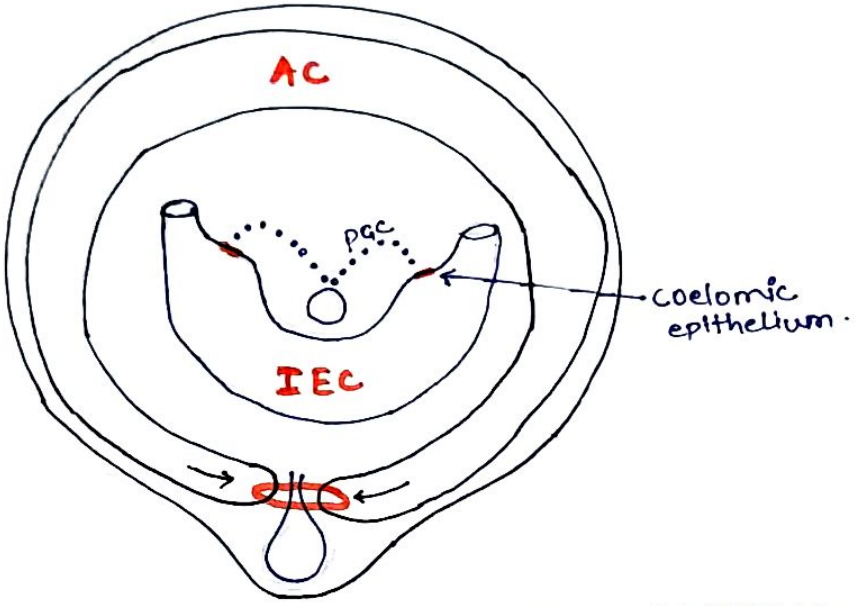
SPERMATOGENESIS :-



➡ THICKENING OF COELOMIC EPITHELIUM → GERMINAL EPITHELIUM.

➡ PGC MIGRATE FROM YOLK SAC TO GERMINAL EPITHELIUM

STARTS IN 2ND MONTH OF IUL

⋮

6th MONTH OF IUL. ENTERS GERMINAL EPITH.

PGC ENTERS TESTES & BECOMES SPERMATOGONIUM

[LIES AT INNER SURFACES OF BASAL PART OF SEMINIFEROUS TUBULE]

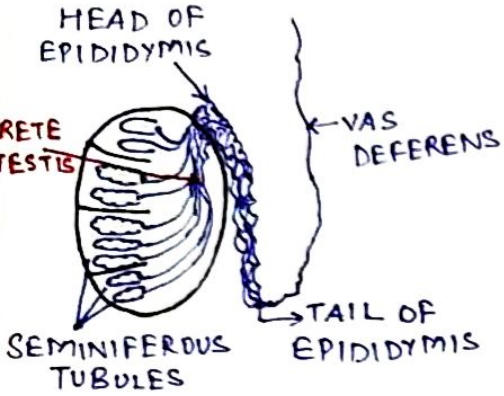
⊕ BY ANT. PITUITARY HORMONES.

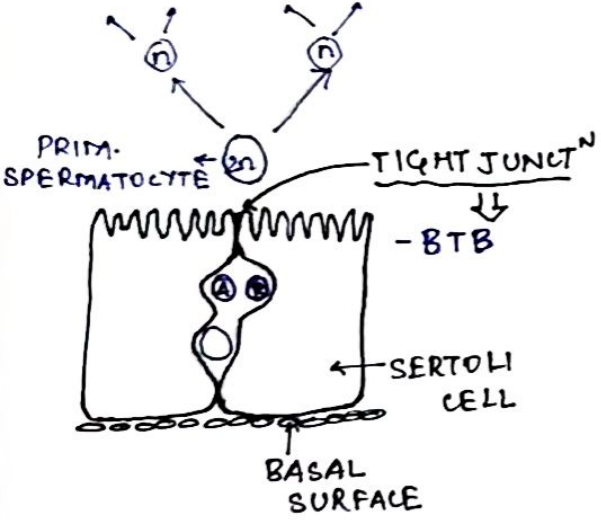
SPERMATOGONIA PROLIFERATE BY MITOTIC DIVISION & FORMS SPERMATOGONIA-A & B

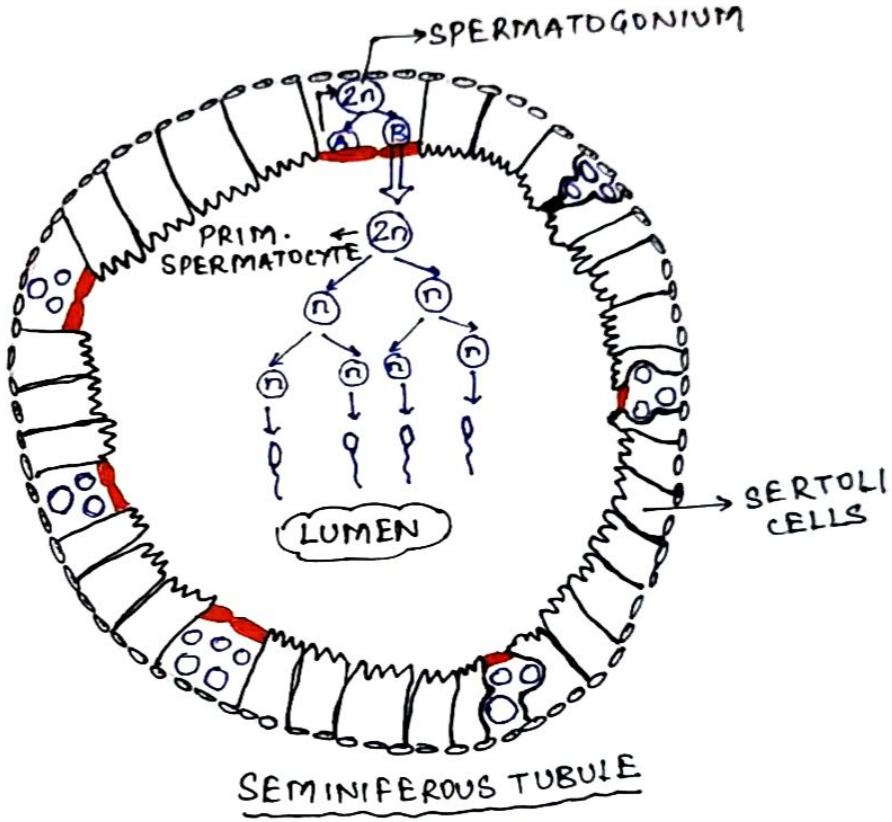
SPERMATOGONIA-B CROSSES BLOOD TESTIS BARRIER FORMED BY TIGHT JUNCTION OF SERTOLI CELLS

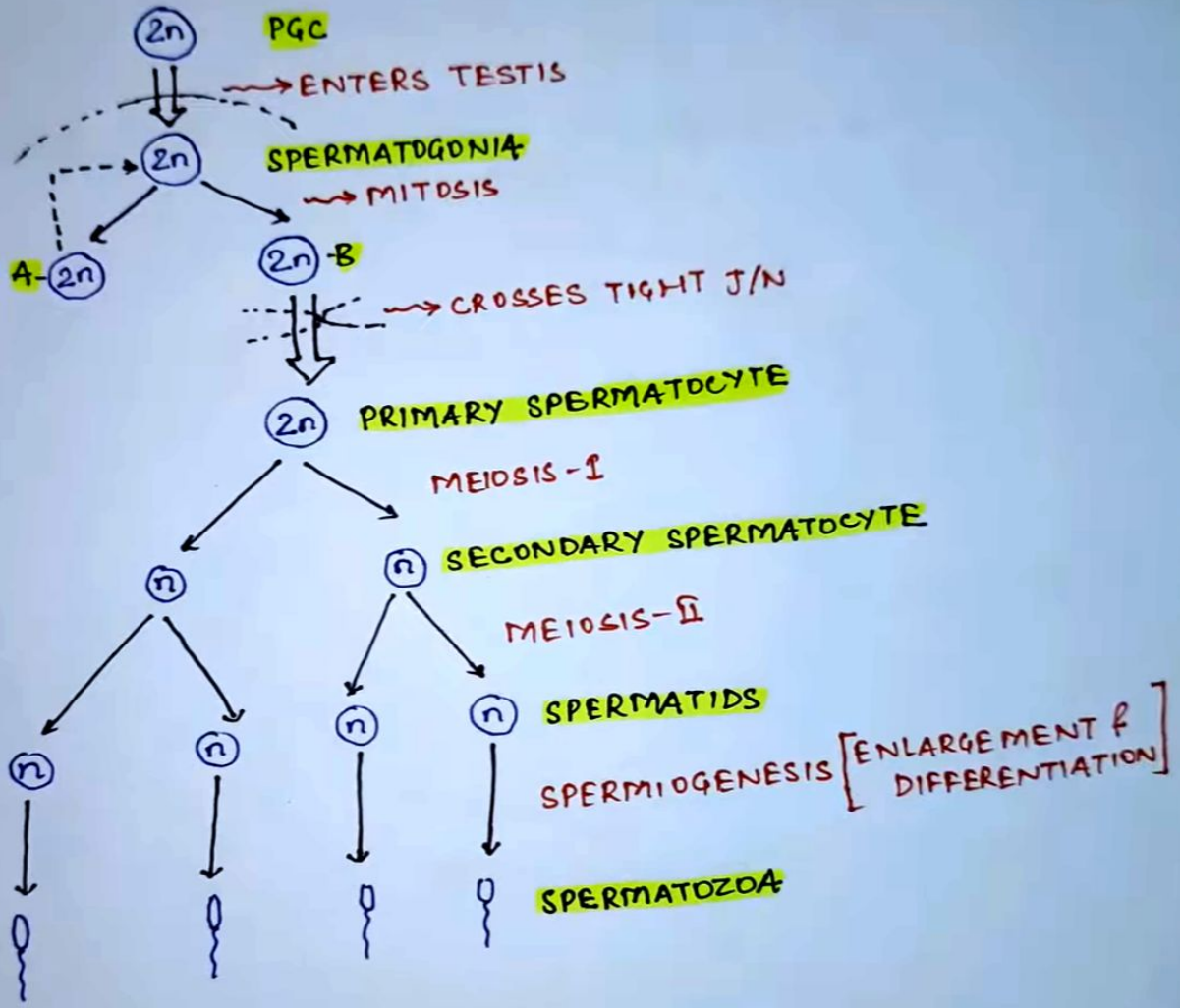
SPERMATOGONIA-B AFTER CROSSING BARRIER IS K/A PRIMARY SPERMATOCYTE

SPERMATOGENESIS CONTINUES TO FORM SPERMATOZOA.

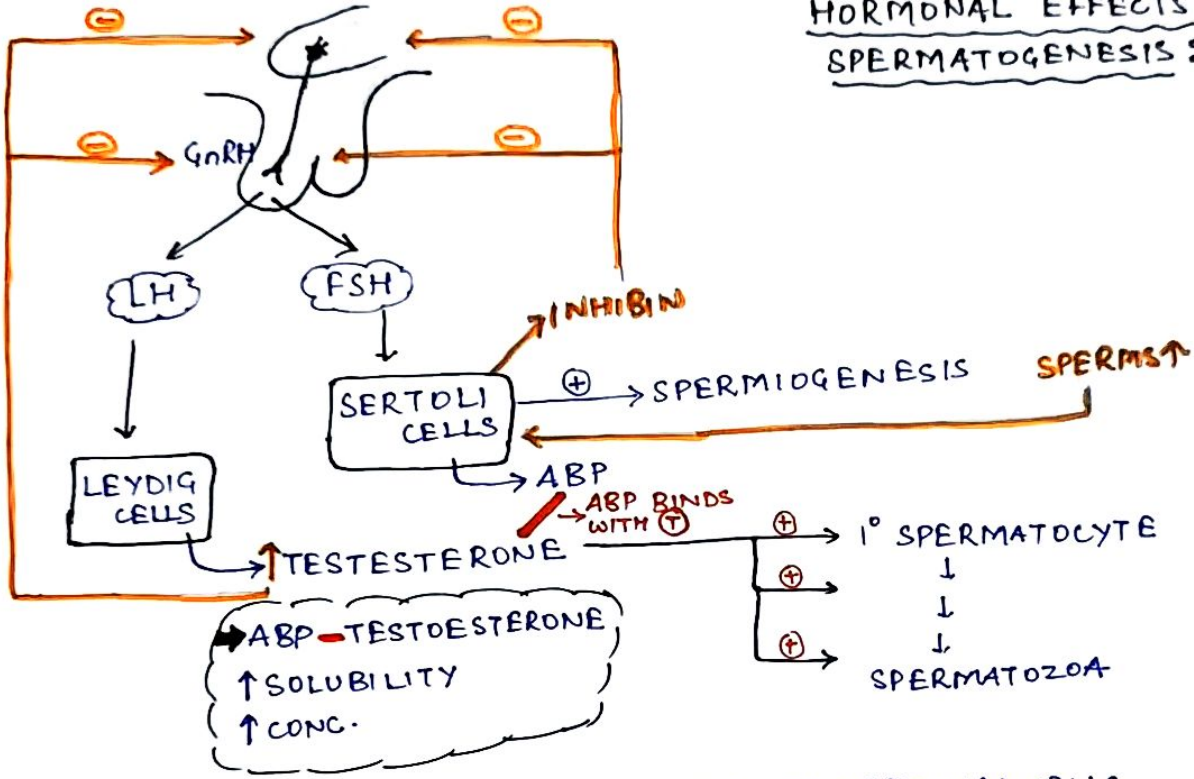

HEAD OF EPIDIDYMIS
RETE TESTIS
VAS DEFERENS
TAIL OF EPIDIDYMIS
SEMINIFEROUS TUBULES


n
n
PRIM. SPERMATOCYTE
2n
TIGHT JUNCTN
BTB
SERTOLI CELL
BASAL SURFACE


SPERMATOGONIUM
2n
A
B
PRIM. SPERMATOCYTE
2n
n
n
n
n
n
n
LUMEN
SERTOLI CELLS
SEMINIFEROUS TUBULE


2n
PGC
ENTERS TESTIS
2n
SPERMATOGONIA
MITOSIS
A-2n
2n -B
CROSSES TIGHT J/N
2n
PRIMARY SPERMATOCYTE
MEIOSIS-I
n
n
SECONDARY SPERMATOCYTE
MEIOSIS-II
n
n
n
n
SPERMATIDS
SPERMIOGENESIS [ENLARGEMENT & DIFFERENTIATION]
SPERMATOZOA

HORMONAL EFFECTS ON SPERMATOGENESIS :-



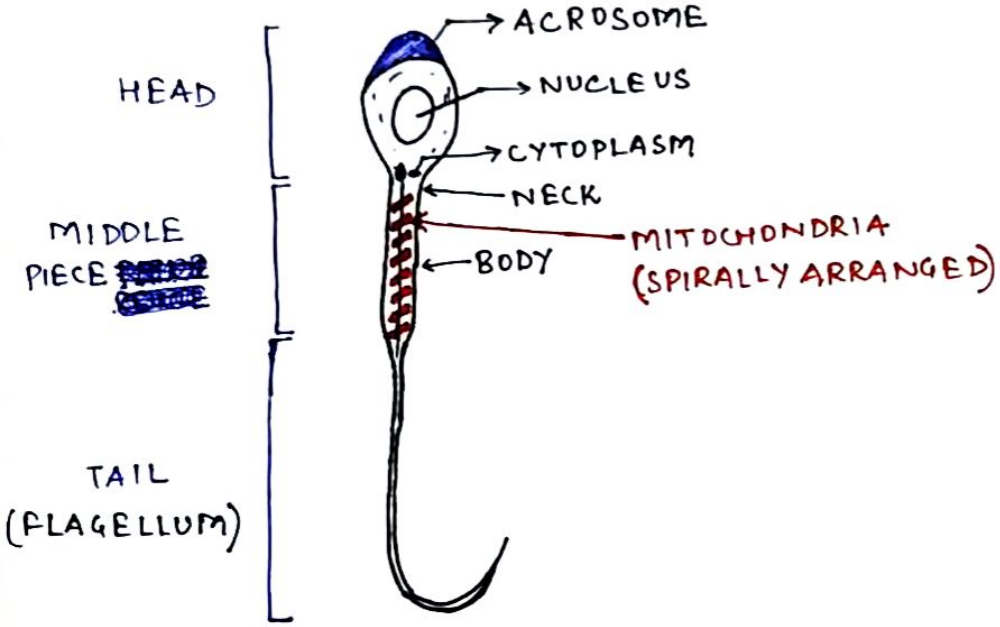
1.) TESTOESTERONE ⇒ ⊕ GROWTH & DIVISION OF GERMINAL CELLS
⊕ SPERMATOGENESIS

2.) LH ⇒ ⊕ LEYDIG CELLS TO SECRETE TESTOESTERONE

3.) FSH ⇒ ⊕ SERTOLI CELLS → RELEASE ABP
→ ⊕ SPERMIOGENESIS

4.) ESTROGENS ⇒ • FORMED FROM TESTOESTERONE BY SERTOLI CELLS
• PROBABLY ESSENTIAL FOR SPERMIOGENESIS

5.) GROWTH HORMONE ⇒ BASIC GROWTH OF TESTIS


HEAD
MIDDLE PIECE
TAIL (FLAGELLUM)
ACROSOME
NUCLEUS
CYTOPLASM
NECK
MITOCHONDRIA (SPIRALLY ARRANGED)
BODY

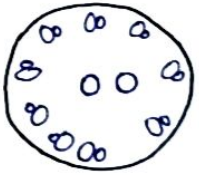
➡ SPERMATIDS (EPITHELOID CELLS) —DIFFERENTIATE & ELONGATE→ SPERMATOZOA

➡ ACROSOME :- OUTSIDE OF ANT. 2/3RD OF HEAD, A THICK CAP PRESENT IS KNOWN AS ACROSOME.

- FORMED MAINLY FROM GOLGI APPARATUS
- CONTAINS ENZYMES (LIKE LYSOSOMAL ENZYMES)
  - HYALUNONIDASE
  - PROTEOLYTIC ENZYMES
- ALLOWS SPERM TO ENTER OVUM & FERTILIZE IT.

➡ MIDDLE PIECE & TAIL :- 3 COMPONENTS

(i) CENTRAL SKELETON (9+2 MICROTUBULES)
↳ COLLECTIVELY K/A "AXONEME"



(ii) CELL MEMB. COVERING AXONEME.

(iii) COLLECTION OF MITOCHONDIA SURROUNDING AXONEME IN MIDDLE PART OF TAIL (MIDDLE PIECE).

⇒ FUNCTION → MOTILITY TO SPERM
(ENERGY – ATP) ⇒ FROM MITO. OF MIDDLE PIECE.