

Lab 10: Male Reproductive System

Male Reproductive System Histology:

Slide 2-10-1 Sperm Cells

- **Semen (Ejaculate)** is on the entire slide and its components are:
 - **Sperm cells:**
 - **Acrosome** — ~**1% to 5%** of total ejaculate volume (200 to 500 million cells per ejaculate).
— has hyaluronidase & acrosin enzymes to digest the oocyte's zona pellucida.
 - **Nucleus** — contains **23 chromosomes** (22 + an X or Y).
 - **Mid-piece** — the “connecting piece” with the all the sperm's **mitochondria**.
 - **Flagella** — only one per normal sperm cell.
 - **Prostatic Fluid** — ~**30%** of total ejaculate volume.
 - **Seminal Vesicle Fluid** — ~**65%** of the total ejaculate volume.

Slide 2-10-2 Testicle

- **Seminiferous Tubule** — located in the testes. Is the male location of meiosis to make sperm cells.
 - **Sertoli Cells** — a type of “sustentacular cell” which forms the **Blood-Testis barrier**.
 - **Developing Spermatozoa** — the male gamete haploid cell made by meiosis.
- **Interstitial cells of Leydig** — stimulated by Luteinizing Hormone to produce the hormone **Testosterone**.

Slide 2-10-7 Penis (cross-section)

- **Corpora Cavernosa** — dorsal pair of erectile tissues that contain the most blood during an erection.
- **Corpus Spongiosum** — single, ventral erectile tissue with the spongy urethra running thru it.
— ends distally with the an expansion called the glans penis.

Male Reproductive System Gross Anatomy:

- **Scrotum** — dual-chambered sack of skin and smooth muscle containing the testes.
— homologous to the labia major in females.
 - **Dartos Muscle** — smooth muscle that contracts or relaxes to adjust position of the testes.
— contraction of the Dartos Muscle makes the scrotum look wrinkled.
 - **Testis** — male gonad that is homologous to the female ovary.
 - **Tunica Vaginalis** — a left & right pouch of parietal peritoneum formed as each testicles descends.
 - **Tunica Albuginea** — the white, fibrous covering over the testicle.
— the tunica vaginalis is attached to it only on the *posterior side* of the testicle where the epididymis is located.
 - **Epididymis** — a tightly-coiled tube on the posterior side of each testicle.
— seminiferous tubules connect to it at the superior (head) portion.
— sperm then swim into the body and finally the tail portion.
— sperm can be stored in the tail portion for 2-3 days and ejaculated from it.
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- **Spermatic Cord**
 - contains the following structures:
 - **Vas (Ductus) Deferens**
 - ~**30 to 45 cm** long tube in the adult male.
 - connects the tail of the epididymis to the ejaculatory duct.
 - **Cremasteric Muscle**
 - a skeletal muscle extension of the internal oblique muscle.
 - contraction of it raises (and warms) the testicle.
 - **Testicular Artery**
 - male gonadal artery
 - **Pampiniform Plexus**
 - dozens of veins in a “vine-like” pattern. Removes heat to cool testicle.
 - **Tunica Vaginalis**
 - after testicular descent, this pouch obliterates at the deep inguinal ring.
 - an indirect inguinal hernia is more likely if the connection stays open.
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- **Seminal Vesicles**
 - ~**65%** of the total ejaculate volume formed by it.
 - paired glands on the posterior side of the urinary bladder.
 - joins the ampulla of the vas deferens to empty into the ejaculatory ducts.
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- **Prostate**
 - ~**30%** of the total ejaculate volume formed by it.
 - **Ejaculatory Ducts**
 - the seminal vesicles and ampulla of the vas deferens empty into it.
 - there are two ejaculatory ducts found inside the prostate gland.
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- **Male Urethra**
 - total length about **20 cm**.
 - **Prostatic Urethra**
 - runs through the center of the prostate gland. Is about **2.5 - 3 cm** long.
 - **Membranous Urethra**
 - found in the urogenital diaphragm. Is about **2.5 cm** long on average.
 - **Bulbourethral Gland**
 - also called the **Cowper’s Gland**. There are 2 of them.
 - makes a pre-ejaculate fluid to neutralize residual urine from the urethra.
 - homologous to the Bartholin’s Gland in the female.
 - **Spongy (Penile) Urethra**
 - is about **15 cm** long.
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- **Penis**
 - has three columns of erectile tissues within it.
 - **Corpora Cavernosa**
 - homologous to the clitoris.
 - **dorsal pair** of erectile tissues that contain the most blood during an erection.
 - **Corpus Spongiosum**
 - homologous to the clitoral (vestibular) bulbs.
 - **single, ventral** erectile tissue with the spongy urethra running thru it.
 - ends distally with the an expansion called the **glans penis**.
 - **Foreskin**
 - also called the **Prepuce**. Covers the glans penis. Removed by circumcision.
 - is homologous to the female’s clitoral hood.
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