HUMAN REPRODUCTIVE SYSTEM

INTRODUCTION

- The capacity to reproduce is one of the most important characteristics of living beings.
- There is a distinct sexual dimorphism in human beings i.e., males are visibly different from females in physical build up, external genital organs and secondary sexual characters.
- The reproductive systems of male and female consist of many organs which are distinguished as primary and secondary sex organs.
- The primary sex organs are gonads, which produce gametes (sex cells) and secrete sex hormones.
- The secondary sex organs include the genital ducts and glands which help in the transportation of gametes and enable the reproductive process.
- The reproductive organs become functional after attaining sexual maturity.
- In males, sexual maturity is attained at the age of 13-14 years. In females, it is attained at the age of 11-13 years.
- This age is known as the age of puberty.
- During sexual maturity, hormonal changes take place in males and females and secondary sexual characters are developed under the influence of these hormones.

MALE REPRODUCTIVE SYSTEM

Human male reproductive system consists of

- testes (primary sex organs)
- scrotum
- vas deferens
- urethra
- penis and accessory glands.

TESTIS:

- A pair of testes lies outside the abdominal cavity of the male.
- These testes are the male gonads, which produce male gametes **(sperms)** and male sex hormone (**Testosterone**).
- Along the inner side of each testis lies a mass of coiled tubules called **epididymis**.
- The **Sertoli cells** of the testes provide nourishment to the developing sperms.

SCROTUM:

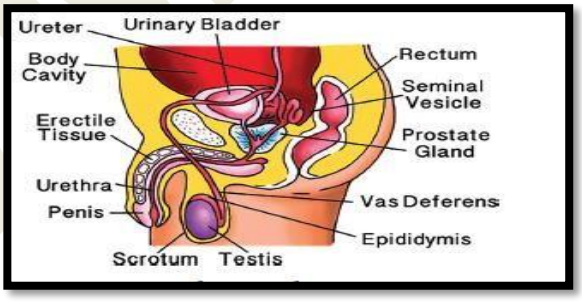
- The scrotum is a loose pouch-like sac of skin which is divided internally into right and left **scrotal sacs** by muscular partition.
- The two testes lie in the respective scrotal sacs. It also contains many nerves and blood vessels.
- The **scrotum** acts as a **thermoregulator organ** and provides an optimum temperature for the formation of sperms.
- The sperms develop at a temperature of 1-3ºC lower than the normal body temperature.

VAS DEFERENS:

- It is a straight tube which carries the sperms to the **seminal vesicles**.
- The sperms are stored in the seminal plasma of seminal vesicle, which is rich in fructose, calcium and enzymes. Fructose is a source of energy for the sperm.
- The **vas deferens** along with seminal vesicles opens into ejaculatory duct which expels the sperm and its secretions from seminal vesicles into the urethra.

URETHRA:

- It is contained inside the penis and conveys the sperms from the vas deferens which pass through the urethral opening.
- The accessory glands associated with the male reproductive system consist of seminal vesicles, prostate gland and Cowper's glands.
- The secretions of these glands form seminal fluid and mixes with the sperm to formsemen. This fluid provides nutrition and helps in the transport of sperms.



- The sperm is the smallest cell in the male body. A normal male produces more than 500 billion sperm cells in his life time.
- The process of formation of sperms is known as **spermatogenesis.**

FEMALE REPRODUCTIVE SYSTEM

The female reproductive system consists

- ovaries (primary sex organs)
- oviducts
- Uterus and vagina.

OVARIES:

- A pair of almond-shaped ovaries is located in the lower part of abdominal cavity near the kidneys in female.
- The ovaries are the female gonads, which produce female gametes (**eggs or ova**) and secrete female sex hormones (**Oestrogen and Progesterone**).
- A mature ovary contains a large number of ova in different stages of development.

FALLOPIAN TUBES (OVIDUCTS):

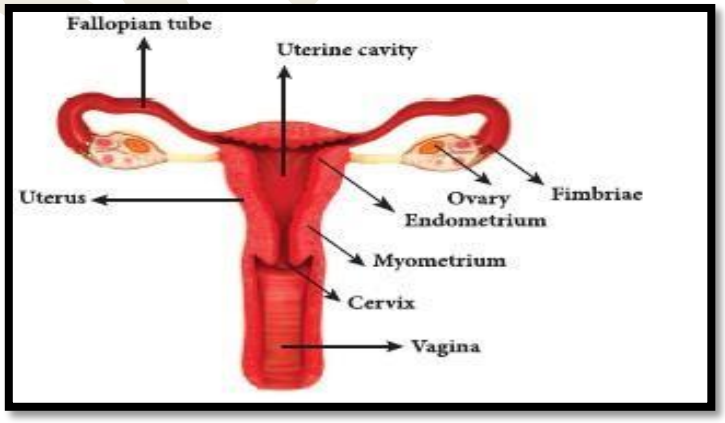
- These are paired tubes originating from uterus, one on either side
- The terminal part of **fallopian tube** is funnel-shaped with finger-like projections called **fimbriae** lying near the ovary.
- The fimbriae pick up the ovum released from ovary and push it into the fallopian tube.

UTERUS:

- Uterus is a pear-shaped muscular, hollow structure present in the pelvic cavity. It lies between urinary bladder and rectum.
- Development of foetus occurs inside the uterus.
- The narrower lower part of uterus is called **cervix**, which leads into vagina.

VAGINA:

- The uterus narrows down into a hollow muscular tube called vagina.
- It connects cervix and the external genitalia.
- It receives the sperms, acts as birth canal during child birth (**parturition**).



- An ovum is the largest human cell. The process of formation of ova is known as **oogenesis.**