

MALE REPRODUCTIVE SYSTEM

OBJECTIVES

At the end of this lecture, the student should be able to describe the microscopic structure of :

- 1. Testis and epididymis.**
- 2. Vas deferens.**
- 3. Seminal vesicles.**
- 4. Prostate.**

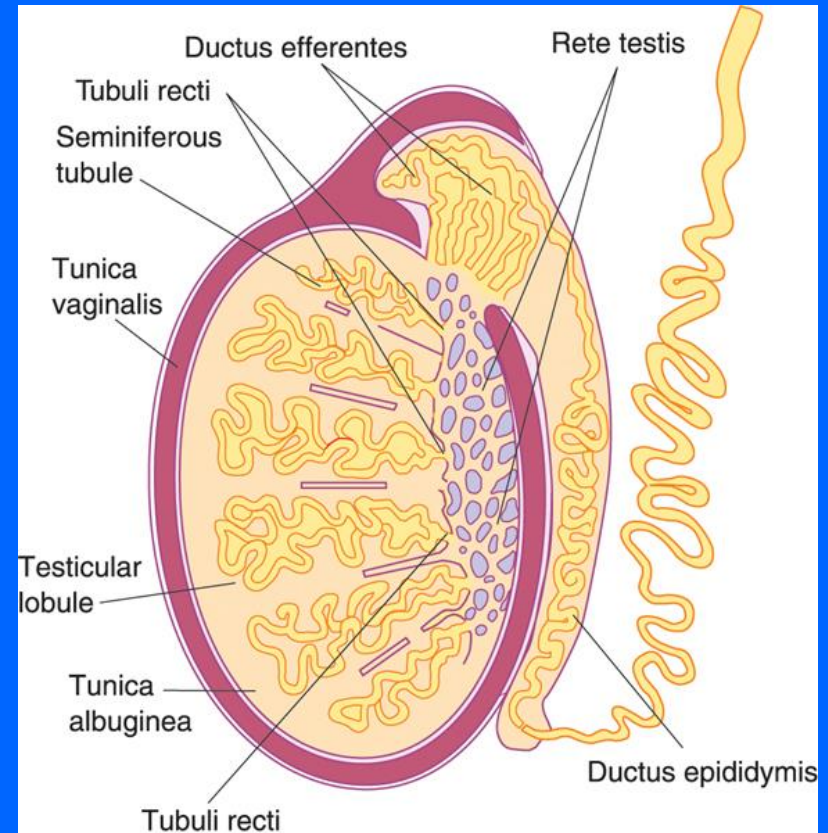
TESTIS

(A) *Stroma:*

- 1- Tunica vaginalis.
- 2- Tunica albuginea.
- 3- Tunica vasculosa.
- 4- Septa.
- 5- Interstitial tissue.

(B) *Parenchyma:*

- 1- Seminiferous tubules.
- 2- Interstitial cells of Leydig.



STROMA OF THE TESTIS

1. TUNICA VAGINALIS

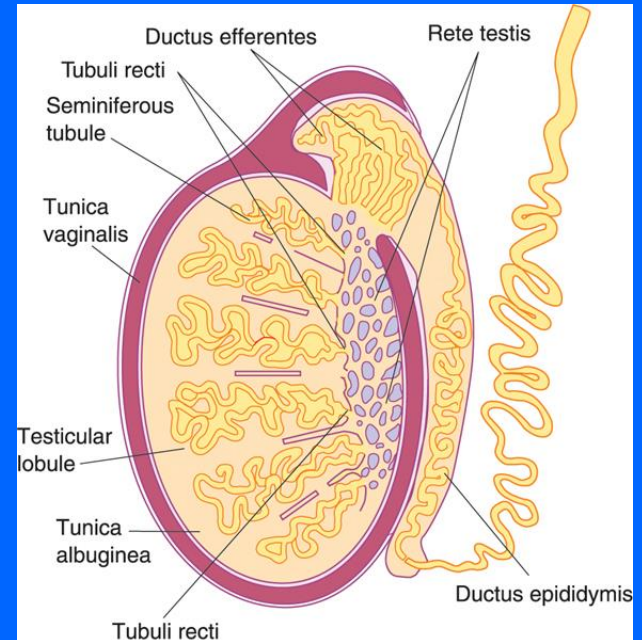
It is formed of mesothelial cells.

2. TUNICA ALBUGINEA

Dense irregular collagenous C.T.

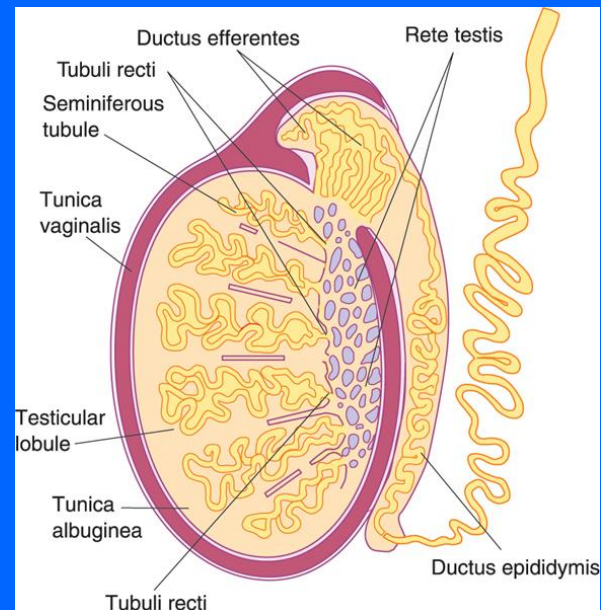
3. TUNICA VASCULOSA

It is formed of loose vascular C.T. lining tunica albuginea & speta from inside.



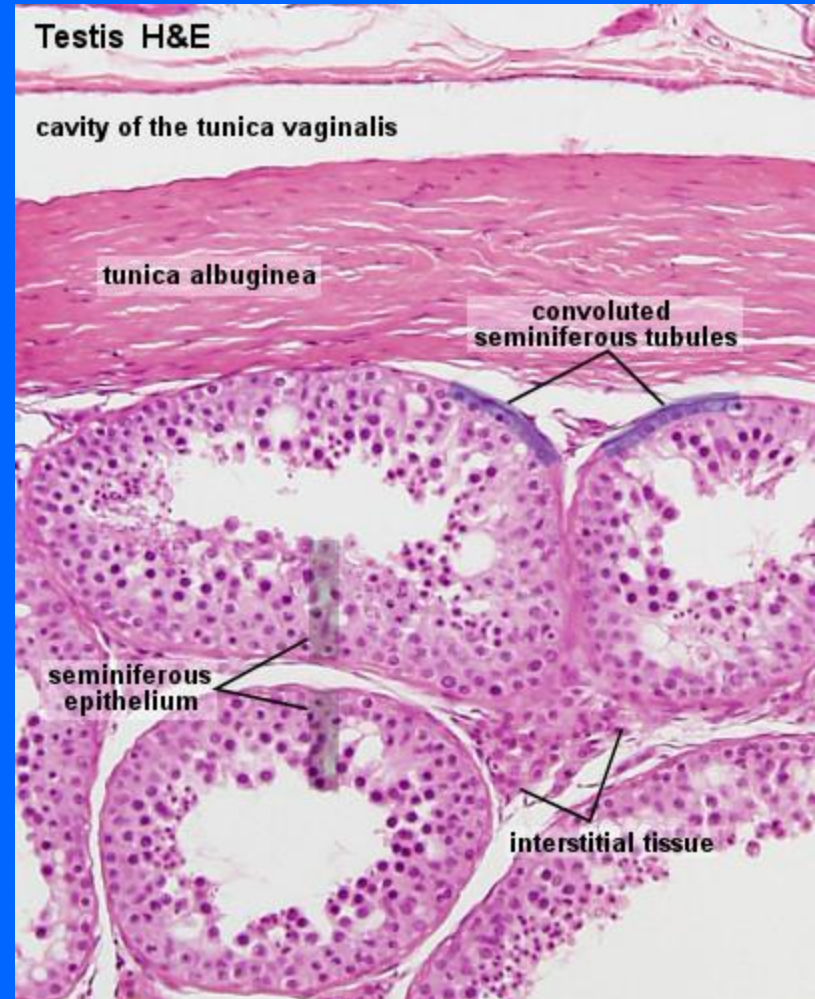
Septa of the Testis

- Dense irregular collagenous C.T.
- Divide the testis into about 250 intercommunicating compartments (testicular lobules = lobuli testis).



Interstitial Tissue

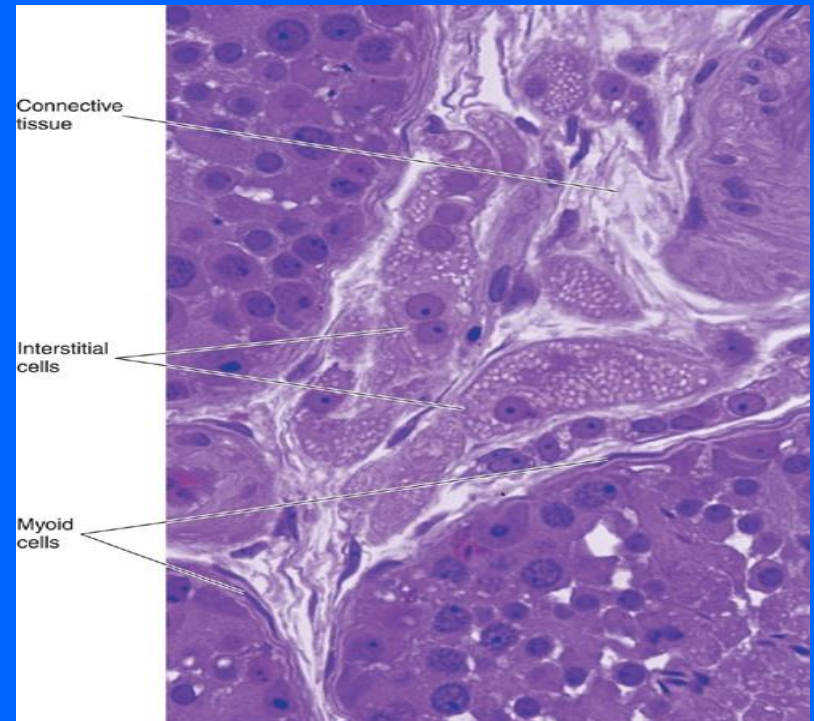
- Loose vascular C.T. in between the seminiferous tubules.
- **Contents:**
 - 1- Loose vascular C.T.
 - 2- Interstitial cells of Leydig.



PARENCHYMA OF THE TESTIS

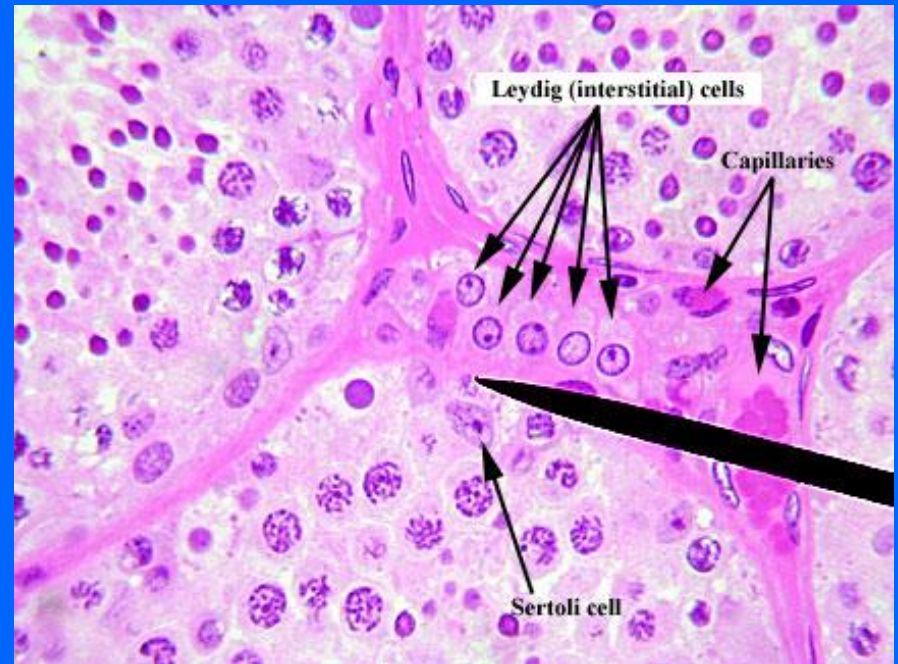
It is formed of:

- **Exocrine part:** The seminiferous tubules which produce spermatozoa.
- **Endocrine part:** interstitial cells of Leydig which produce testosterone.



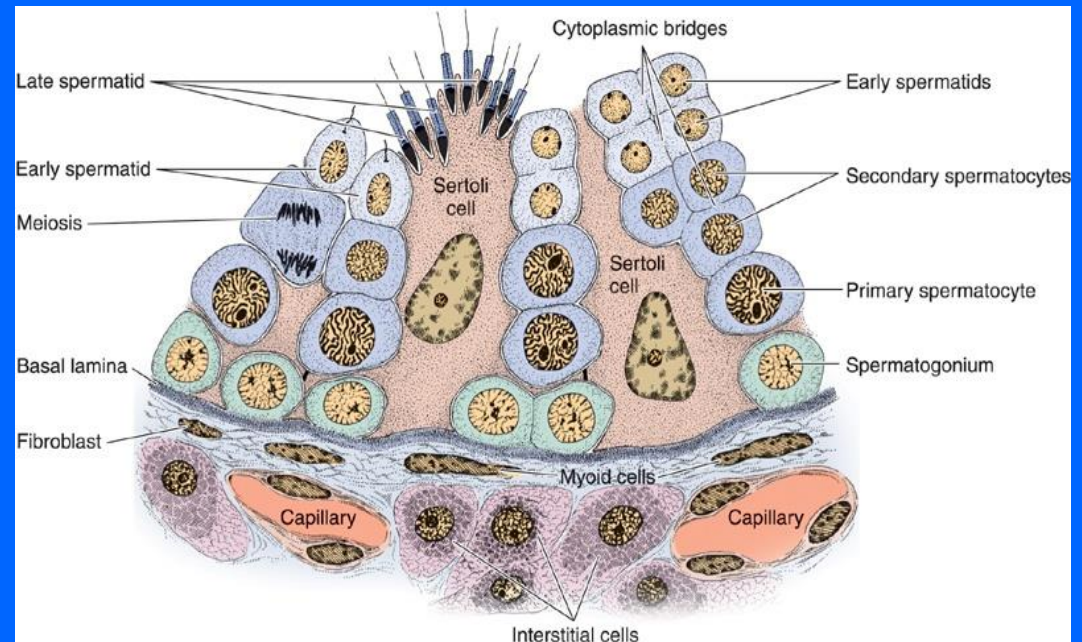
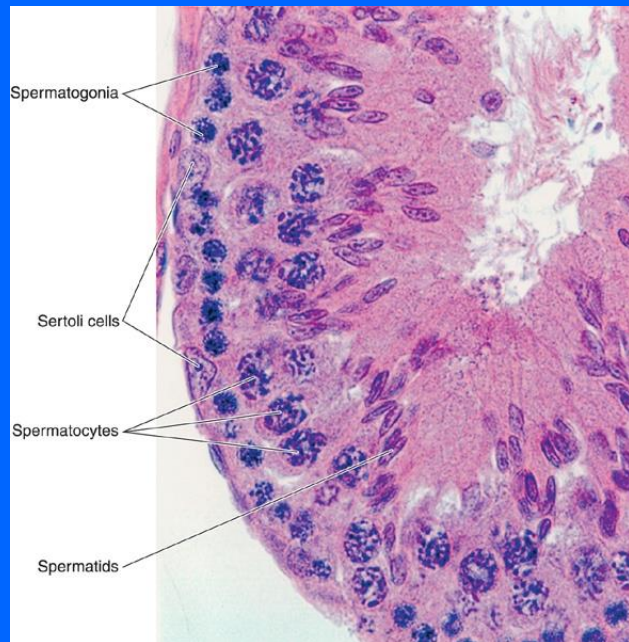
Interstitial Cells of Leydig

- Are rounded or polygonal cells with central rounded nucleus.
- **Cytoplasm:** acidophilic & vacuolated.
- **Function:**
Secrete testosterone.



Seminiferous Tubules

- Each tubule is lined with a stratified epithelium called **seminiferous epithelium** which is formed of 2 types of cells:
 - 1- **Spermatogenic cells.**
 - 2- **Sertoli cells.**
- Each tubule is surrounded by a basement membrane.

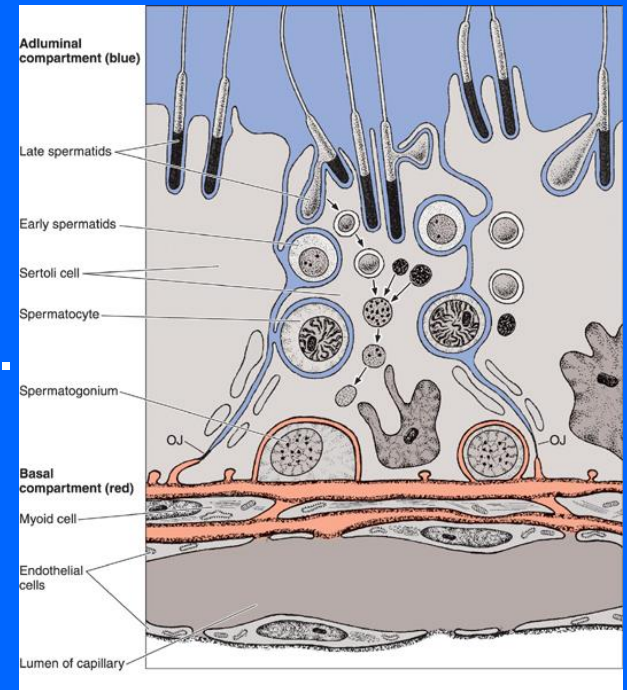


Sertoli Cell

- Are **columnar or pyramidal** cells.
- **Nucleus:** Basal, vesicular, irregular with prominent nucleolus.

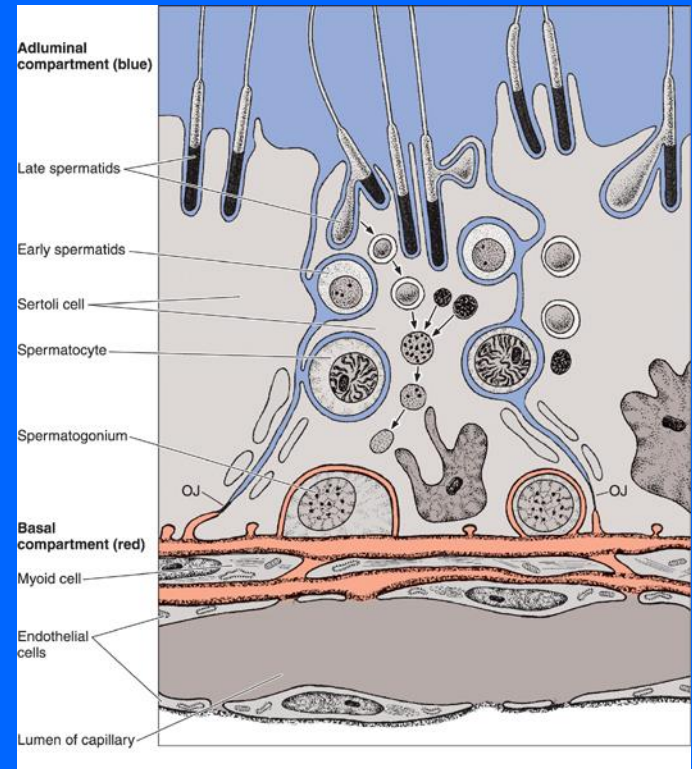
Functions:

- 1- Support & Nutrition of spermatogenic cells.
- 2- Phagocytosis of cytoplasmic remnants of spermatogenesis.
- 3- Secretion: *Testicular fluid,
*Androgen Binding Protein (ABP),
*Inhibin hormone.
- 4- Formation of blood-testis barrier.



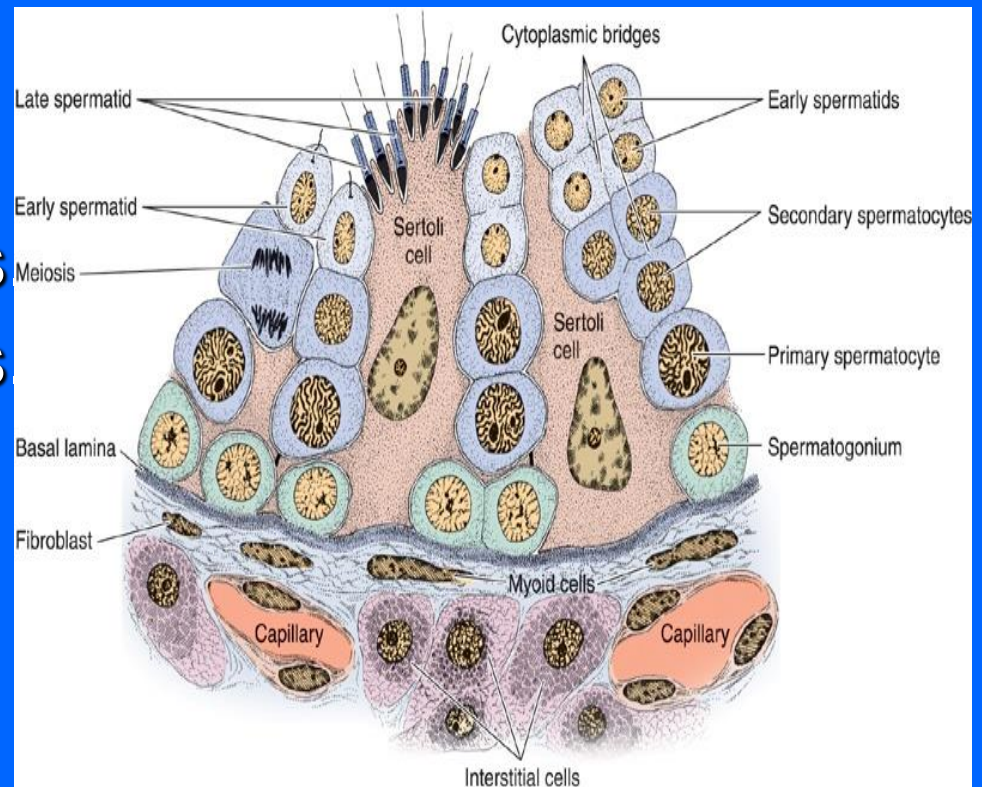
Blood-Testis Barrier

- It is formed by **the tight junctions** between the basal parts of the lateral borders of adjacent Sertoli cells.
- It divides the seminiferous tubule into 2 compartments:
 - 1- **Basal compartment:** contains spermatogonia.
 - 2- **Adluminal compartment:** contains the other spermatogenic cells.
- **Function:**
 - 1- It protects the developing spermatogenic cells from drugs and toxic materials.
 - 2- It prevents autoimmune infertility.



Spermatogenic Cells

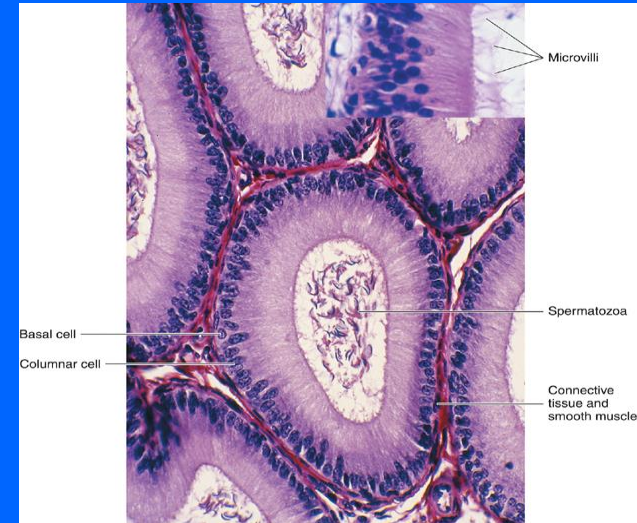
- A series of cells lining the seminiferous tubules extending from the BM to the lumen.
- Include:
 1. Spermatogonia.
 2. 1ry spermatocytes
 3. 2ry spermatocytes
 4. Spermatids.
 5. Spermatozoa.



EPIDIDYMIS (DUCTUS EPIDIDYMIS)

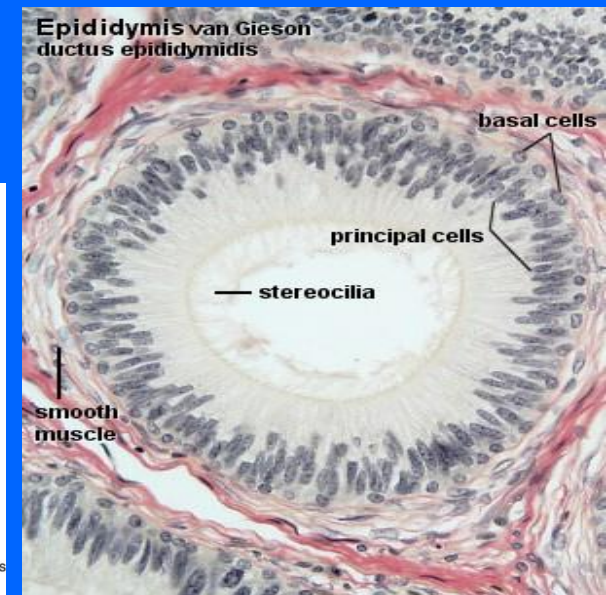
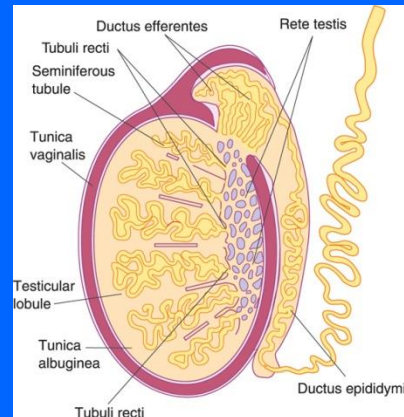
Structure:

- (1) Epithelium:
Ps. Str. Col. E. with stereocilia.
- (2) Basal lamina.
- (3) Loose C.T.
- (4) Layer of circularly-arranged smooth muscle cells.



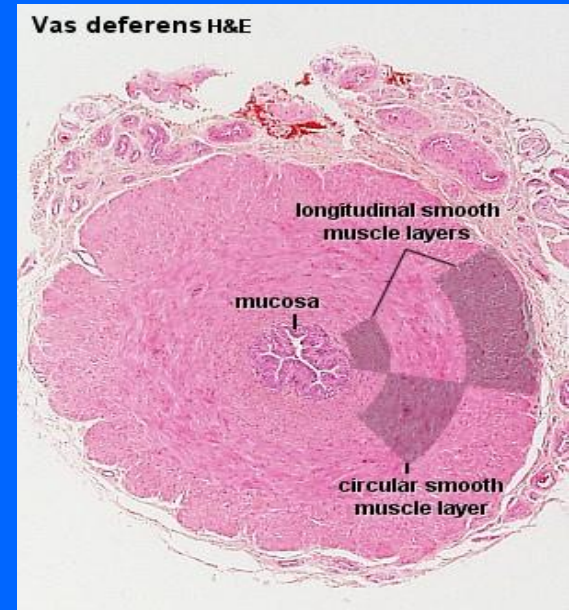
Functions:

- Storage & maturation of spermatozoa.
- Propelling spermatozoa to the vas deferens.



DUCTUS DEFERENS (VAS DEFERENS)

- It is a muscular narrow tube with irregular lumen.
- **Structure:**
 - (1) **Mucosa:** Ps. Str. Col. E. with stereocilia (immotile cilia) on a corium of loose C.T.
 - (2) **Muscularis** (thick; 3 layers):
 - Inner longitudinal muscle layer.
 - Middle circular “ “ .
 - Outer longitudinal “ “ .
 - (4) **Adventitia:** loose C.T.
- **Function:** Propelling of spermatozoa by strong peristalsis.

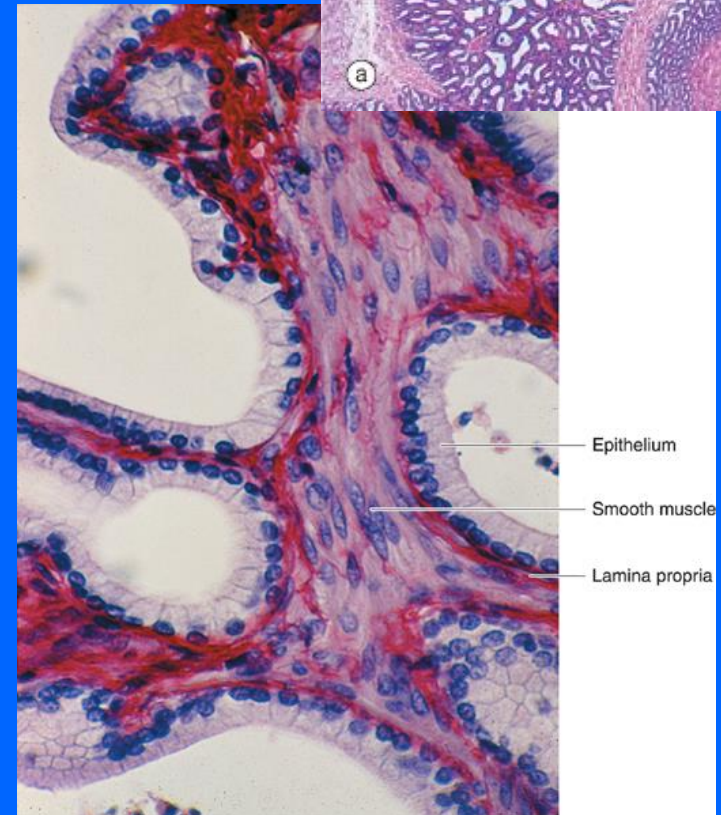
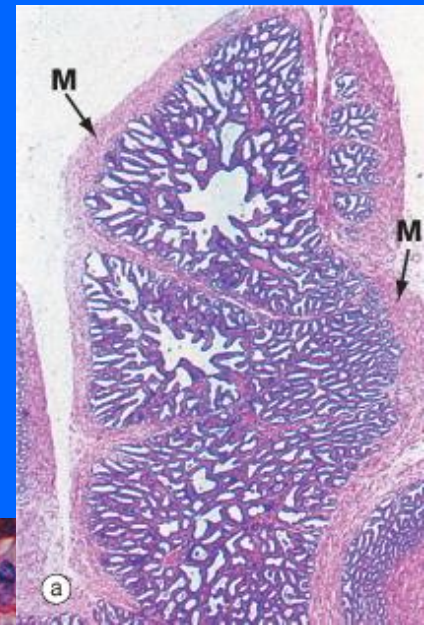


SEMINAL VESICLES

- (1) **Mucosa:** is highly folded.
 - Epithelium: Ps. Str. Col. E.
 - Lamina propria of C.T.
- (2) **Musculosa:**
 - Inner circular layer.
 - Outer longitudinal layer.
- (3) **Adventitia:** C.T.

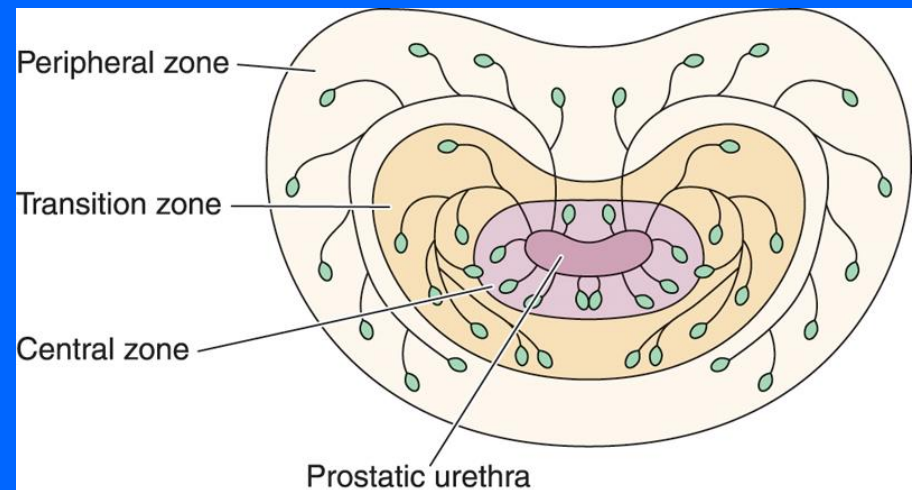
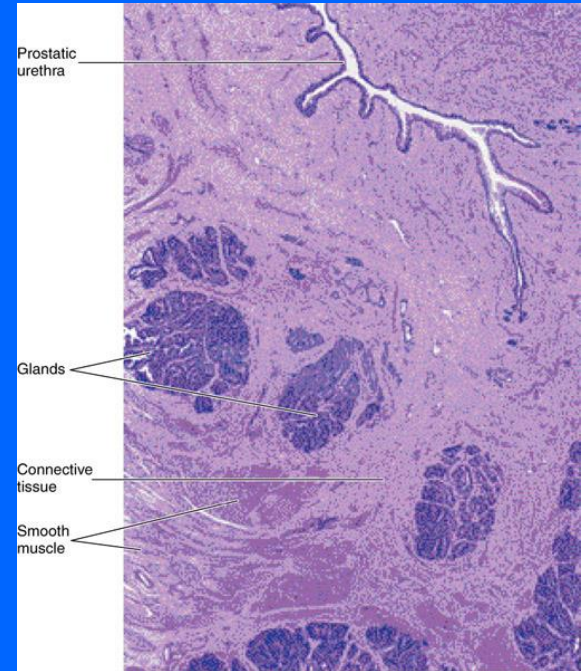
Function:

Secretion of most of seminal fluid, rich in fructose & vit. C. which are the main nutrients for spermatozoa.



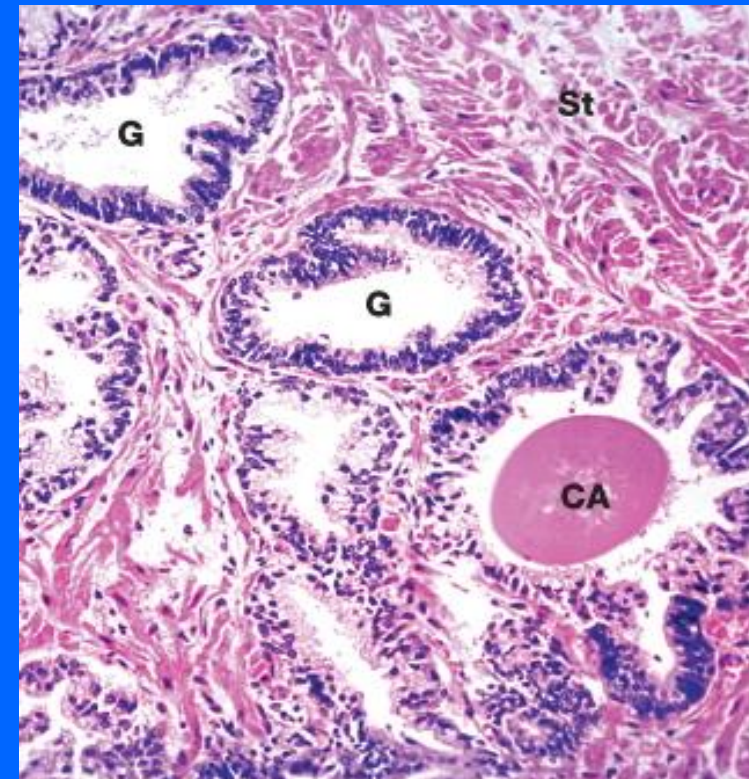
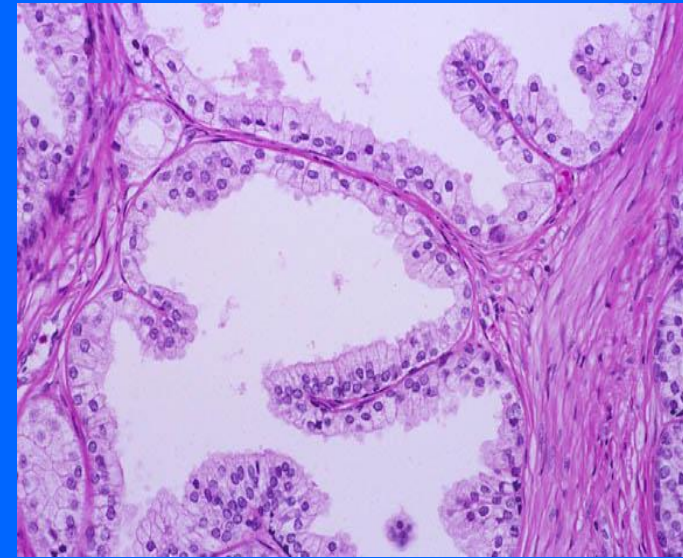
PROSTATE

- **Stroma**: fibromuscular capsule & trabeculae.
- **Parenchyma**: 30-50 glands in 3 concentric groups around the prostatic urethra:
 - Mucosal group: small.
 - Submucosal group: medium-sized.
 - Main group: Large, 70% of all glands.



PROSTATE

- Acini and ducts are lined with simple Col. or Ps. Str. Col. E. according to activity of the glands.
- Prostatic concretions (corpora amylacea):
 - Round or oval masses of glycoprotein in the lumen of some glands.
 - Increase with advancement of age & become calcified.
- **Function:** participates in the secretion of the seminal fluid. Its secretion is rich in acid phosphatase & proteolytic enzymes.



BEST WISHES