

HUMAN REPRODUCTIVE SYSTEM

THE MALE REPRODUCTIVE SYSTEM

MALE REPRODUCTIVE SYSTEM

- The male reproductive system is located in the pelvic region. It includes a pair of **testes**, **accessory ducts**, **accessory glands** and the **external genitalia**.
- Besides male reproductive system there are certain secondary sexual characters which are evident in males such as facial & chest hairs, broad shoulders, narrow hips, Adam's apple (low pitch voice), abdominal breathing and high BMR.
- In males puberty is attained at 13-16 year.

Resonate the Concept

The **primary sex organs** are **testes** in males and **ovaries** in females (mesodermal origin). Besides producing gametes, they also secrete sex hormones. The growth of gonads, their maintenance and functions are regulated by **gonadotropins** (FSH, LH) of the anterior lobe of pituitary. The other reproductive organs which perform important functions in reproduction but neither produce gametes nor secrete sex hormones, are called **secondary sex organs**. These include the prostate, seminal vesicles, vas deferens and penis in males, and the fallopian tubes, uterus, vagina and mammary glands in females.

Testes:

- The testes (singular, testis) are paired oval structures of 4-5 cm length and 2-3 cm width.
- They develop on the embryo's posterior abdominal wall and usually begin their descend into the pouch like scrotum which is situated outside the abdominal cavity in the seventh month of foetal development.
- This descent is promoted in the presence of the hormone testosterone. Hence, the testes of adult human males are **extra abdominal**.

Scrotum:

- The two testis are each held in a fleshy sac called the **scrotum**.
- The scrotum helps in maintaining the low temperature of the testes ($2 - 2.5^{\circ}\text{C}$ lower than the normal internal body temperature), which is necessary for spermatogenesis.
- The two muscles that regulate the temperature of the testes are the **dartos and cremaster muscles**:

Dartos Muscle:

- The dartos muscle is a layer of smooth muscle fibers in the subcutaneous tissue of the scrotum (surrounding the scrotum). This muscle is responsible for wrinkling up the scrotum, in conditions of cold weather, in order to maintain the correct temperature for spermatogenesis.

Cremaster Muscle:

- It is a thin strand of skeletal muscle associate with testes and spermatic cord. It is responsible for raising and lowering the testes to keep them at the correct temperature.

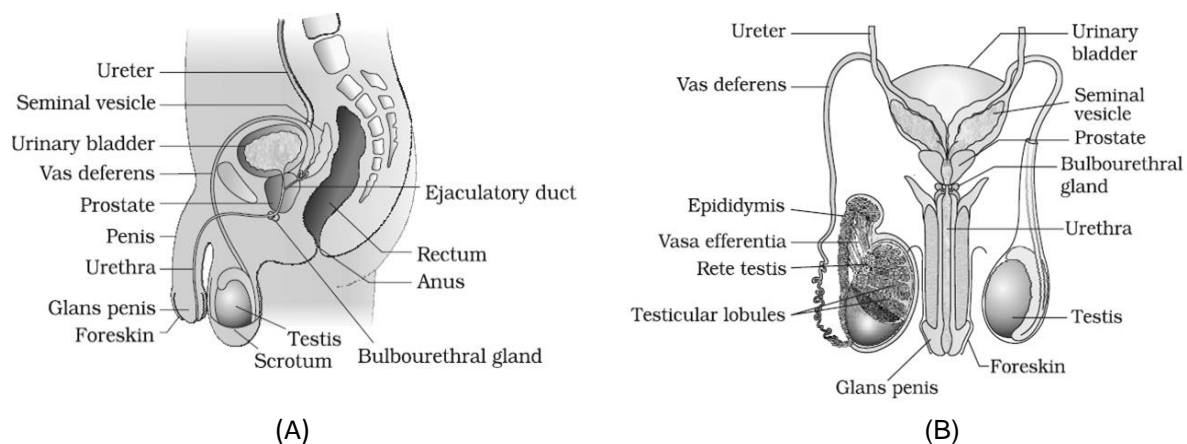


Fig. : (A) Diagrammatic sectional view of male pelvis showing reproductive system,
(B) Diagrammatic view of male reproductive system (part of testis is open to show inner details)

IMPORTANT POINT:

- If one or both the testes in human male fail to descend into the scrotum, the condition is called **cryptorchidism**. If both the testes fail to descend, it results in sterility. Orchiopexy is surgery to correct it.
- There are certain mammals in which the testes remain permanently in the abdomen and does not cause any defect. Examples are elephant, aquatic mammals like whales, dolphins, seal and prototherians or egg laying mammals like Ornithorhynchus.
- In mammals which breed seasonally, the testes descend into scrotum only during the breeding season, example Rat, Bat and Otter.