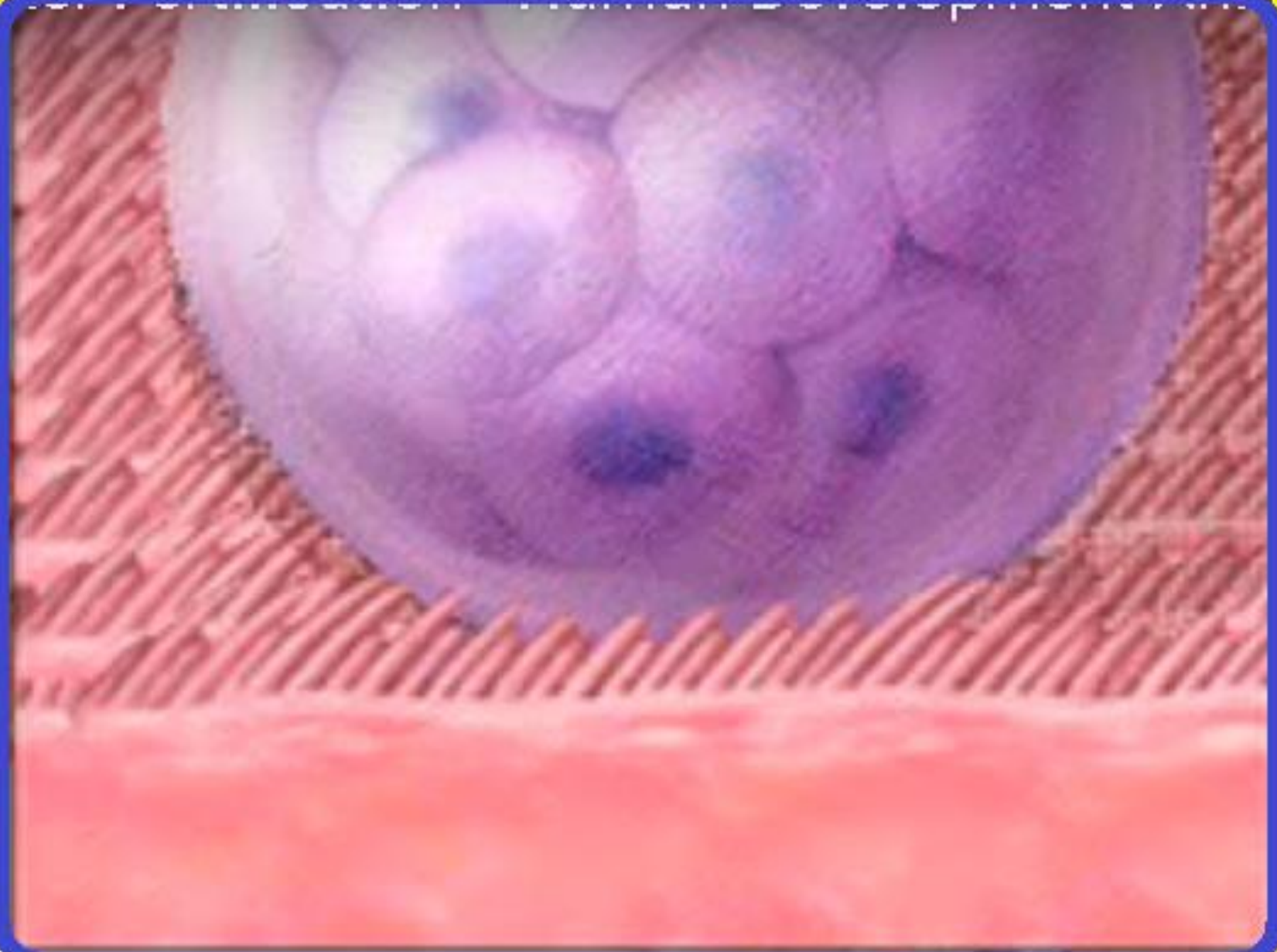
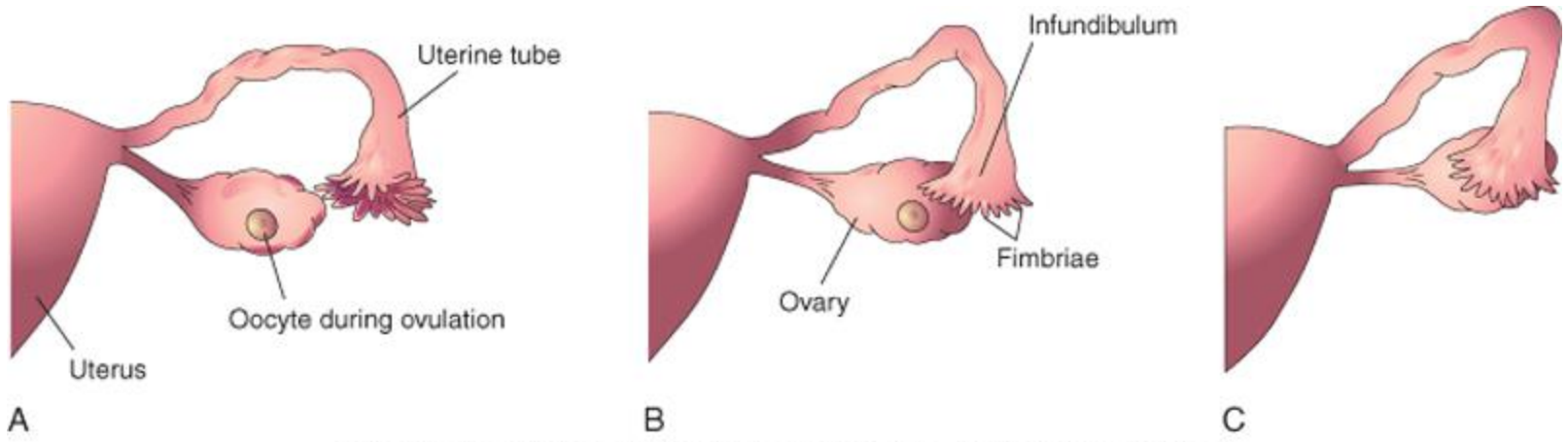
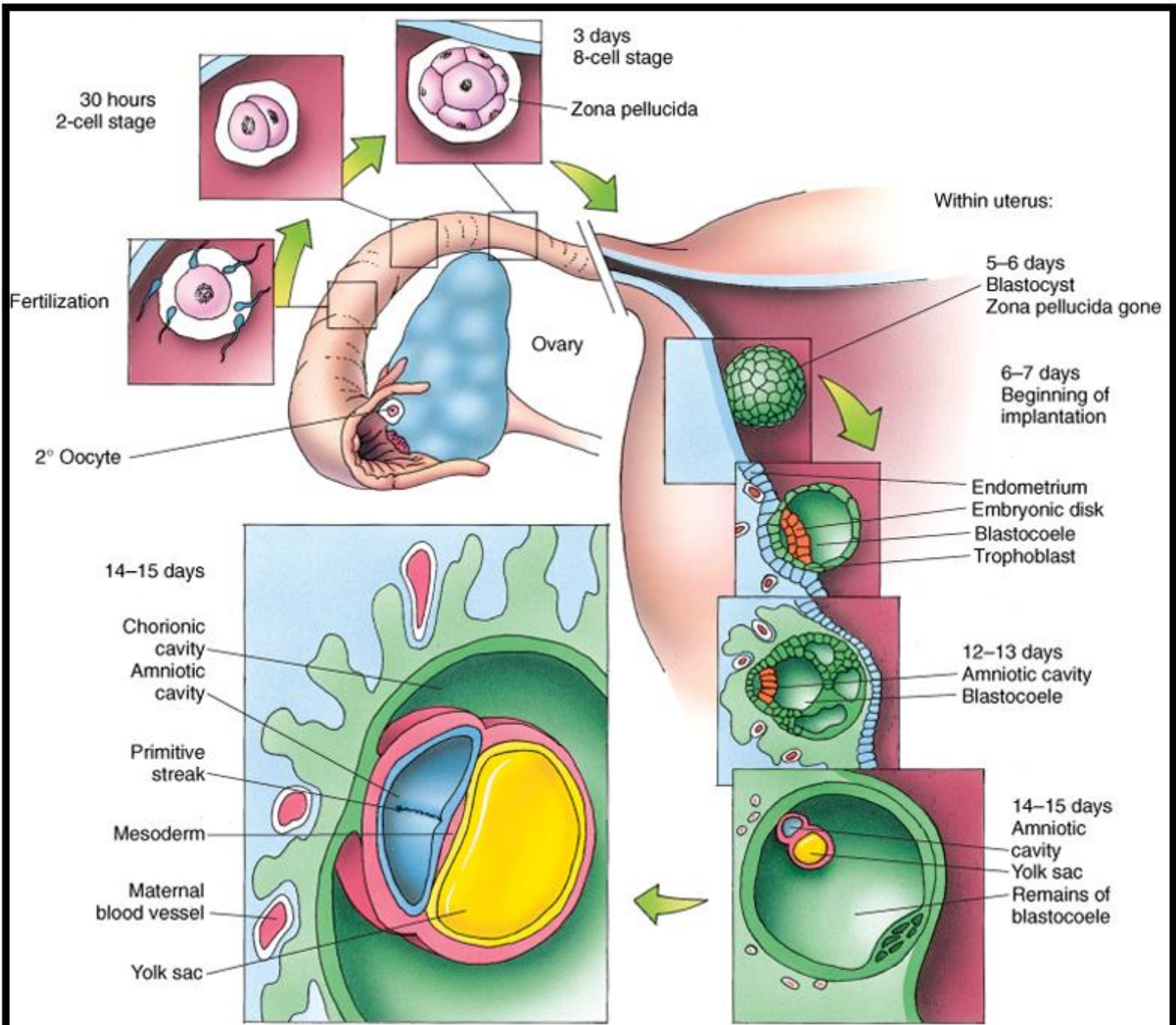


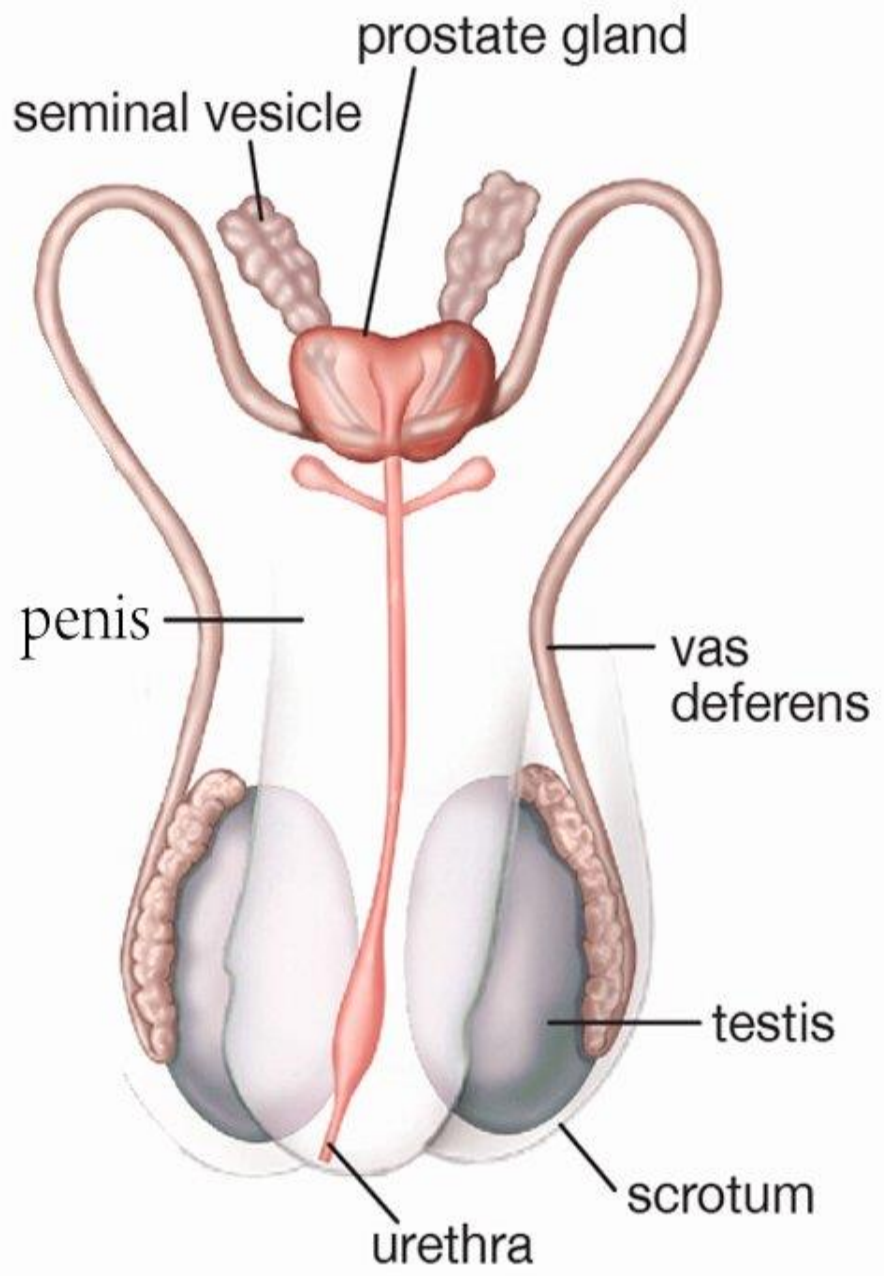
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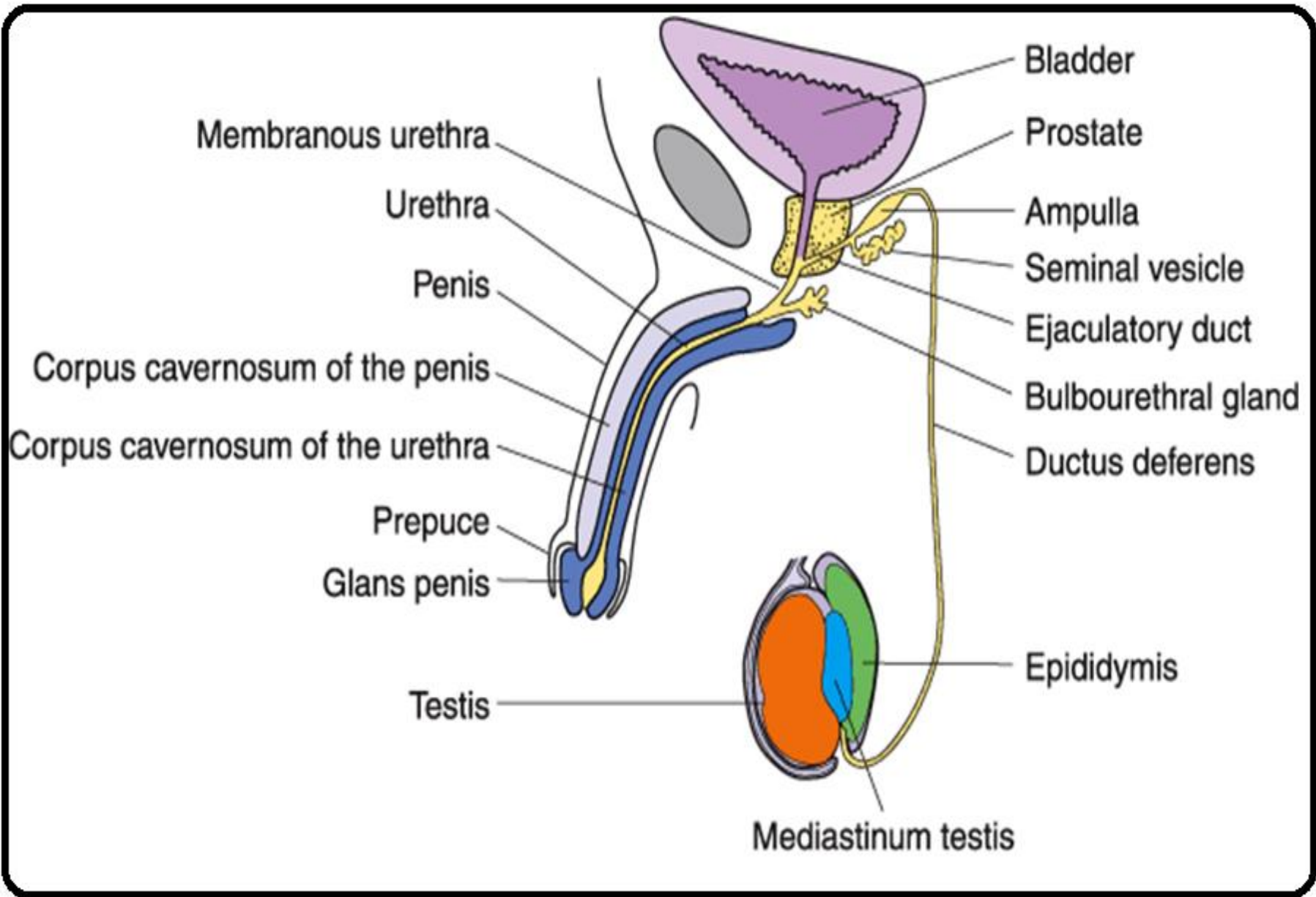




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Bladder

Prostate

Ampulla

Seminal vesicle

Ejaculatory duct

Bulbourethral gland

Ductus deferens

Epididymis

Mediastinum testis

Testis

Glans penis

Prepuce

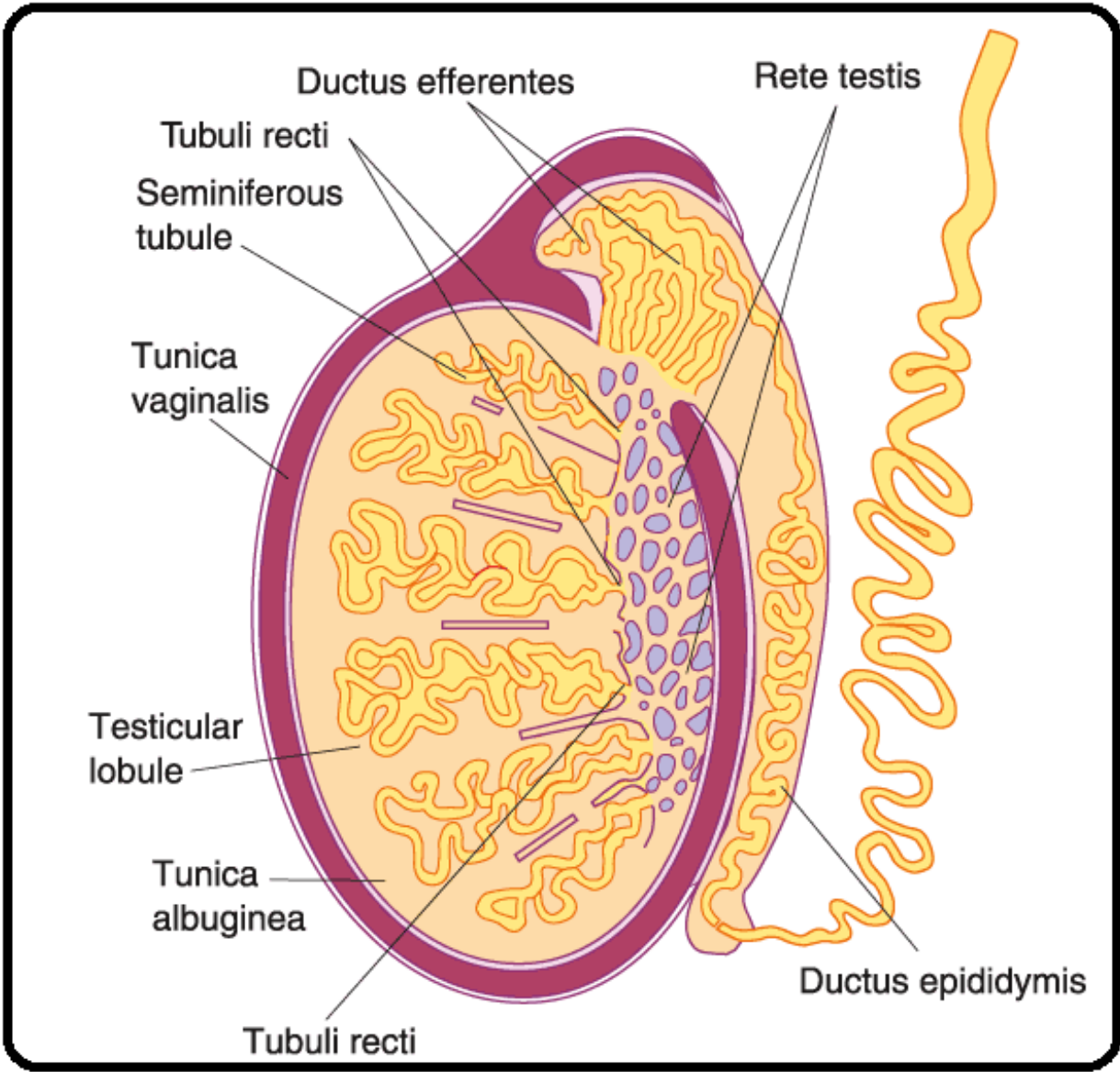
Corpus cavernosum of the urethra

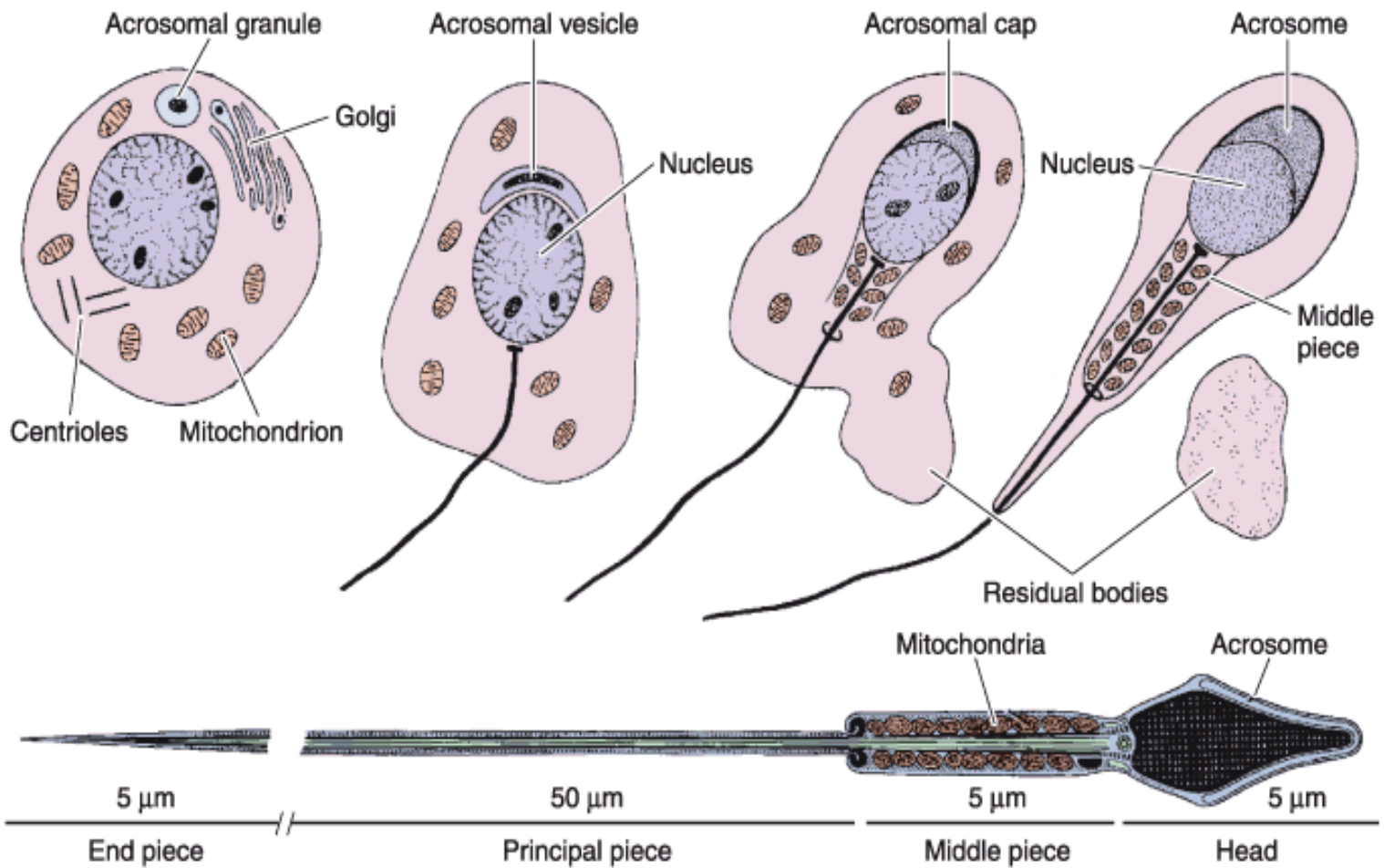
Corpus cavernosum of the penis

Penis

Urethra

Membranous urethra





TRANSPORTATION OF GAMETES

Transport

Sperm	Ovum/Zygote	
<p>Contractile force of seminiferous tubule push it into Epididymis. Emission (peristaltic movement of vas) and ejaculation is the closure of bladder opening, contraction of urethra and bulbospongiosus muscle.</p> <p>Nonmotile in epididymus, less motile in acidic conditions (vagina) and more motile in alkaline media (uterus). Uterine cilia provide a wave of uterine fluid towards uterine tubes. Ovum produce chemoattractants which attract sperm movement towards Ovum</p>	<p>LH increases the collagenase activity which digest the collagen fibers. Contraction of ovary expell the ovum. The fimbriae sweeps over the ovary to take ovum with help of muscle contraction and cilia. Once oocyte in uterine tube, it is propelled by cilia. In 1/2 week ovum reaches uterus.</p>	
	Duration	
	Sperm	Ovum
	2 to 7 hrs to reach tube.	Ovum is fertilized in 12 hrs.
7 h required for capacitation.	It can't be fertilized after 24 hrs.	
Can survive for 2 days.	Gametes can be stored and used for years.	

TRANSPORTATION OF GAMETES

Oocyte Transport

The secondary oocyte is expelled at ovulation from the ovarian follicle with the escaping follicular fluid . During ovulation, the fimbriated end of the uterine tube becomes closely applied to the ovary.

The fingerlike processes of the tube, fimbriae, move back and forth over the ovary.

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1. The sweeping action of the fimbriae and fluid currents produced by the cilia of the mucosal cells of the fimbriae "sweep" the secondary oocyte into the infundibulum.
2. The oocyte passes into the **ampulla** of the tube, mainly as the result of **peristalsis-movements** of the wall of the tube characterized by alternate contraction and relaxation-that pass toward the uterus.
3. **Continued rhythmic contractions of the layers of the muscularis, coupled with the beating of the cilia within, help to propel the captured oocyte to the uterus.**

Table 21-1. Histological Features and Functions of Male Genital Ducts

Duct	Epithelial Lining	Supporting Tissues	Function
Tubuli recti	Sertoli cells in proximal half; simple cuboidal epithelium in distal half	Loose connective tissue	Convey spermatozoa from seminiferous tubules to rete testis
Rete testis	Simple cuboidal epithelium	Vascular connective tissue	Conveys spermatozoa from tubuli recti to ductuli efferentes
Ductuli efferentes	Patches of nonciliated cuboidal cells alternating with ciliated columnar cells	Thin loose connective tissue surrounded by thin layer of circularly arranged smooth muscle cells	Convey spermatozoa from rete testis to epididymis
Epididymis	Pseudostratified epithelium composed of short basal cells and tall principal cells (with stereocilia)	Thin loose connective tissue surrounded by layer of circularly arranged smooth muscle cells	Conveys spermatozoa from ductuli efferentes to ductus deferens
Ductus (vas) deferens	Stereociliated pseudostratified columnar epithelium	Loose fibroelastic connective tissue; thick three-layered smooth muscle coats; <i>inner</i> and <i>outer</i> longitudinal, <i>middle</i> circular	Delivers spermatozoa from tail of epididymis to ejaculatory duct
Ejaculatory duct	Simple columnar epithelium	Subepithelial connective tissue folded, giving lumen irregular appearance; no smooth muscle	Delivers spermatozoa and seminal fluid to prostatic urethra at colliculus seminalis

The ductus epididymidis is lined with pseudostratified columnar epithelium. These cells are supported on a basal lamina surrounded by smooth muscle cells, whose peristaltic contractions help to move the sperm along the duct.

Their surface is covered by long, branched, irregular microvilli called stereocilia.

The epithelium of the ductus epididymidis helps in the uptake and digestion of residual bodies or sperms.

Sperm Transport

- From their storage site in the epididymis, mainly in its tail, the sperms are rapidly transported to the urethra **by peristaltic contractions** of the thick muscular coat of the **ductus deferens**.
- The accessory sex glands- seminal glands (vesicles), prostate, and bulbourethral glands- produce secretions that are added to the sperm-containing fluid in the ductus deferens and urethra.

From **200** to **600** million sperms are deposited around the external os of the uterus and in the fornix of the vagina during sexual intercourse. The sperms pass slowly through the cervical canal by movements of their tails.

The enzyme vesiculase, produced by the seminal glands, coagulates some of the semen or ejaculate and forms a vaginal plug that may prevent the backflow of semen into the vagina.

When ovulation occurs, the **cervical mucus increases in amount and becomes less viscid,** making it more favorable for sperm transport.

The reflex ejaculation of semen may be divided into two phases:

- **Emission**: Semen is delivered to the prostatic part of the urethra through the ejaculatory ducts after peristalsis of the ductus deferens; emission is a sympathetic response.
- **Ejaculation**: Semen is expelled from the urethra through the external urethral orifice; this results from closure of the vesical sphincter at the neck of the bladder, contraction of urethral muscle, and contraction of the bulbospongiosus muscles.

SPERM TRANSPORT IN UTERUS:

Passage of sperms through the uterus and uterine tubes results mainly from muscular **contractions of the walls of these organs**. **Prostaglandins** in the semen are thought to stimulate uterine motility to assist in the movement of sperms to the site of fertilization in the **ampulla** of the tube.

Fructose, secreted by the seminal glands, is an energy source for the sperms in the semen.

The volume of sperm or ejaculate is 2 to 6 mL.

The sperms move 2 to 3 mm per minute, but the speed varies with the pH of the environment.

They are nonmotile during storage in the epididymis,

but become **motile** in the **ejaculate**.

They move slowly in the **acid** environment of the **vagina**, but move more

rapidly in the **alkaline** environment of the **uterus**.

Motile sperms have been recovered from the ampulla of the uterine tube **5** minutes after their deposition near the external uterine os.

Some sperms, however, take as long as **45** minutes to complete the journey.

Only approximately **200** sperms reach the fertilization site.

Most sperms **degenerate** and are resorbed by the **female genital tract**.



In 200-600 million of sperm
200-600 reach the ovum
One fertilizes the ovum



THANKS