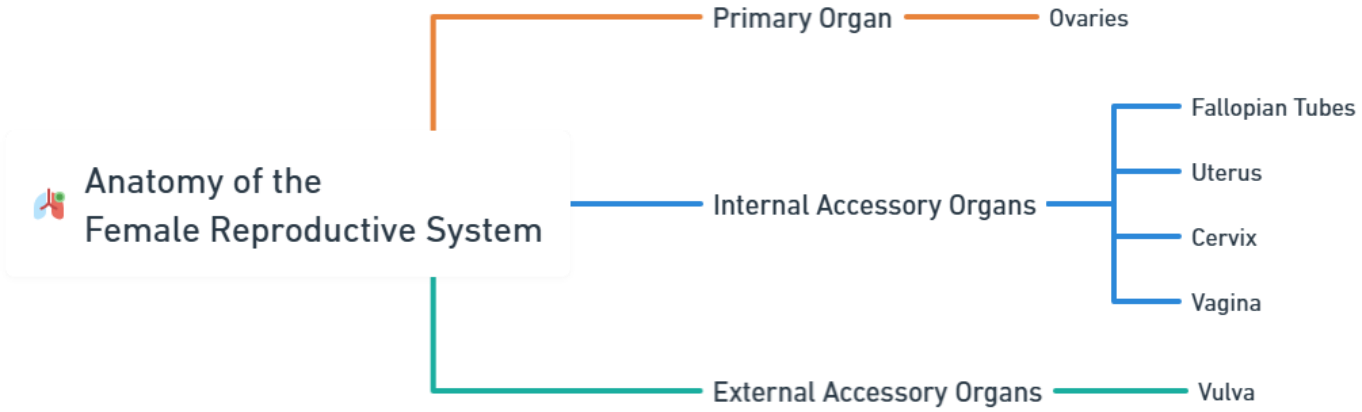
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Anatomy of female reproductive system

- 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:

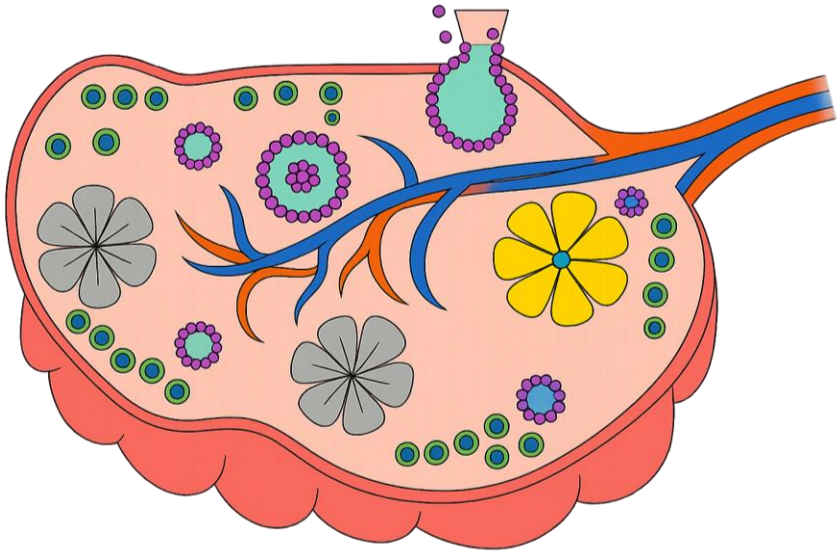
- The primary reproductive organs in females, responsible for producing ova (eggs) and secreting the hormones **estrogen** and **progesterone**.
- Each ovary contains thousands of follicles, which are small sacs containing immature eggs. During each menstrual cycle, one or more follicles mature, and one egg is released during ovulation.
- **Position:**
  - Located on either side of the lower abdomen, adjacent to the lateral pelvic wall.
- **Structure:**

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- 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

2. 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.

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