

Male Reproductive System



Male Reproductive organs

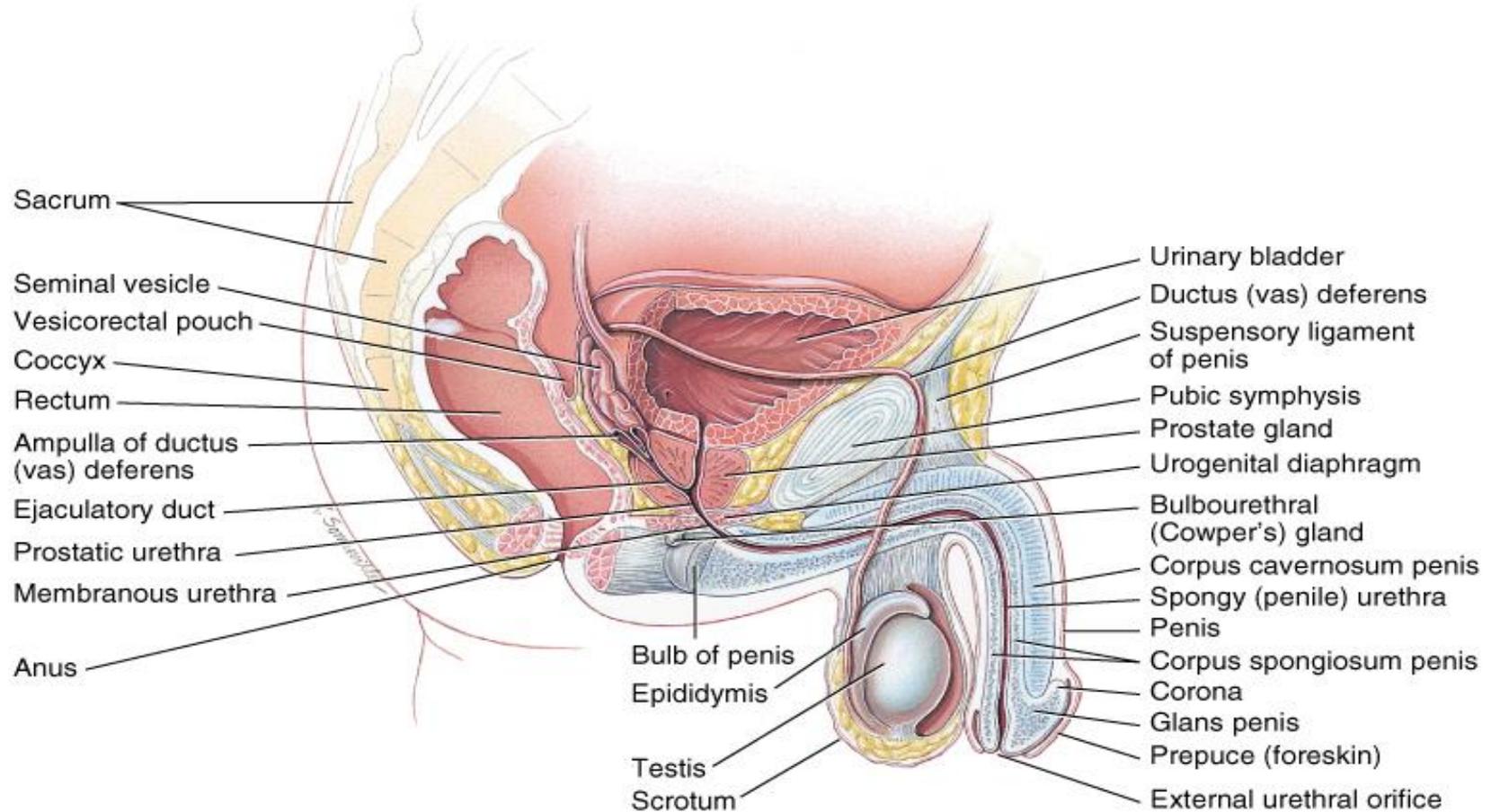
Internal

- Testes
- Ductus deferens
- Seminal vesicles
- Prostate

External

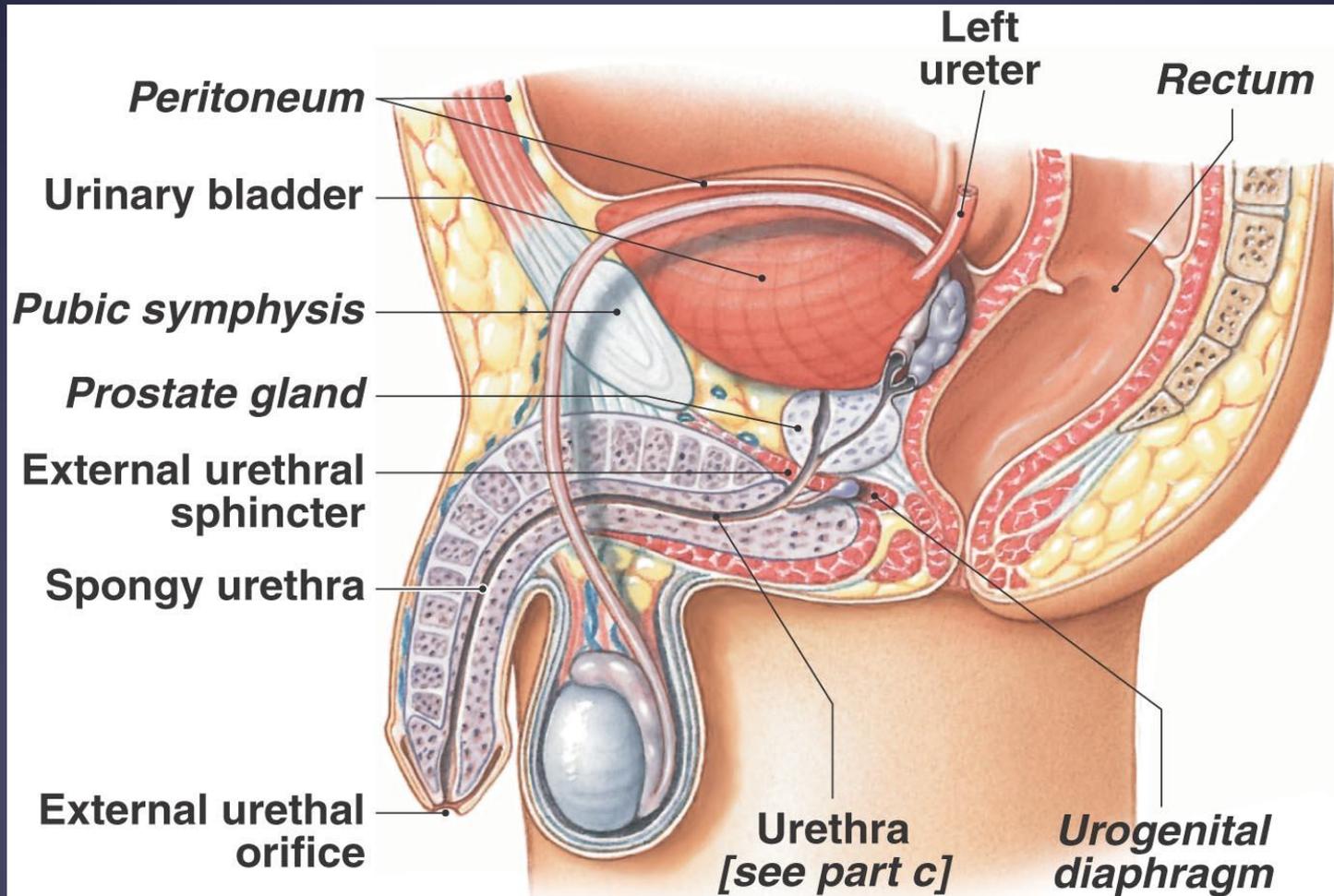
- Urethra
- Scrotum
- Penis

Male Reproductive System



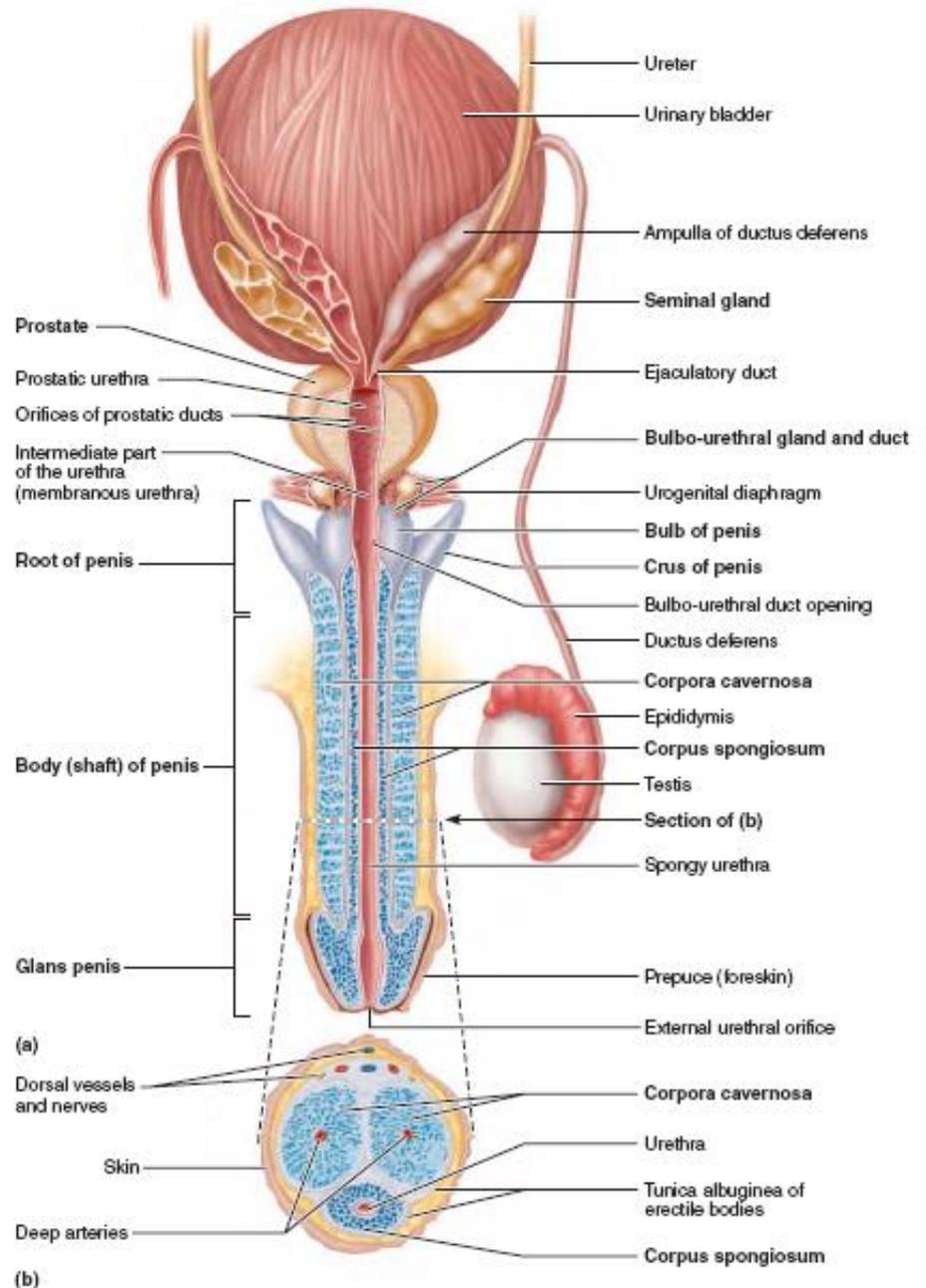
(a) Sagittal section

Male Reproductive organs



(a) Male pelvis, sagittal section

Male Reproductive organs



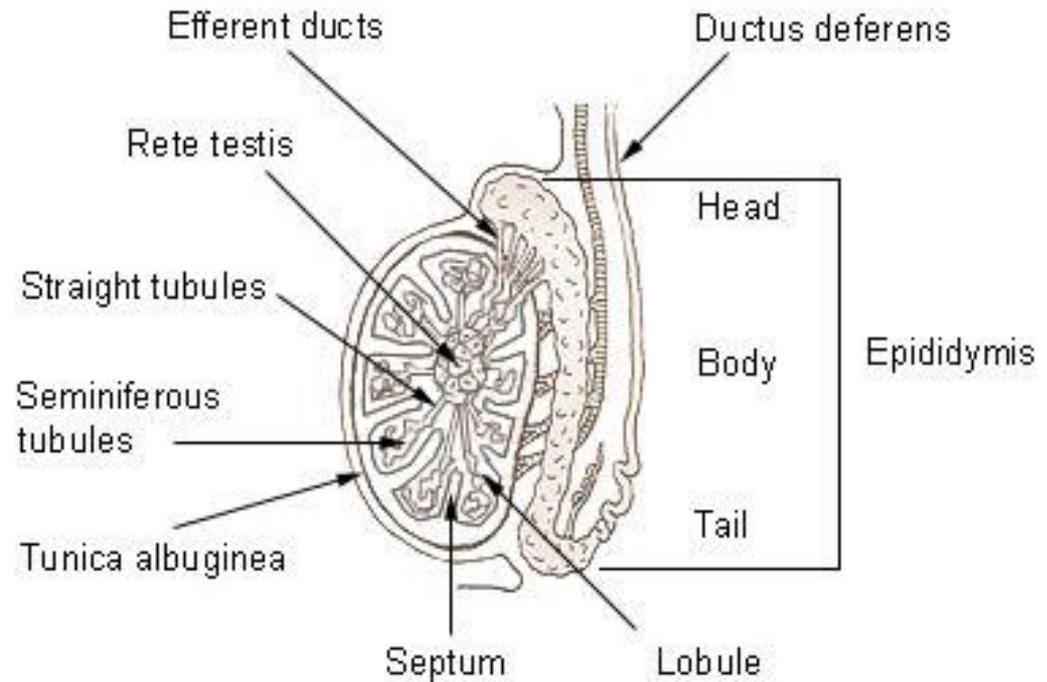
Testes

The testes is gland of the mixed secretion.

External secret - sperm,
internal - man's sexual hormones.

Each testes has two ends, two borders and two surfaces.

Sagittal section of a testis and Epididymis

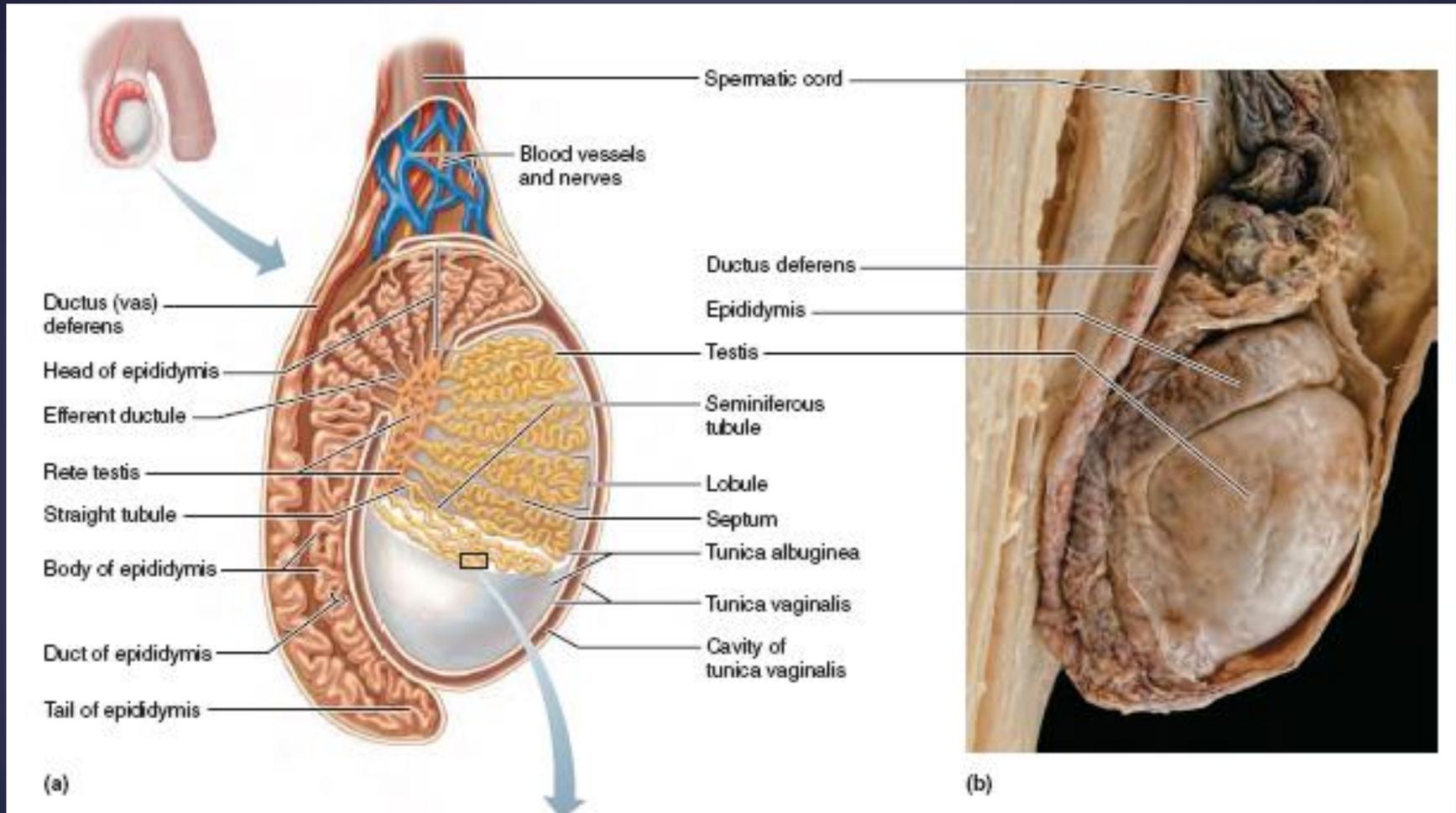


Testes

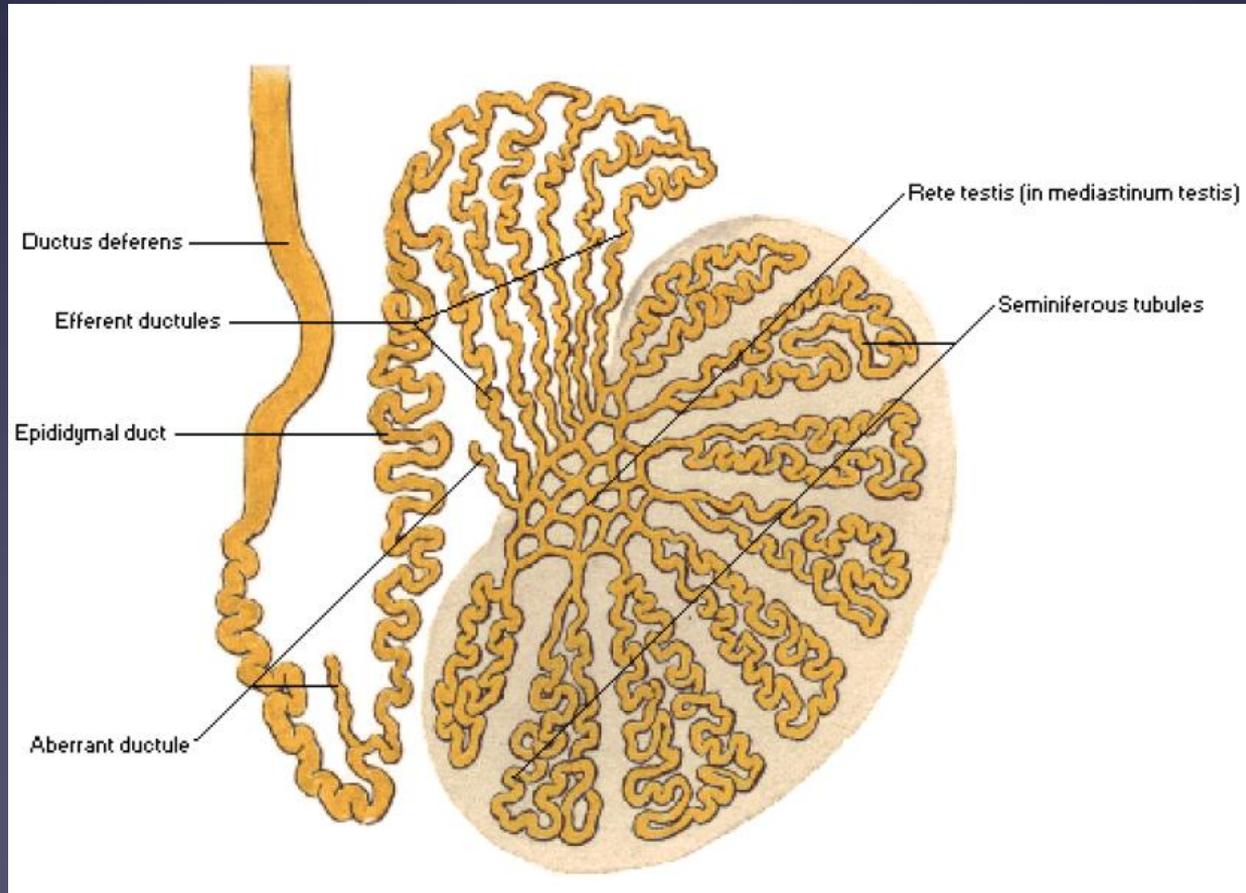
- Each testis is an oval structure about 5 cm long and 3 cm in diameter
- Covered by: tunica albuginea
- Located in the scrotum
- There are about 250 lobules in each testis. Each contains 1 to 4 -seminiferous tubules that converge to form a single straight tubule, which leads into the rete testis.
- Short efferent ducts exit the testes.
- Interstitial cells (cells of Leydig), which produce male sex hormones, are located between the seminiferous tubules within a lobule.

Testes

Internal structure



The secretion of the semen is produced **only in the convoluted seminiferous tubules (!)**.



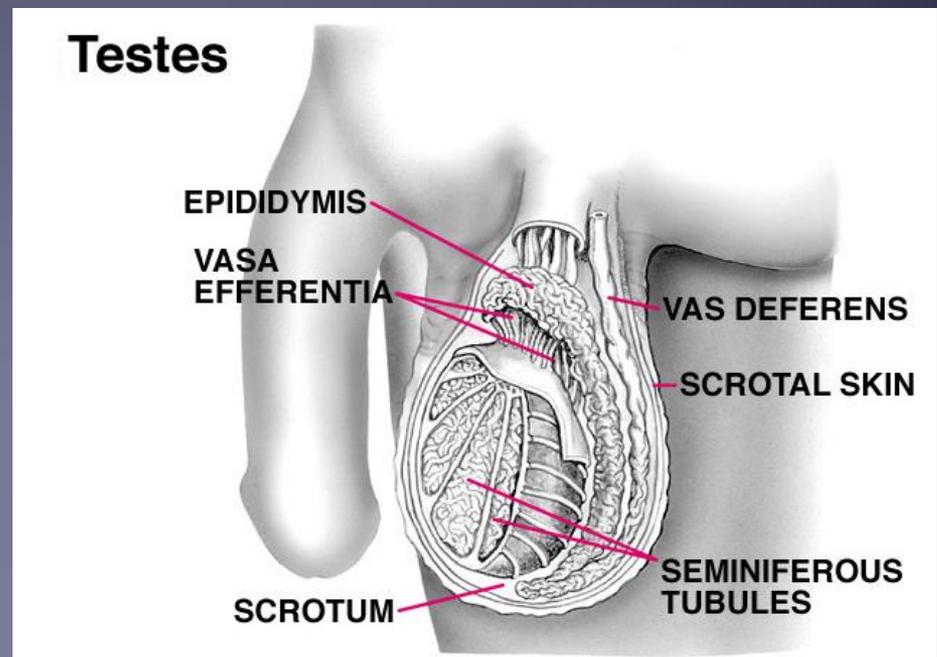
Then sperm cells pass **through a series of ducts** to reach the outside of the body. After they leave the testes, the sperm passes through the epididymis, ductus deferens, ejaculatory duct, and urethra. Passing through tubules, sperm ripen.

Epididymis

- a long tube (about 6 meters) located along the superior and posterior margins of the testes.
- Sperm that leave the testes are immature and incapable of fertilizing ova. They complete their maturation process and become fertile as they move through the epididymis.

Epididymis has a head, a body and a tail.

Ductus epididymidis is continued into the ductus deferens.



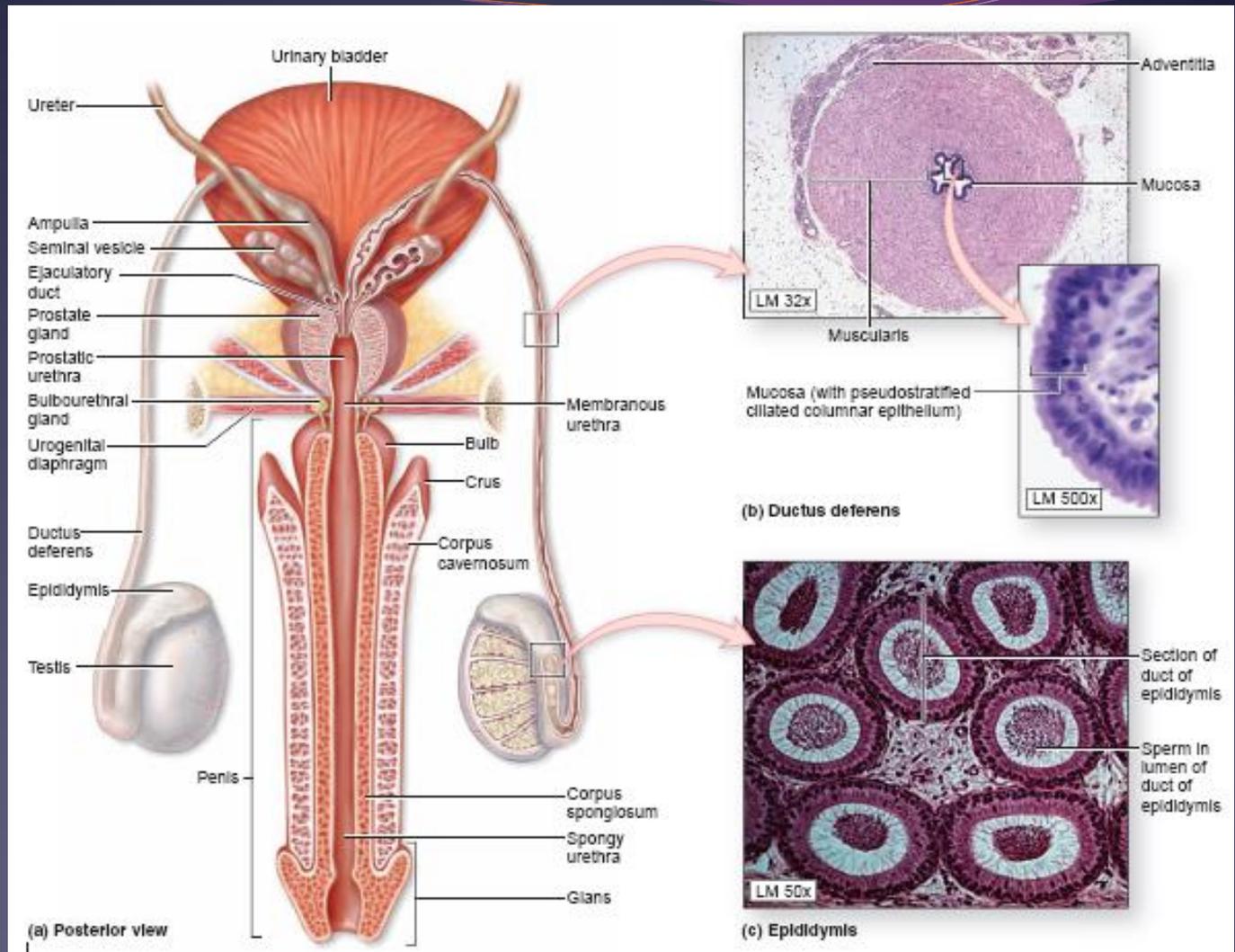
Duct System

Sperm cells pass through a series of ducts to reach the outside of the body. After they leave the testes, the sperm passes through the epididymis, ductus deferens, ejaculatory duct, and urethra.

Ductus Deferens [vas deferens]

- a fibromuscular tube that is continuous with the epididymis.
- enters the abdominopelvic cavity through the inguinal canal and passes along the lateral pelvic wall, behind bladder & toward the prostate gland.
- Just before it reaches the prostate gland, each ductus deferens enlarges to form an ampulla.
- Sperm are stored in the proximal portion of the ductus deferens, near the epididymis.
- as any tubular organ the ductus deferens has three coats.

Ductus Deferens



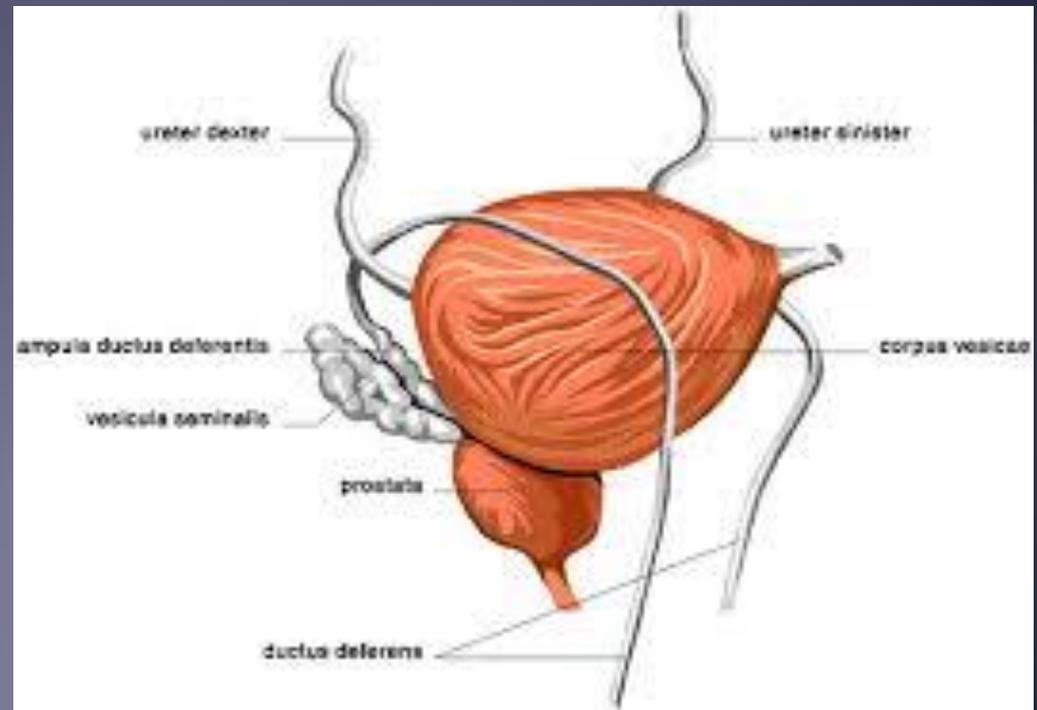
Duct System in the Male Reproductive Tract.

Spermatic cord

- It is a complex of some structures, which contains the proximal ductus deferens, testicular artery and veins, lymph vessels, testicular nerve, cremaster muscle and a connective tissue covering.

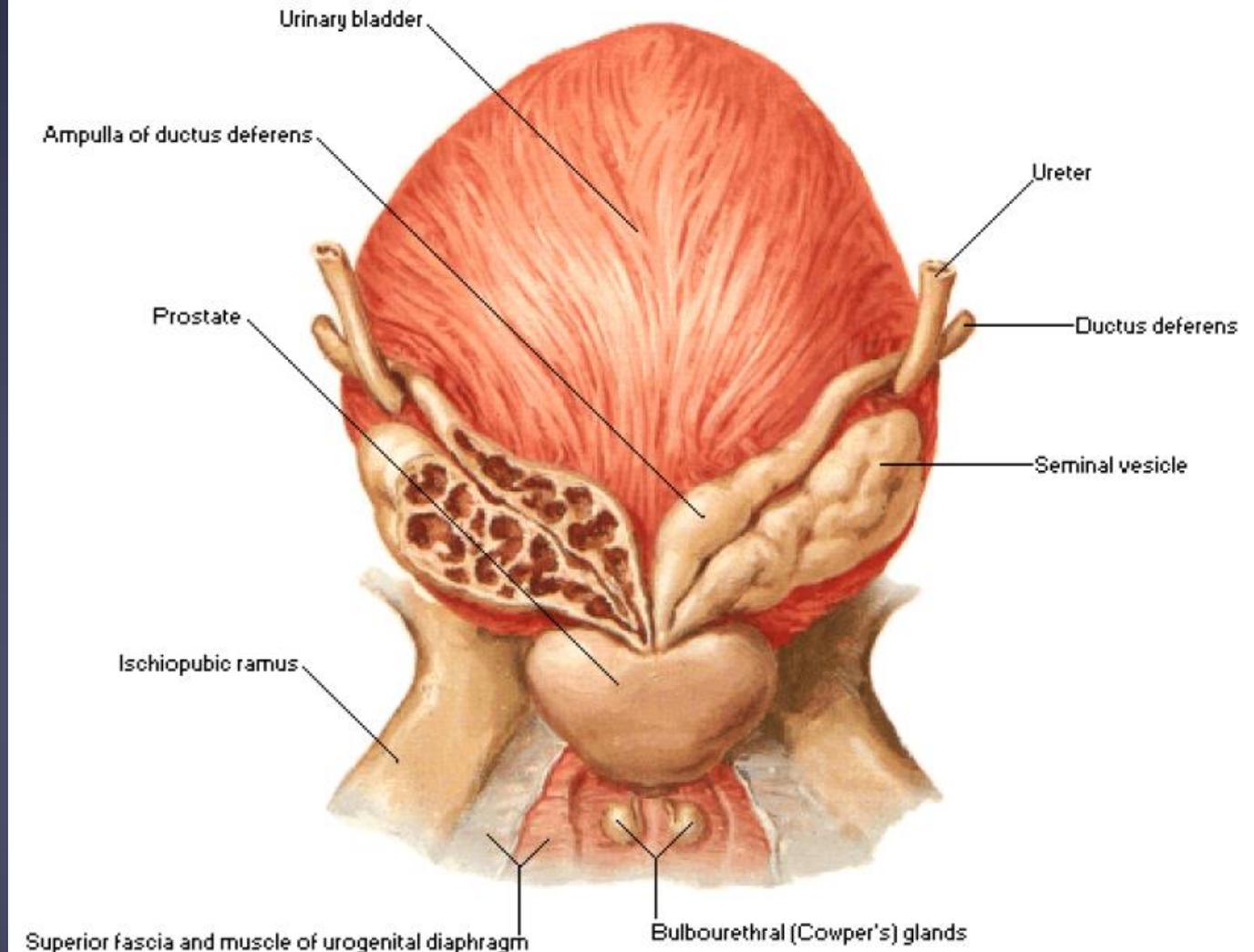
Ejaculatory Duct

- Each ductus deferens, at the ampulla, joins the duct from the **adjacent seminal vesicle** (one of the accessory glands) to form a short **ejaculatory duct**.
- Each ejaculatory duct passes through the prostate gland and empties into the urethra.



Ejaculatory Duct

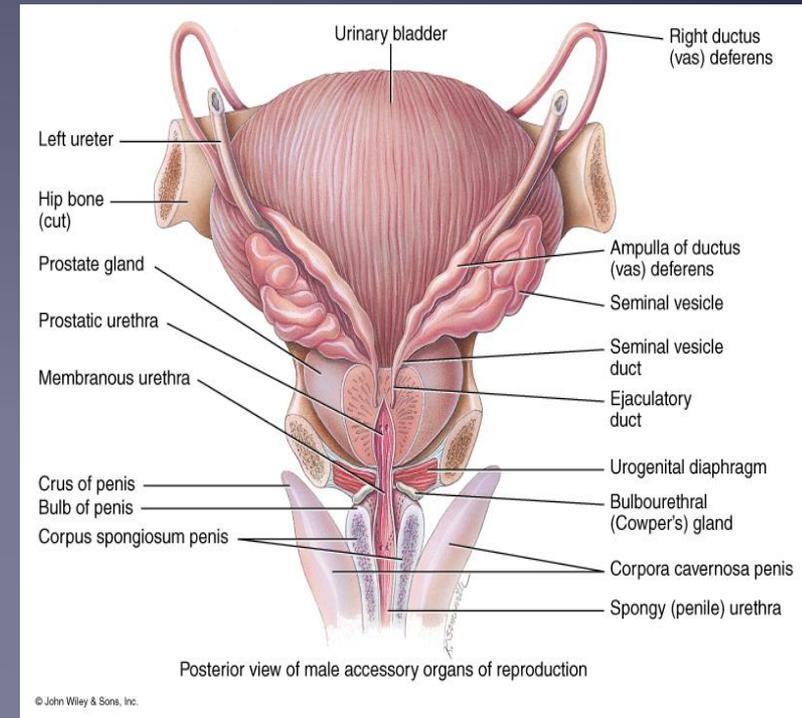
Posterior View



Seminal Vesicles

- There are glands posteriorly to the urinary bladder.
- Each has a short duct that joins with the ductus deferens at the ampulla to form an ejaculatory duct, which then empties into the urethra.
- The fluid is viscous and contains fructose, prostaglandins and proteins.

Function: they produce of liquid part of sperm which provides the mobility and viability of the sperm.



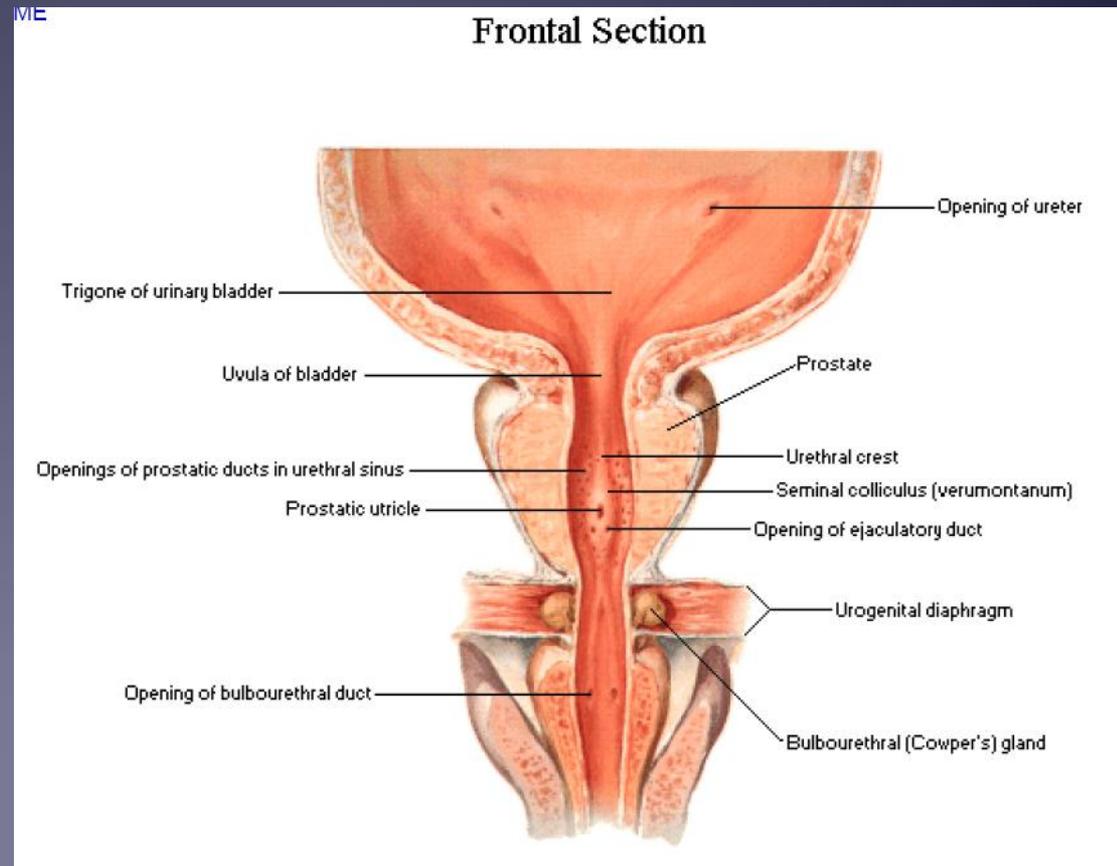
Prostate

- a musculogland, firm, dense structure about the size of a walnut that is located **just inferior to the urinary bladder**.
- encircles the urethra as it leaves the urinary bladder.
- numerous short ducts from the prostate gland empty into the prostatic urethra. The secretions of the prostate are thin, milky colored, and alkaline.

Prostate

It has two functions:

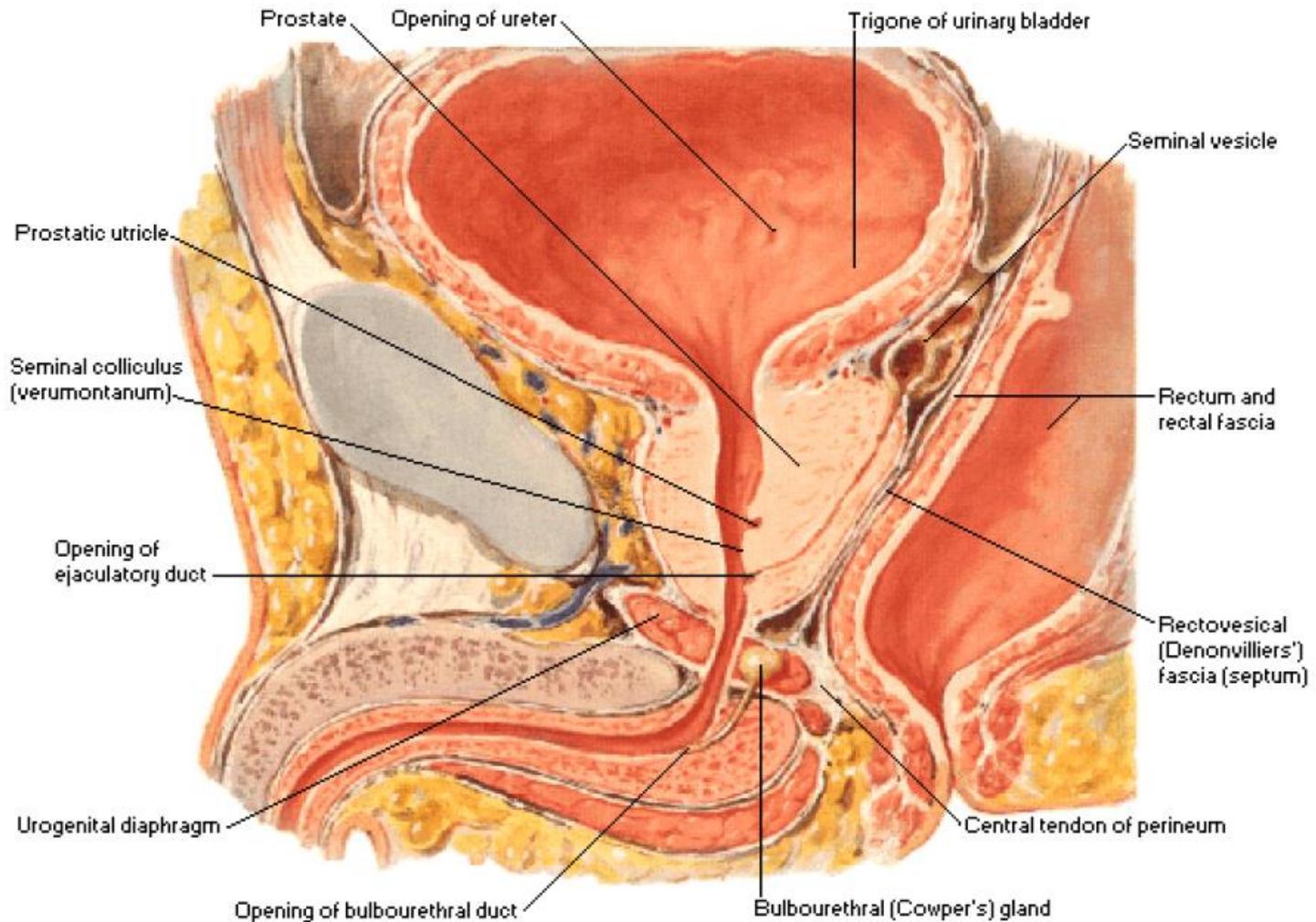
1. The secretions of the prostate are thin, milky colored, and alkaline. This secret enhances the motility of the sperm.
2. Muscular fibers of a prostate work as a sphincter and separate uric and sexual ways in a man's organism during sexual act.



Prostate and Bulbourethral Glands

OME

Sagittal Section



Bulbourethral Glands (Cowper's)

- small, about the size of a pea, and located near the base of the penis. A short duct from each enters the proximal end of the penile urethra.
- In response to sexual stimulation, the bulbourethral glands secrete an alkaline mucus-like fluid

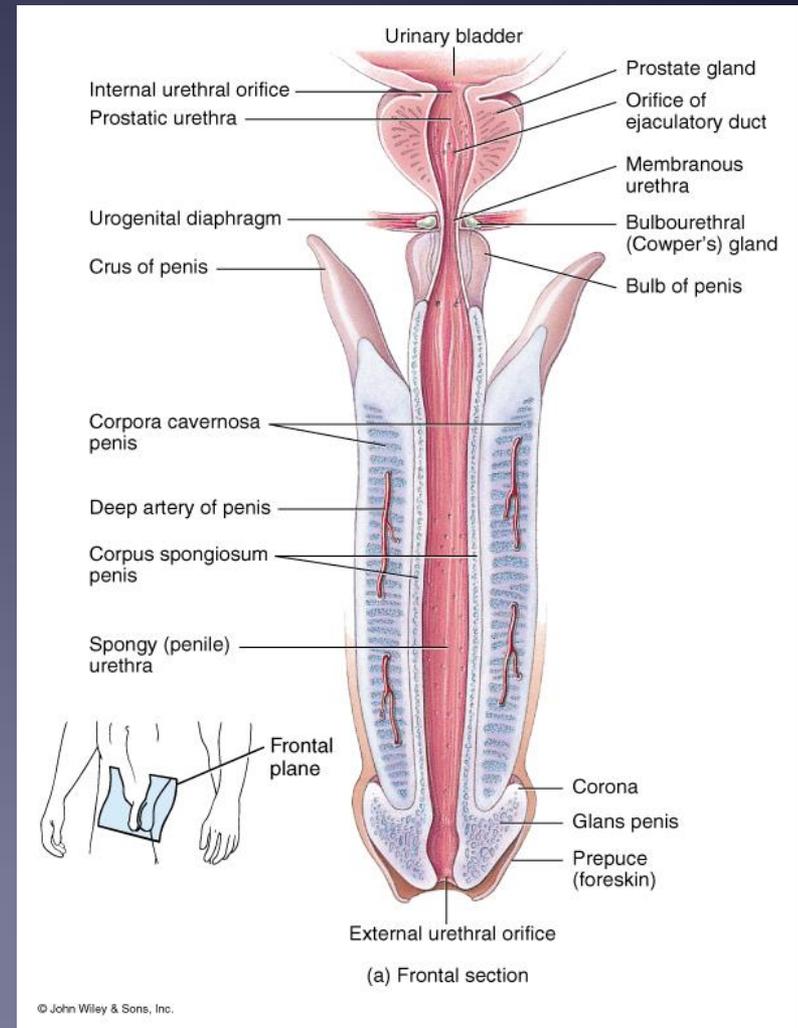
Urethra (male)

- extends from the urinary bladder to the external urethral orifice at the tip of the penis.
- It is a passageway **for sperm and fluids** from the reproductive system and **urine** from the urinary system.
- divided into three regions.

Urethra (male)

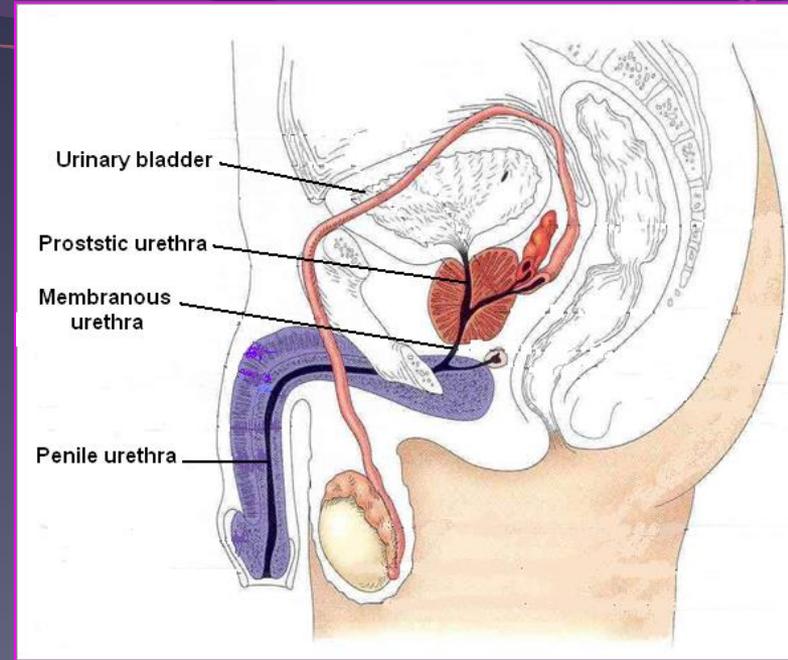
The male urethra has **three named parts:**

- **Prostatic urethra** – runs within the prostate gland
- **Membranous urethra** – runs through the urogenital diaphragm
- **Spongy (penile) urethra** – passes through the penis and opens via the external urethral orifice



Prostatic urethra

- Length=3 cm
- Widest & most dilatable
- Extends from neck of bladder inside prostate gland
- Structures openings into prostatic urethra:
 - Ejaculatory ducts
 - Ducts of prostate gland



Membranous urethra

- Length=1 cm
- Surrounded by external urethral sphincter

Penile (spongy) urethra

- Length=16 cm
- narrowest part of whole urethra
 - Extends inside penis & opens externally through external urethral orifice

Urethra (male)

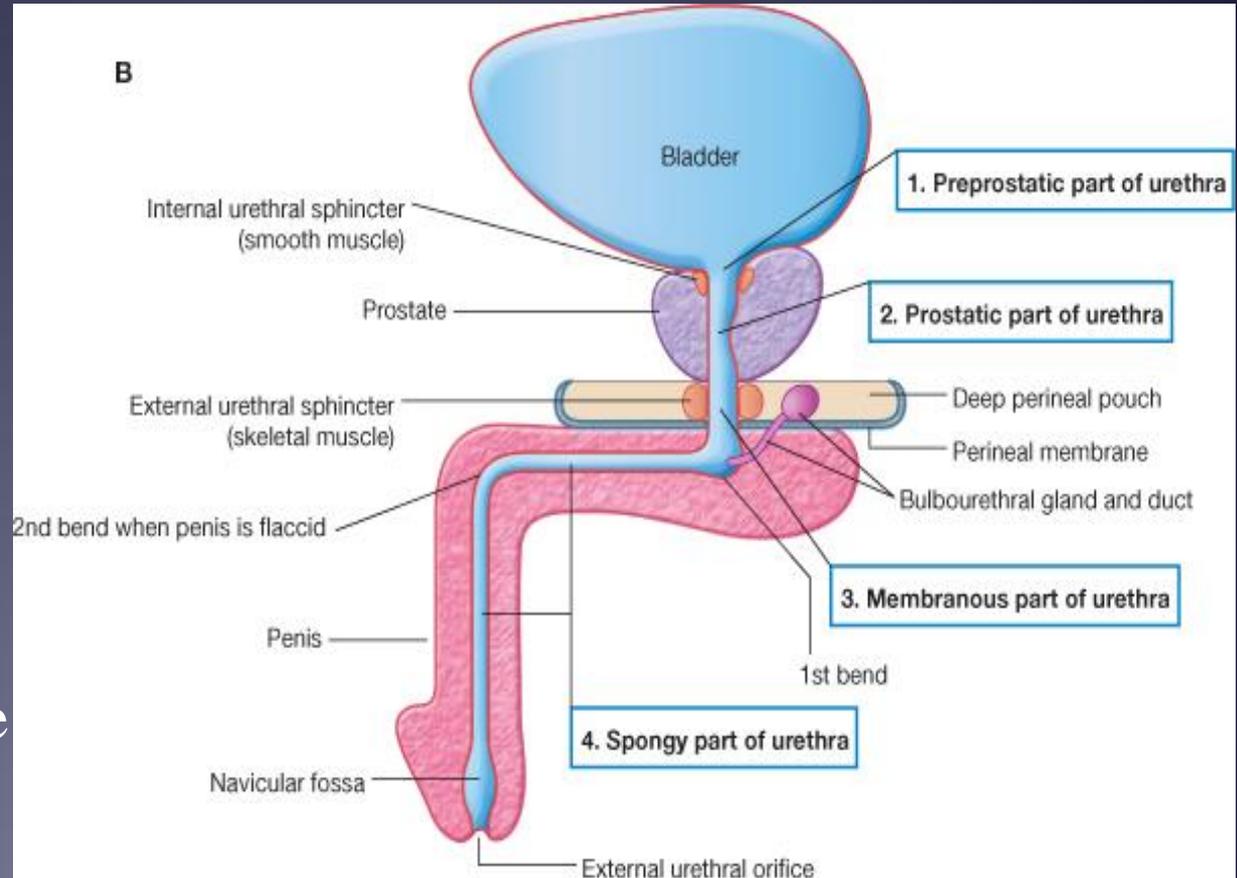
Male urethra has

three constrictions:

- internal opening of an urethra,
- external opening of an urethra
- full membranous part.

Three dilatations are

- full prostatic part,
- bulbous dilatation
- a naviculare fossa.

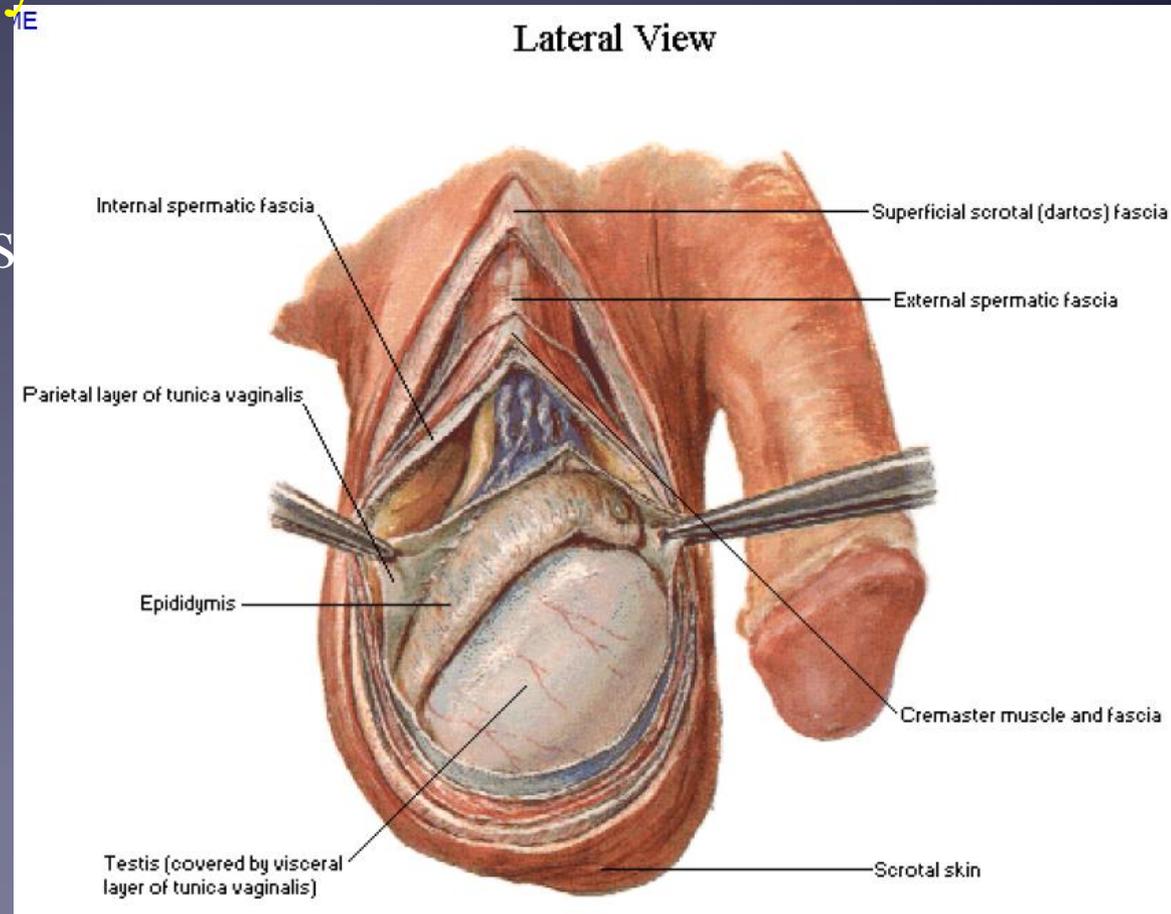


Scrotum

- Consists of skin and subcutaneous tissue
- A vertical septum, of subcutaneous tissue in the center divides it into two parts, each containing one testis.
- Smooth muscle fibers, called the **dartos muscle**, in the subcutaneous tissue contract to give the scrotum its wrinkled appearance. When these fibers are relaxed, the scrotum is smooth.
- the **cremaster muscle**, consists of skeletal muscle fibers and controls the position of the scrotum and testes. When it is cold or a man is sexually aroused, this muscle contracts to pull the testes closer to the body for warmth.

Scrotum

NB! The scrotum develops as a gibbosity of an anterior abdominal wall therefore all its layers are derivatives of layers of an anterior abdominal wall.

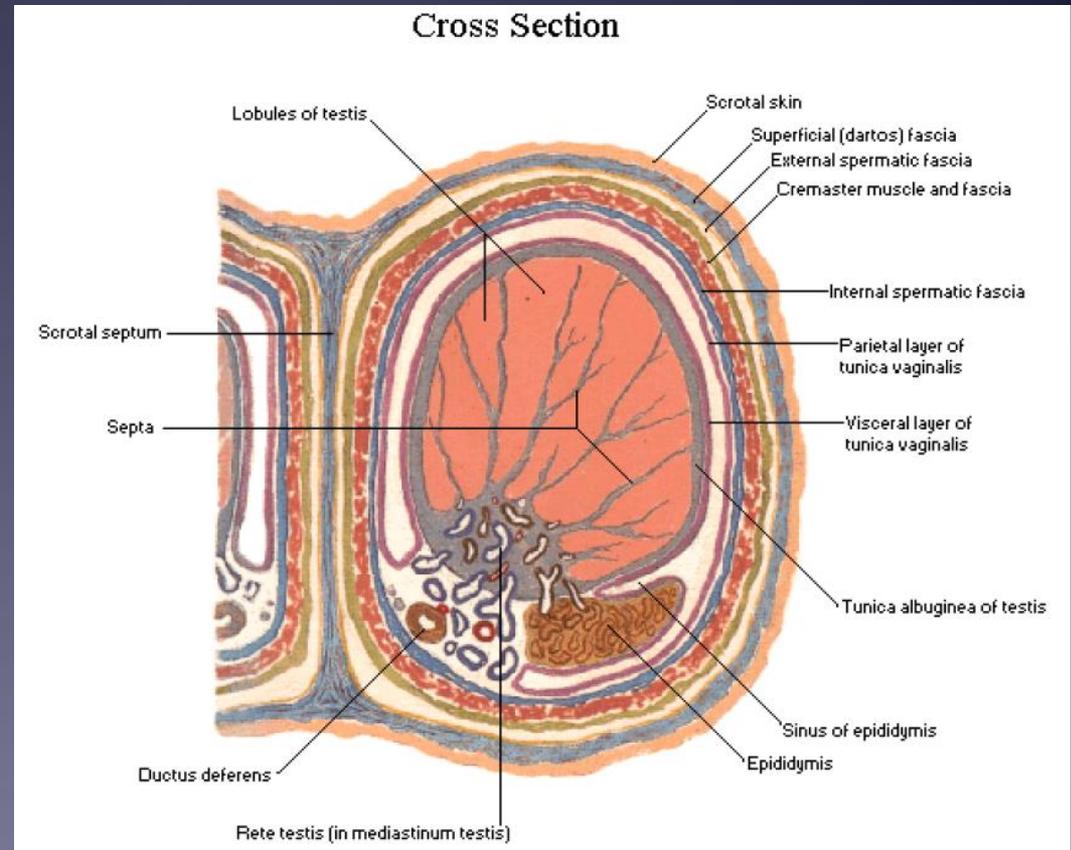


Scrotum

Scrotum has 7 layers

(= coats of the testes):

1. The skin.
2. Tunica dartos (dartos)
3. The external spermatic fascia
4. The cremasteric fascia
5. The cremaster muscle
6. The internal spermatic fascia
7. The tunica vaginalis testis



Penis

(=Fallos
= Priap)

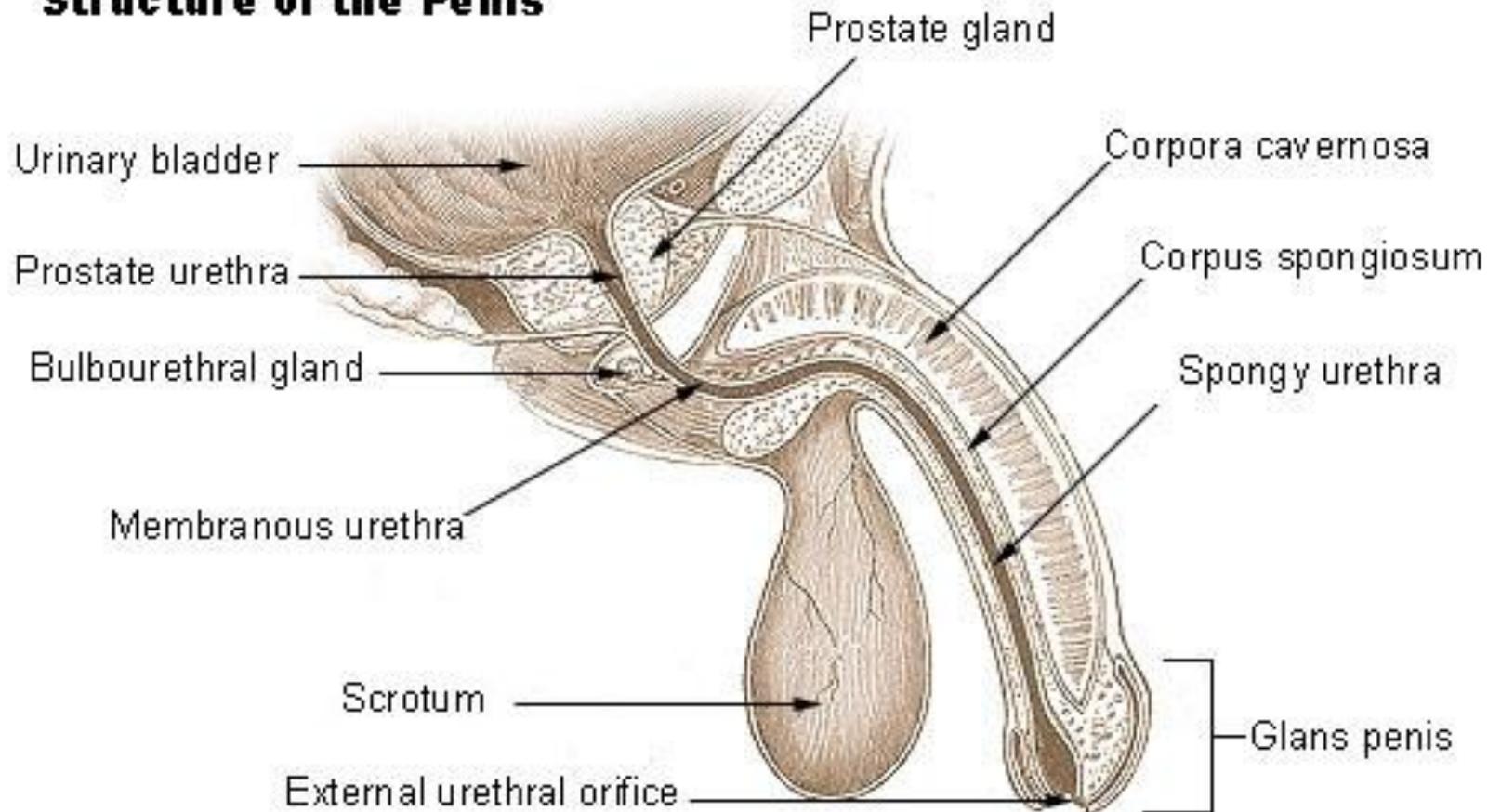
- **The male copulatory organ**
- **Function** - to transfer sperm to the vagina
- It is a cylindrical pendant organ located anterior to the scrotum and functions to transfer sperm to the vagina.

Penis

- 3 parts: a root, body (shaft), and glans penis.
- The root of the penis attaches it to the pubic arch
- The body is the visible, pendant portion.
- The corpus spongiosum expands at the distal end to form the glans penis.
- The urethra, which extends throughout the length of the corpus spongiosum, opens through the external urethral orifice at the tip of the glans penis. A loose fold of skin, called the prepuce, or foreskin, covers the glans penis.

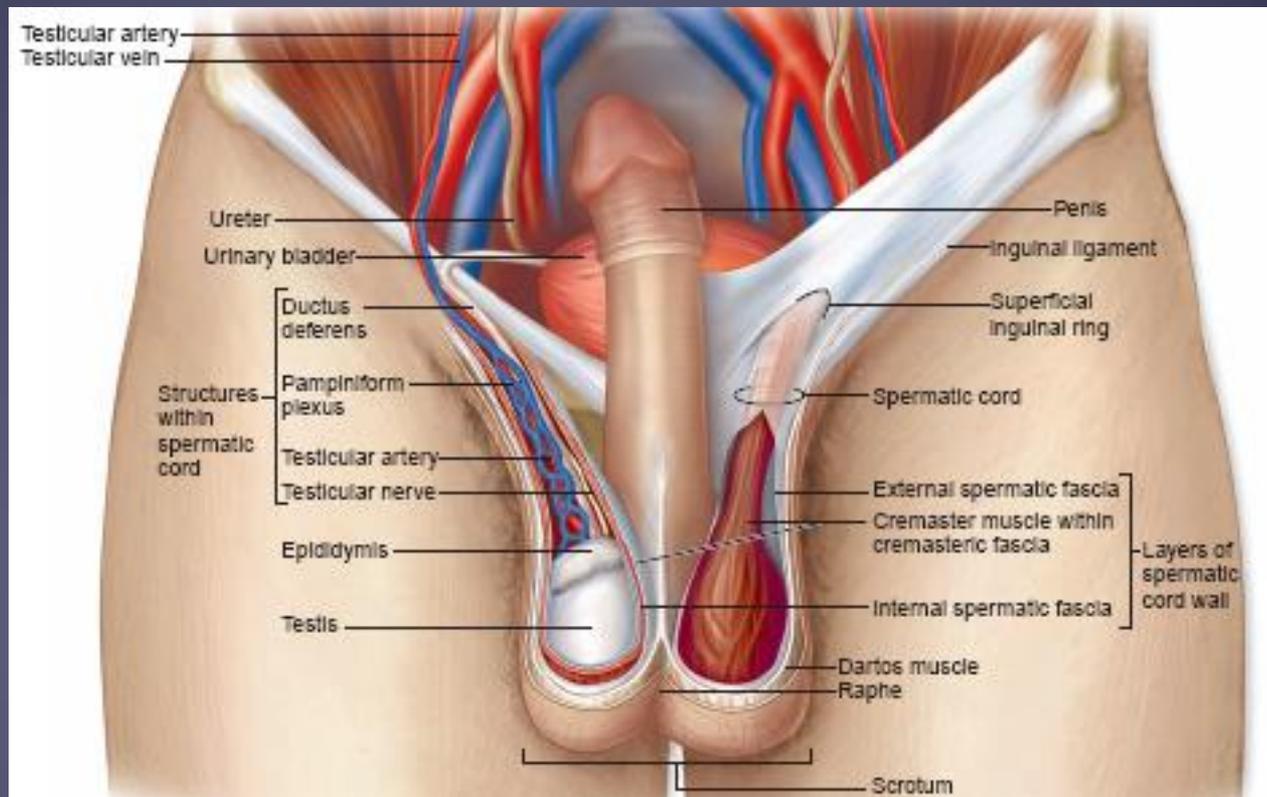
Penis

Structure of the Penis



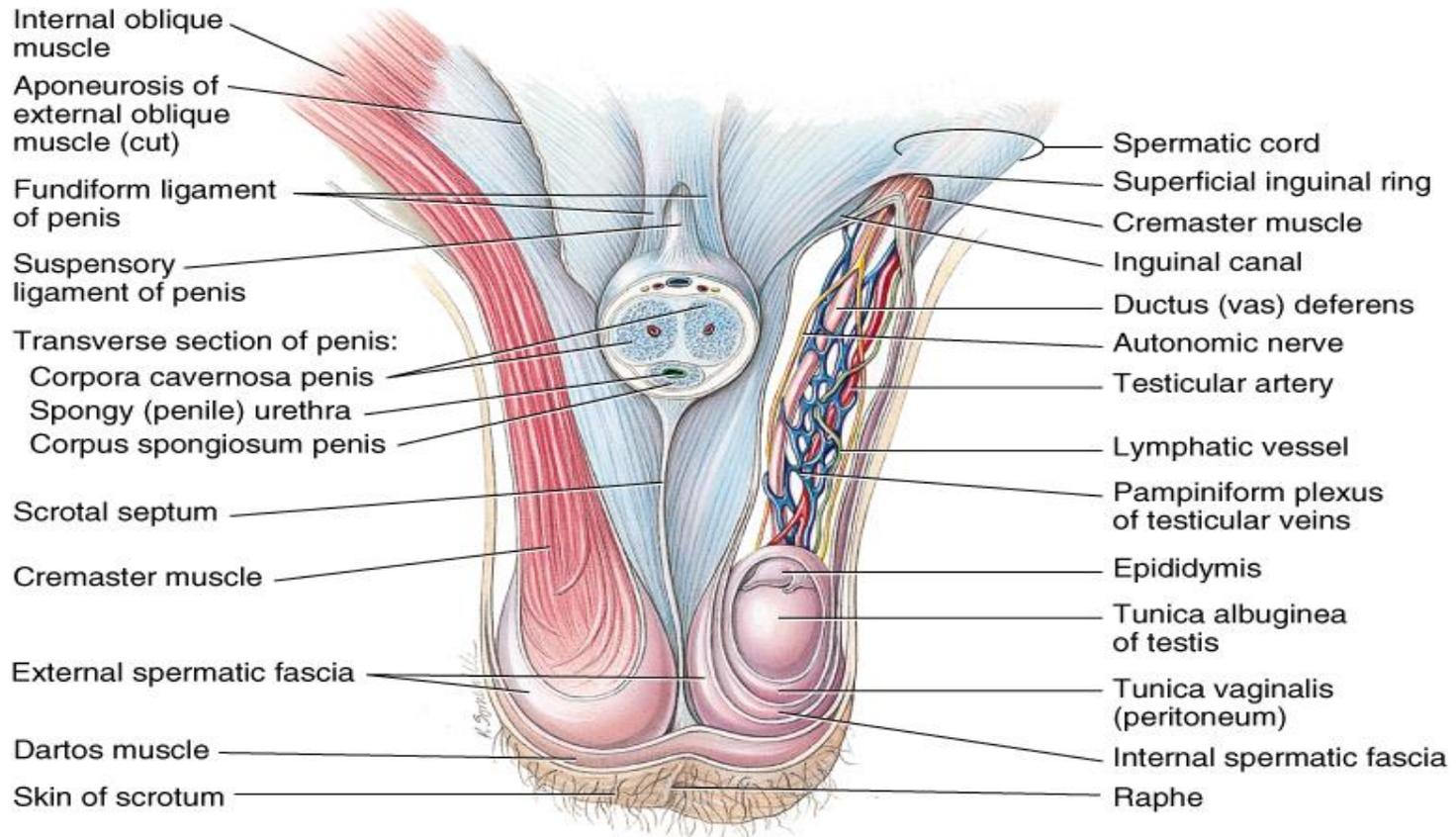
Penis

It consists of **three columns** of erectile tissue that are wrapped in connective tissue and covered with skin. The two dorsal columns are the **corpora cavernosa**. The single, midline ventral column surrounds the urethra and is called **the corpus spongiosum**.



Penis

(internal structure)



Anterior view of scrotum and testes and transverse section of penis



**Thank you
for your attention!**