

# GAMETOGENESIS.

## [ SPERMATOGENESIS ]

(Gr. Gamos = marriage + genesis = Origin)

By - Dr. Prabhat Ranjan  
Rajasingh College  
Siwan -

→ Formation of Gametes in Gonads for sexual reproduction is known as Gametogenesis.

→ It is of two types :-

i) Spermatogenesis.

ii) Oogenesis.

→ Spermatogenesis

→ The development of Sperms takes place in Testis from Primordial (primary) germ cells or Gonocytes.

→ It is completed in three phases

i) Period of Multiplication.

ii) Period of Growth.

iii) Period of Maturation.

→ Period of Multiplication

→ During period of multiplication the primary germ cells by repeated Mitotic cell division to form Spermatogonia (Sperm mother cell).

→ Each Spermatogonia is Diploid (2n) in nature.

→ Period of Growth

→ Spermatogonia grows in size which is known as primary spermatocyte.

→ It is also Diploid (2n) in nature.

## → Period of Maturation

- Primary Spermatocyte undergoes first Meiotic Cell division to form two Secondary Spermatocytes.
- Again, Secondary spermatocytes undergoes second Meiotic division to form four Spermatis.
- Each spermatis Metamorphose into a haploid flagellated and motile Sperm or Spermatozoon by the process of spermiogenesis. (Spermatoleosis).
- Thus, each primary Spermatocyte give rise to four functional sperms or Spermatozoa.

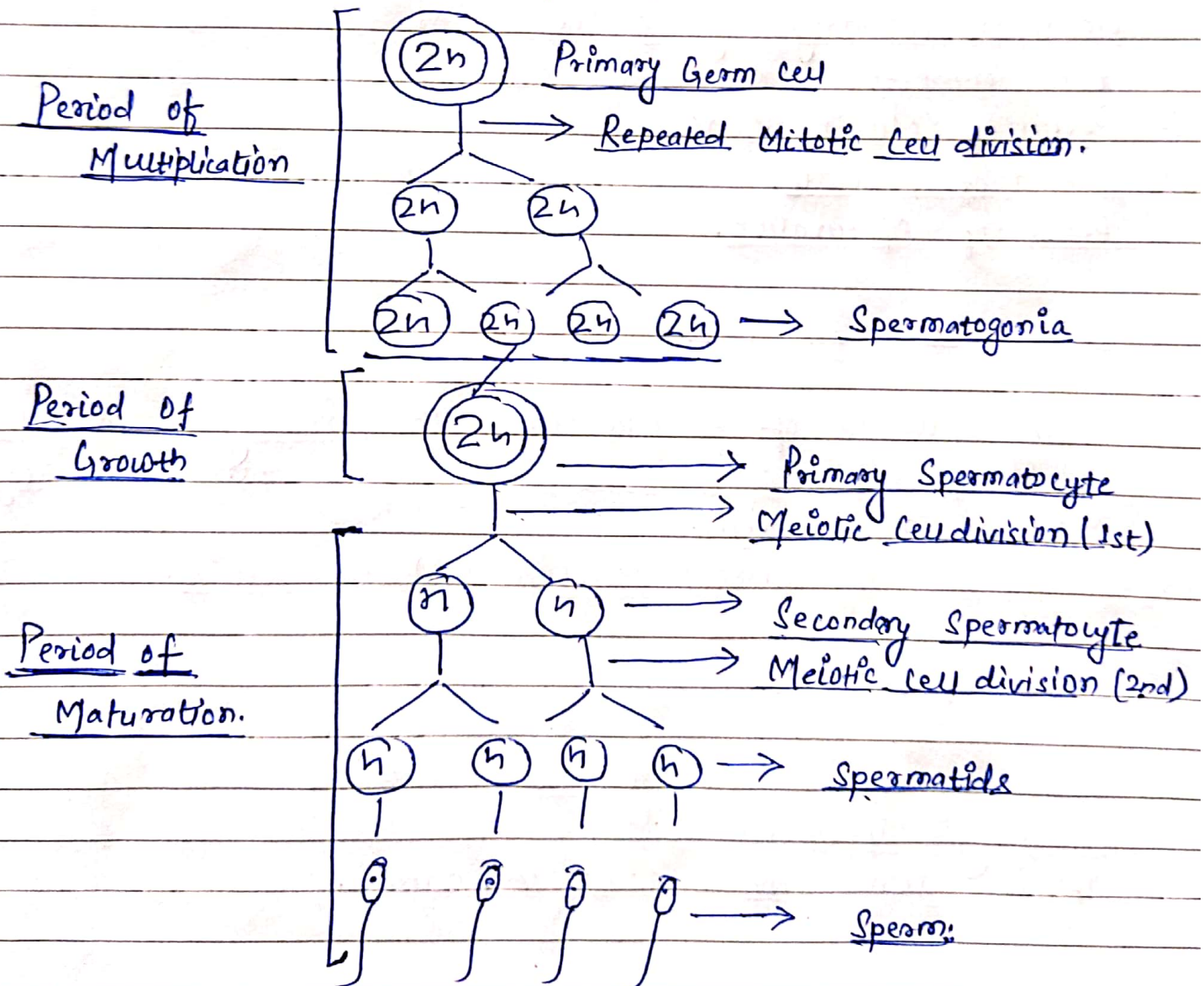


Fig → Flow chart of Spermatogenesis.

## → Hormonal Control of Spermatogenesis

- Spermatogenesis occurs under the control of different hormones.
- Gonadotropin releasing hormone <sup>(GnRH)</sup> is secreted by Hypothalamus
- It stimulates the Anterior lobe of the Pituitary gland to secrete luteinising hormone (LH) and Follicle Stimulating hormone (FSH).
- In Male LH is called Interstitial cell Stimulating hormone (ICSH) because it stimulates interstitial cells (Leydig's cells) of the Testis to secrete Androgens.
- Testosterone is the principal Androgen which is essential for making sperm.
- Under the control of FSH and Testosterone, Sertoli cells of the Testis secrete an Androgen binding protein (ABP) that concentrates Testosterone in the Seminiferous tubules.
- Sertoli cells also secrete another protein hormone called Inhibin, which suppresses FSH synthesis.
- FSH acts directly on Spermatogonia to stimulate sperm production (aided by the LH needed for Testosterone synthesis).

## → Significance of Spermatogenesis

- During Spermatogenesis, One spermatogonium produces four sperm.
- Sperms have half the number of chromosomes and after fertilization the Diploid chromosome number is restored in Zygote.
- It maintains the chromosome number of Species.
- It also causes variation.
- Spermatogenesis occurs in various organisms. So, it supports the evidence of the basic relationship of organisms. —x—