

# **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.**

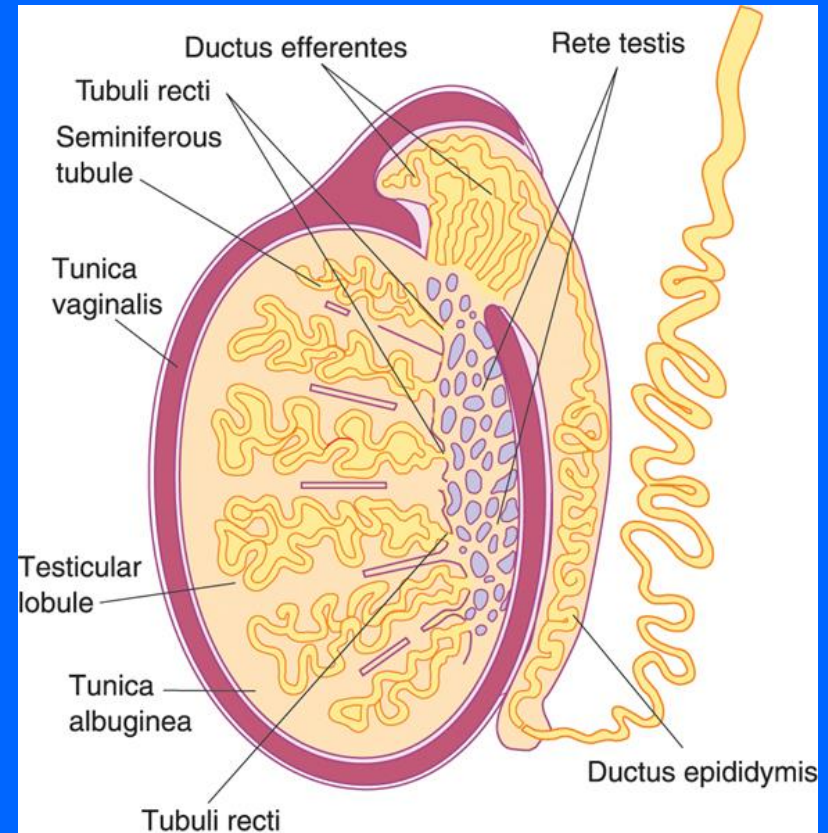
# TESTIS

## (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

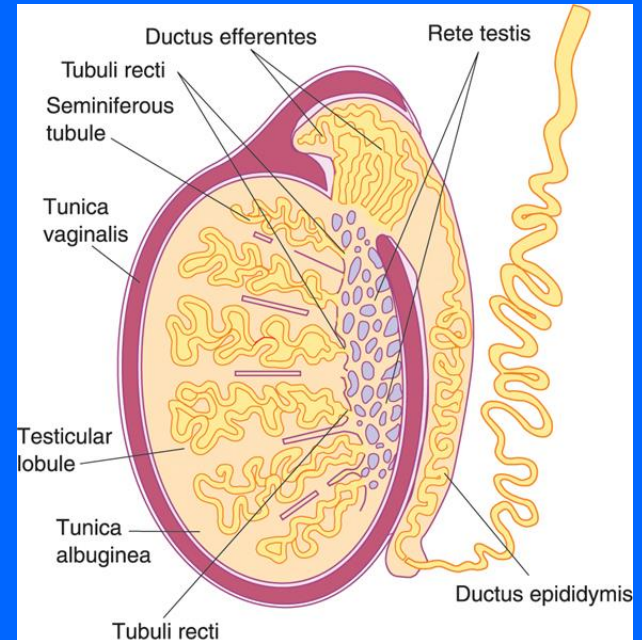
It is formed of mesothelial cells.

## 2. TUNICA ALBUGINEA

Dense irregular collagenous C.T.

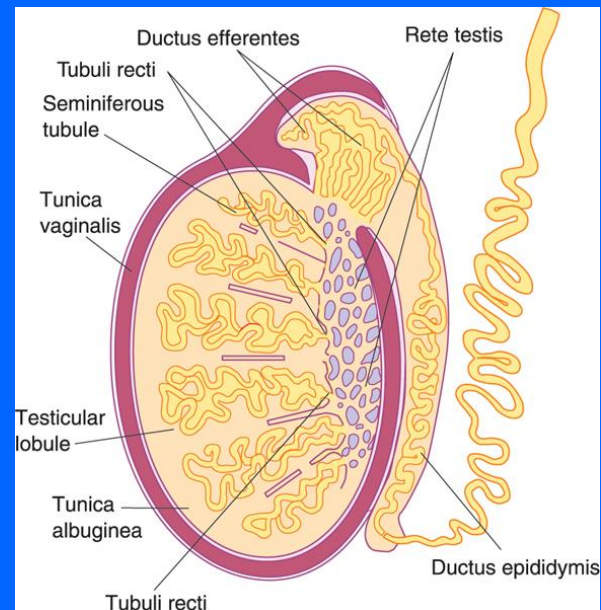
## 3. TUNICA VASCULOSA

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



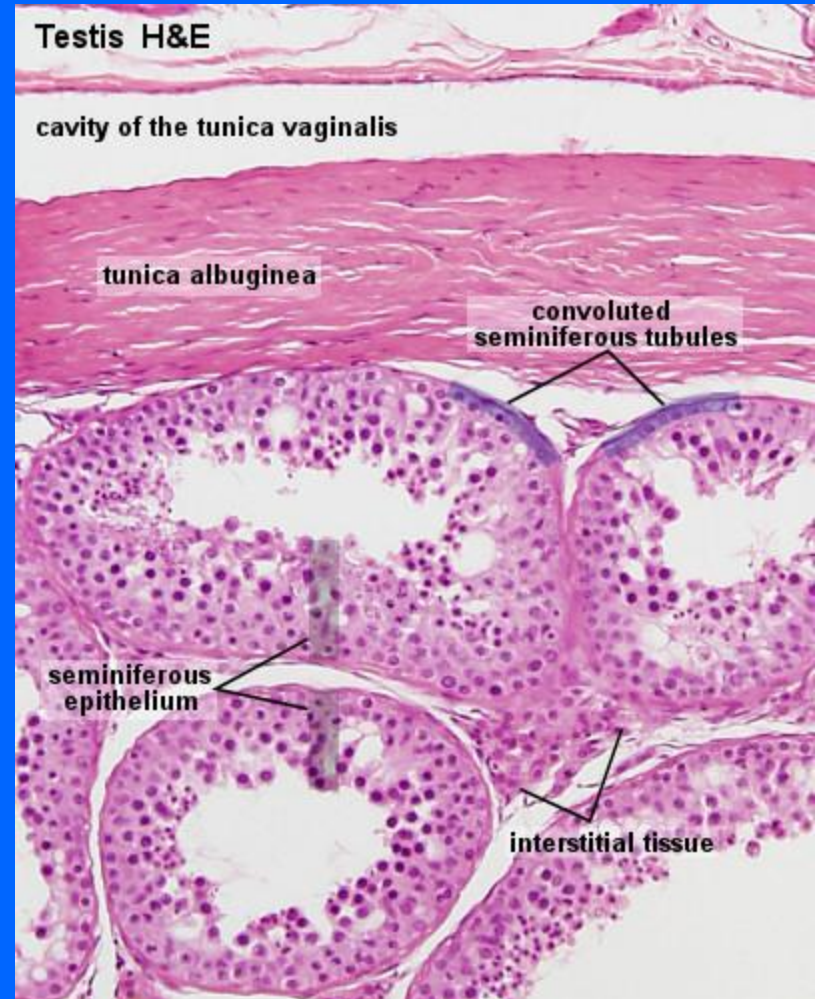
# Septa of the Testis

- 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.

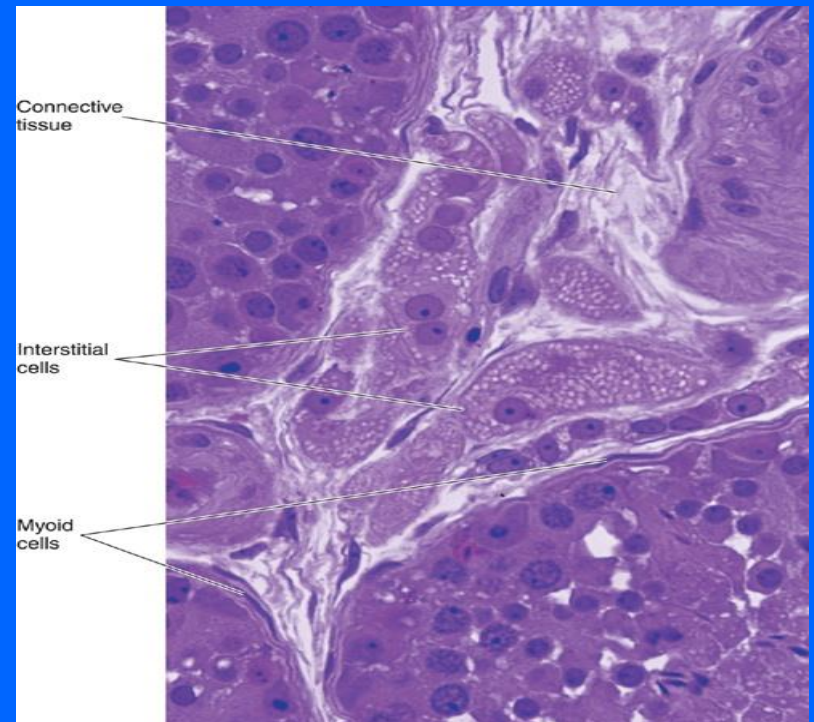




# *PARENCHYMA OF THE TESTIS*

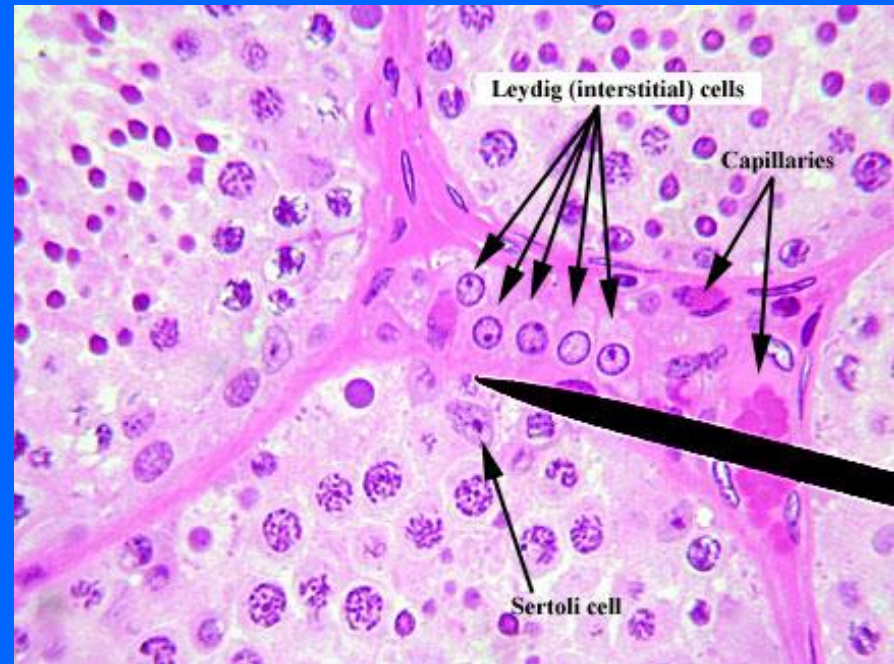
It is formed of:

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



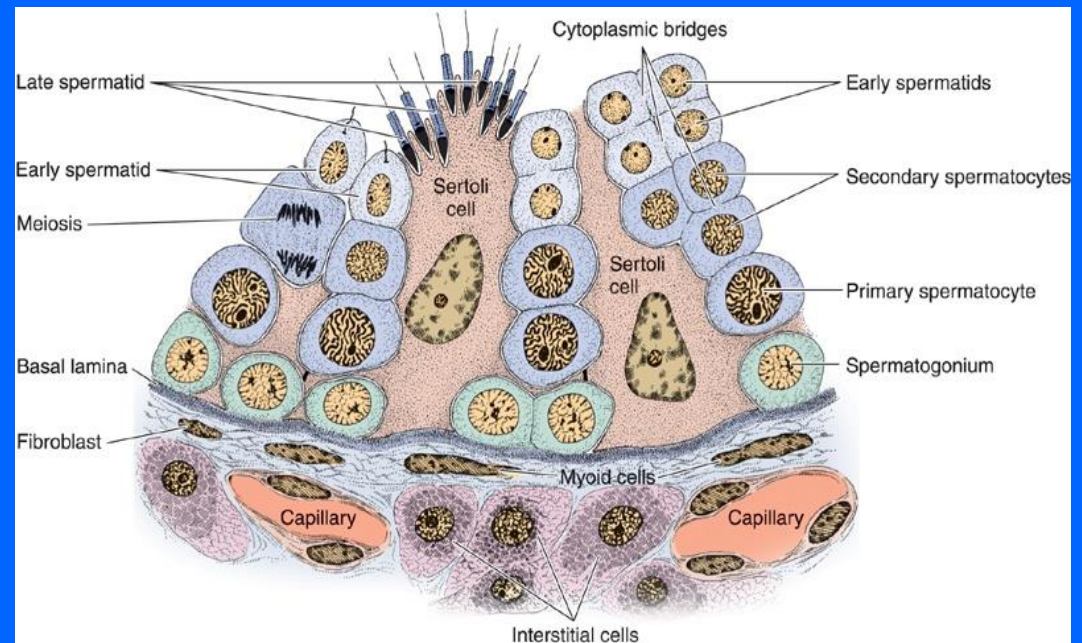
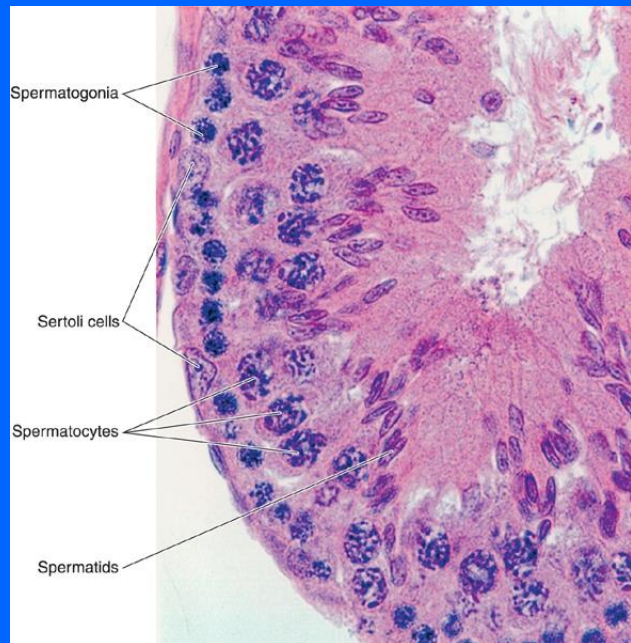
# Interstitial Cells of Leydig

- 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.



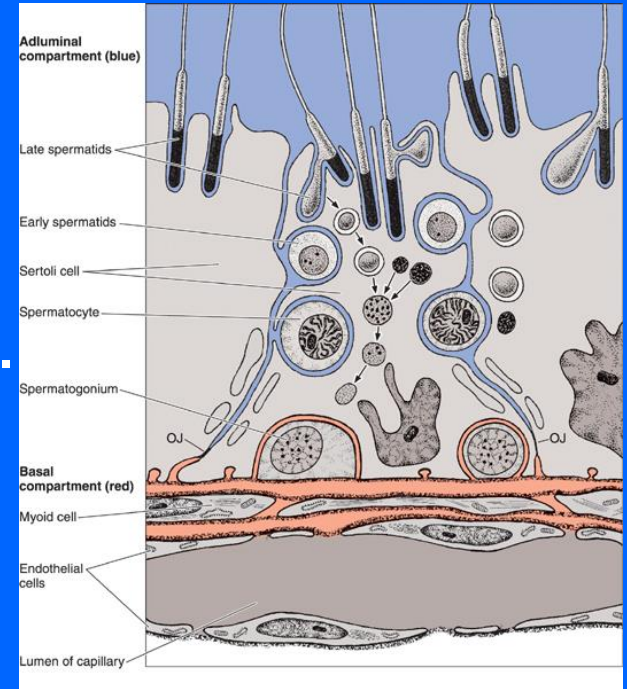


# Sertoli Cell

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

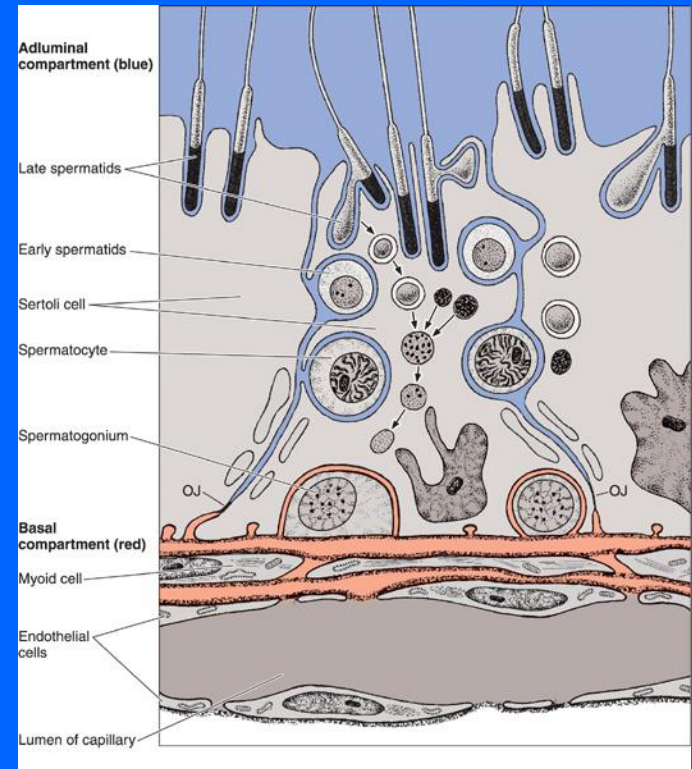
## ***Functions:***

- 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.



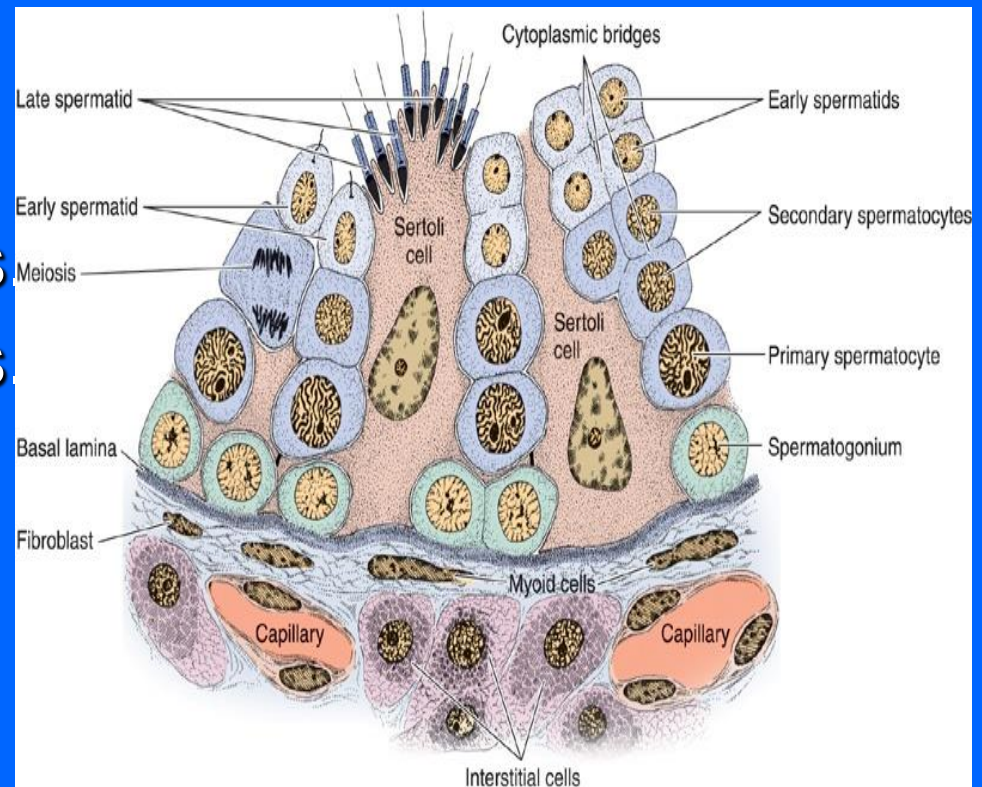
# Blood-Testis Barrier

- 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.

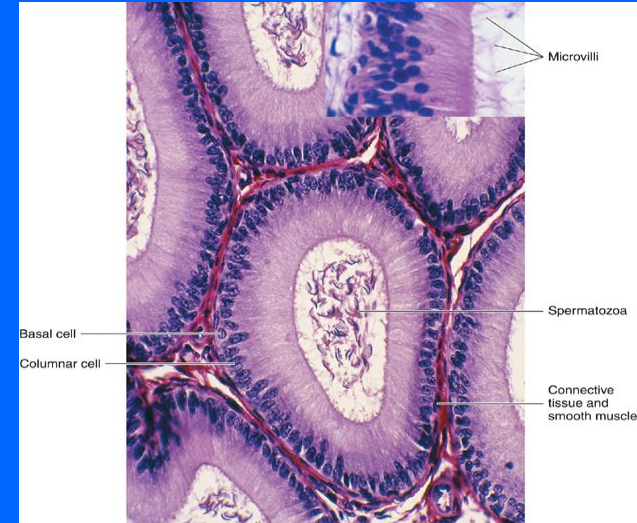




# EPIDIDYMIS (DUCTUS EPIDIDYMIS)

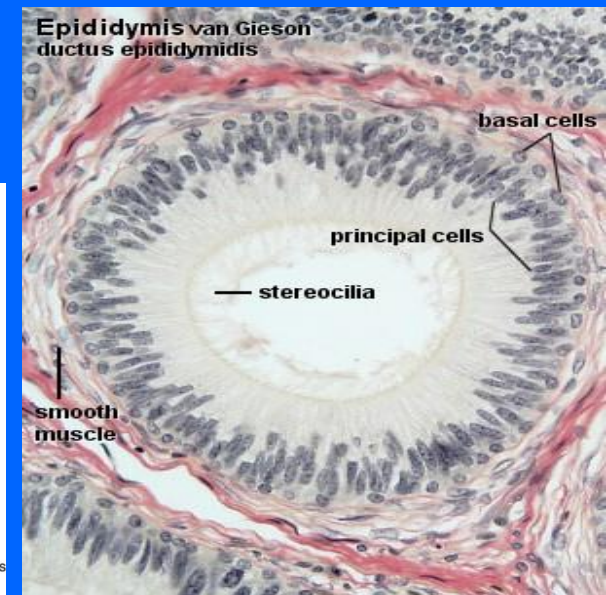
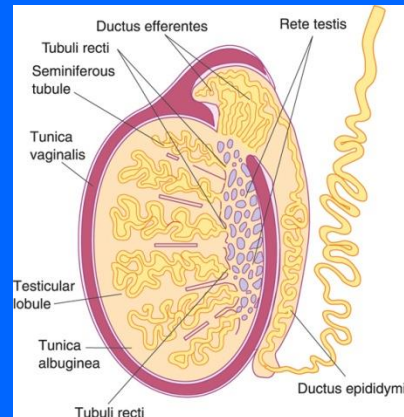
## Structure:

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



## Functions:

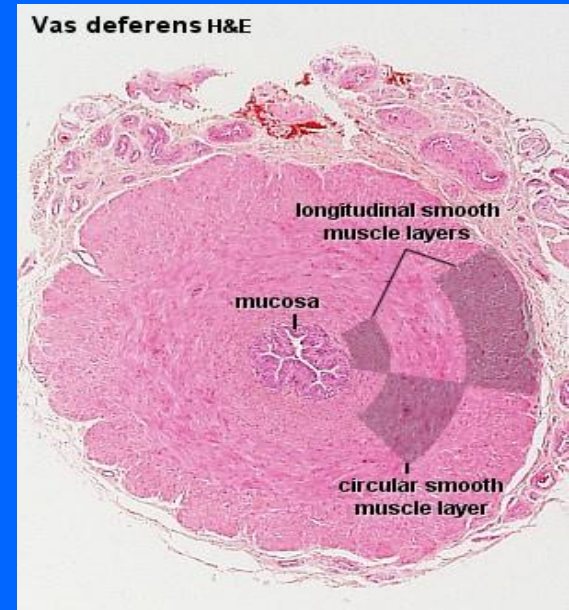
- Storage & maturation of spermatozoa.
- Propelling spermatozoa to the vas deferens.





# 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.

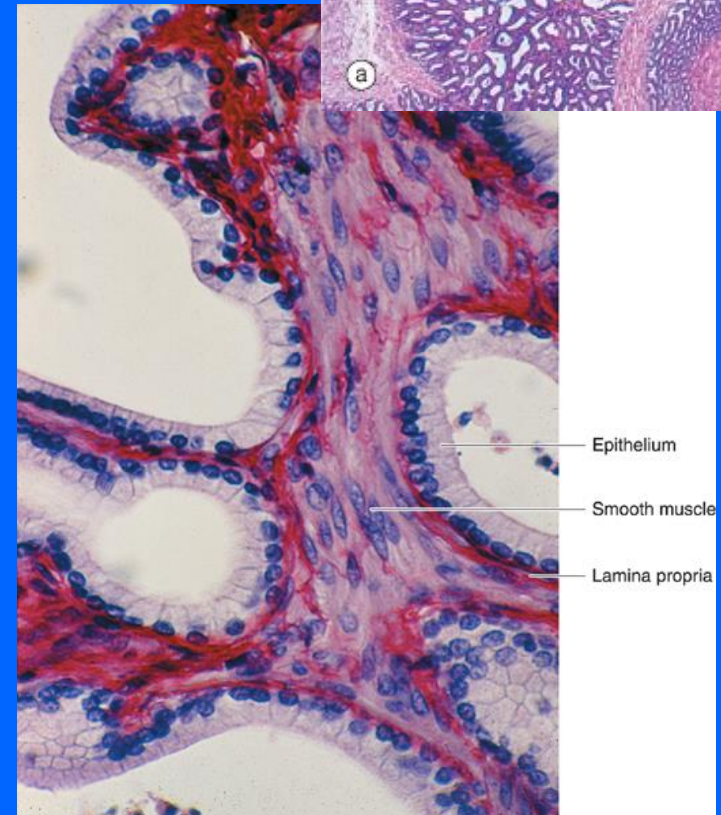
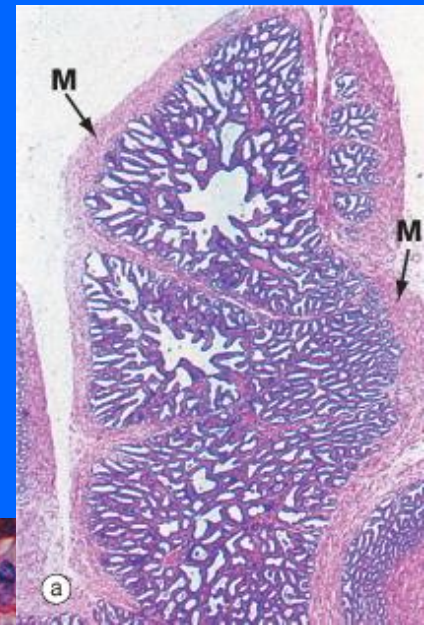


# SEMINAL VESICLES

- (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.

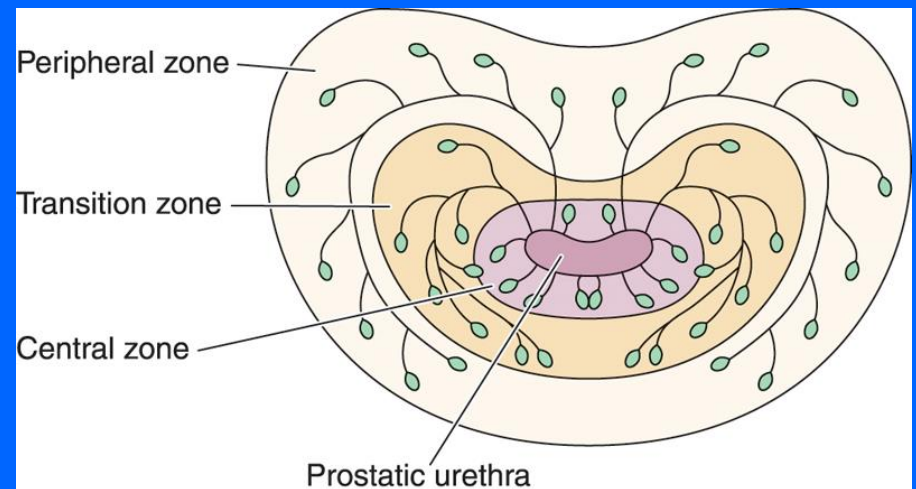
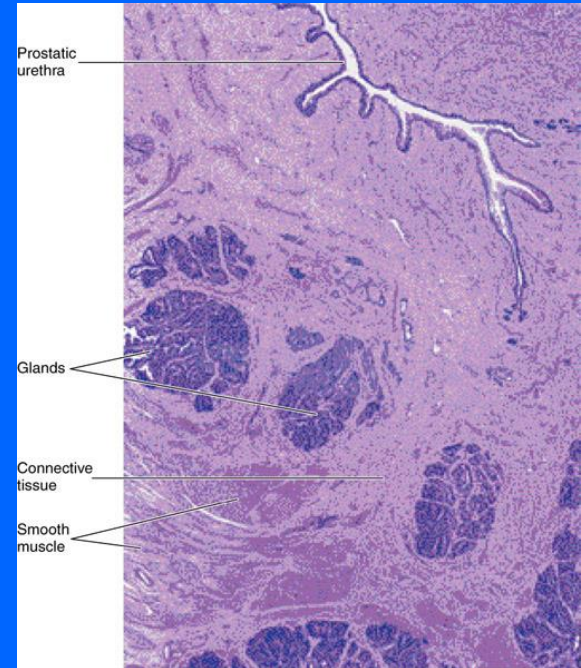
## Function:

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



# PROSTATE

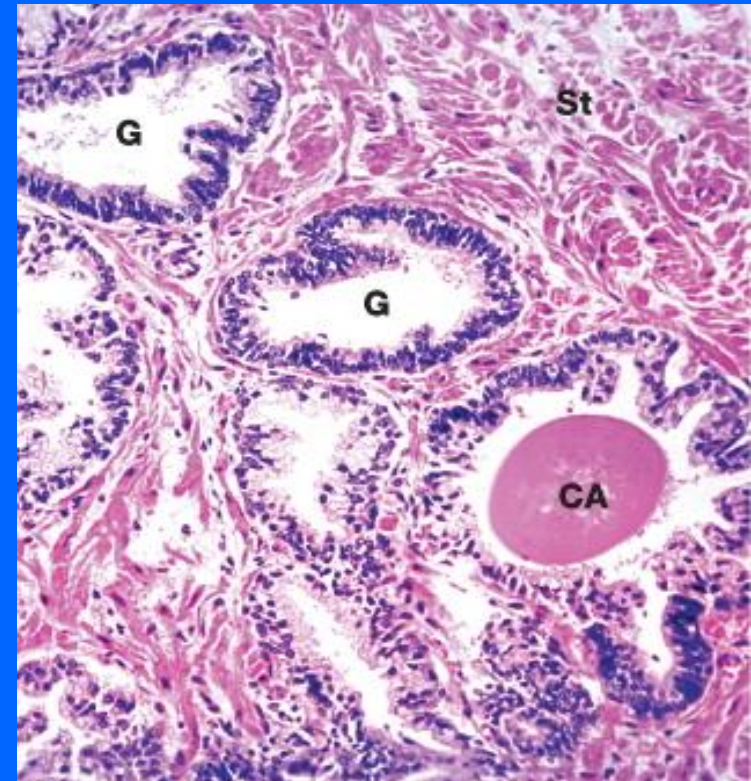
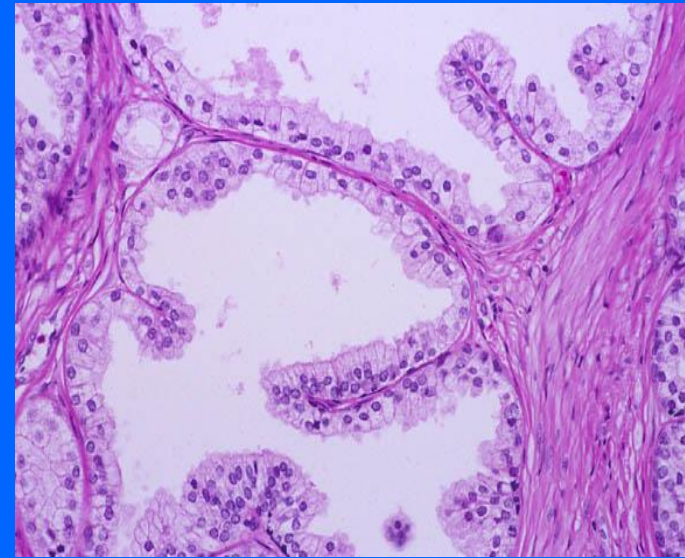
- **Stroma**: fibromuscular capsule & trabeculae.
- **Parenchyma**: 30-50 glands in 3 concentric groups around the prostatic urethra:
  - Mucosal group: small.
  - Submucosal group: medium-sized.
  - Main group: Large, 70% of all glands.





# 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**