

1. HUMAN REPRODUCTIVE SYSTEM

Single Page Simple Synopsis

The **human reproductive system** is an organ system responsible for producing offspring. It relies on distinct male and female anatomies that mature during puberty to facilitate gamete (sperm and egg) production, fertilization, and the internal development of the fetus.

1. Male Reproductive System

The primary function is to produce and deliver sperm.

Testes: Primary male sex organs that produce sperm and testosterone.

Epididymis: A coiled tube where sperm mature and are stored.

Vas Deferens: Muscular tubes that transport mature sperm to the urethra.

Accessory Glands: The seminal vesicles and prostate gland add fluids to sperm to create semen.

Penis & Scrotum: The external genitalia responsible for delivering sperm into the female reproductive tract.

2. Female Reproductive System

The primary functions are to produce eggs, house the developing embryo, and give birth.

Ovaries: Primary female sex organs that produce eggs (ova) and hormones like estrogen.

Fallopian Tubes (Oviducts): The site where fertilization typically occurs.

Uterus (Womb): A muscular organ where the fertilized egg implants and the fetus develops.

Vagina: A muscular canal that receives sperm and acts as the birth canal.

3. Key Reproductive Processes

Puberty: The transition period when reproductive organs mature.

Gametogenesis: The creation of sperm (spermatogenesis) and egg cells (oogenesis).

Fertilization: The fusion of sperm and egg in the fallopian tube to form a zygote.

Pregnancy (Gestation): The roughly 9-month period where the embryo implants in the uterus, develops a placenta for nourishment, and grows into a fetus.

Birth (Parturition): The process of delivering the baby from the uterus through the vagina.

FRUIT POINTS

1. **Reproduction** is a vital process that allows species to continue living through millions of years.
2. **Sexual reproduction** enables the creation of new variants, which enhances survival advantages.
3. Humans are characterized as **sexually reproducing and viviparous**.
4. These reproductive events typically occur after the onset of **puberty**.
5. The **male reproductive system** is located in the pelvis and includes testes, accessory ducts, glands, and external genitalia.
6. **Testes** are situated in a pouch called the **scrotum** outside the abdominal cavity.
7. The scrotum maintains a **lower temperature** (2–2.5°C below body temp) required for spermatogenesis.
8. Each testis contains approximately **250 compartments** known as testicular lobules.
9. Male **sex accessory ducts** include the rete testis, vasa efferentia, epididymis, and vas deferens.
10. The **penis** is the male external genitalia, composed of special tissue that facilitates erection for insemination.
11. The **glans penis** is its enlarged end, covered by a loose fold of skin called the **foreskin**.
12. **Ovaries** are the primary female sex organs, producing the ovum and steroid (ovarian) hormones.
13. Each ovary is 2 to 4 cm long and is connected to the pelvic wall and uterus by **ligaments**.
14. Female accessory ducts consist of the **fallopian tubes (oviducts), uterus, and vagina**.
15. The **infundibulum** of the fallopian tube has finger-like **fimbriae** to collect the ovum after ovulation.
16. The **uterus (womb)** is shaped like an inverted pear and opens into the vagina through a narrow cervix.
17. The uterine wall has three layers: **perimetrium, myometrium, and endometrium**.
18. Female **external genitalia** include the mons pubis, labia majora, labia minora, hymen, and clitoris.
19. **Mammary glands** contain 15-20 mammary lobes with milk-secreting cells called **alveoli**.
20. **Spermatogenesis** is the process where immature male germ cells produce sperms, starting at puberty.
21. **Spermiation** is the final release of sperms from the seminiferous tubules.
22. A mature **sperm** consists of a head, neck, middle piece, and a tail.

23. **Oogenesis** is the formation of a mature female gamete, initiated during embryonic development.
24. **Primary oocytes** are arrested at prophase-I of meiotic division until puberty.
25. At puberty, only **60,000-80,000 primary follicles** are left in each ovary.
26. **Ovulation** is the rupture of the mature Graafian follicle to release the secondary oocyte (ovum).
27. The **menstrual cycle** is the reproductive cycle of female primates, repeating every 28/29 days.
28. **Menarche** is the first menstruation at puberty; **menopause** is its cessation around age 50.
29. The **follicular phase** involves follicle growth and regeneration of the endometrium.
30. **Fertilisation** occurs in the ampullary region of the fallopian tube when a sperm fuses with an ovum.
31. The **sex of the baby** is determined by the father's sperm (X or Y chromosome) at the time of fertilisation.
32. **Cleavage** refers to the mitotic divisions of the zygote as it moves toward the uterus.
33. The **placenta** is the structural and functional unit that connects the foetus to the maternal body.
34. Seminal plasma in humans is rich in **fructose, calcium** [2009, 2010 PMT]
35. Sertoli cells are found in **seminiferous tubules** [2010 PMT]
36. The signal for parturition originate from **placenta as well as fully developed foetus.** [2010,12]
37. Menstrual flow occurs due to lack of **progesterone.** [NEET-2013]
38. The main function of mammalian corpus luteum is to produce **progesterone.** [NEET-2014]
39. Capacitation refers to changes in the **sperm before fertilisation.** [NEET-2015]
40. Hysterectomy is surgical removal of **uterus** [NEET-2015]
41. In human females, meiosis-II in the gamete is not completed until **fertilisation.**[NEET-2015]
42. Hormones like hCG, hPL, estrogen, progesterone are produced by **placenta.** [NEET-2016]
43. Capacitation occurs in **female reproductive tract.** [NEET-2017]
44. **Colostrum**, the **yellowish fluid** secreted by mother is very essential to [NEET-2019]
impart immunity to the new born infants because it contains **Immunoglobulin A.**
45. Receptors for sperm binding in mammals are present on **zona pellucida.** [NEET-2021]
46. The release of sperms into the seminiferous tubules is called **spermiation.** [NEET-2022]
47. Graafian follicle ruptures to release the secondary oocyte from the ovary [NEET-2023]
by the process is known as ovulation.
48. Infundibulum, Ampulla & Isthmus are the components of **fallopian tube.** [NEET-2025]
49. The first mensuration is called **Menarche.** [NEET-2025]