

BIOLOGY • CLASS 12

2

CHAPTER

Human Reproduction

CHAPTER NOTES



HUMAN REPRODUCTION: THE COMPLETE JOURNEY

- Sexual reproduction: fusion of male and female haploid gametes.
- Humans are viviparous: the embryo develops inside the mother and a young one is born.

1. GAMETOGENESIS



Testes form sperms;
ovaries form ova.

2. INSEMINATION



Semen is transferred
into the female
genital tract.

3. FERTILISATION



sperm (n) + ovum (n)
→ zygote (2n)

4. CLEAVAGE



The zygote divides to form
blastomeres, morula and
blastocyst.

5. IMPLANTATION



The blastocyst attaches to
and becomes embedded in
the endometrium.

6. GESTATION



The embryo and fetus
develop during pregnancy.

7. PARTURITION



The fully developed baby
is delivered.

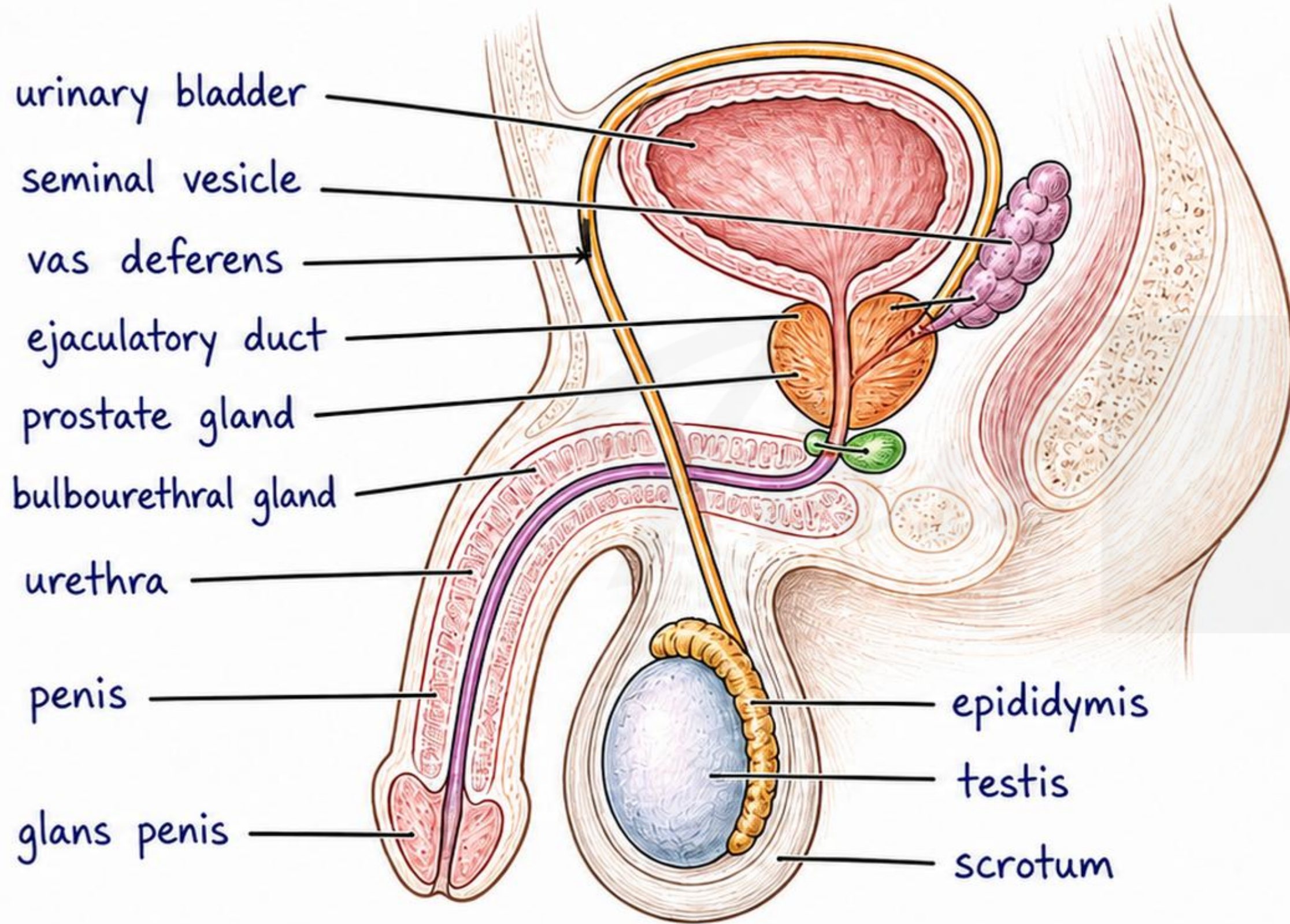
8. LACTATION



Mammary glands produce
milk for the newborn.

- These reproductive events occur after puberty.
- Male: sperm formation begins at puberty and can continue in old age.
- Female: oogenesis begins before birth; cyclic ovulation ends at menopause.

MALE REPRODUCTIVE SYSTEM: ORGANS & LOCATION



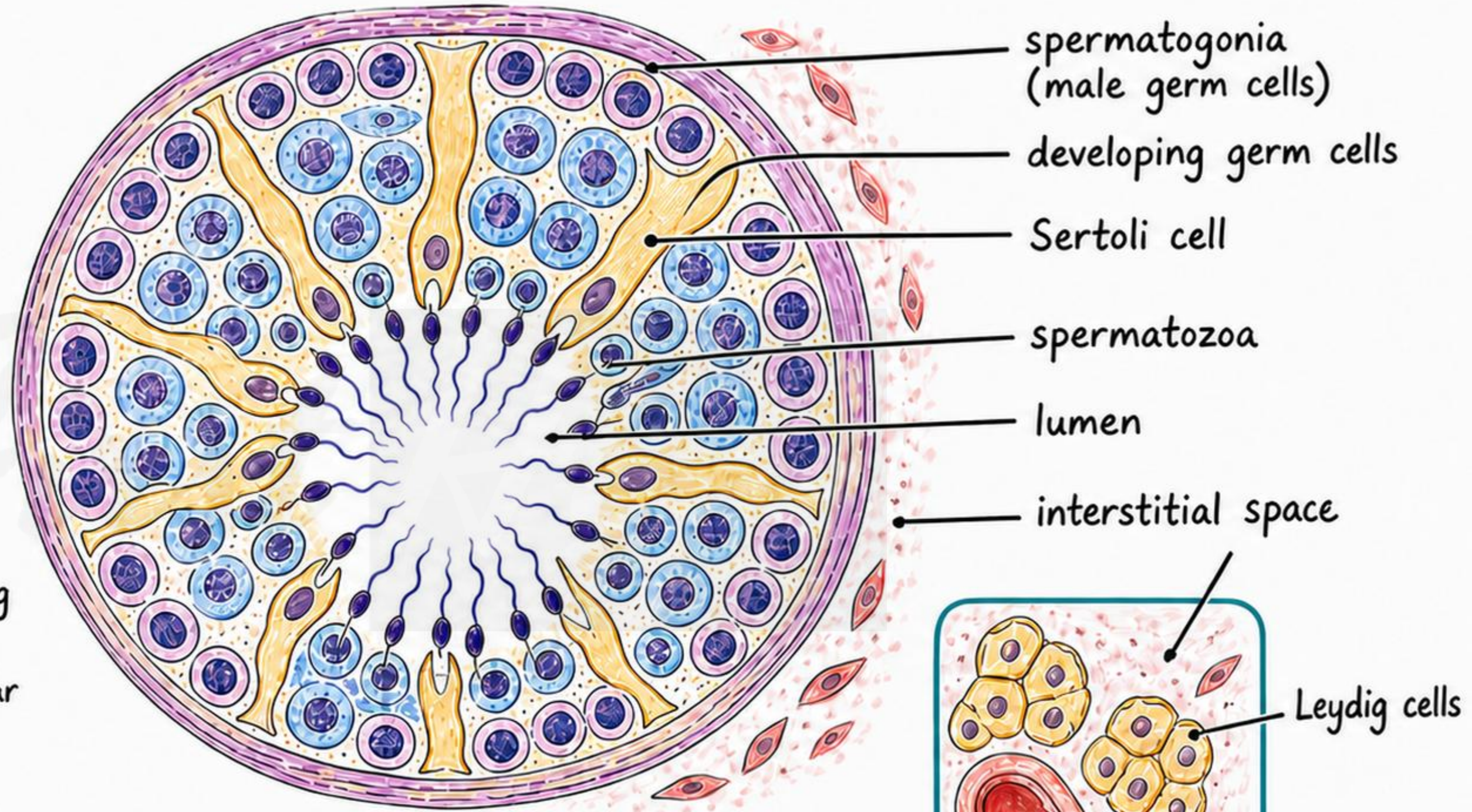
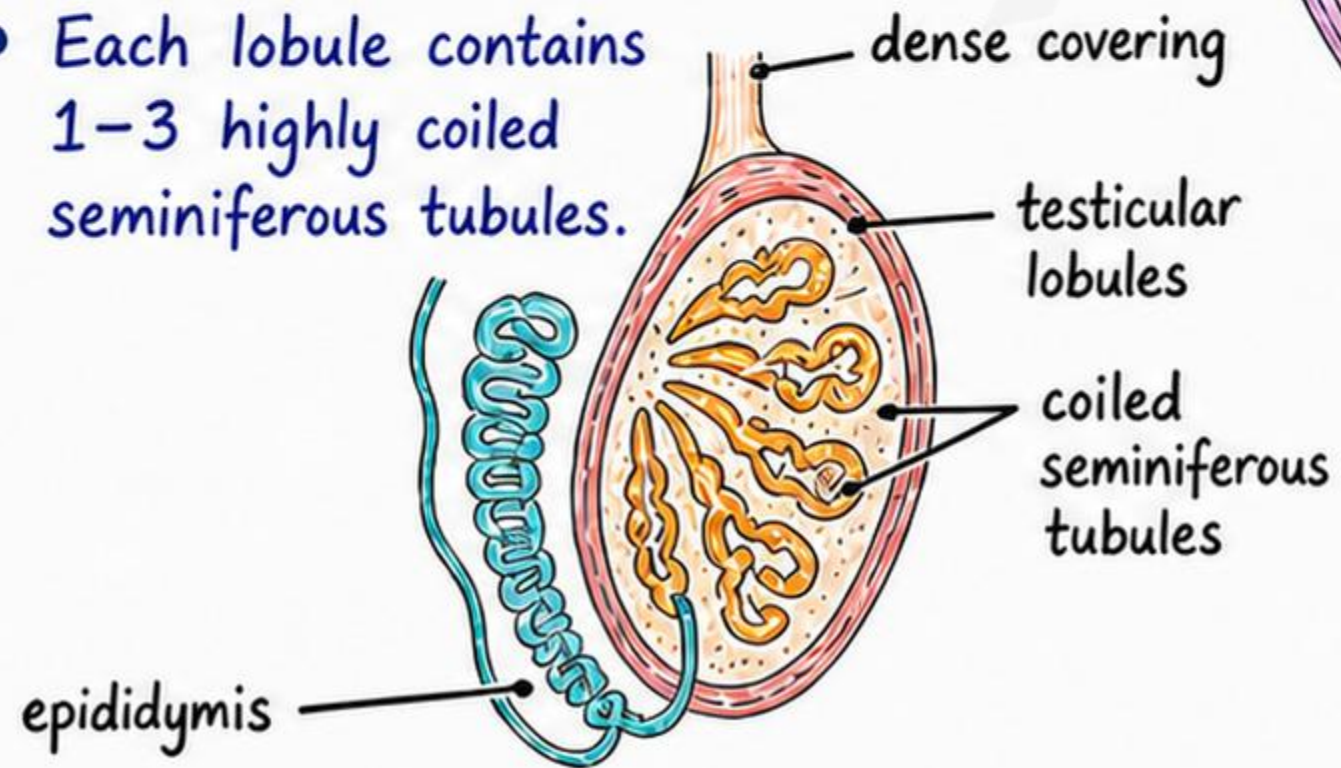
The male reproductive system lies in the pelvic region.

- ① Primary sex organs: a pair of testes — produce sperms and androgens.
- ② Accessory ducts: rete testis, vasa efferentia, epididymis, vas deferens, ejaculatory duct and urethra.
- ③ Accessory glands: paired seminal vesicles, prostate and paired bulbourethral glands.
- ④ External genitalia: penis and scrotum.

testis → accessory ducts → urethra → outside

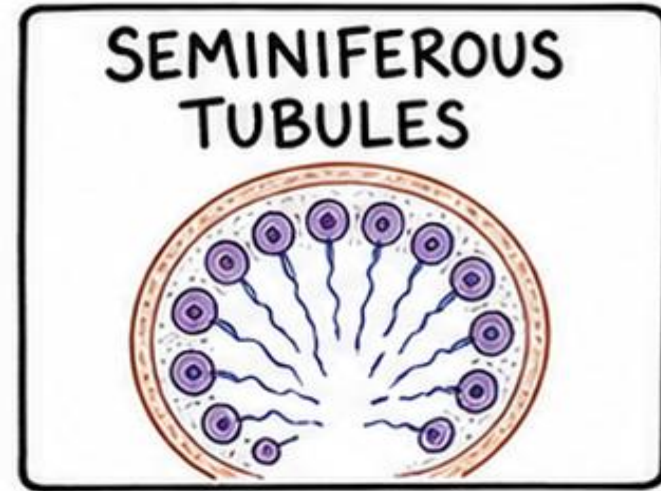
TESTIS & SEMINIFEROUS TUBULE

- Testes lie in the scrotum, outside the abdominal cavity.
- Scrotal temperature is about 2–2.5 °C below internal body temperature — necessary for spermatogenesis.
- Adult testis: about 4–5 cm long and 2–3 cm wide.
- Each testis has about 250 testicular lobules.
- Each lobule contains 1–3 highly coiled seminiferous tubules.

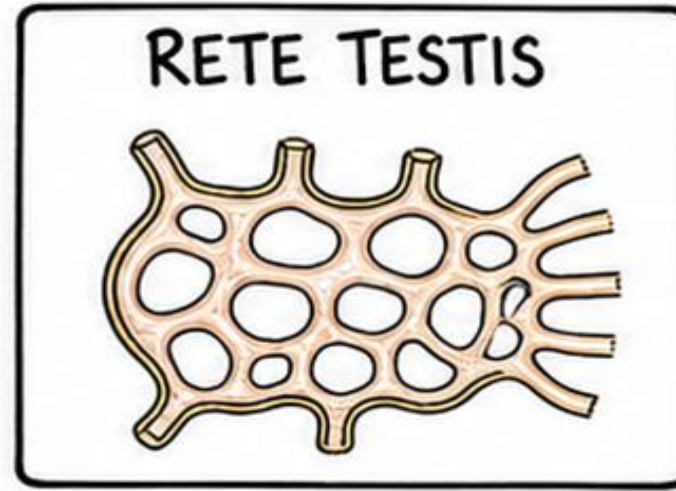


- Spermatogonia → undergo divisions and form sperms.
- Sertoli cells → nourish the developing germ cells.
- Leydig cells → secrete androgens.
- Interstitial spaces also contain immunologically competent cells.

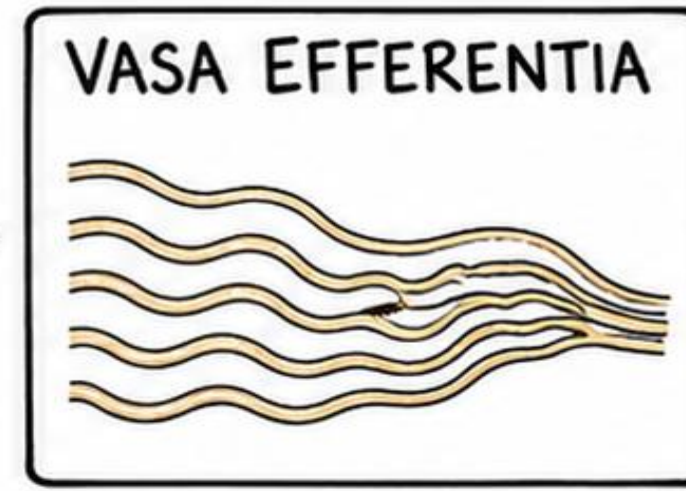
SPERM TRANSPORT PATHWAY



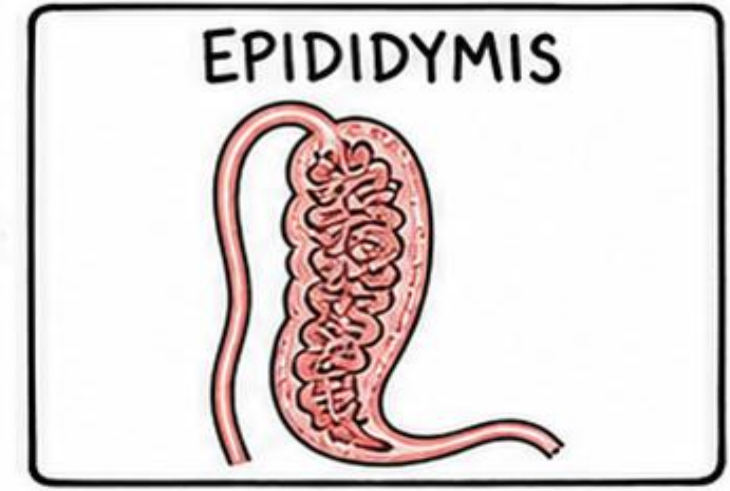
sperms are produced



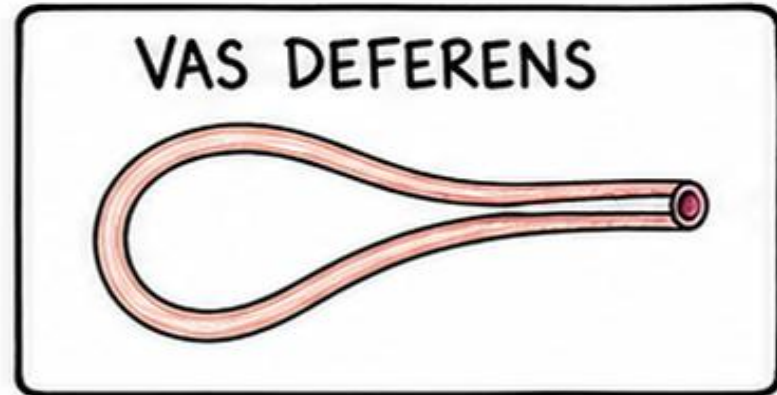
collects sperms from the tubules



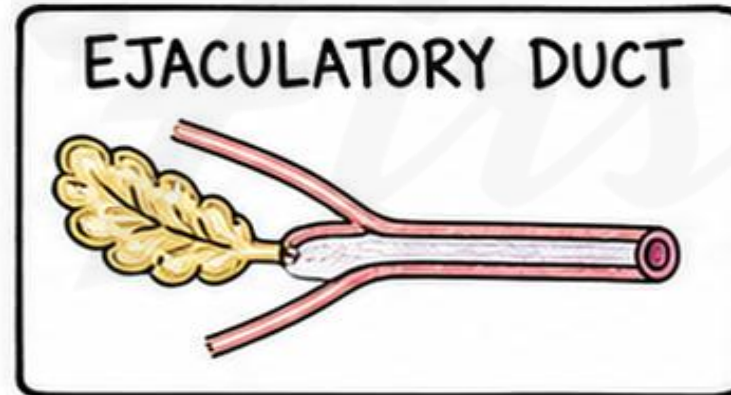
carry sperms out of the testis



maturation and storage



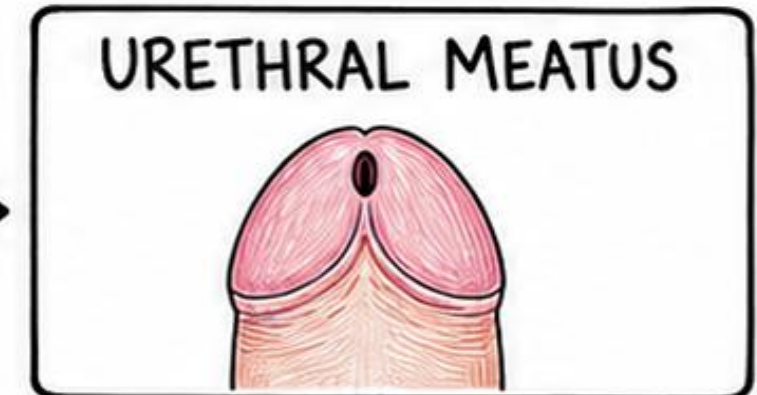
stores and transports sperms; ascends and loops over the urinary bladder



formed after the vas deferens receives the duct of the seminal vesicle; opens into urethra

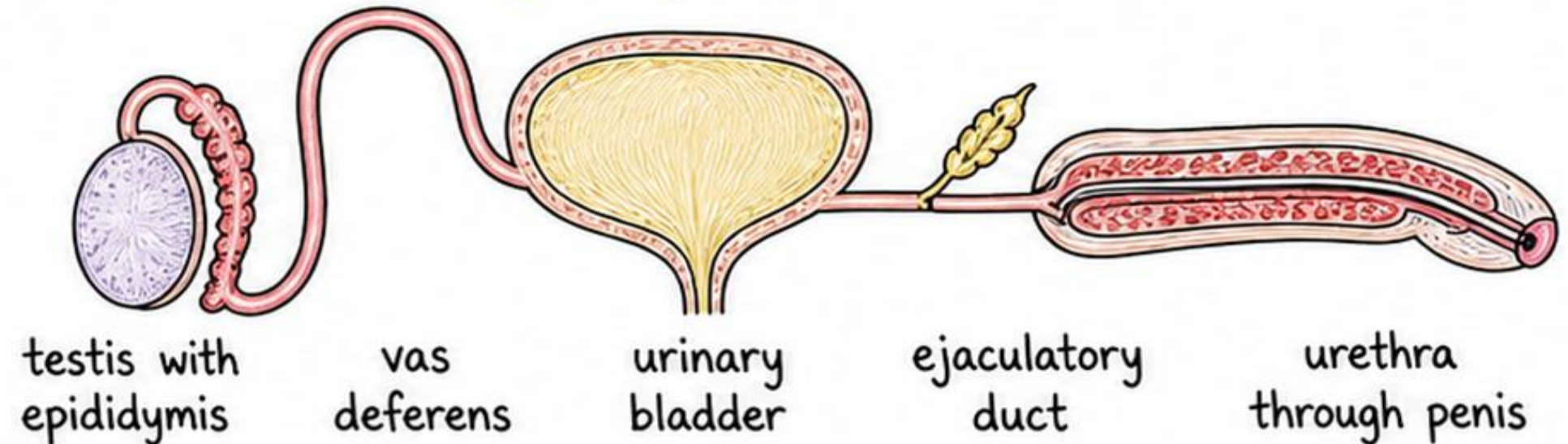


common passage that extends through the penis



external opening

Accessory ducts store and transport sperms from the testis to the outside.



testis with epididymis

vas deferens

urinary bladder

ejaculatory duct

urethra through penis

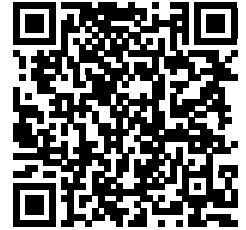


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