

BIOLOGY

CLASS NOTES FOR CBSE

Chapter 03. Human Reproduction

01. Introduction

The reproductive system of sexually reproducing animal consist of :

- Primary sex organs (called gonads) which produce gametes and hormones.
- Secondary sex organs which participate in reproduction but not form gametes.
- Accessory sex organs cause difference in the appearance of two sexes.

02. Primary sex organs

The primary reproductive organs, or gonads, consist of the ovaries and testes. These organs are responsible for producing the egg and sperm cells and hormones. These hormones function in the maturation of the reproductive system, the development of sexual characteristics, and have important roles in regulating the normal physiology of the reproductive system. All other organs, ducts, and glands in the reproductive system are considered secondary, or accessory, reproductive organs.

03. Male reproductive system

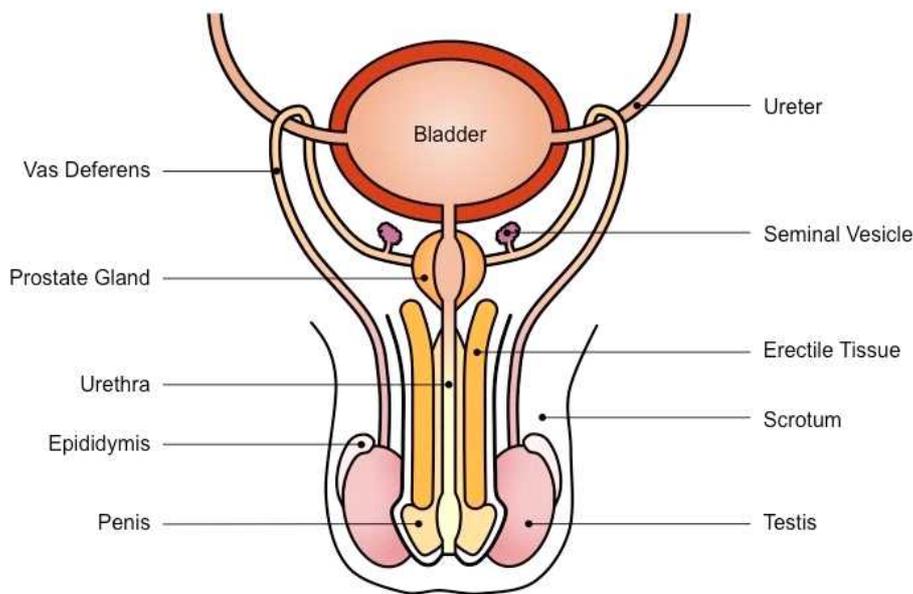
The male reproductive system consists of glands with their ducts and supporting structures

- (i) The glands include a pair of testes, a pair of seminal vesicles, a pair of bulbourethral (Cowper's) glands, and one prostate gland.
- (ii) Ducts of testes include a Pair of epididymis, a pair of vas deferens, a pair of ejaculatory ducts, and one urethra.
- (iii) Supporting structures are divided into: *Internal* - a pair of spermatic cords and *External*-Scrotum and penis.

Testes

The male gonads, testes, begin their development high in the abdominal cavity. near the kidneys. During the last two month before birth, or shortly after birth, they descend through the inguinal canal into the **scrotum**, a pouch that extends below the abdomen, posterior to the penis.





Hormones control

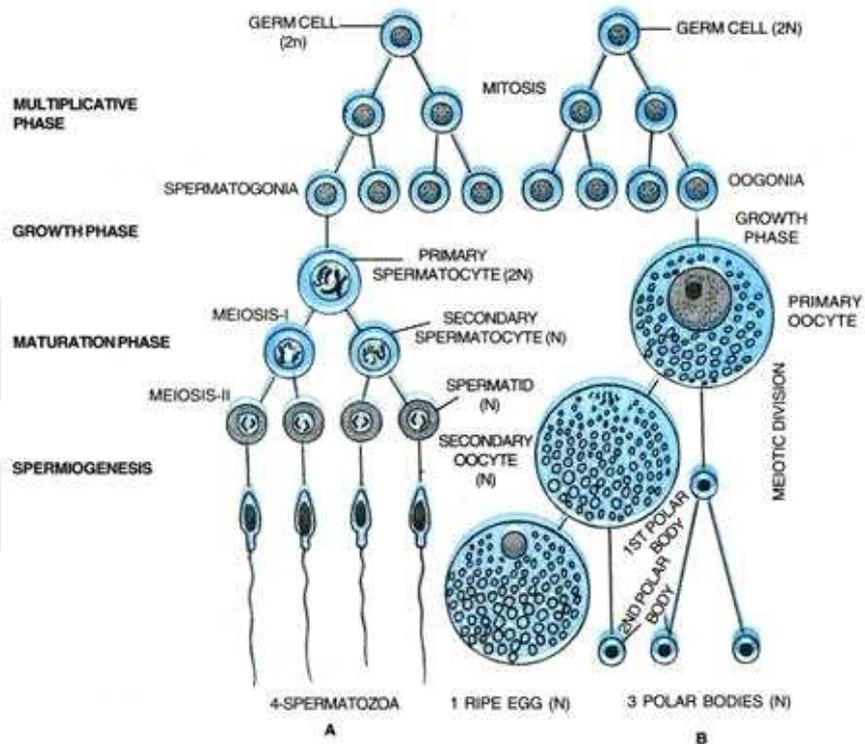
The hypothalamus has ultimate control of the testes' sexual function because it secretes a hormone called gonadotropin releasing hormones, or GnRH, that stimulates the anterior pituitary to secrete the gonadotropic hormones. These are two gonadotropic hormones—*follicle-stimulating hormone* (FSH) and *luteinizing hormone* (LH)—in both males and females. In males, FSH promotes the production of sperm in the seminiferous tubules, which also release the hormone inhibin. LH in males is sometimes given the name *interstitial cell-stimulating hormone* (ICSH) because it controls the production of testosterone by the interstitial cells, which are found in the spaces between the seminiferous tubules. All these hormones are involved in a negative feedback relationship that maintains the fairly constant production of sperm and testosterone. Testosterone, the main sex hormone in males, is essential for the normal development and functioning of the organs. Testosterone also bring about and maintains the male secondary sex characteristics the develop at the time of puberty.

Spermatogenesis



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Various stages in gametogenesis. A. Spermatogenesis. B. Oogenesis.

04. Female reproductive system

Functions of the female reproductive system are as follows:

- (i) The ovaries produce secondary oocytes and hormones, including progesterone and estrogens (female sex hormones), inhibin, and relaxin.
- (ii) The uterine tubes transport a secondary oocyte to the uterus and normally are the sites where fertilization occurs.
- (iii) The uterus is the site of implantation of the fertilized ovum, development of the fetus during pregnancy.
- (iv) The vagina receive the penis during sexual intercourse and is a passageway for childbirth.
- (v) The mammary glands synthesize, secrete and eject milk for the nourishment of newborn.

Ovaries

The primary female reproductive organs, or gonads, are the two ovaries. The ovaries are located in shallow depression, called ovarian fosse, one on each side of the uterus, in the lateral walls of the pelvic cavity



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