- A depression is formed in the posterior surface of the nucleus and one of the two centrioles is placed in it called as proximal centriole & other called distal centriole.
- which give rise to axil filament of the flagellum.
- Most of the mitochondria of spermatid concentrate around distal centriole and proximal part of the axial filament, form the neck & mid piece of the tail of spermatozoon.
- Tail of sperm comprises an axial filament which remains differentiated into a principal piece & a tail piece.

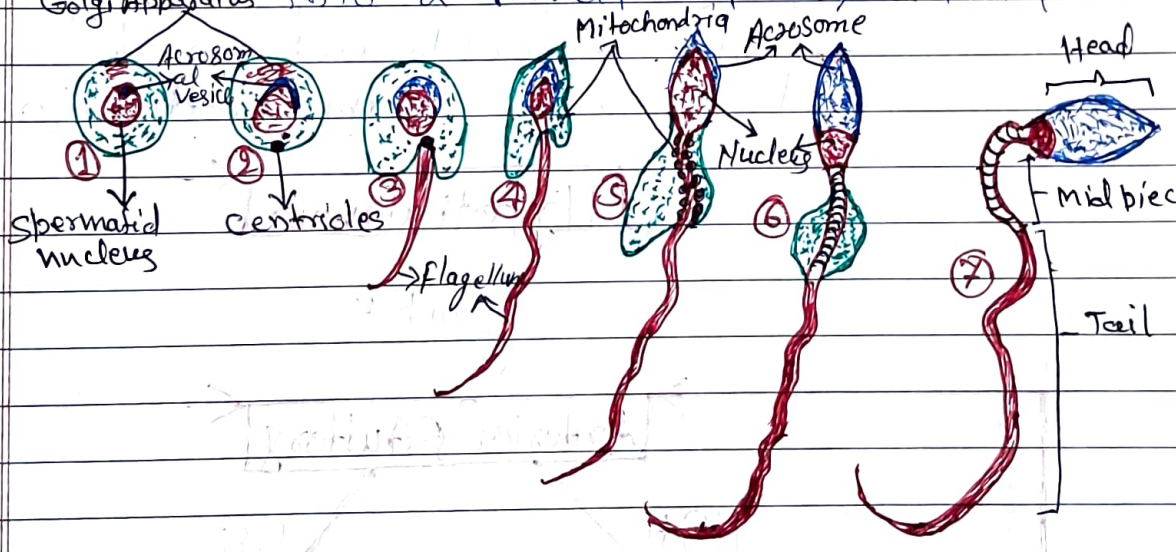
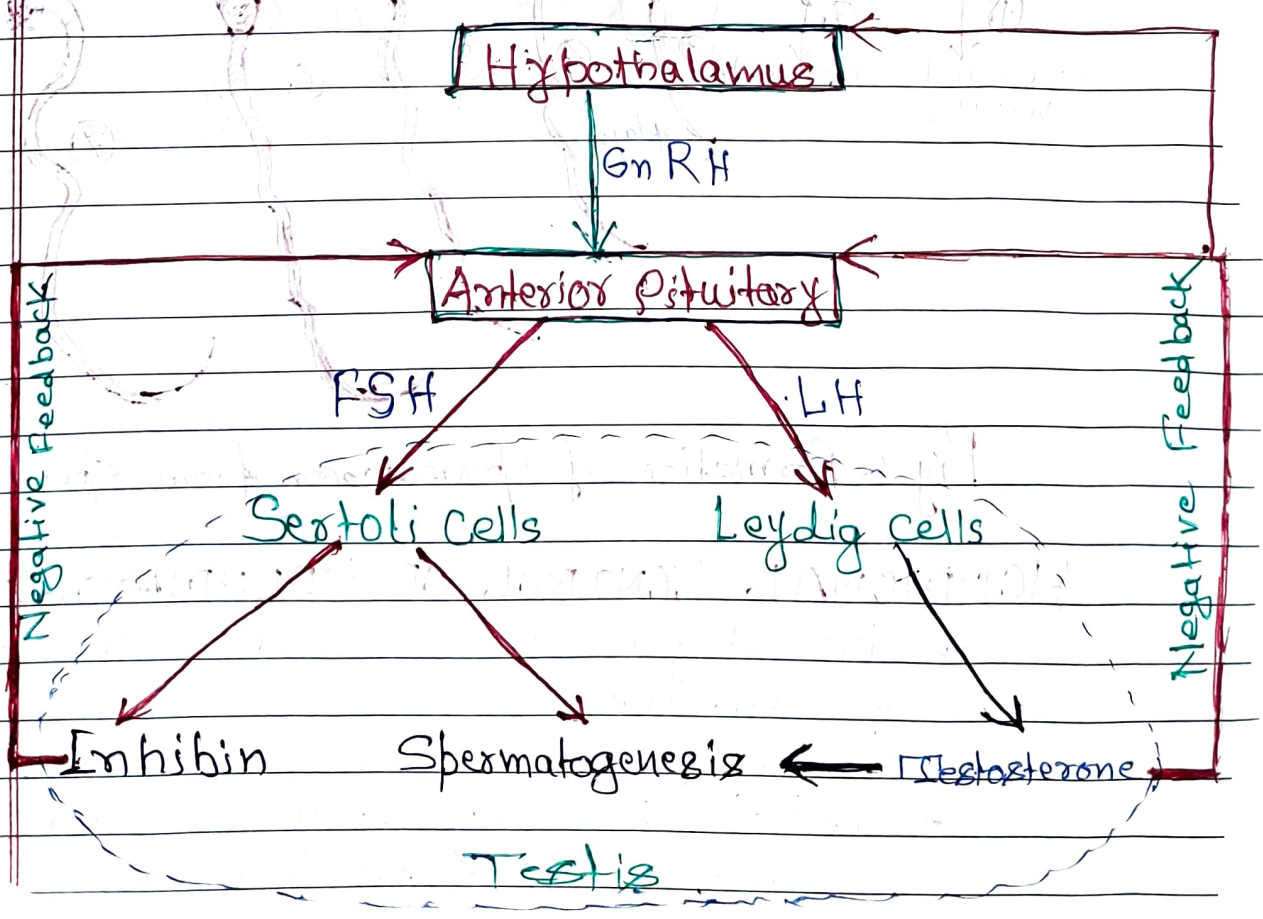


Fig :- Formation of spermatozoon from spermatid.

HORMONAL CONTROL OF SPERMATOGENESIS:-

- Spermatogenesis occurs under the influence of hormones.
- GnRH (Gonadotropin Releasing Hormone) is secreted by Hypothalamus.

- It stimulatis the anterior lobe of the Pituitary gland to secrete LH (Luteinizing hormone) / ICSH (Interstitial cells stimulating hormone) and FSH (follicle stimulating hormone)
- LH stimulates Leydig's cells or Interstitial cells of the testes to secrete androgen (Testosterone is Principal Androgen)
- FSH stimulates Sertoli cells of testes to secrete Androgen Binding Protein (ABP) that Concentrates testosterone in the Seminiferous tubules.
- Sertoli cells also secrete Inhibin which Supresses FSH Synthesis.
- FSH directly act on spermatogonia to stimulate sperm Production.



ROLES OF HORMONES :-

- GnRH from the hypothalamus stimulates the secretion of LH and FSH from the anterior Pituitary.
- LH stimulates testosterone secretion from the interstitial cells.
- FSH stimulates sustentacular cells of the seminiferous tubules to increase spermatogenesis and to secrete inhibin.
- Testosterone has a stimulatory effect on the development of reproductive organs and secondary sexual characters.
- Testosterone has a negative feedback effect on the hypothalamus & Pituitary to reduce GnRH, LH, and FSH secretion.
- Inhibin has a negative-feedback effect on the anterior Pituitary to reduce FSH secretion.

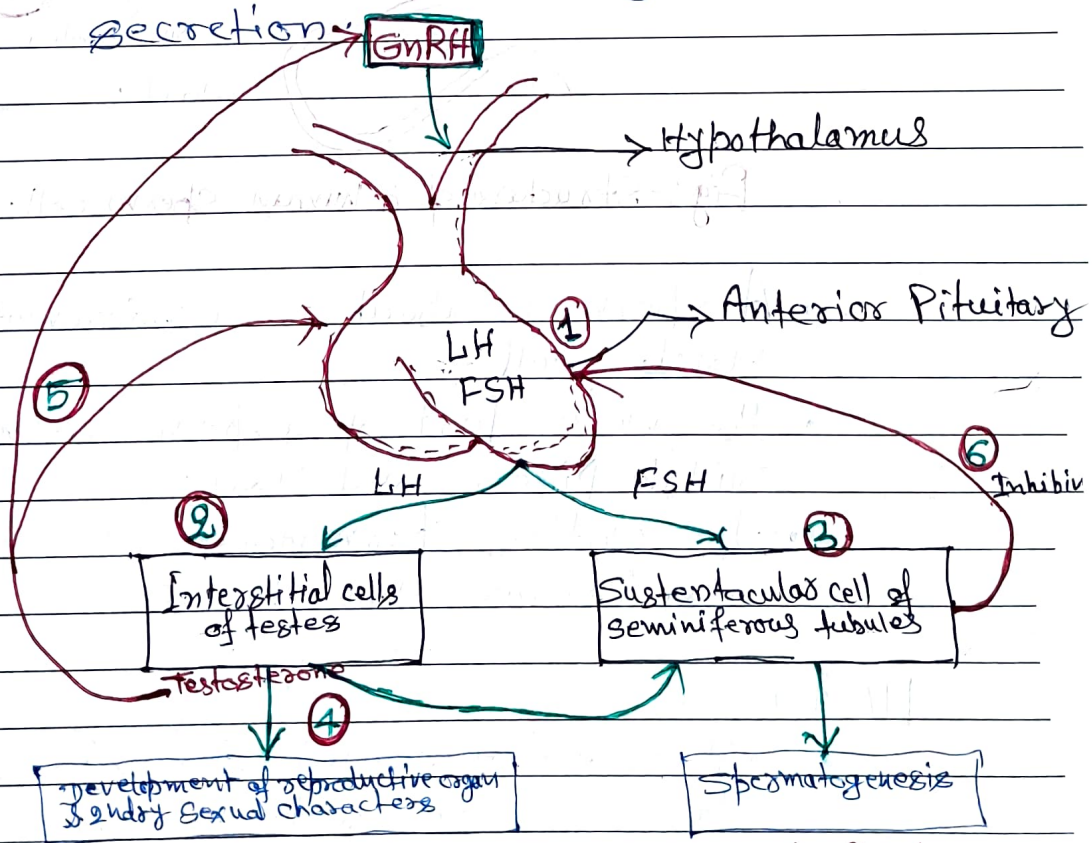


Fig :- Regulation of Reproductive Hormone secretion in Males.

SIGNIFICANCE OF SPERMATOGENESIS :-

- On spermatogonium produces four sperms.
- Sperms have half the number of chromosomes.
- After fertilization, the diploid chromosome number is restored in the zygote. It maintains the chromosome no. of the species.
- During meiosis I crossing over takes place which brings about variation.

STRUCTURE OF SPERM :-

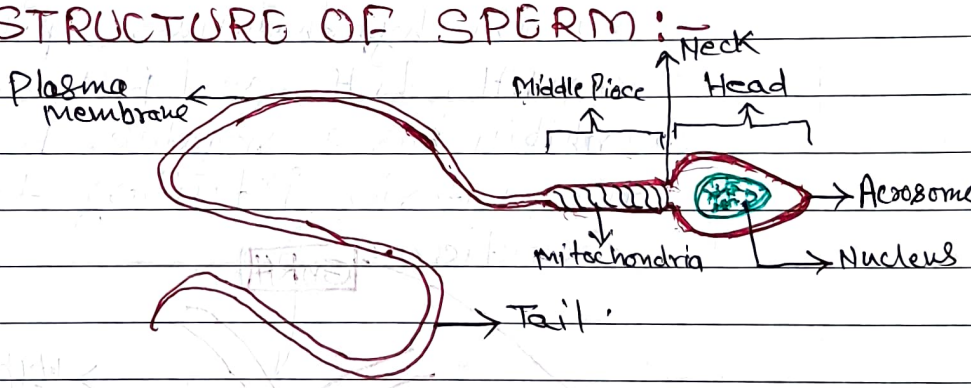


Fig :- Structure of a human sperm cell.

- A sperm is about a 60 micrometer long, motile cell.
- The major part of a sperm are head, Neck, middle Piece and Tail.
- The entire spermatozoon is covered by the plasma membrane.

HEAD :-

- It is enlarged end of a sperm, containing large nucleus (with 23 chromosome)