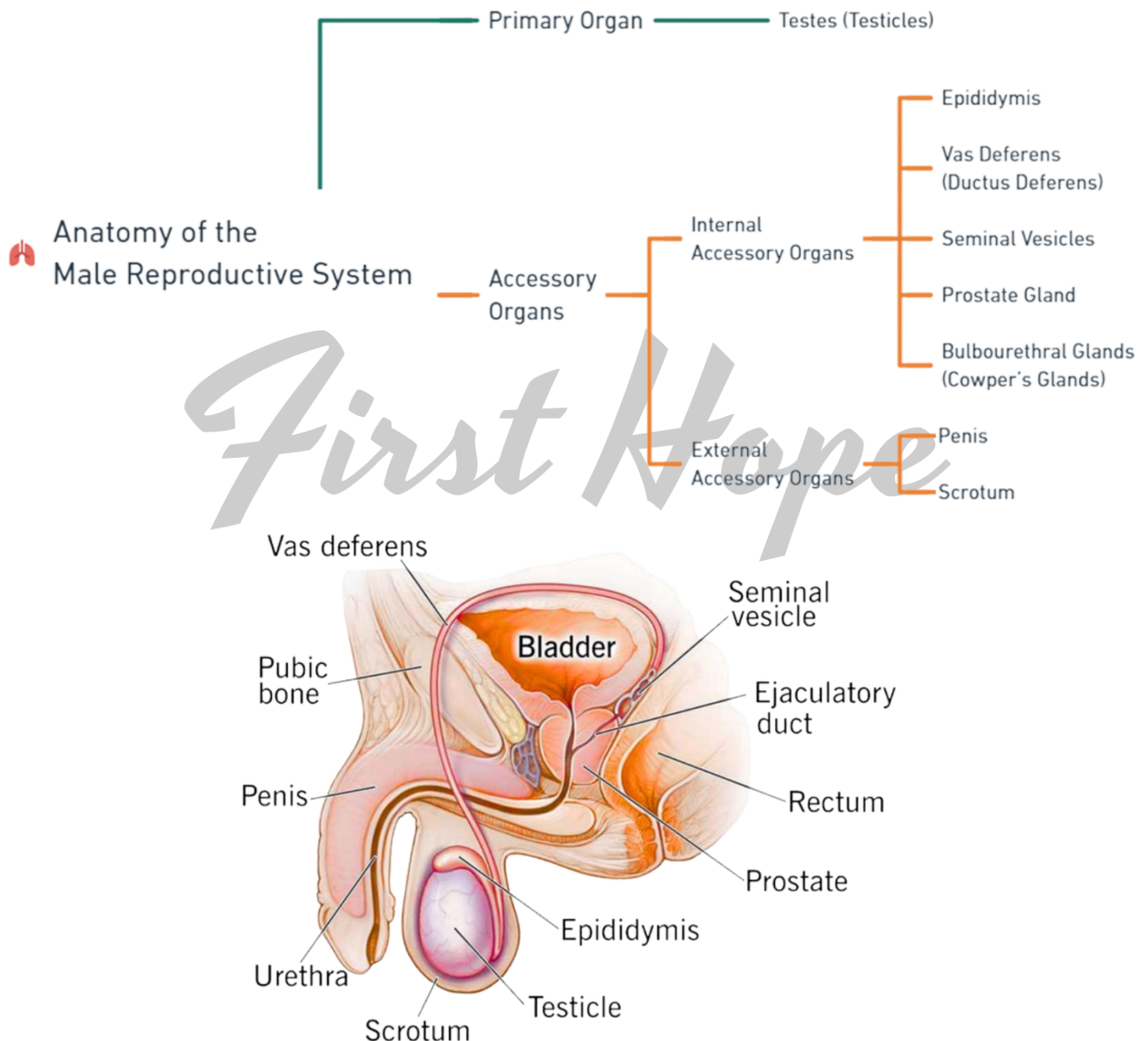


Reproductive System

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.

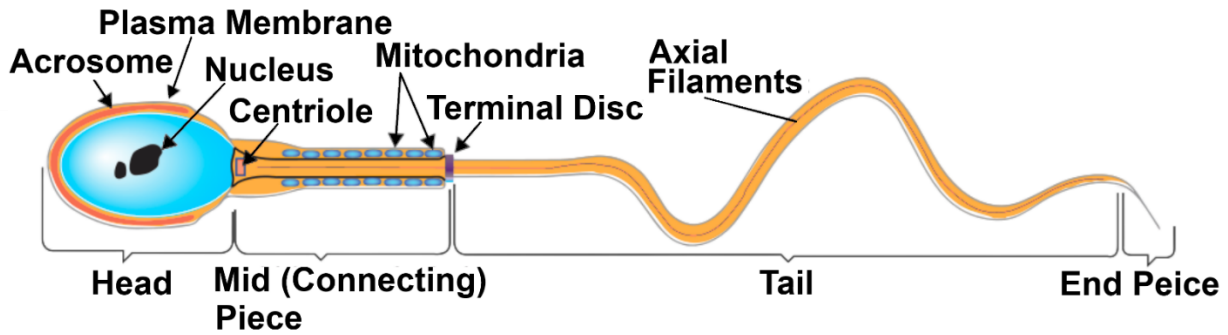
2. Scrotum:

- 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.



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