

♂ The Reproductive System ♀



Function: producing offspring

Anatomy of male reproductive system

Location: The reproductive organs are classified as external and internal genitalia. The external genitalia are located in the perineum_the diamond shaped region. The male internal genitalia are located mainly in the pelvic cavity, between the lower limbs, except for the testes and some associated ducts contained in the scrotum.

Major Organs:

External sexual organs:

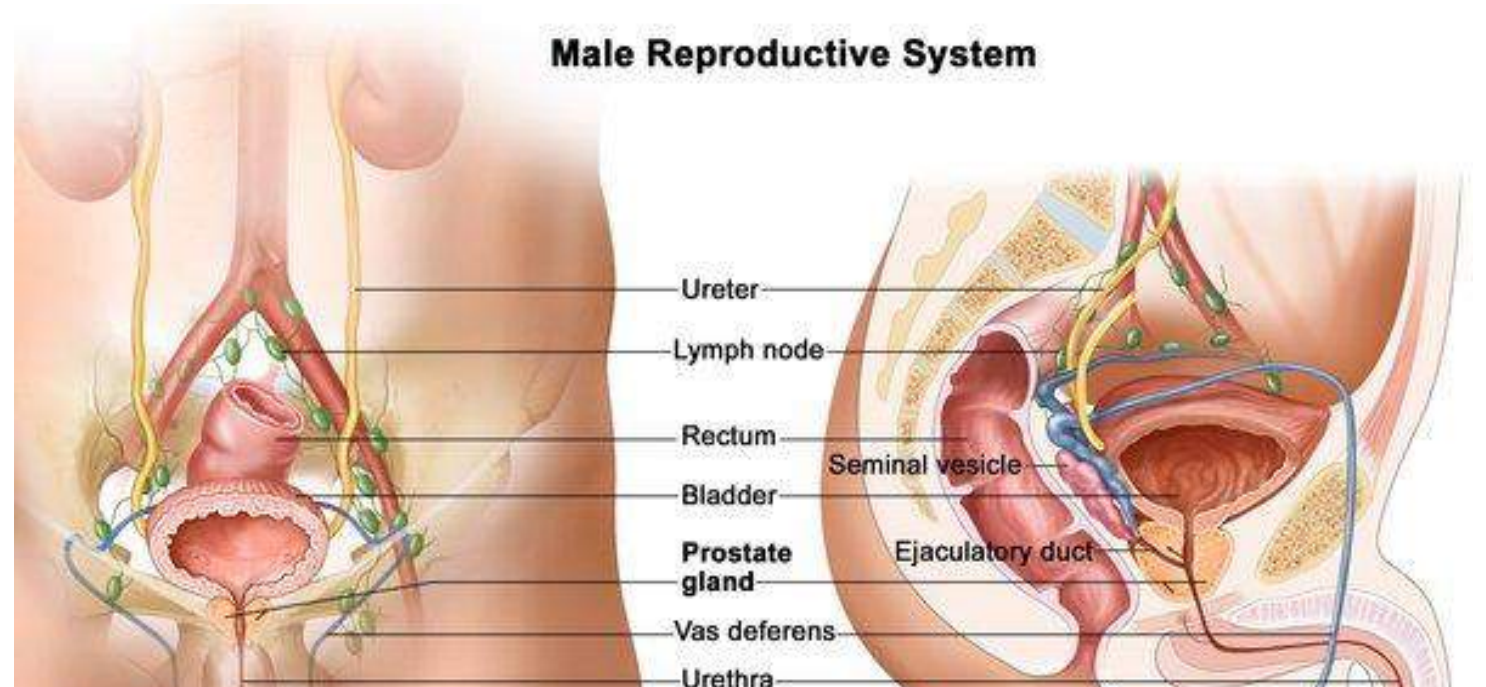
penis and scrotum

Internal structures form continuous tube:

- *Testes
- *epididymis
- *vas deferens
- *ejaculatory duct
- *urethra in penis

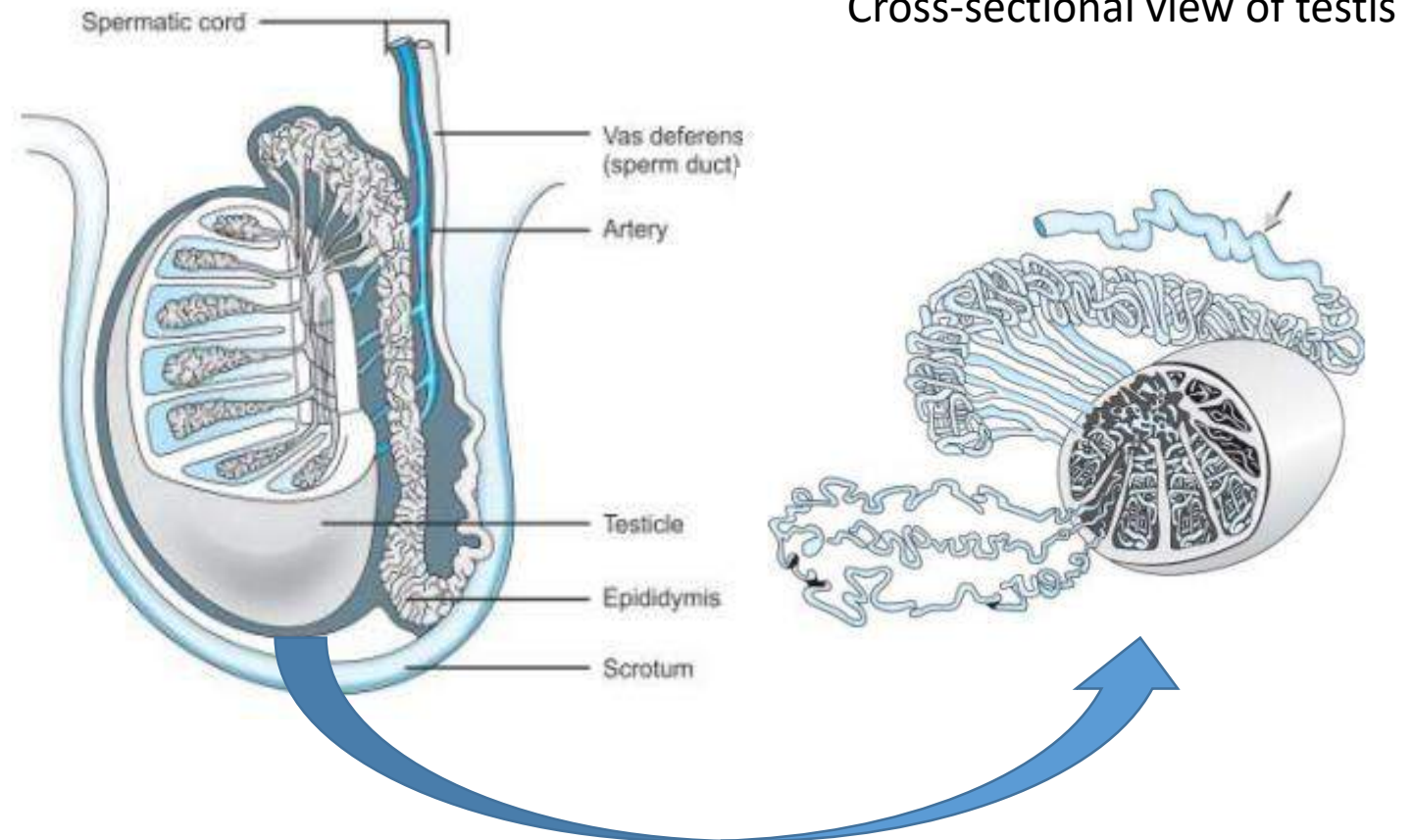
Accessory organs:

- *seminal vesicles
- *prostate gland
- *bulbourethral glands



Anatomy of Testis

- The male has paired testes (sing., testis). Each testis is oval and slightly flattened, about 4 cm long.
- The testis shows that it is enclosed by a tough, fibrous capsule called the tunica albuginea. The connective tissue of the capsule extends into the testis, forming septa that divide the testis into compartments called lobules. Each lobule contains one to three tightly coiled seminiferous tubules. These tubules have a length up to 70 cm.
- **Its location:** The testes are suspended within the sacs of the scrotum which is located outside the body.



The function of the testes

- The main function of the testes is sperm production.
- The sperm are produced in seminiferous tubules.

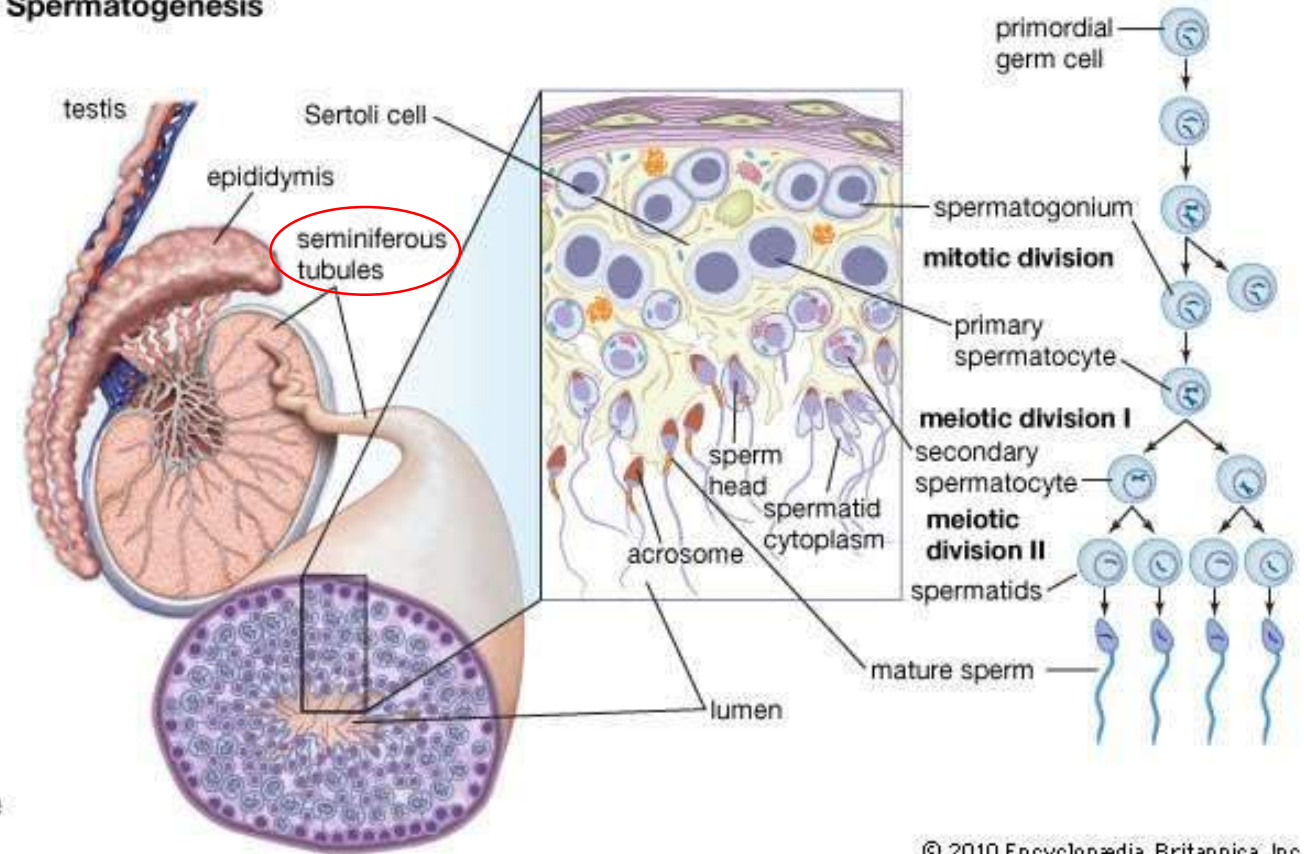
sperm develop from a type of stem cell = **spermatogonia**

Steps of spermatogenesis:

1. **spermatogonia** remain dormant in childhood
2. at puberty they begin to divide (mitosis)
3. some **spermatogonia** begin moving away from the wall of the tubule and enlarge to become **primary spermatocytes**
4. **primary spermatocyte** undergoes meiosis I to produce **secondary spermatocytes**
5. **secondary spermatocytes** undergo another division to produce **spermatids**

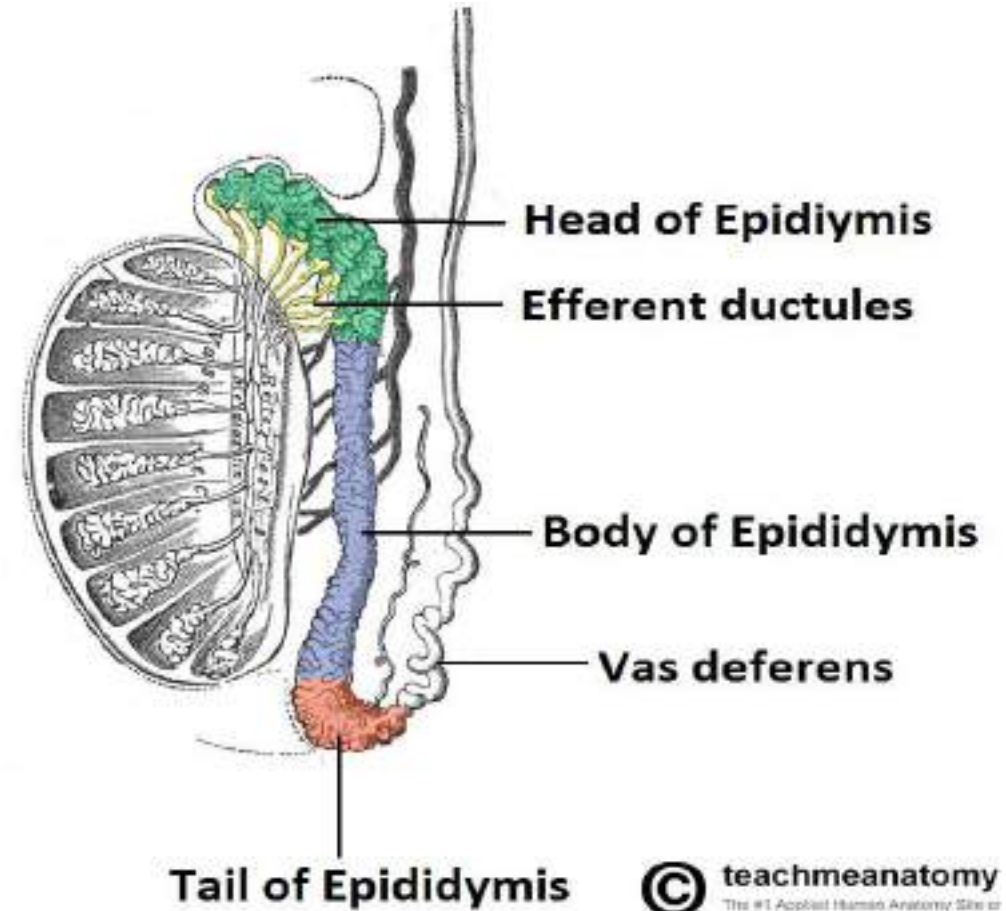
one primary spermatocyte produces 4 spermatids
6. spermatids mature into sperm cells

Spermatogenesis



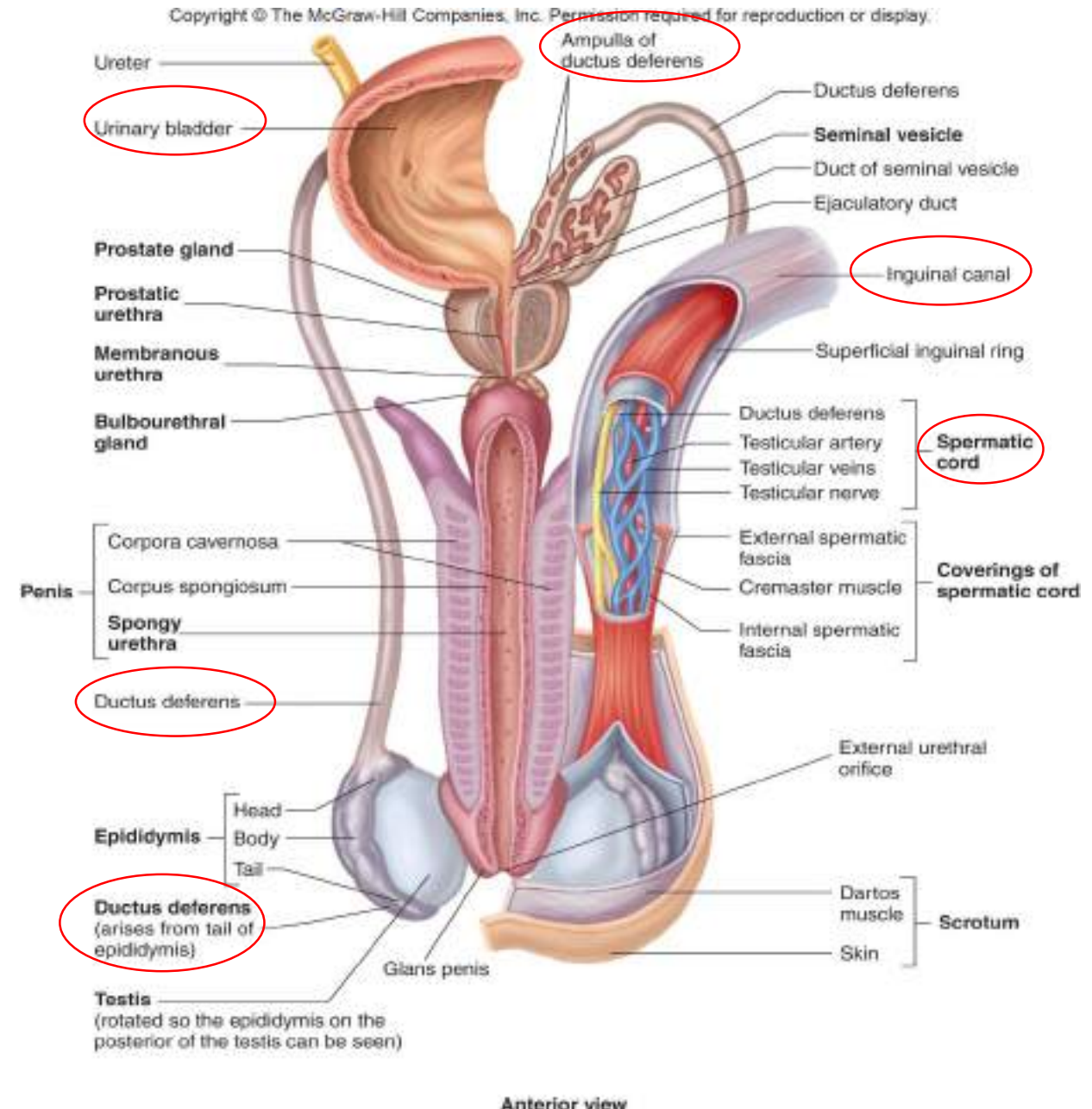
Anatomy of Epididymides

- Each epididymis is a tightly coiled, threadlike tube that would stretch about 6 meters if uncoiled.
- The lining of an epididymis consists of pseudostratified columnar epithelium with long cilia. The wall of an epididymis contains a thin layer of smooth muscle.
- **Its location:** A epididymis runs posteriorly down along a testis and becomes a vas deferens.
- **Its function:** The epididymis stores the sperm.



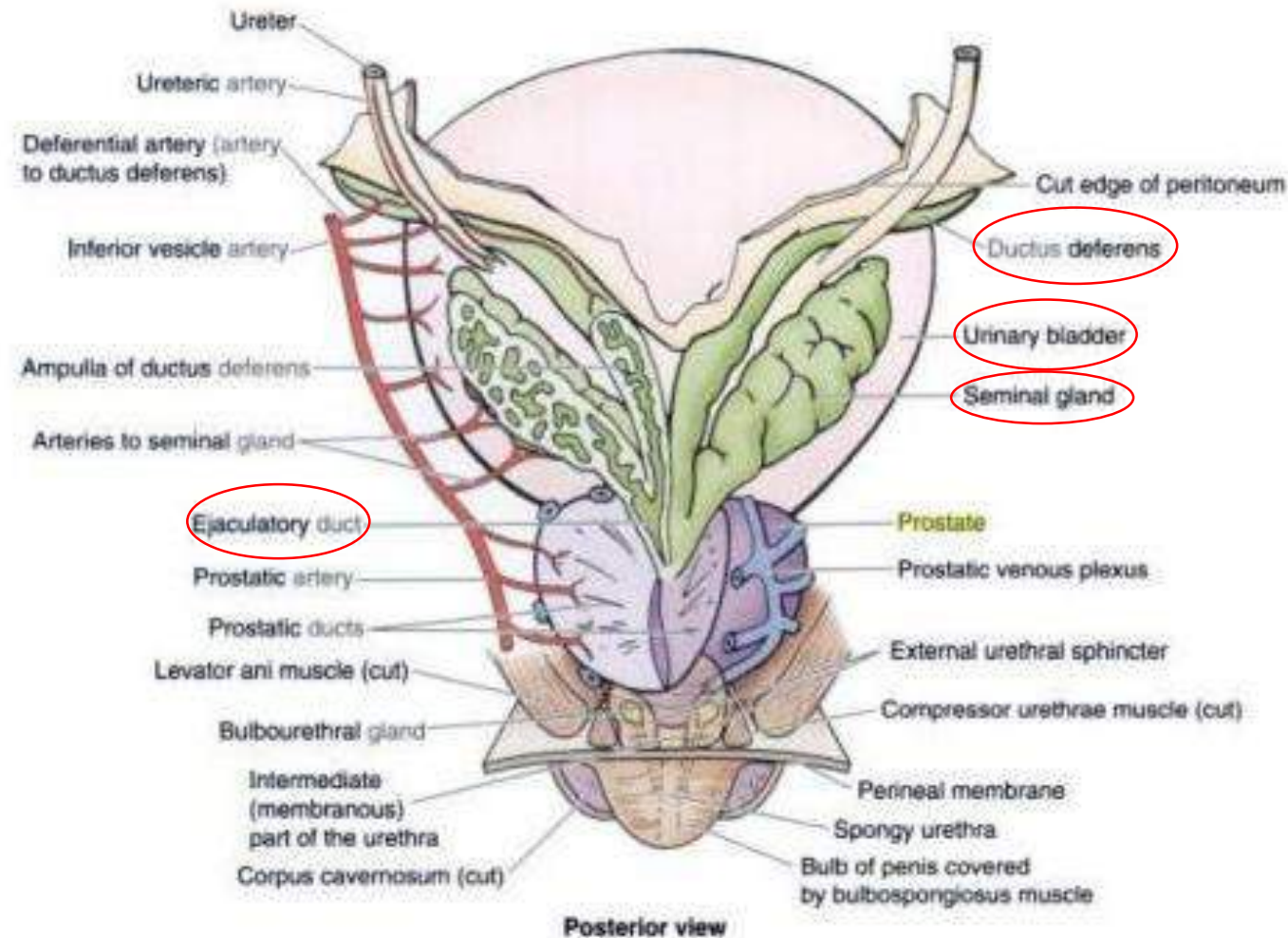
Anatomy of Vas Deferens (ductus deferens)

- Each vas deferens (pl., vasa deferentia) is a continuation of an epididymis.
- The vas deferens is lined by pseudostratified columnar epithelium that is ciliated at the testicular end. A vas deferens has an expanded portion called the ampulla, but it is slender again when it joins with the duct of a seminal vesicle to form an ejaculatory duct.
- **Its location:** As the vas deferens ascends into the abdomen, it passes through an inguinal canal. This is the passageway by which a testis descended from the abdomen into the scrotum. The canal contains the spermatic cords, which consist of connective tissue and muscle fibers that enclose a vas deferens, blood vessels, and nerves. After the vas deferens enters the abdomen, it crosses over to reach the posterior side of the urinary bladder.
- **Its function:** It transports the sperm to an ejaculatory duct.



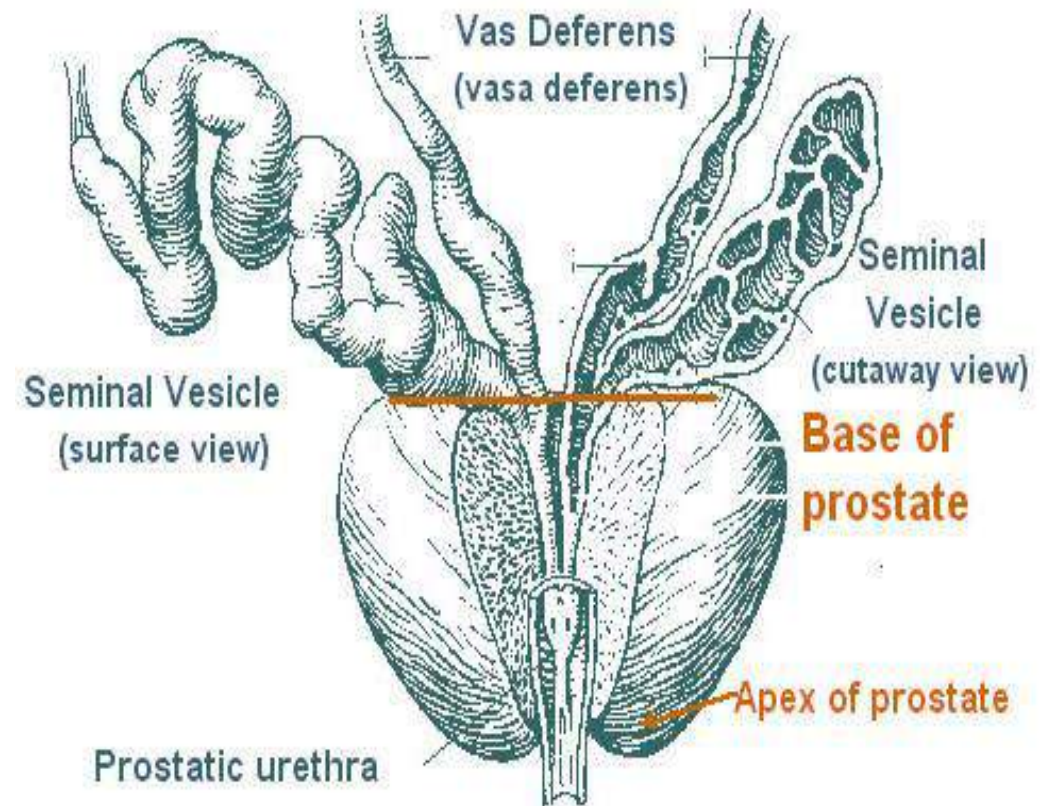
Anatomy of Seminal vesicles

- The seminal vesicles are coiled, membranous pouches about 5 cm long.
- **Their location:** They are a pair of glands on the posterior side of the urinary bladder and lie lateral to the vas deferens.
- **Their function:** The glandular lining of the seminal vesicles secretes an alkaline fluid that contains fructose and prostaglandins into an ejaculatory duct.



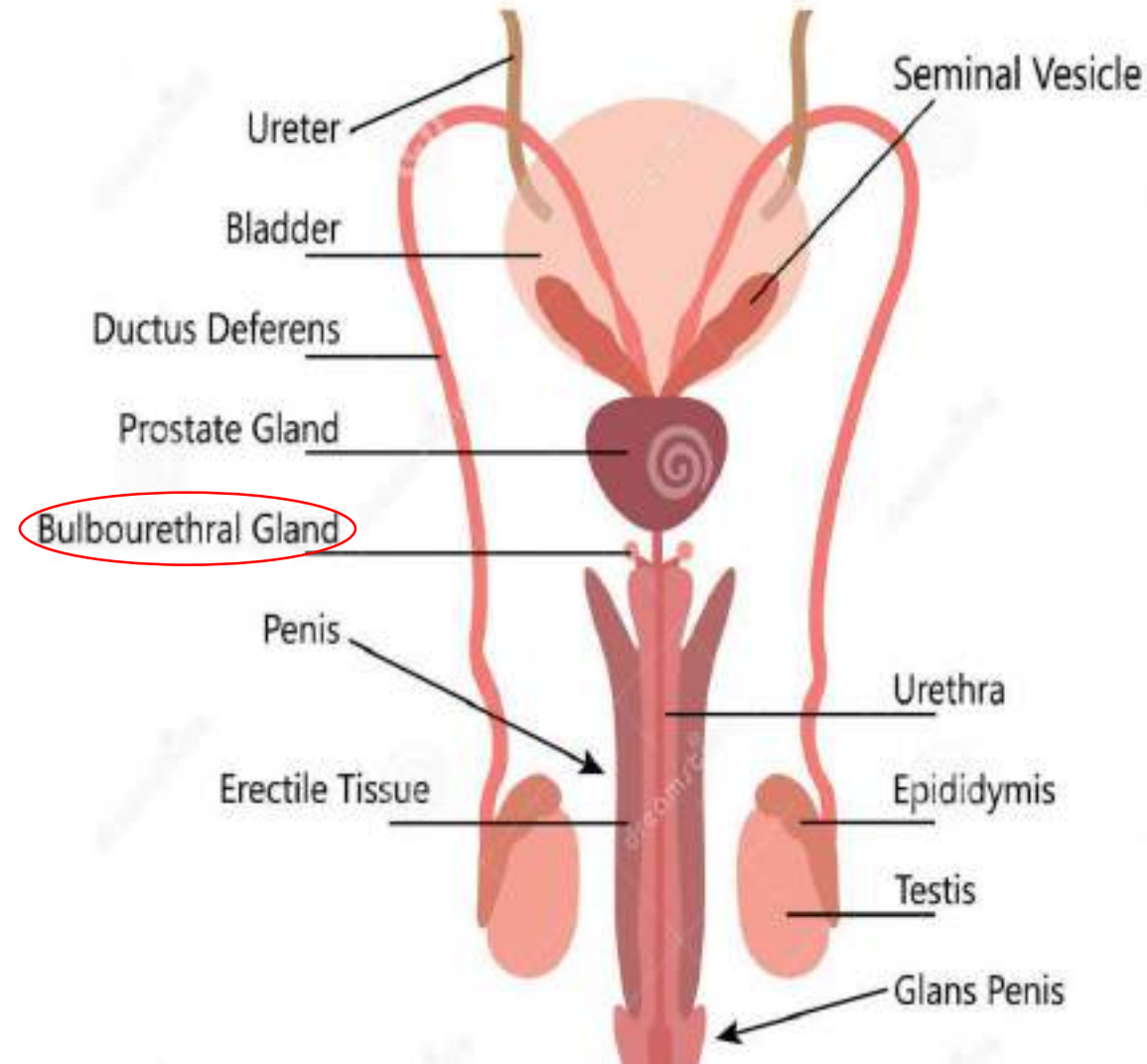
Anatomy of prostate gland

- The prostate gland is a single, donut- shaped gland. It is about 4 cm across, 2 cm thick, and 3 cm in length.
- **Its location:** It surrounds the upper portion of the urethra and ejaculatory duct just inferior to the bladder.
- **Its function:** The epithelium lining of the prostate gland secretes a thin, milky, and alkaline fluid that is added to the seminal fluid.



Bulbourethral glands

- The bulbourethral glands (Cowper glands) are two small, brownish, and spherical glands about the size of peas (1 cm in diameter).
- **Its location:** Bulbourethral glands are named for their position near a dilated bulb at the inner end of the penis and their association with the penile urethra inferior to the prostate gland.
- **Its function:** They secrete a mucuslike fluid that is added to the seminal fluid.



Anatomy of ejaculatory ducts

- The ejaculatory ducts are approximately 1-2 cm long.
- The ducts are a direct continuation of the seminal vesicles. Anatomically, the ampulla of the vas deferens joins the seminal vesicle duct at its inferior end forming a narrow canal called an ejaculatory duct.
- The two ducts enter the prostate gland at its base, converge and course downwards through the prostate, and then open into the prostatic urethra, (in males the urethra is a part of both the urinary and reproductive systems). The urethra passes through the penis and transports sperm to outside the body.

