

## UNIT 18

### MALE REPRODUCTIVE SYSTEM

Male reproductive system is the system of sex organs of male human beings, which is a part of the overall reproductive process of human beings.

**Reproduction:** Reproduction is the process of producing own kinds of off springs to maintain the continuity of race. In human beings, sexual type of reproduction takes place and for this type of reproduction, male and female reproductive systems are required.

#### Functions of Male reproductive system

1. It produces spermatozoa (sperm cell).
2. It transmits spermatozoa to the female.

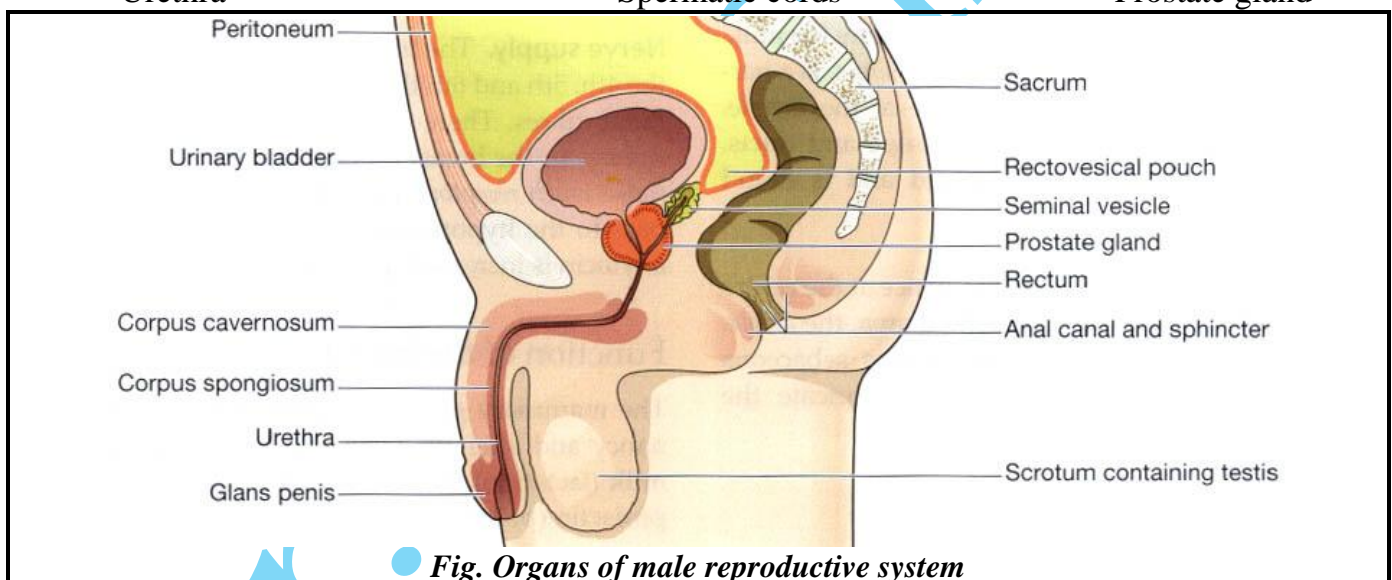
#### Organs of Male reproductive system

##### a. Primary sex organs

- Testes

##### b. Accessory sex organs

- |                                                                                                 |                                                                                                                   |                                                                                                                           |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Scrotum</li> <li>• Penis</li> <li>• Urethra</li> </ul> | <ul style="list-style-type: none"> <li>• Epididymis</li> <li>• Vas deferens</li> <li>• Spermatic cords</li> </ul> | <ul style="list-style-type: none"> <li>• Seminal vesicle</li> <li>• Ejaculatory duct</li> <li>• Prostate gland</li> </ul> |
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● *Fig. Organs of male reproductive system*

### TESTES

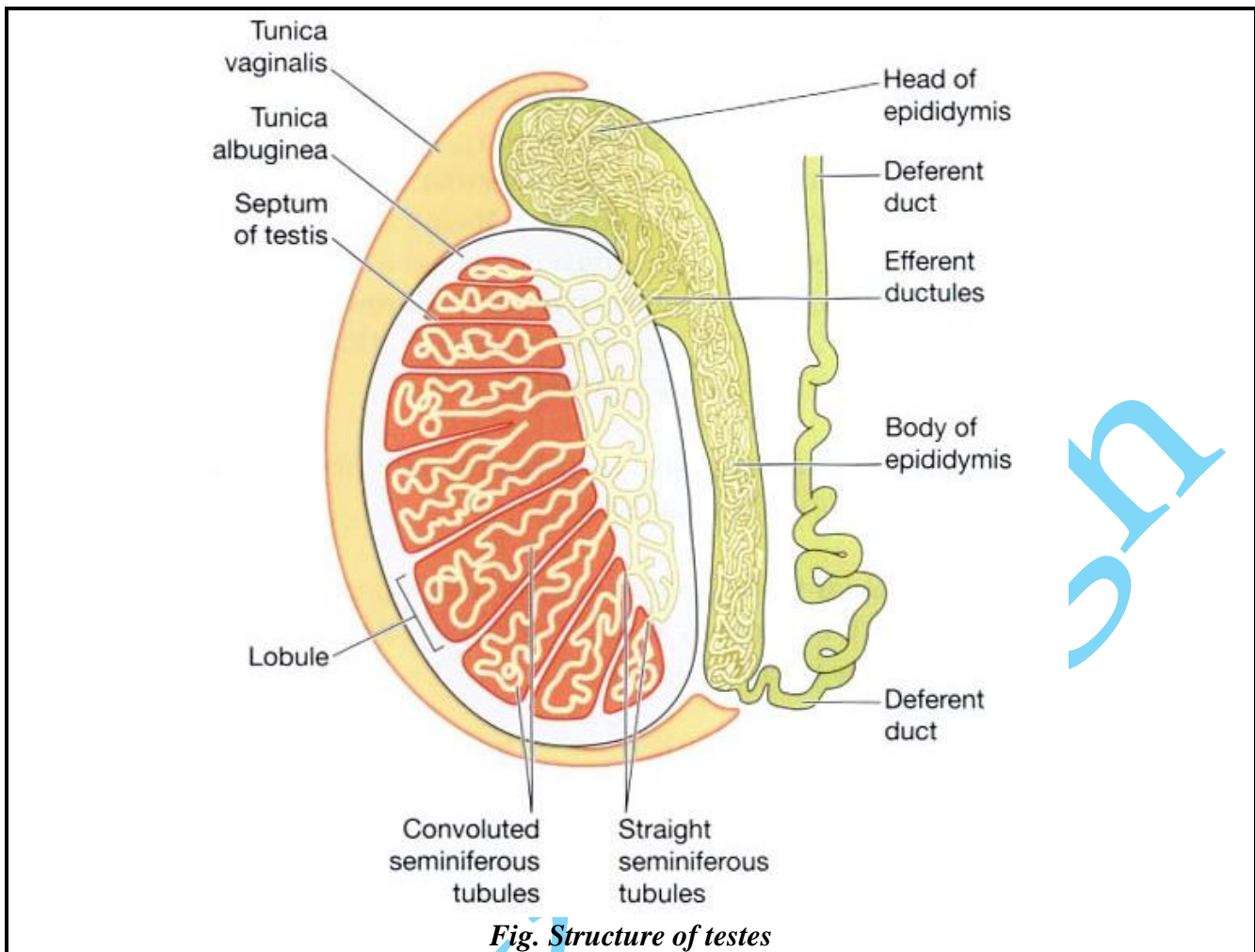
Testes are the male reproductive glands or organs. It is paired small, oval, pink coloured bodies. It is situated outside the abdominal cavity and inside the scrotum. It is about 4.5cm long, 2.5cm wide and 3cm thick. It is about 10 to 15gm in weight.

#### Structure of Testes

1. **Covering of testis:** The testes are covered by three layers of tissues.

- **Tunica vaginalis:** It is outer layer of testes formed by serous membrane.
- **Tunica albuginea:** It is middle layer of testes formed by fibrous tissue.
- **Tunica vasculosa:** It is inner layer of testis formed by connective tissue, and rich in blood vessels.

2. **Glandular part of testis (internal structure):** Each testis consists of 200 to 300 lobules. Each lobule contains 1 to 4 highly coiled loops called seminiferous tubule. In between seminiferous tubule lies the Interstitial cells (cells of Leydig). These cells secrete testosterone and a small amount of oestrogen.



### Functions of Testes

1. It produces spermatozoa.
2. It secretes of male sex hormone known as testosterone.

### Functions of Testosterone

1. Increase in size of penis, scrotum and testes.
2. Development of muscular growth.
3. Increase in bone growth.
4. Increase the thickness and colour of skin.
5. Hair distribution growth increase.
6. Change in voice.
7. Increase the basal metabolic rate.

### SCROTUM

The scrotum is a pouch like structure, containing testes, epididymis and lower part of the spermatic cord .It lies below the symphysis pubis and front of the upper part of the thighs and behind the penis.

### PENIS

It is a cylindrical, muscular, erectile and spongy organ. It is also known as organ of copulation. It is about 10cm long, 4cm breath.

### URETHRA

Urethra is extends from the internal urethral orifice at bladder to the external urethral orifice at the tip of penis.It serves as a common passage for urine and semen. It is also called urino-genital canal. The length male urethra is about 18 to 20 cm.

## EPIDIDYMIS

Epididymis is an important part of the male reproductive system. It is a firm structure lying posterior to the testis with vas deferens lying on its medial side. It is in the form of a narrow, coiled tube connecting the efferent ducts from the near of each testis to its vas deferens.

### Functions of epididymis

1. It stores sperm.
2. It transports spermatozoa from testes to vas deferens.

## VAS DEFERENS

Vas deferens is thick walled tube that conveys mature sperm from the epididymis to the ejaculatory duct. It is about 45cm long, 3mm diameter and 1mm thick, arising from the lower end of the epididymis.

### Function of vas deferens

- It transports spermatozoa from epididymis to ejaculatory duct.

## SPERMATIC CORD

Spermatic cord suspends the testes in the scrotum. Each spermatic cord is composed of fibro connective tissue and smooth muscle contained:

- Testicular artery
- Testicular vein
- Lymph vessels
- Nerves
- Vas deferens (Ductus deferens)

### Functions of spermatic cord

1. It suspends testes in the scrotum.
2. It gives passage for different structures.

## SEMINAL VESICLES

Seminal vesicles are two small fibro muscular pouches. They are situated in lower abdomen on either side of prostate.

### Functions of seminal vesicles

1. It secretes mucin.
2. These secretions provide nutrition of sperm and clotting of sperm.

## EJACULATORY DUCT

The ejaculatory ducts are two short tubes about 2cm in length. They pass through the prostate gland and join the prostatic urethra. It carries seminal fluid and spermatozoa to the urethra.

## PROSTATE GLAND

Prostate gland is an accessory gland of male reproductive system. It lies in the pelvic cavity in front of rectum and behind the symphysis pubis.

### Functions of prostate gland

1. It secretes prostatic fluid.
2. The prostatic fluids help in clotting of semen.

## SEMEN

Semen is a whitish fluid produced in the male reproductive organs. Each ejaculation discharges about 2-3 ml of semen with 200-300 million of sperms.

### Compositions of semen

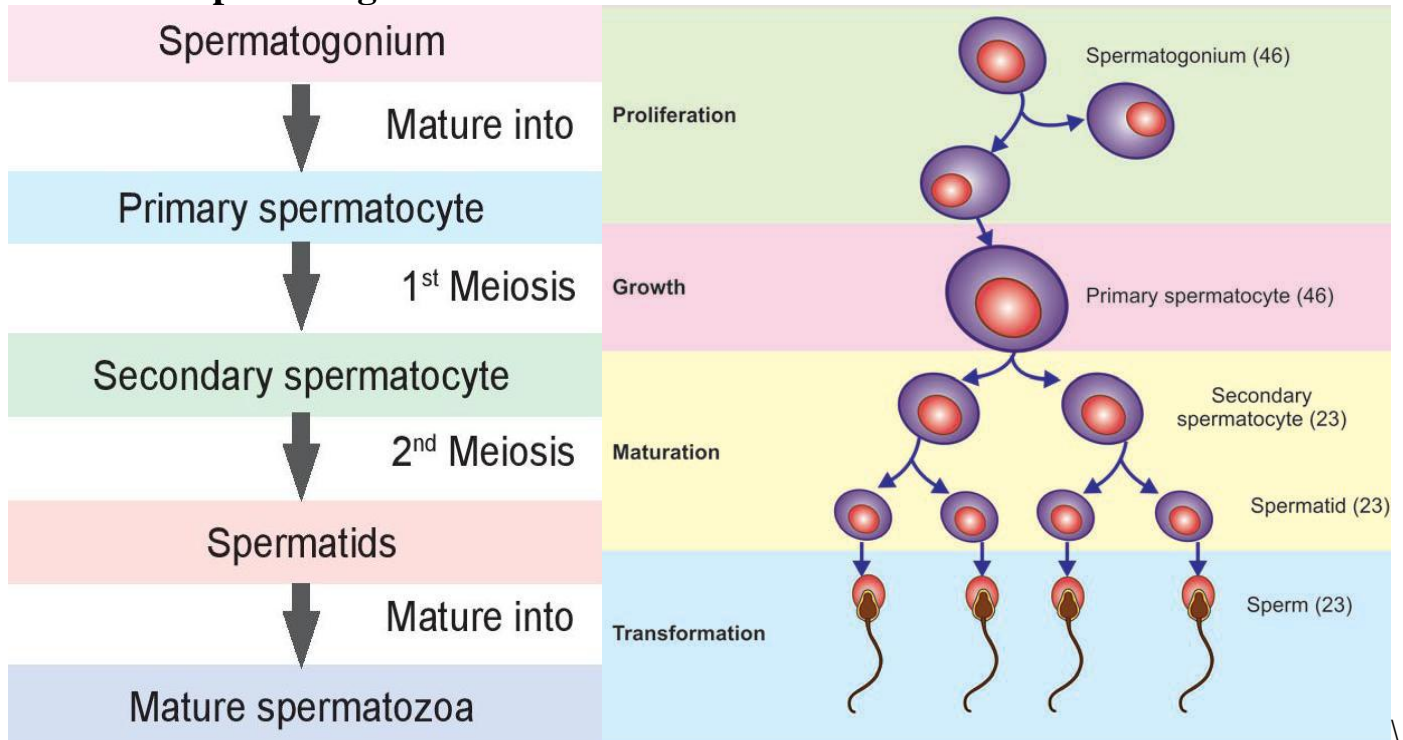
- |                                 |     |
|---------------------------------|-----|
| • Sperms                        | 10% |
| • Products from seminal vesicle | 60% |
| • Products from prostate gland  | 30% |

## FORMATION OF SPERMATOZOA (SPERMATOGENESIS)

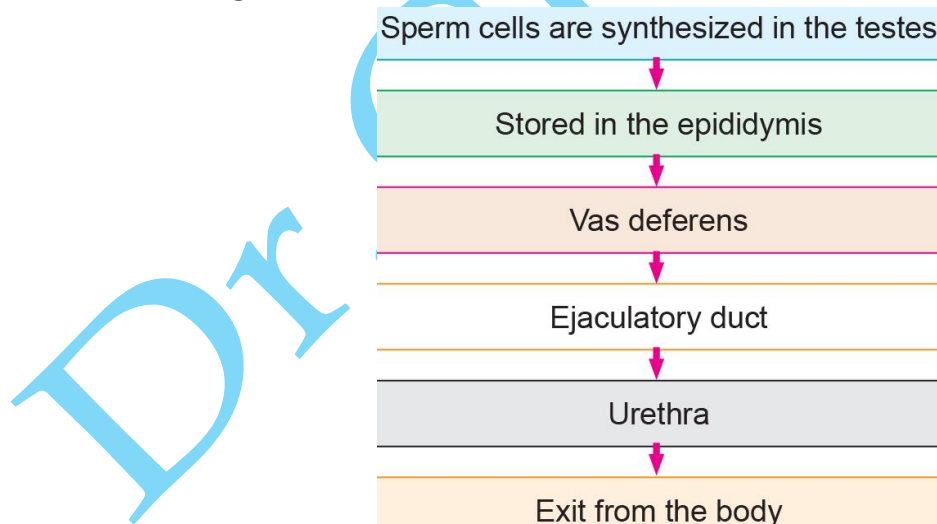
The maturation process by which spermatogonium is converted into mature sperm is known as spermatogenesis.

- **Site of production:** Seminiferous tubule in testes.
- **Starting:** From puberty.
- **Duration:** 64 days.

### Process of Spermatogenesis



### PATHWAY OF SPERM CELL FROM THEIR ORIGIN TO THEIR EXIT FROM THE BODY



### SECONDARY SEXUAL CHARACTERISTICS IN MALE

1. Growth of muscles and bones and a marked increase in height and weight.
2. Enlargement of the larynx and deepening of the voice.
3. Enlargement of the penis, scrotum and prostate gland.
4. Maturation of the seminiferous tubules.
5. Production of spermatozoa.
6. The skin thickens and becomes oilier.
7. Growth of axillary hair, pubic hair, hair on the face, chest, abdomen.
8. Mental inclination to the opposite sex.