

Reproduction

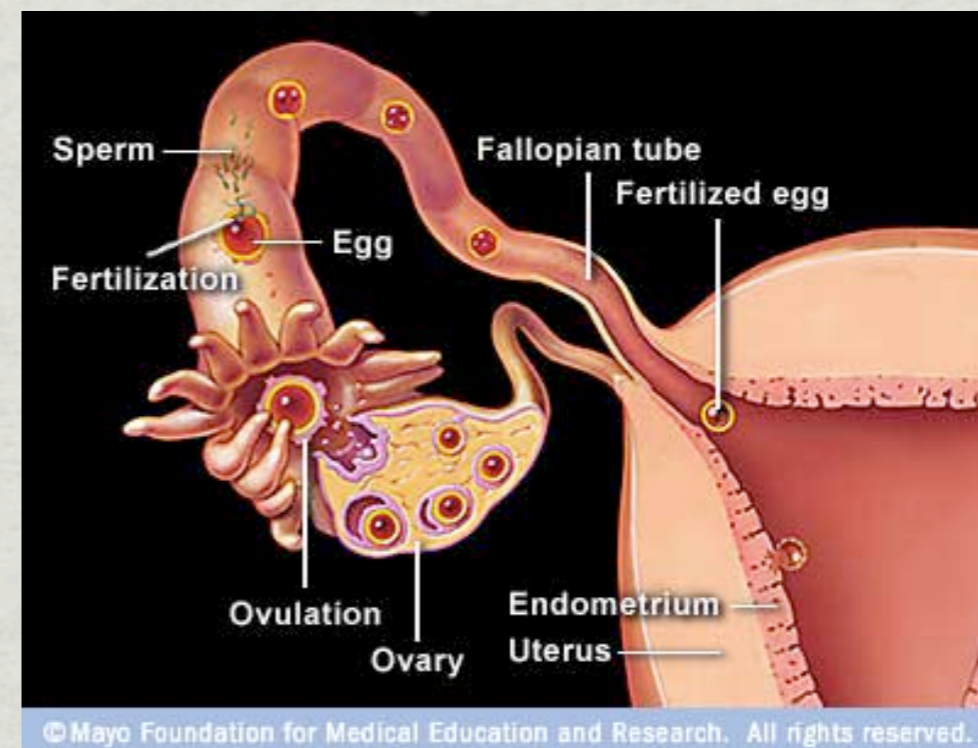
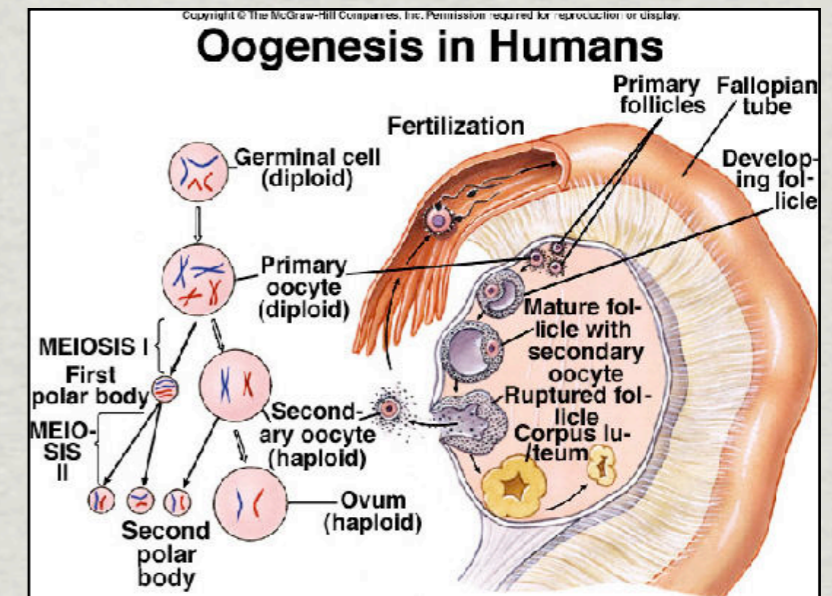
Human Systems - Biology 12

The Sex Talk

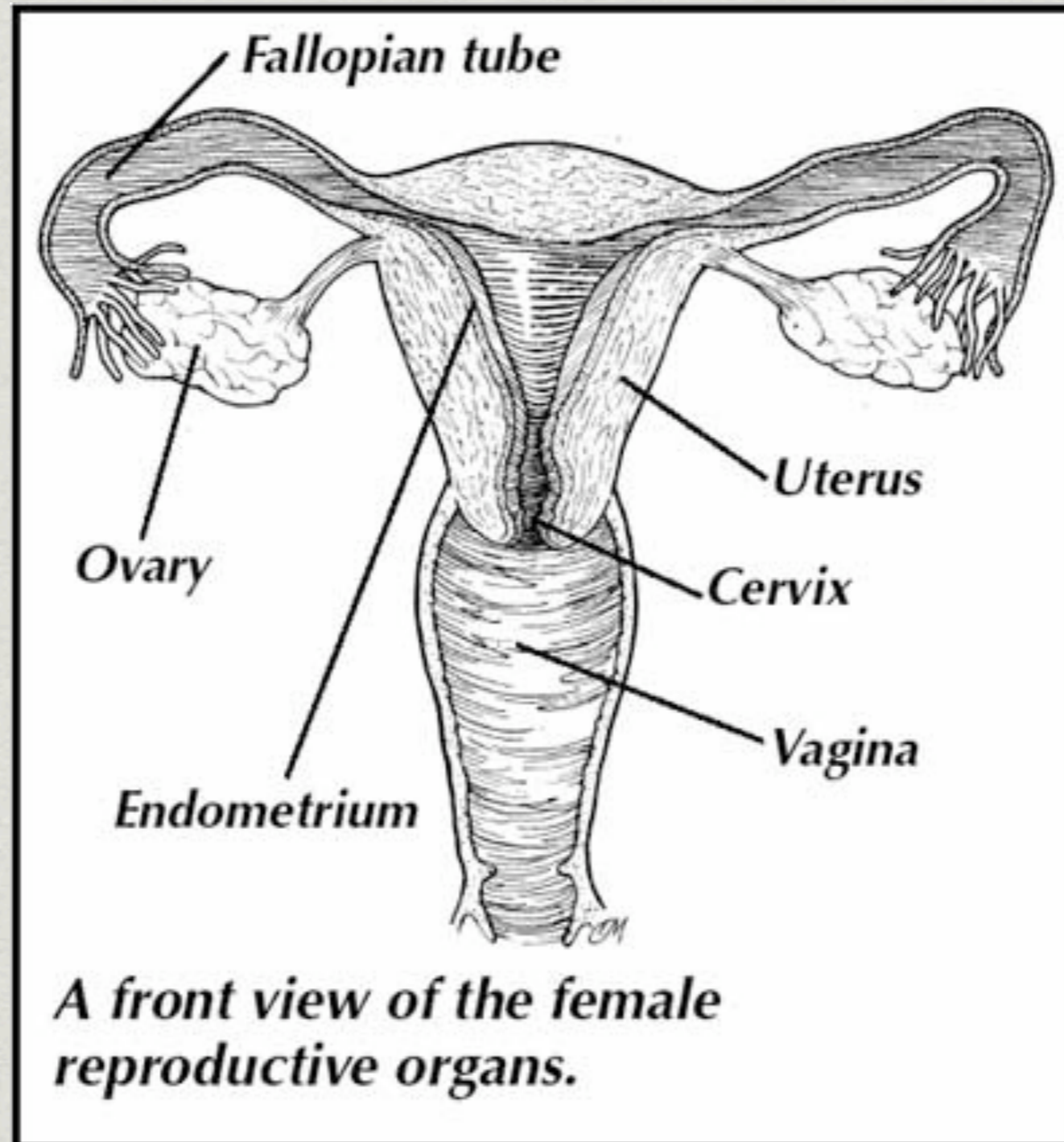


The Female Reproductive System

- THE **FUNCTIONS** OF THE FEMALE REPRODUCTIVE SYSTEM INCLUDE THE FOLLOWING:
 - THE PRODUCTION OF THE FEMALE GAMETE CALLED THE **OVUM** THROUGH THE PROCESS OF **OOGENESIS** WHICH INVOLVES THE CELL DIVISION CALLED **MEIOSIS**
 - THE PRODUCTION OF THE FEMALE SEX HORMONES **ESTROGEN** AND **PROGESTERONE**
 - THE SITE FOR **FERTILIZATION** OF THE **OVUM** BY THE MALE'S **SPERM**
 - THE SITE OF **FETAL DEVELOPMENT**



Structures and Functions



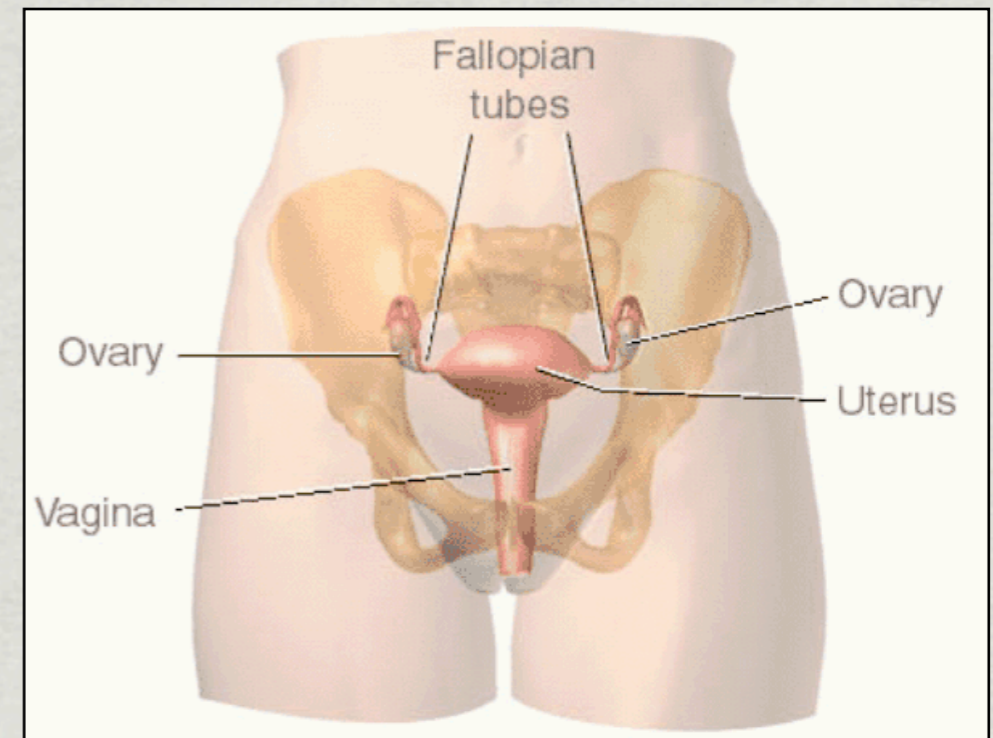
Ovaries

EACH FEMALE HAS TWO OVARIES WHICH ARE LOCATED IN THE LOWER ABDOMINAL CAVITY

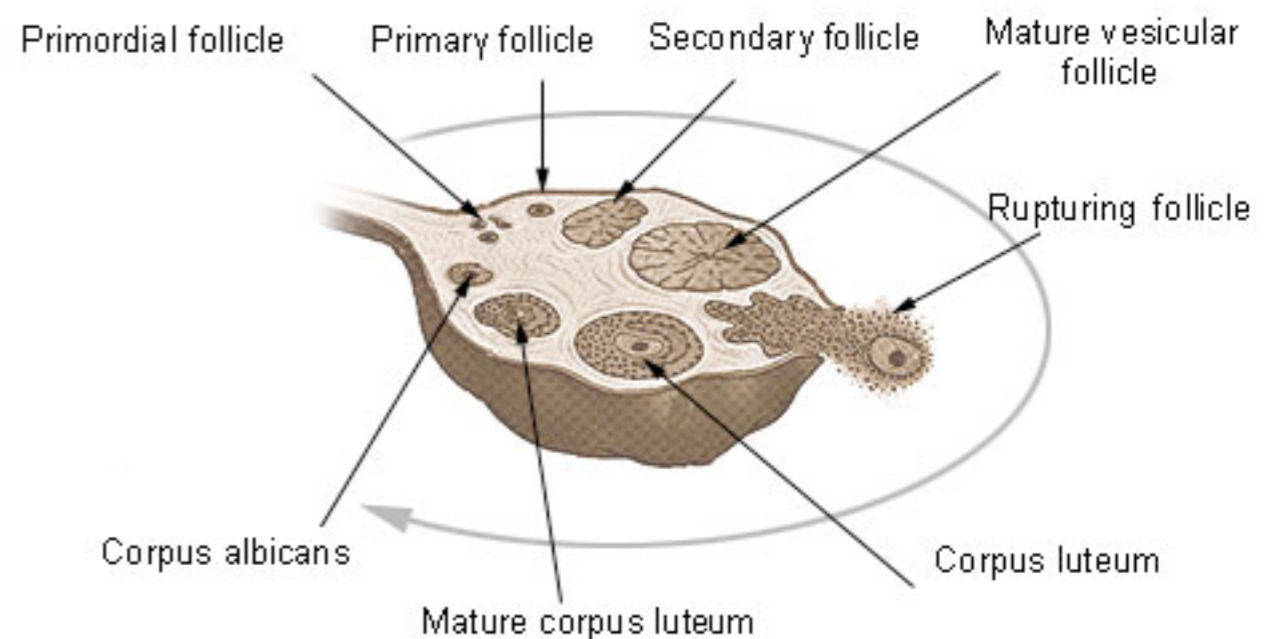
THE OVARIES PRODUCE THE FEMALE **GAMETES** AND THE SEX HORMONES **ESTROGEN** AND **PROGESTERONE**

THE OVARIES CONSIST OF AN OUTER LAYER CALLED THE **CORTEX** AND AN INNER LAYER CALLED THE **MEDULLA**

WITHIN THE CORTEX ARE MANY SAC LIKE STRUCTURES CALLED **FOLLICLES** WHICH CONSIST OF A CELLULAR CAPSULE SURROUNDING AN **OOCYTE**



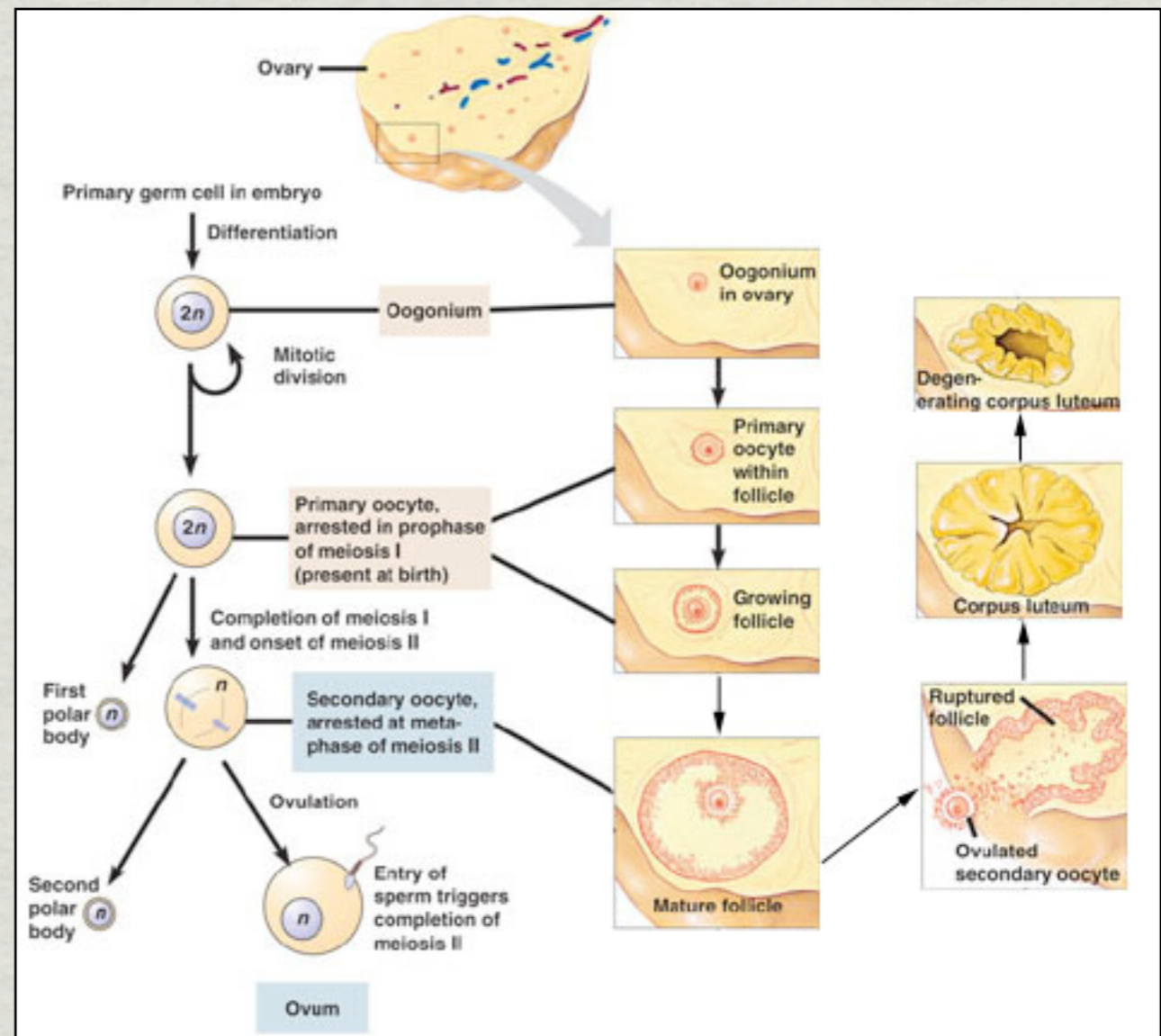
Structure of an Ovary



Ovaries

THE CAPSULE CELLS PRODUCE THE FEMALE SEX HORMONE, **ESTROGEN**

THE FOLLICLE UNDERGOES **OOGENESIS** WHICH INVOLVES THE CELL DIVISION CALLED **MEIOSIS**

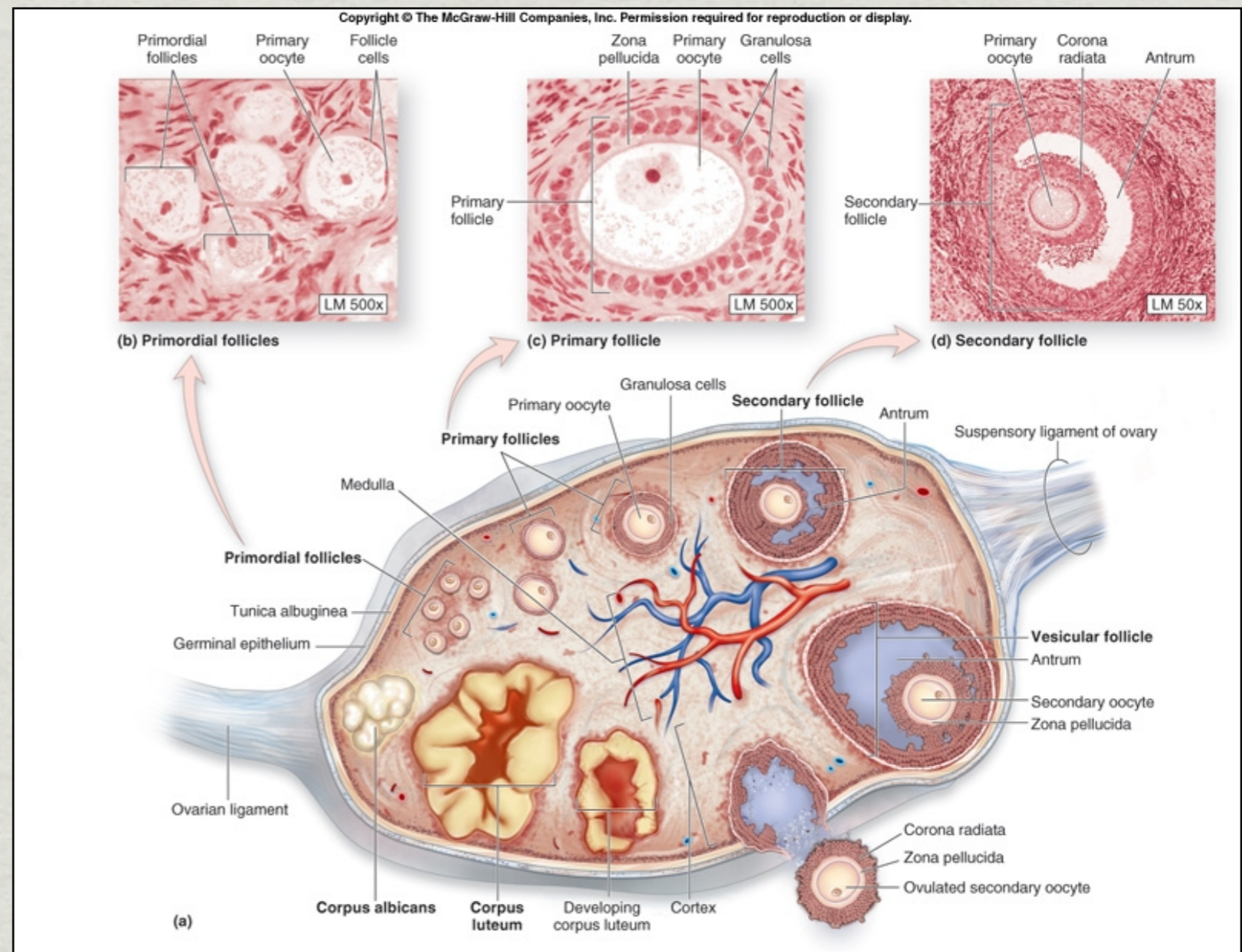


Ovaries

DURING **OVULATION** THE **OOCYTE** IS RELEASED FROM THE **OVARY**

FOLLOWING **OVULATION** THE REMAINING STRUCTURES OF THE FOLLICLE FORM A STRUCTURE CALLED THE **CORPUS LUTEUM**

THE CELLS OF THE **CORPUS LUTEUM** PRODUCE **PROGESTERONE** AND **ESTROGEN**

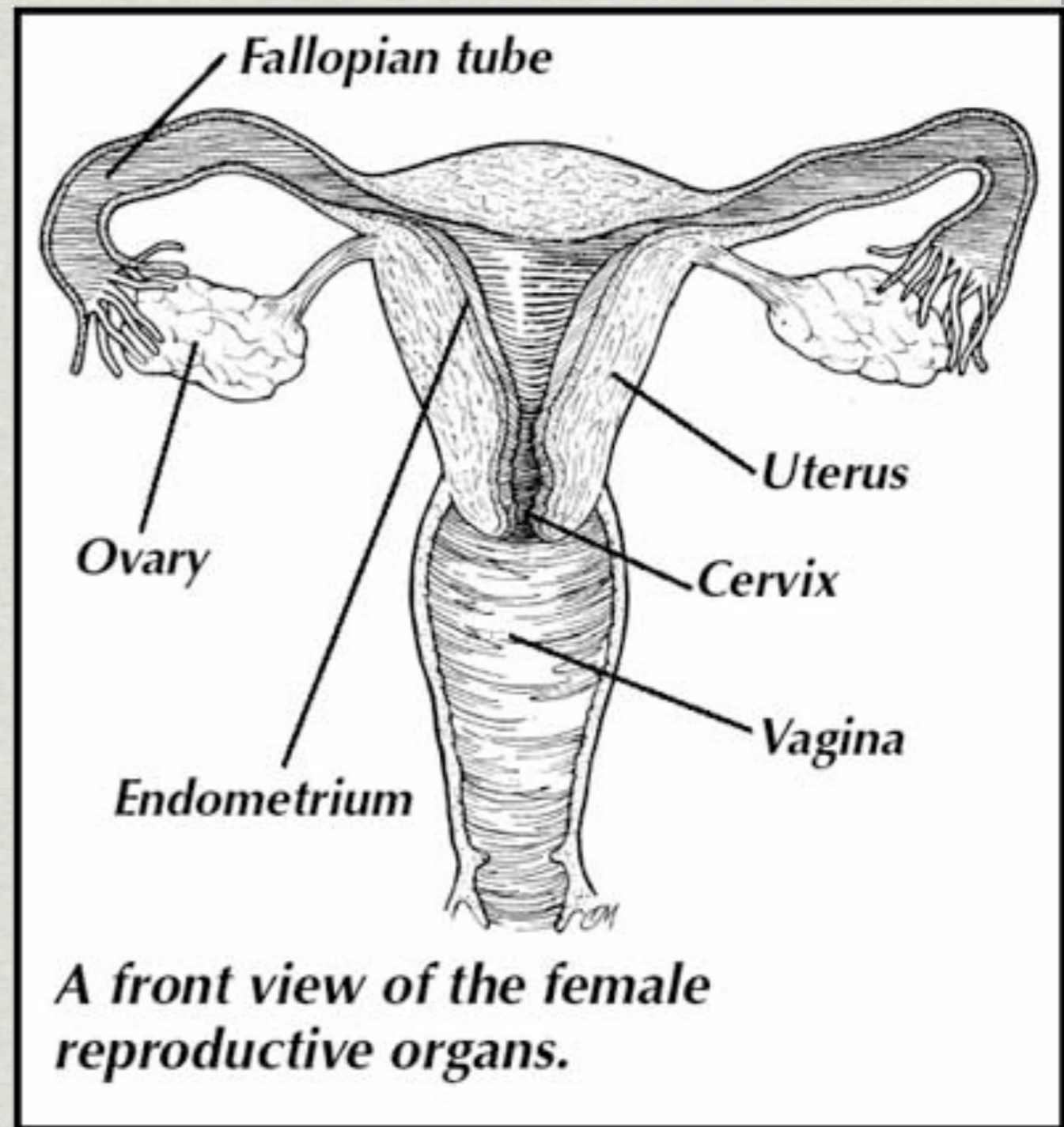


Oviducts/Fallopian Tubes

THE TWO **OVIDUCTS** (ALSO CALLED FALLOPIAN TUBES) ARE TUBES THAT PROVIDE A PATHWAY FOR THE EGG BETWEEN THE **OVARIES** AND THE **UTERUS**

THE FUNNEL LIKE OPENINGS OF THE OVIDUCTS LIE NEXT TO THE OVARIES AND HAVE FINGER LIKE PROJECTIONS CALLED **FIMBRAE**

DURING OVULATION, THE EGG IS RELEASED FROM THE OVARIES AND ENTERS THE OVIDUCT WITH THE HELP OF THE **FIMBRAE**

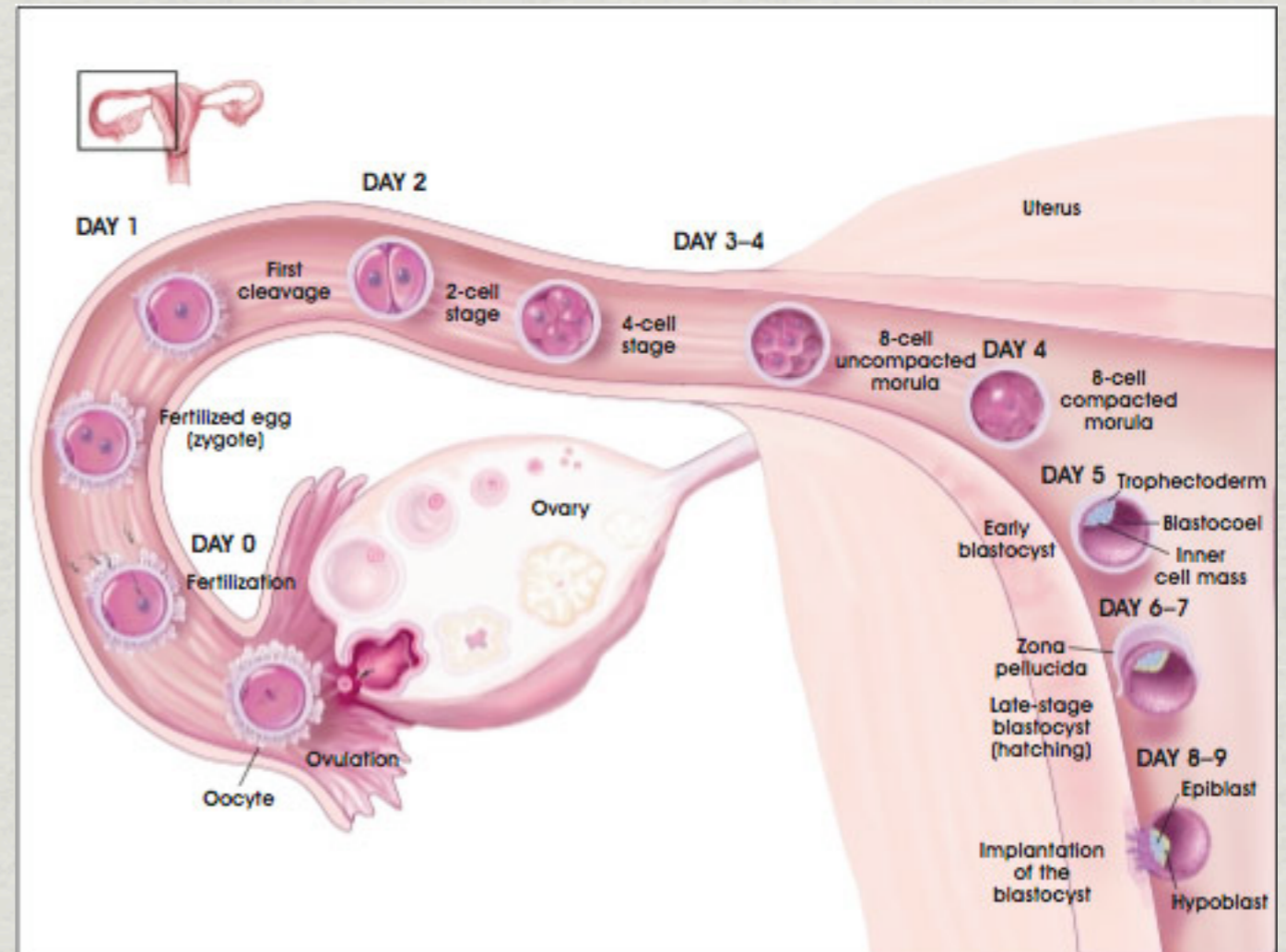


Oviduct/Fallopian Tubes

THE WALLS OF THE OVIDUCTS CONTAIN **SMOOTH MUSCLE** AND ARE LINED WITH CELLS THAT HAVE **CILIA** ON THEIR SURFACES

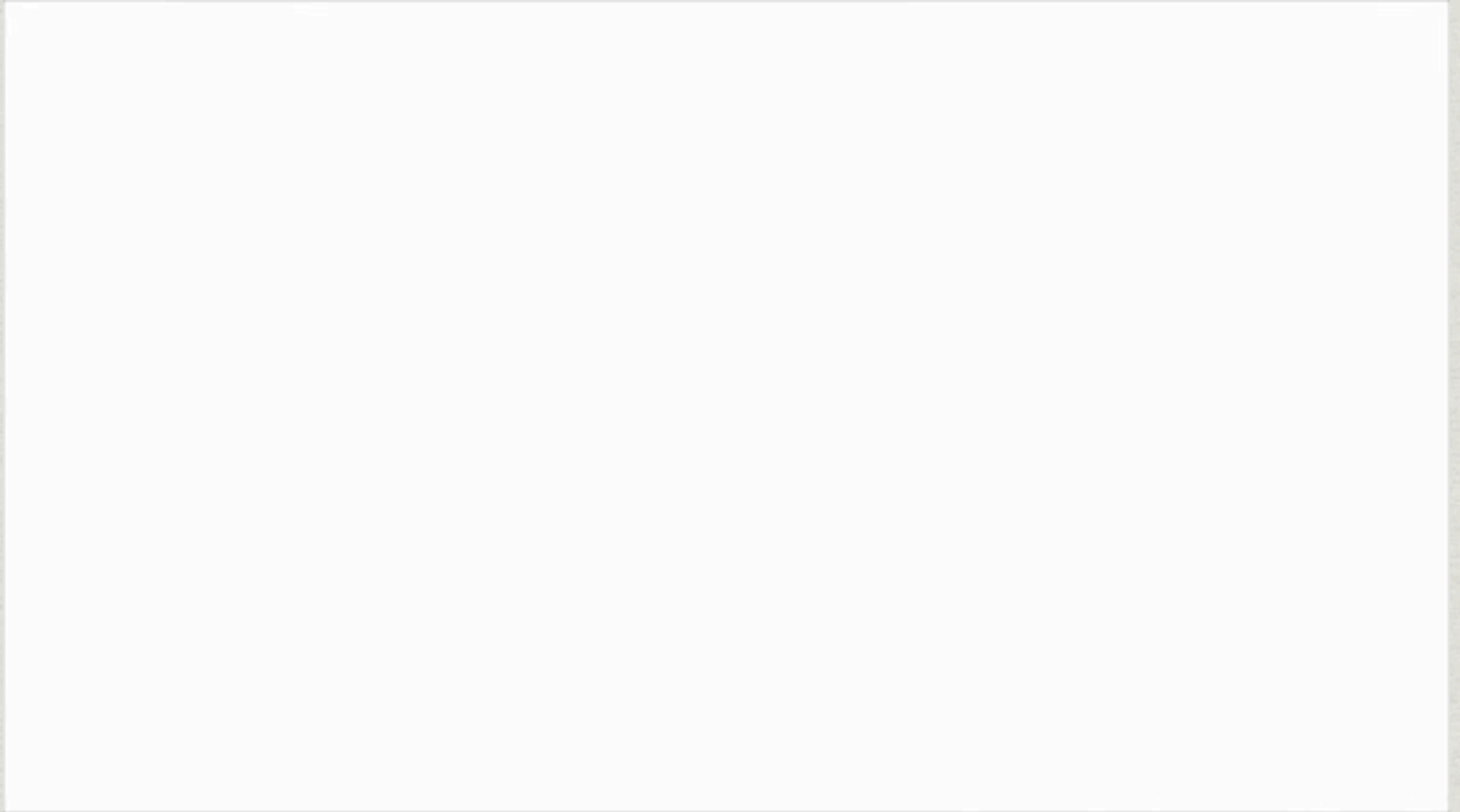
THE EGG IS PROPELLED THROUGH THE OVIDUCT BY THE CONTRACTION OF SMOOTH MUSCLE AND BEATING OF THE CILIA

IF SPERM ARE PRESENT, **FERTILIZATION** USUALLY OCCURS IN THE OVIDUCT, RESULTING IN A **ZYGOTE** WHICH IS CARRIED TO THE UTERUS



Movement through the Fallopian Tubes

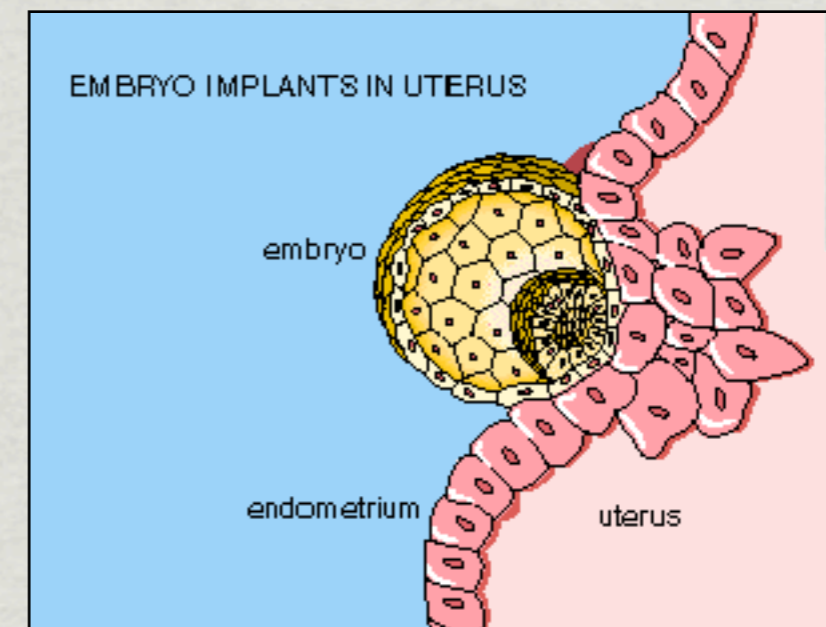
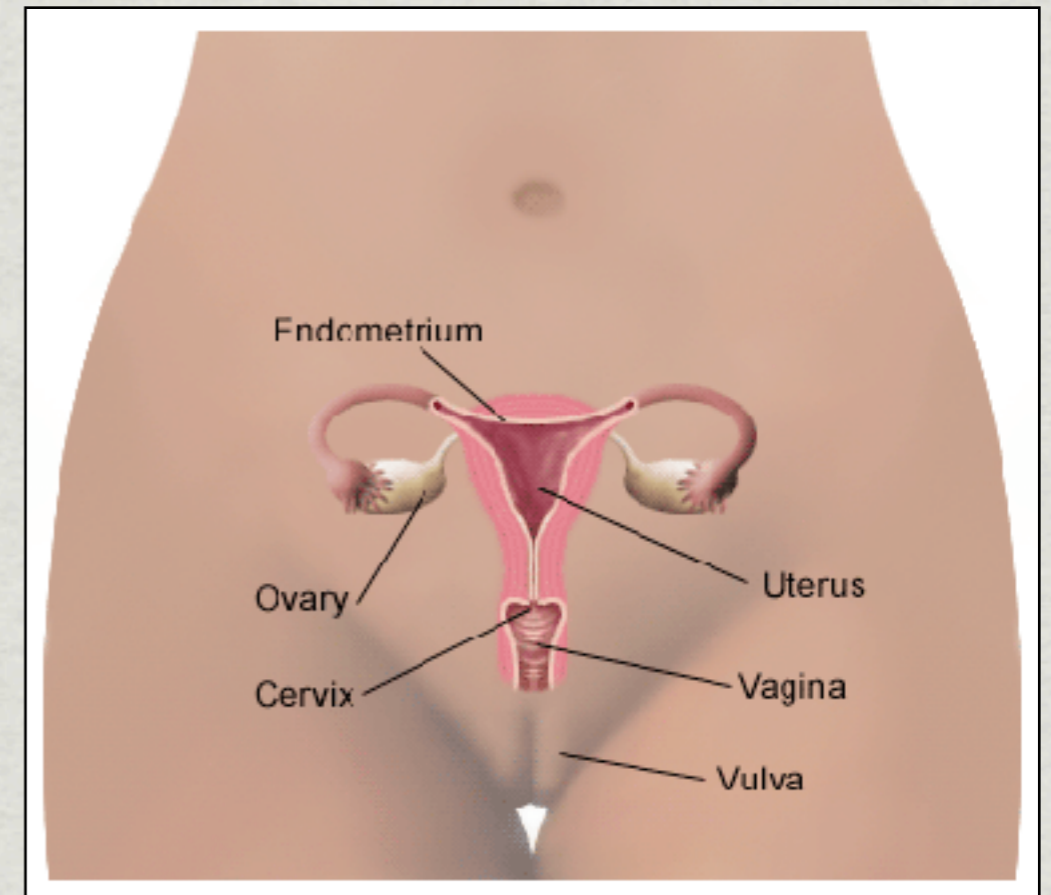
Movement through the Fallopian Tubes



Uterus

THE UTERUS IS A THICK WALLED, MUSCULAR ORGAN WHICH LIES JUST ABOVE THE URINARY TRACT IN THE LOWER ABDOMINAL CAVITY

FOLLOWING FERTILIZATION, THE ZYGOTE ENTERS THE UTERUS WHERE **IMPLANTATION** AND **FETAL DEVELOPMENT** OCCUR



Uterus

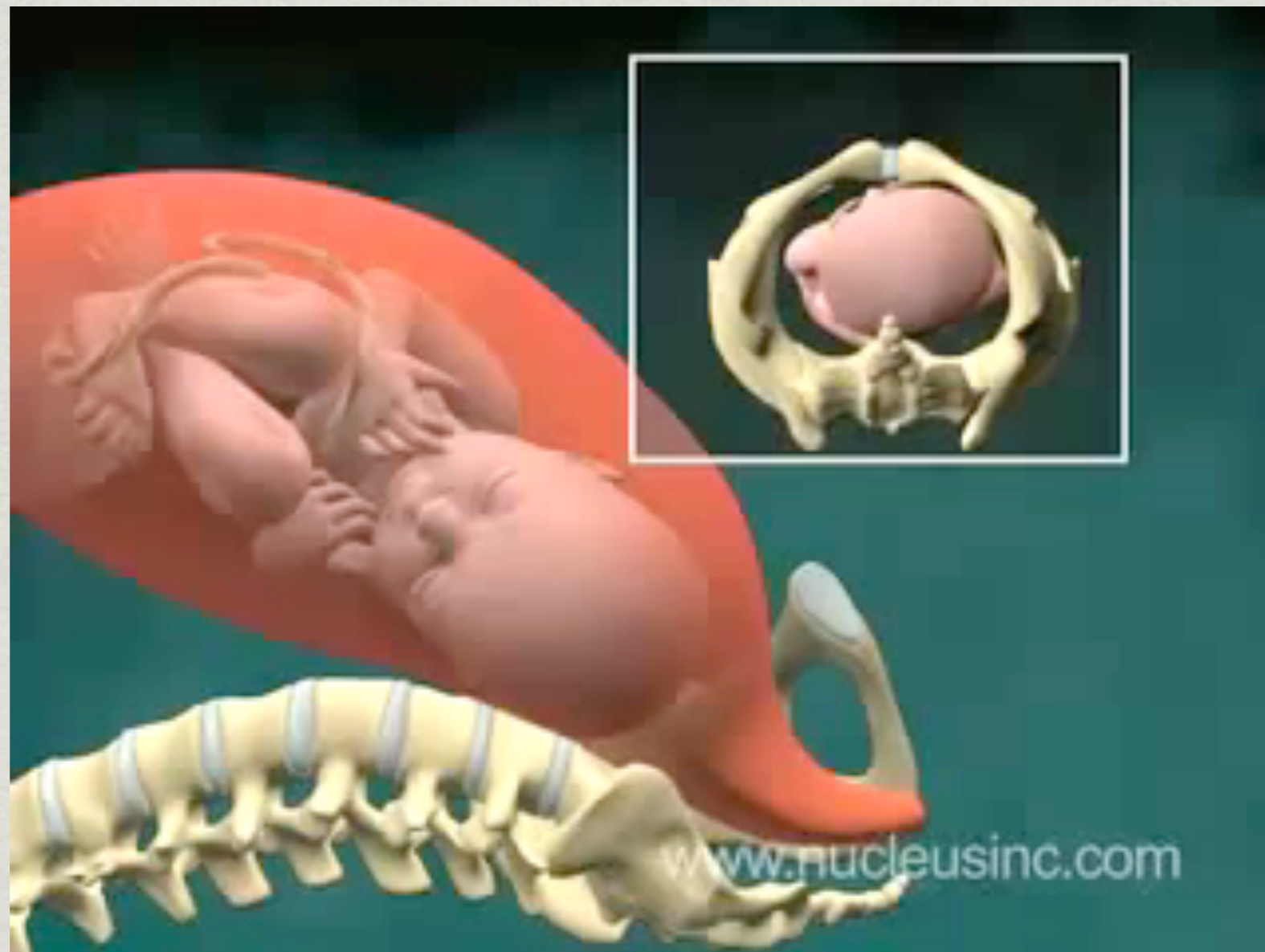
DURING FETAL DEVELOPMENT, A **PLACENTA** FORMS ON THE UTERINE WALL TO PROVIDE A LINK BETWEEN THE CIRCULATORY SYSTEM OF THE FETUS AND THE MOTHER

AT BIRTH, SMOOTH MUSCLE IN THE WALLS OF THE UTERUS CONTRACTS TO PUSH THE BABY THROUGH THE **BIRTH CANAL**

Uterus

DURING FETAL DEVELOPMENT, A **PLACENTA** FORMS ON THE UTERINE WALL TO PROVIDE A LINK BETWEEN THE CIRCULATORY SYSTEM OF THE FETUS AND THE MOTHER

AT BIRTH, SMOOTH MUSCLE IN THE WALLS OF THE UTERUS CONTRACTS TO PUSH THE BABY THROUGH THE **BIRTH CANAL**



Cervix

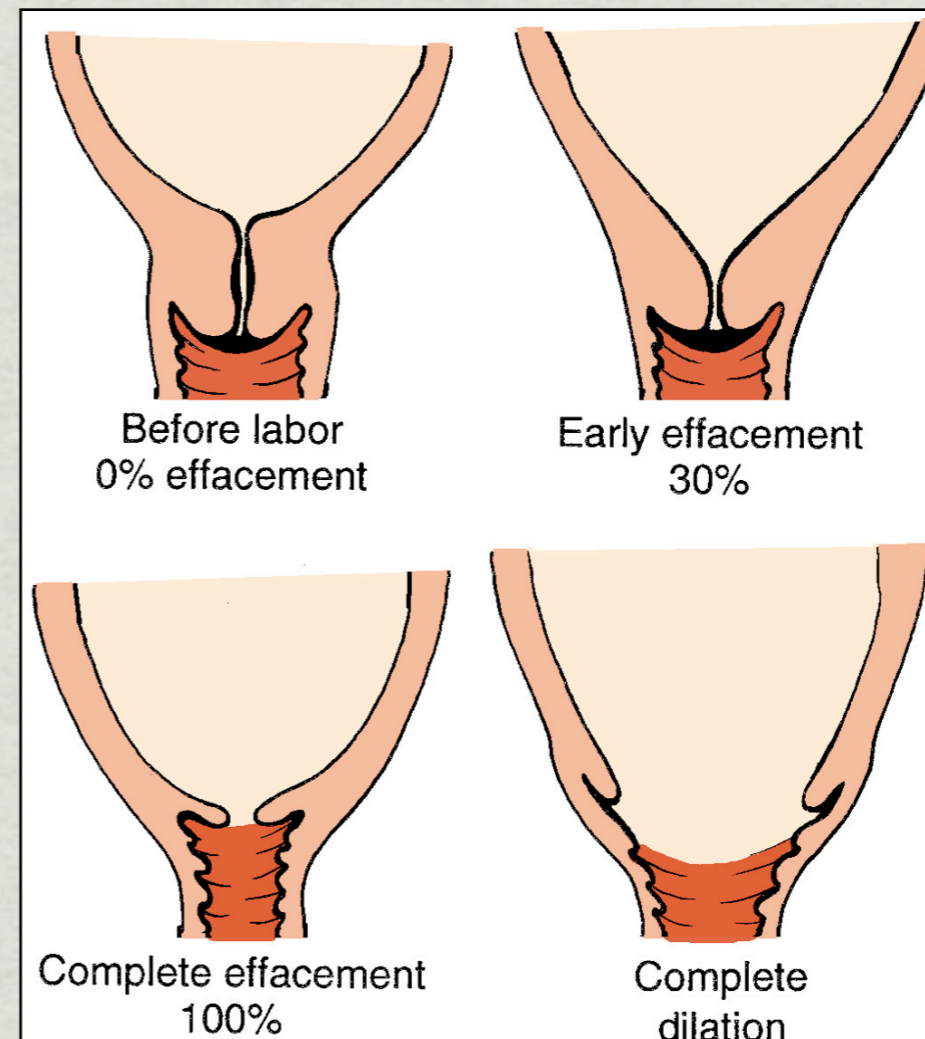
THE CERVIX IS A LARGE **SPHINCTER** (RING LIKE MUSCLE) FOUND AT THE JUNCTION OF THE UTERUS AND THE VAGINA



DURING PREGNANCY, THE CERVIX CONTRACTS TO CLOSE OFF THE OPENING TO THE UTERUS

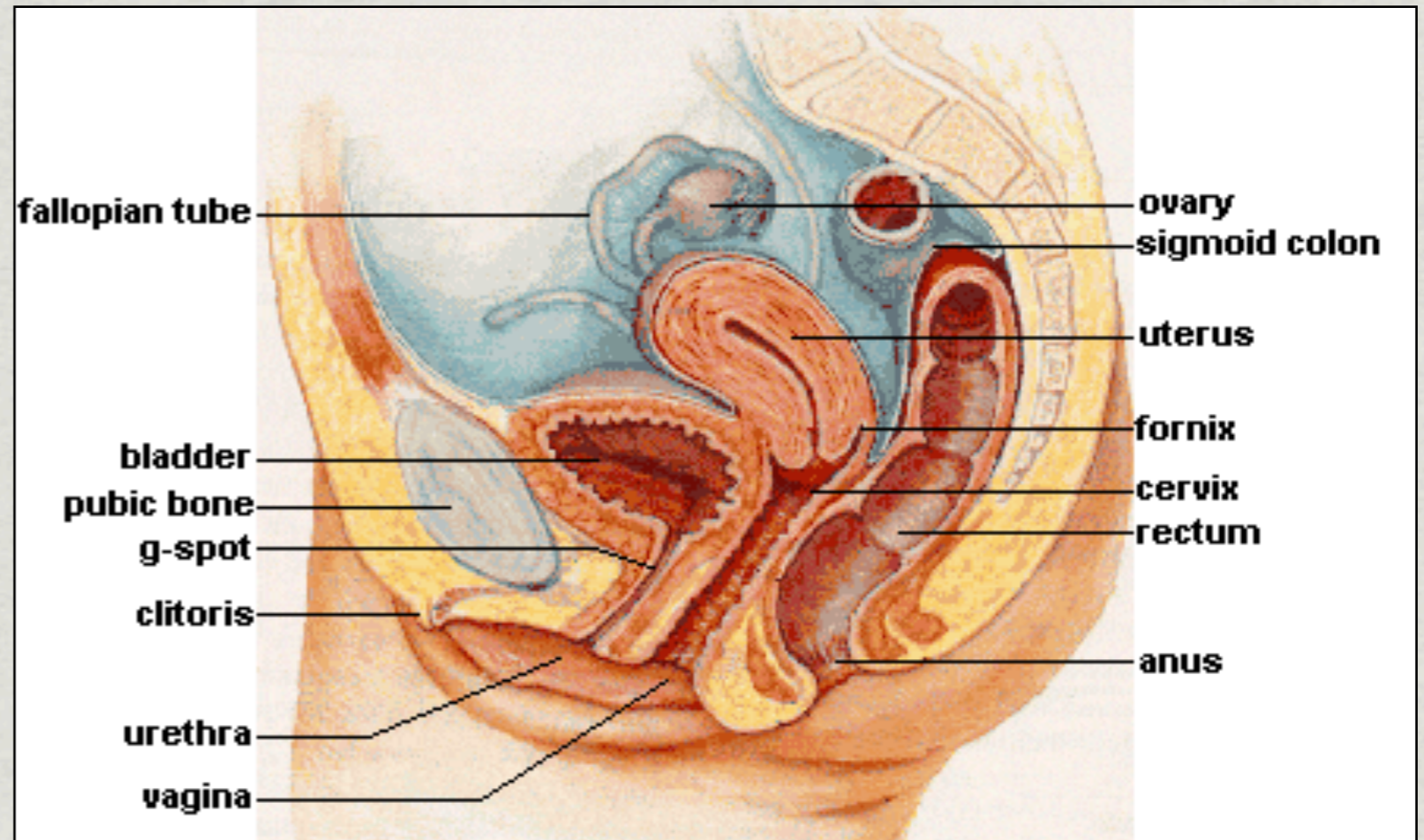
THIS HOLDS THE FETUS IN THE UTERUS AND PREVENTS PATHOGENS FROM ENTERING THE UTERUS

AT BIRTH THE CERVIX RELAXES TO ALLOW THE BABY TO PASS FROM THE UTERUS INTO THE VAGINA



Vagina

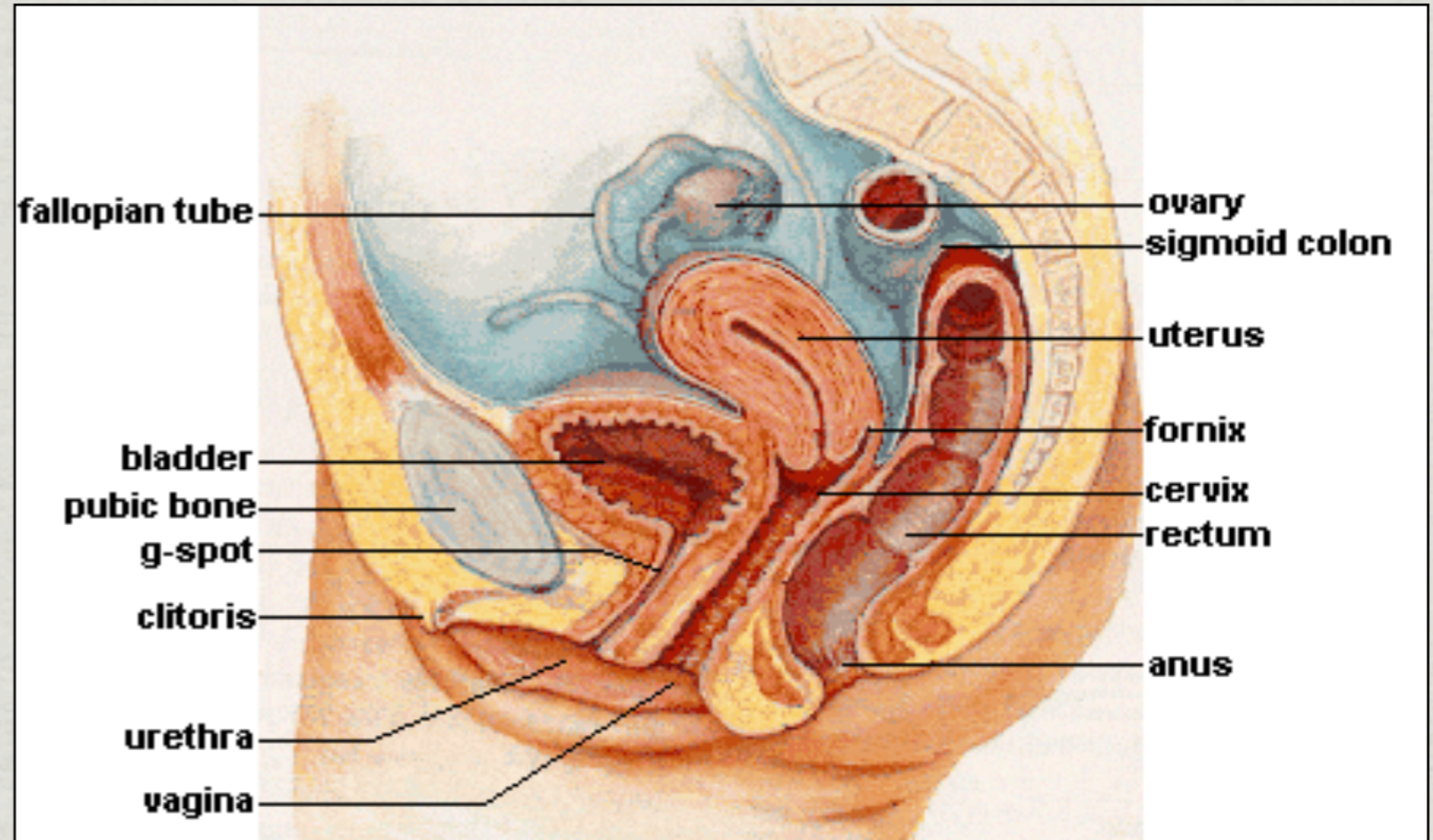
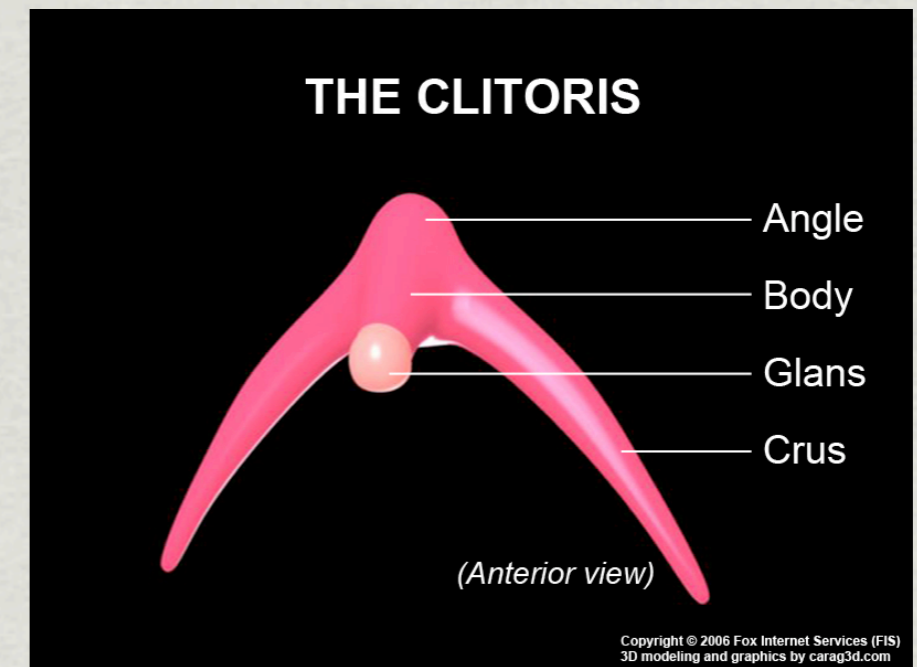
- THE VAGINA IS A THIN WALLED CANAL THAT RUNS FROM THE CERVIX TO THE OUTSIDE OF THE FEMALE'S BODY



- THE VAGINA SERVES AS THE **BIRTH CANAL** AND IS THE SITE WHERE SPERM ARE DEPOSITED DURING SEXUAL **INTERCOURSE**
- THE WALLS OF THE VAGINA ARE HIGHLY **ELASTIC** WHICH ALLOWS THEM TO STRETCH DURING BIRTH AND INTERCOURSE

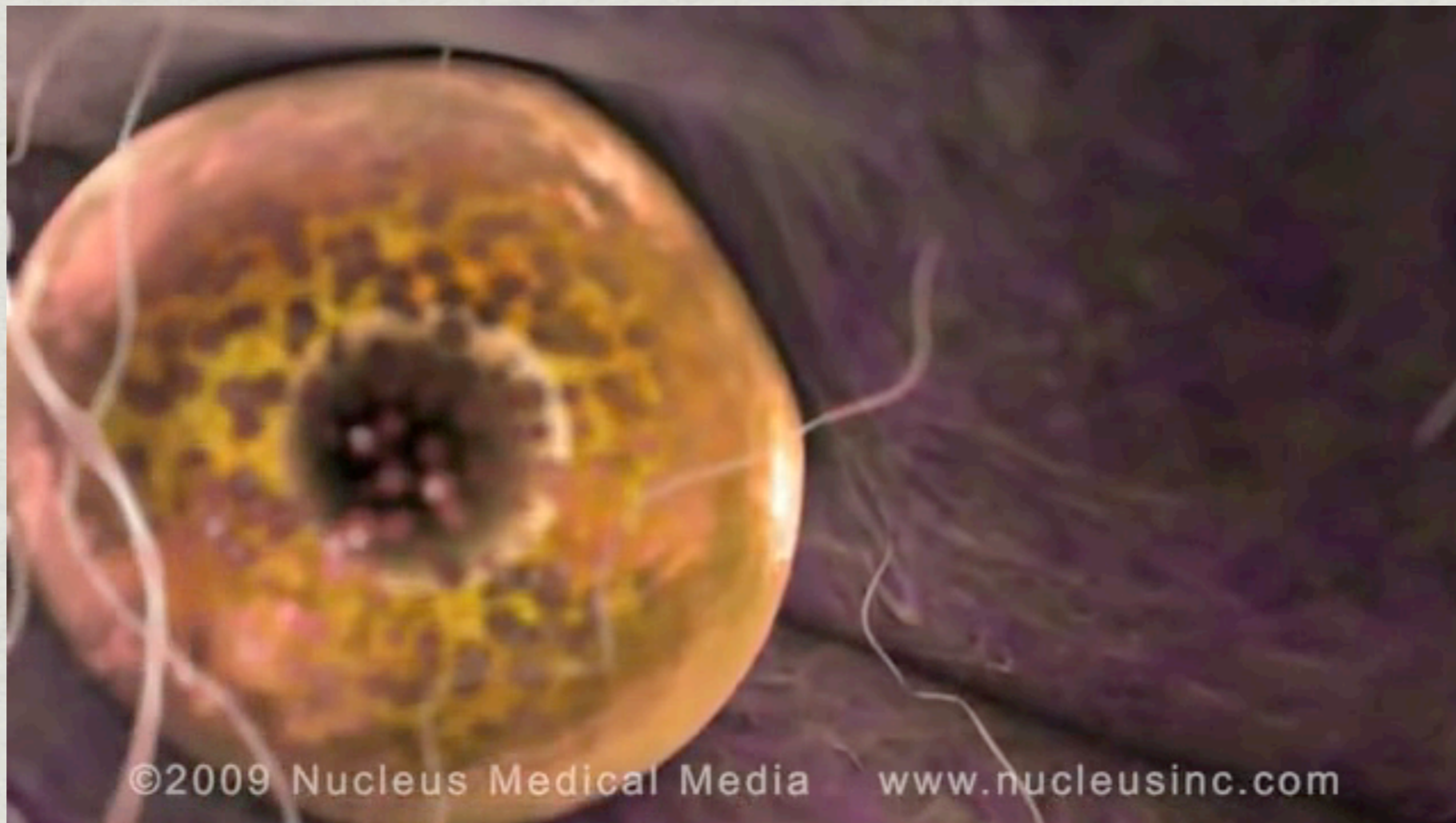
Clitoris

- THE CLITORIS IS A SMALL BULB LIKE STRUCTURE FOUND ABOVE THE OPENING TO THE VAGINA
- IT CONSISTS OF **ERECTILE TISSUE** THAT BECOMES ENGORGED WITH BLOOD DUE TO SEXUAL STIMULATION
- IT SERVES AS THE SITE OF SEXUAL STIMULATION OF THE FEMALE



Estrogen

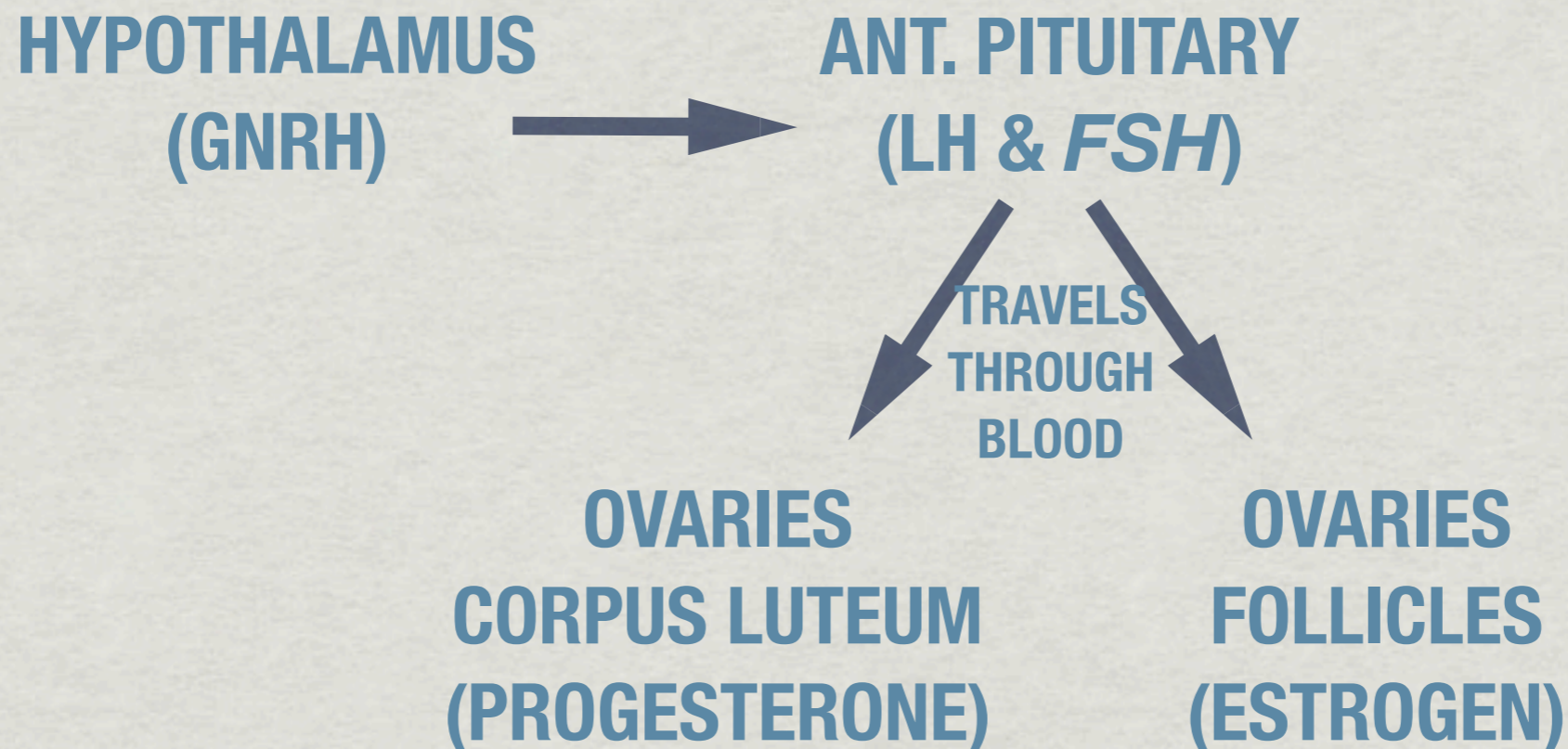
- ESTROGEN IS PRODUCED BY THE CELLS OF THE **FOLLICLES** WHICH ARE FOUND IN THE OVARIES



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Estrogen Release

- THE HYPOTHALAMUS RELEASES **GONADOTROPIC RELEASING HORMONE (GNRH)** WHICH TRAVELS TO THE **ANTERIOR PITUITARY**
- **GNRH** STIMULATES THE ANTERIOR PITUITARY TO RELEASE THE TWO **GONADOTROPIC HORMONES** CALLED **LEUTENIZING HORMONE (LH)** AND **FOLLICLE STIMULATING HORMONE (FSH)** INTO THE BLOOD
- **LH** AND **FSH** ARE CARRIED IN THE BLOOD TO THE **OVARIES**
- **FSH** STIMULATES THE CELLS OF THE FOLLICLES TO PRODUCE AND RELEASE **ESTROGEN**
- (LH STIMULATES THE CELLS OF THE CORPUS LUTEUM TO PRODUCE AND RELEASE **PROGESTERONE**)



Functions

- AT PUBERTY, ESTROGEN PROMOTES THE DEVELOPMENT OF **SEXUAL CHARACTERISTICS** (BREASTS, BODY HAIR, BODY FAT, ENLARGEMENT OF THE PELVIC GIRDLE)
- ESTROGEN PROMOTES **FOLLICLE MATURATION** IN THE OVARY
- ESTROGEN, ALONG WITH PROGESTERONE, STIMULATES THE THICKENING OF THE UTERINE LINING IN PREPARATION FOR PREGNANCY

Female Cycles

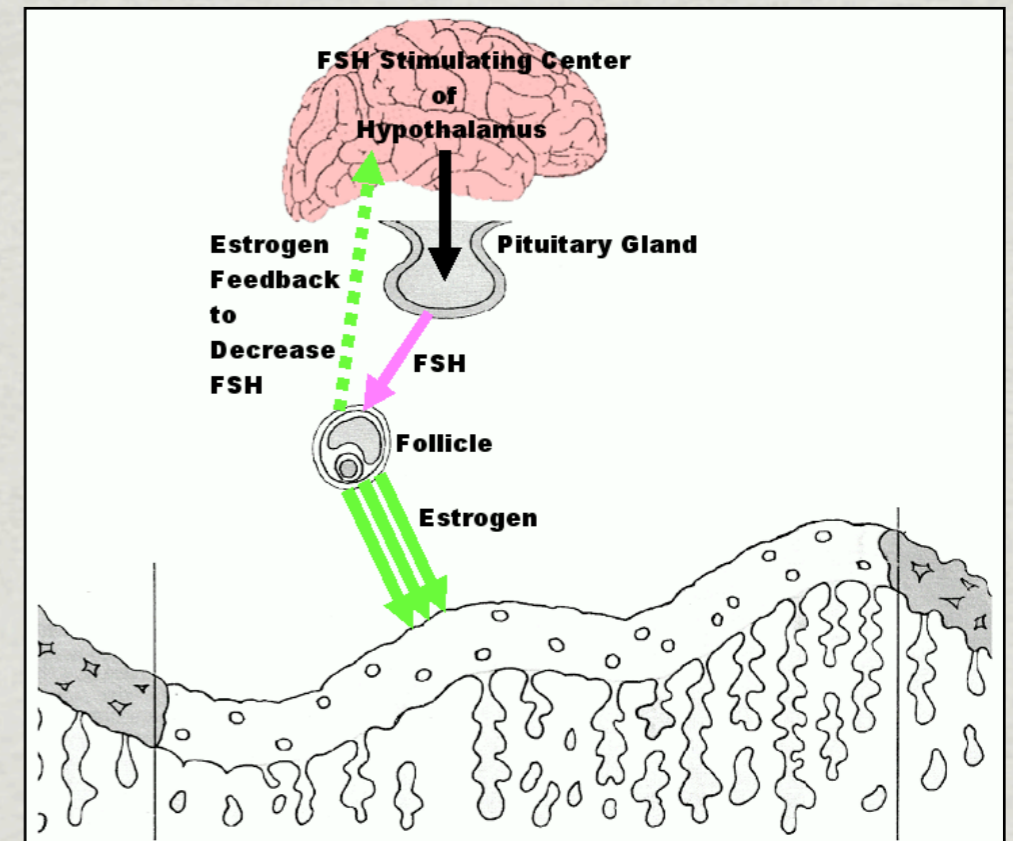
- DURING THE YEARS IN WHICH THE FEMALE IS **FERTILE**, THE REPRODUCTIVE SYSTEM UNDERGOES A SERIES OF **HORMONE CONTROLLED** CHANGES WHICH OCCUR OVER AN AVERAGE OF **28 DAYS** IN A **CYCLIC PATTERN**
- THESE CHANGES OCCUR PRIMARILY IN THE **UTERUS** AND **OVARIES**
- THE CYCLIC CHANGES IN THE **OVARIES** ARE CALLED THE **OVARIAN CYCLE**
- THE CYCLIC CHANGES IN THE **UTERUS** ARE CALLED THE **UTERINE CYCLE**
- BOTH CYCLES ARE CONTROLLED BY HORMONES FROM THE **OVARIES, HYPOTHALAMUS, AND ANTERIOR PITUITARY**

Ovarian Cycle

- THE OVARIAN CYCLE INVOLVES THE PRODUCTION AND RELEASE OF AN **OOCYTE** FROM THE **FOLLICLE** AND THE FORMATION AND DEGENERATION OF THE **CORPUS LUTEUM**
- THIS CYCLE CAN BE DIVIDED INTO THREE PHASES:
 - **FOLLICULAR** PHASE
 - **OVULATORY** PHASE
 - **LUTEAL** PHASE

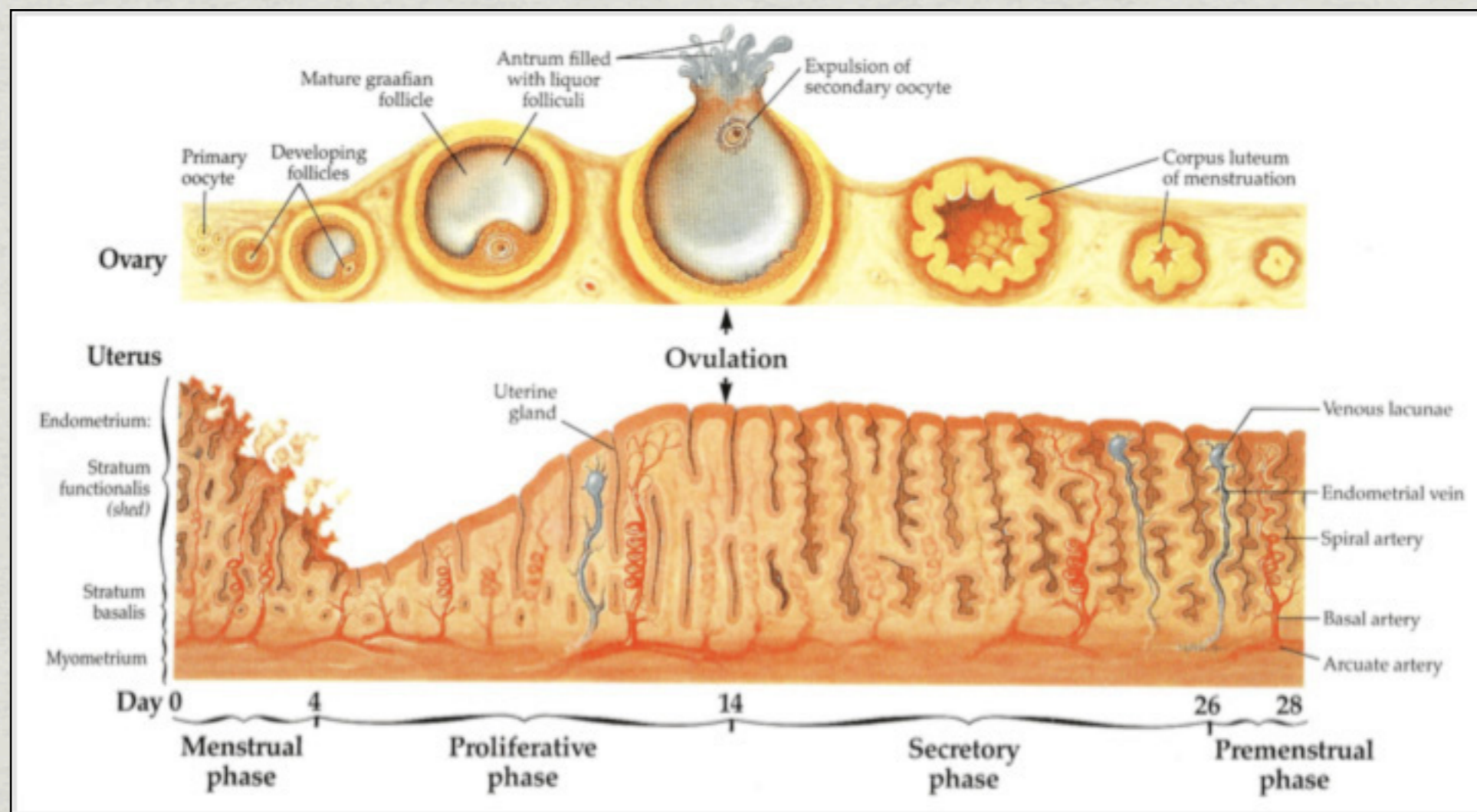
Follicular Phase

- THE FOLLICULAR PHASES TYPICALLY LASTS FROM DAYS 1 TO 13 OF THE OVARIAN CYCLE
- **FOLLICLE STIMULATING HORMONE** FROM THE **ANTERIOR PITUITARY** STIMULATE THE DEVELOPMENT OF A **FOLLICLE** IN THE **OVARY**
- WITHIN THE FOLLICLE, THE **PRIMARY OOCYTE** UNDERGOES THE FIRST DIVISION OF **MEIOSIS** TO FORM THE **SECONDARY OOCYTE**
- AS THE **FOLLICLE** GROWS, THE **CAPSULE CELLS** SECRETE INCREASING AMOUNTS OF THE HORMONE **ESTROGEN**



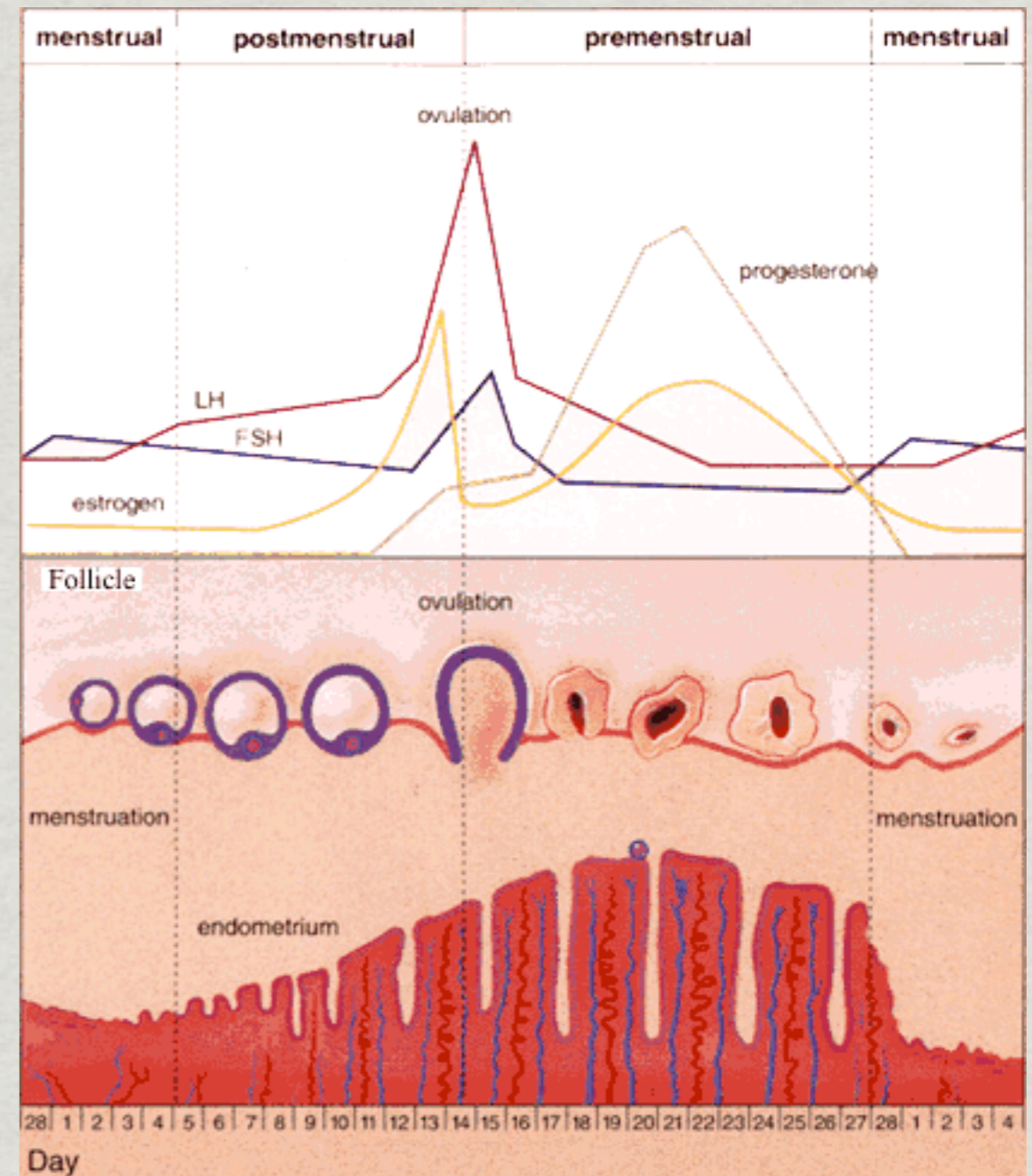
Ovulatory Phase

- THE OVULATORY PHASE TYPICALLY OCCURS AROUND DAY **14** OF THE OVARIAN CYCLE
- DUE TO INCREASING LEVELS OF **ESTROGEN** (FROM THE FOLLICLE CELLS) THERE IS A SURGE OF **LUTENIZING HORMONE** FROM THE ANTERIOR PITUITARY
- THIS SURGE OF **LUTENIZING HORMONE** CAUSES THE SECONDARY OOCYTE TO BE RELEASED FROM THE OVARY THROUGH THE PROCESS OF **OVULATION**



Luteal Phase

- THE LUTEAL PHASE TYPICALLY LASTS FROM DAY **15** TO **28** OF THE OVARIAN CYCLE
- FOLLOWING OVULATION, **LUTENIZING HORMONE** CAUSES THE CAPSULE CELLS OF THE FOLLICLE TO FORM THE **CORPUS LUTEUM**
- THE CELLS OF THE **CORPUS LUTEUM** SECRETE THE HORMONES **PROGESTERONE** AND **ESTROGEN**
- HIGH LEVELS OF **PROGESTERONE** FROM THE **CORPUS LUTEUM** INHIBIT THE RELEASE OF **LUTENIZING HORMONE** FROM THE ANTERIOR PITUITARY
- THE DROP IN **LUTENIZING HORMONE** CAUSES THE **CORPUS LUTEM** TO DEGRADE WHICH MARKS THE END OF THE **LUTEAL PHASE**

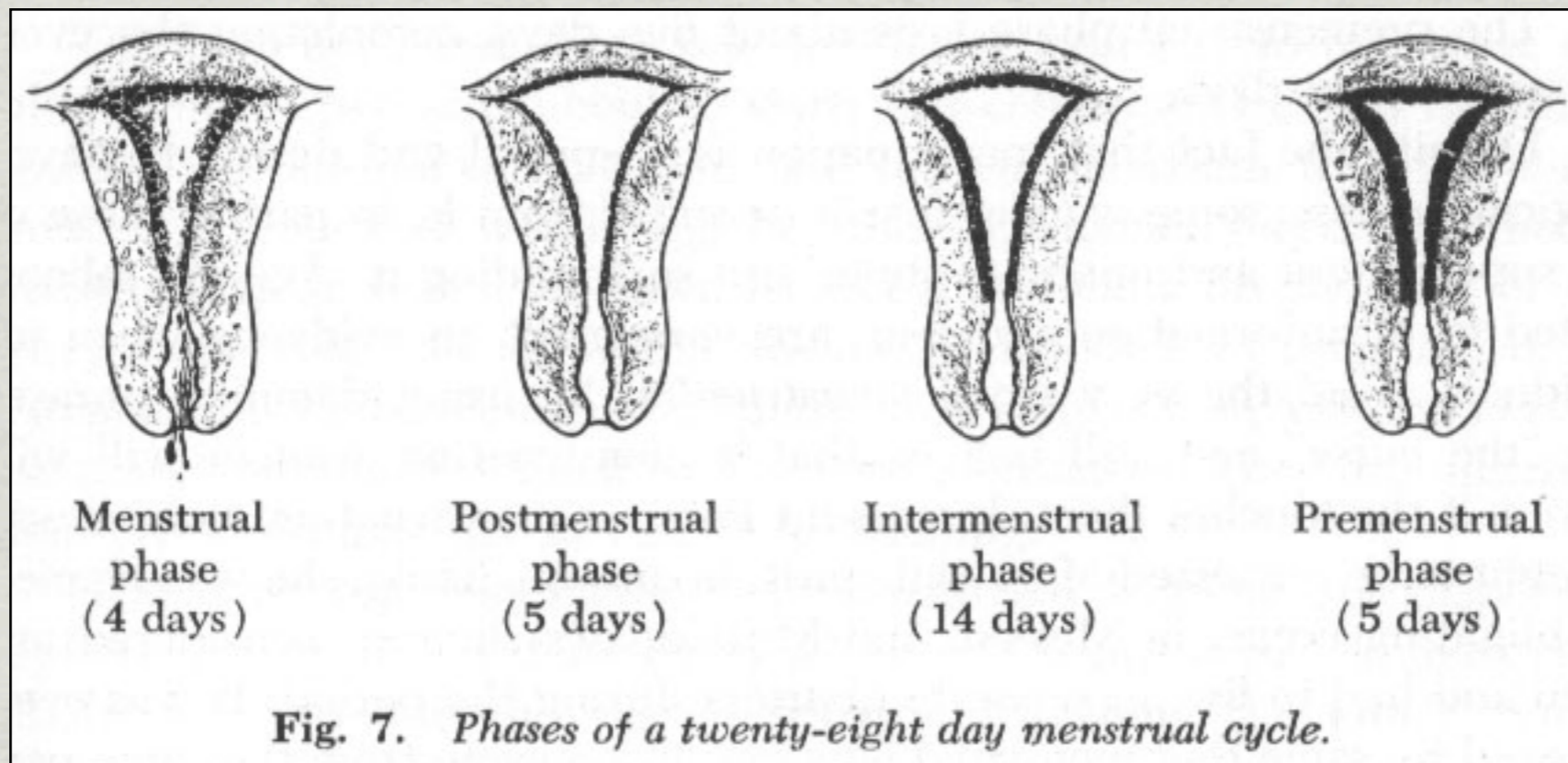


Uterine/Menstrual Cycle

- THE UTERINE CYCLE INVOLVES THE **THICKENING** AND **VASCULARIZATION** OF THE WALLS OF THE UTERUS
- IF PREGNANCY DOES NOT OCCUR, THIS CYCLE INVOLVES THE DISINTEGRATION AND SLOUGHING OFF OF THE UTERINE LINING (ENDOMETRIUM) IN A PROCESS CALLED **MENSTRUATION**
- THIS CYCLE CONSISTS OF THREE PHASES:
 - **MENSTRUATION** PHASE
 - **PROLIFERATION** PHASE
 - **SECRETORY** PHASE

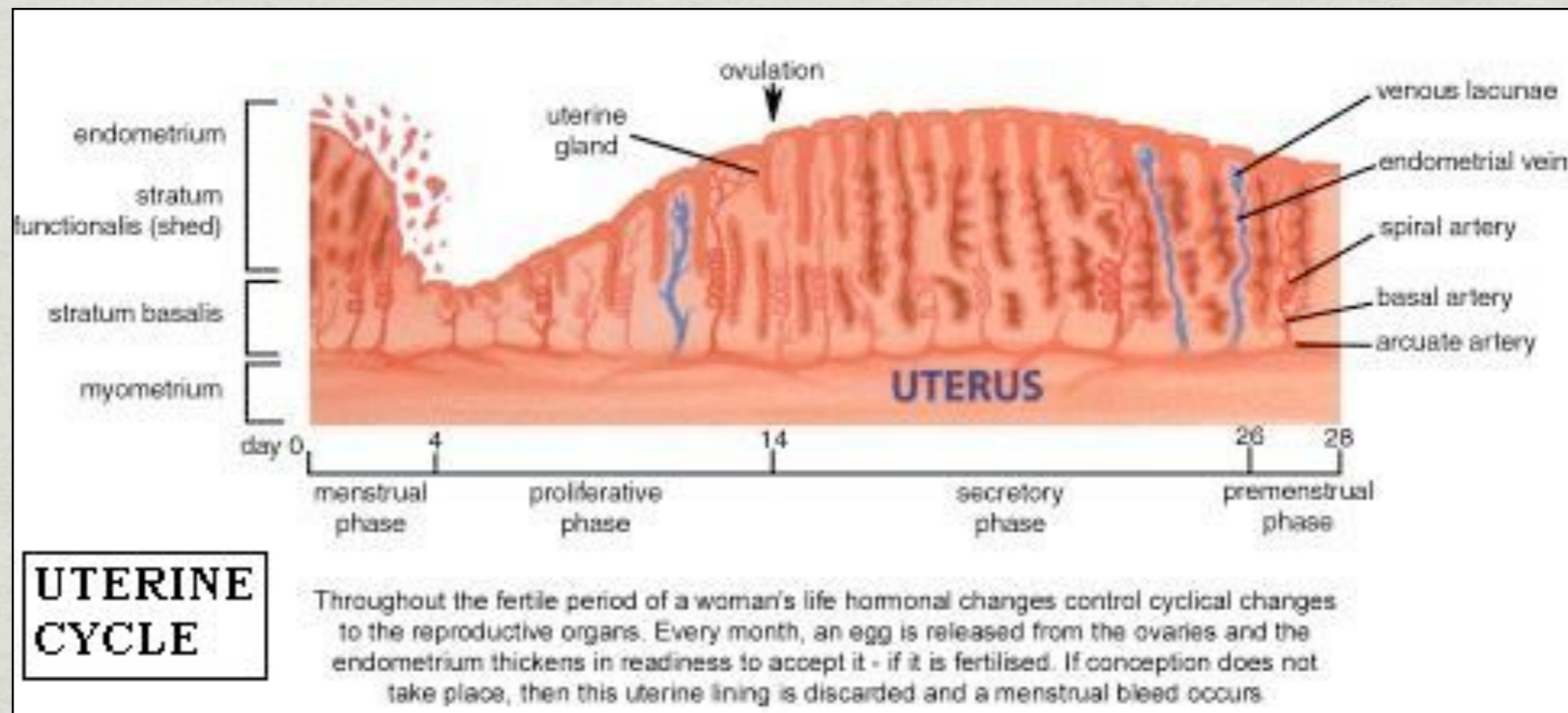
Menstruation Phase

- THE MENSTRUATION PHASES TYPICALLY LASTS FROM DAYS 1 TO 5 OF THE UTERINE CYCLE
- LOW LEVELS OF THE HORMONES **ESTROGEN** AND **PROGESTERONE** CAUSE THE DISINTEGRATION OF THE UTERINE LINING AND THE RUPTURING OF ITS BLOOD VESSELS
- BLOOD AND TISSUE FLOWS OUT OF THE FEMALE BODY IN A PROCESS CALLED **MENSTRUATION**



Proliferation Phase

- THE PROLIFERATION PHASES TYPICALLY LASTS FROM DAYS **6 TO 13** OF THE UTERINE CYCLE
- INCREASING AMOUNTS OF THE HORMONE **ESTROGEN** FROM THE GROWING **FOLLICLE** IN THE OVARIES CAUSES THE LINING OF THE UTERUS TO **THICKEN**, AND BECOME MORE **VASCULAR** AND **GLANDULAR**
- THIS HELPS PREPARE THE UTERUS FOR IMPLANTATION OF THE EMBRYO IF FERTILIZATION OCCURS

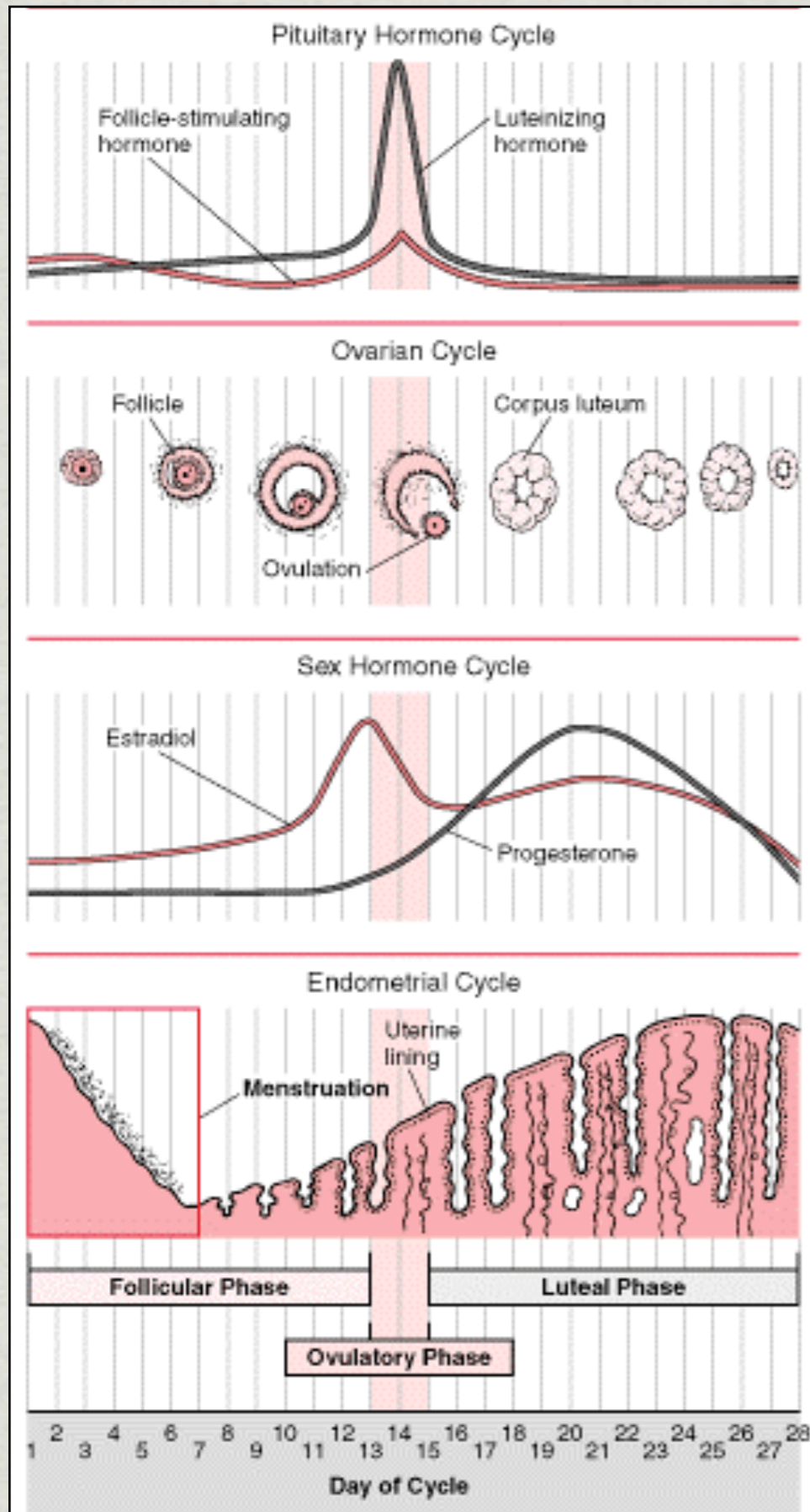


Secretory Phase

- THE SECRETORY PHASE TYPICALLY LASTS FROM DAYS **14** TO **28** OF THE UTERINE CYCLE
- INCREASING AMOUNTS OF THE HORMONE **PROGESTERONE** FROM THE **CORPUS LUTEUM** IN THE OVARIES CAUSES THE ENDOMETRIUM TO THICKEN AND THE GLANDS TO MATURE
- THUS THE COMBINED EFFECTS OF **ESTROGEN** AND **PROGESTERONE** HELP TO PREPARE THE UTERUS FOR IMPLANTATION OF THE EMBRYO IF FERTILIZATION OCCURS
- IF FERTILIZATION DOES NOT OCCUR, THE UTERINE LINING BEGINS TO DEGENERATE AND THE LEVELS OF **ESTROGEN** AND **PROGESTERONE** DECREASE, ENDING THE SECRETORY PHASE

THIS WEBSITE HELPS!

[HTTP://WWW.SUMANASINC.COM/WEBCONTENT/ANIMATIONS/CONTENT/OVARIANUTERINE.HTML](http://www.sumanasinc.com/webcontent/animations/content/ovarianuterine.html)



Embryo Implantation & Hormonal Changes

- IF FERTILIZATION OCCURS, THE EMBRYO MOVES TO THE UTERUS WHERE IT **IMPLANTS** ITSELF IN THE UTERINE WALL
- SHORTLY AFTER IMPLANTATION, THE **PLACENTA** FORMS A LINK BETWEEN THE **CIRCULATORY SYSTEMS** OF THE MOTHER AND BABY
- THE PLACENTA PRODUCES THE HORMONE **HUMAN CHORIONIC GONADOTROPHIN (HCG)**

Effects of HCG

- HCG PREVENTS THE DEGENERATION OF THE CORPUS LUTEUM IN THE OVARY
- THEREFORE ESTROGEN AND PROGESTERONE CONTINUE TO BE PRODUCED AND THE WALL OF THE UTERUS IS MAINTAINED
- AS WELL AS PRODUCING HCG, THE PLACENTA EVENTUALLY PRODUCES **ESTROGEN** AND **PROGESTERONE** WHICH BOTH HELP TO:
 - MAINTAIN THE WALL OF THE UTERUS
 - INHIBIT THE ANTERIOR PITUITARY SO NO FSH IS RELEASED AND NO NEW FOLLICLES MATURE

Positive Feedback

- OXYTOCIN IS PRODUCED BY NEUROSECRETORY CELLS IN THE **HYPOTHALAMUS** AND STORED IN THE **POSTERIOR PITUITARY**
- NERVE IMPULSES FROM THE HYPOTHALAMUS STIMULATE THE RELEASE OF OXYTOCIN FROM THE POSTERIOR PITUITARY INTO THE BLOOD
- OXYTOCIN HAS TWO EFFECTS:
 - **CONTRACTION** OF THE MUSCLES OF THE UTERUS DURING **CHILD BIRTH**
 - **PRODUCTION** OF MILK IN THE **MAMMARY GLANDS**
- BOTH OF THESE EFFECTS ARE CONTROLLED THROUGH **POSITIVE FEEDBACK MECHANISMS**

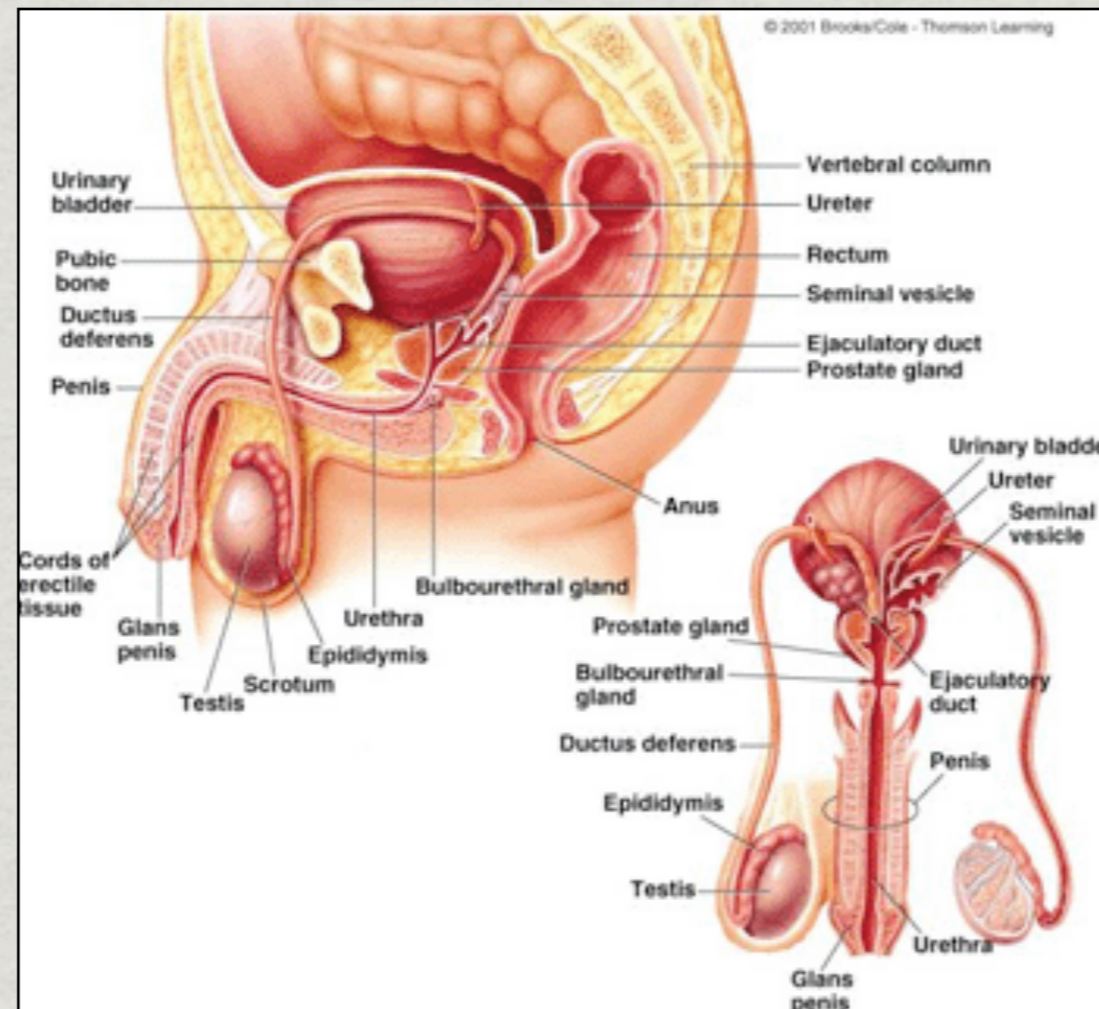
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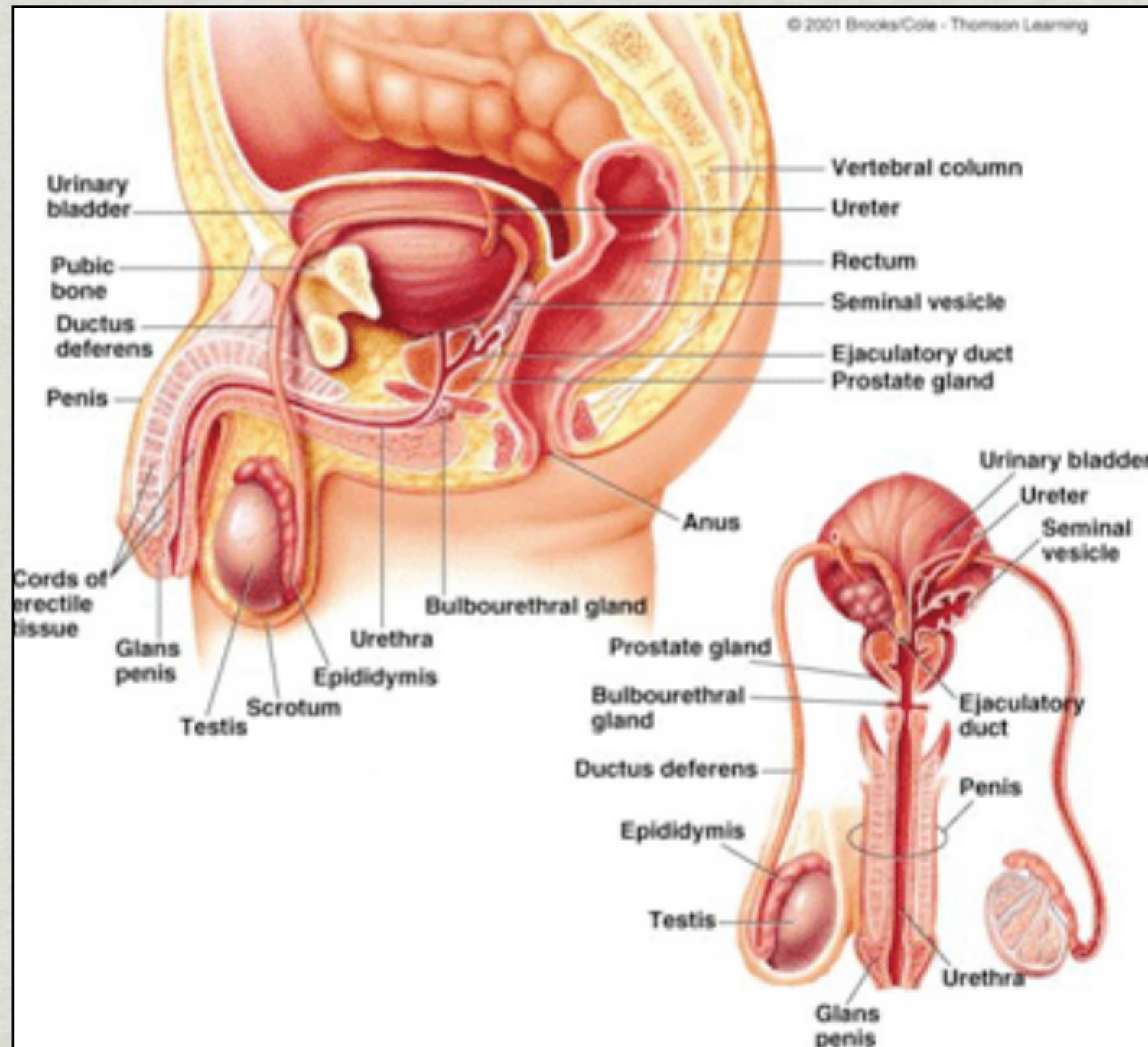


Male Reproductive System

- THE **FUNCTIONS** OF THE MALE REPRODUCTIVE SYSTEM INCLUDE THE FOLLOWING:
 - THE PRODUCTION OF THE MALE GAMETE, **SPERM**, THROUGH THE PROCESS OF **SPERMATOGENESIS** WHICH INCLUDES THE CELL DIVISION, **MEIOSIS**
 - THE PRODUCTION OF THE MALE SEX HORMONE **TESTOSTERONE**
 - THE TRANSFER OF SPERM FROM THEIR PRODUCTION SITE IN THE **TESTES** TO THE OUTSIDE OF THE BODY

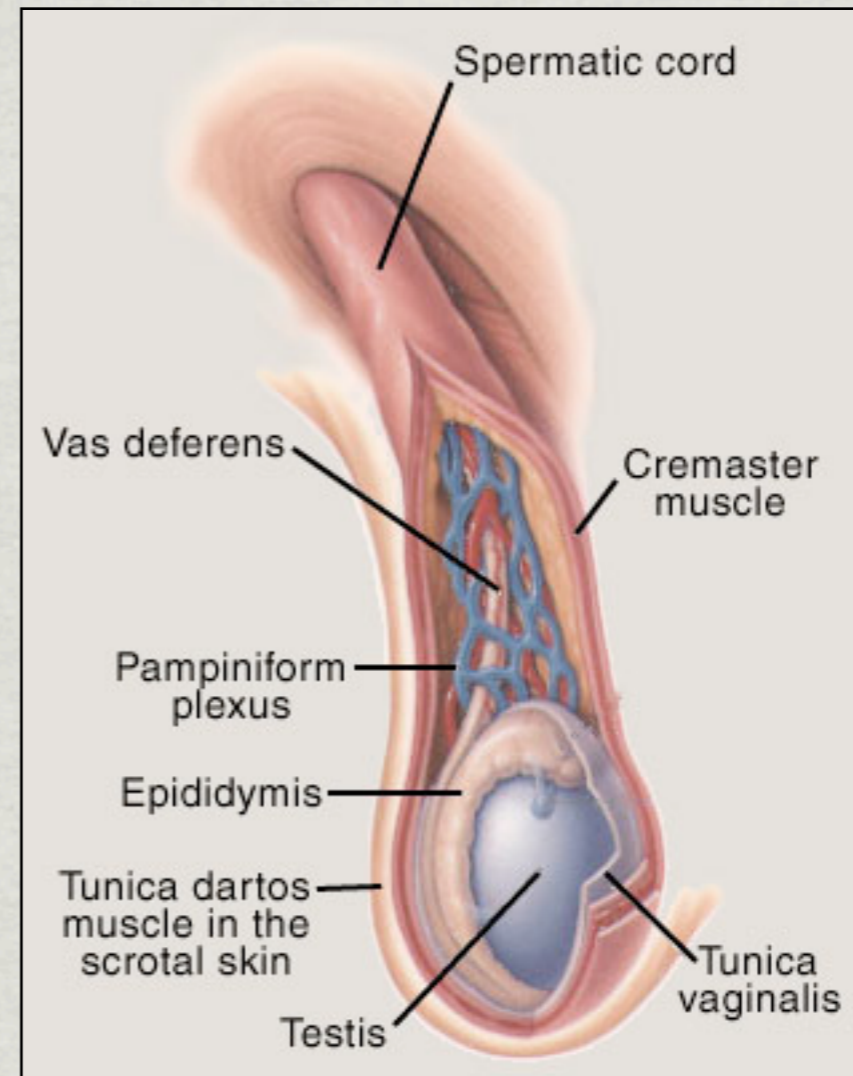


Structures/Functions



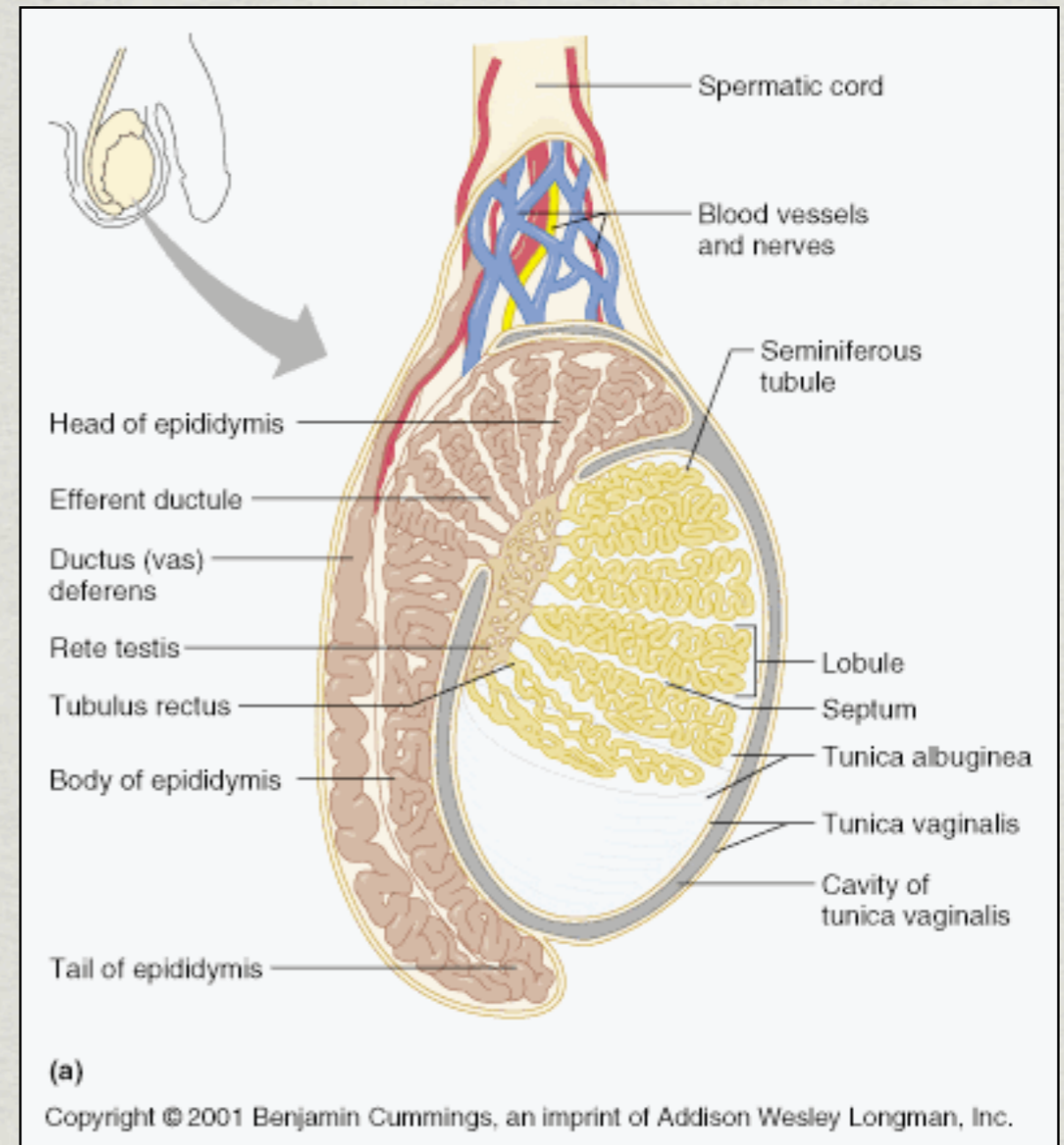
Scrotum

- THE SCROTUM IS THE **SAC LIKE** STRUCTURE WHICH HOLDS THE TESTES OUTSIDE OF THE BODY
- THIS ALLOWS THE SLIGHTLY LOWER TEMPERATURE REQUIRED FOR SPERM PRODUCTION



Testes

- EACH MALE HAS TWO TESTES THAT ARE HELD OUTSIDE OF THE BODY IN THE SCROTUM
- THE TESTES PRODUCE THE MALE GAMETE, **SPERM** AND THE MALE SEX HORMONE, **TESTOSTERONE**
- EACH TESTIS IS DIVIDED INTO TWO COMPARTMENTS CALLED **LOBULES** WHICH CONTAIN TIGHTLY COILED **SEMINIFEROUS TUBULES**
- BETWEEN THE **SEMINIFEROUS TUBULES** ARE SPECIALIZED CELLS CALLED **INTERSTITIAL CELLS** WHICH PRODUCE **TESTOSTERONE**

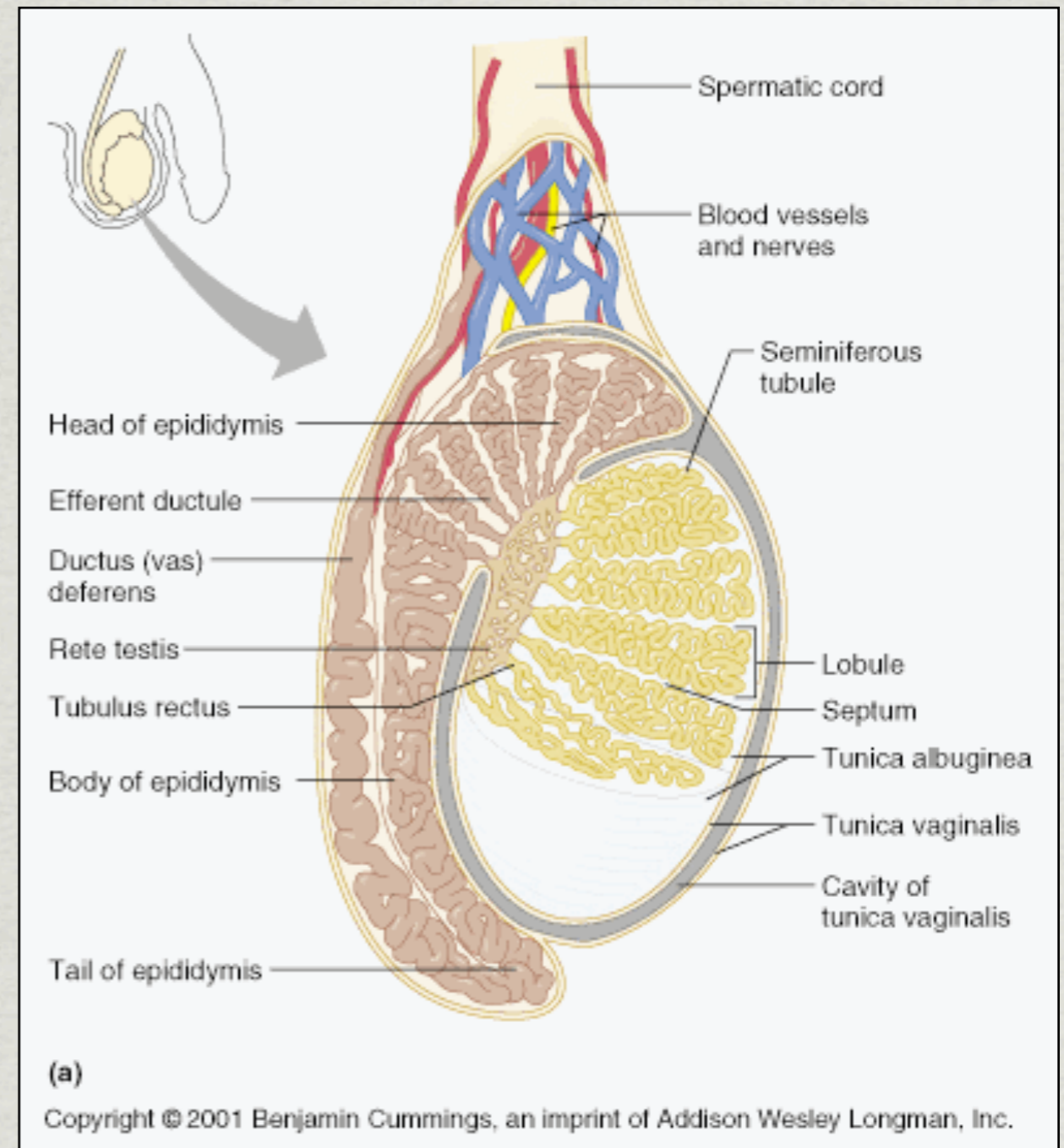


Testes

- THE **SEMINIFEROUS TUBULES** ARE THE SITE OF SPERM PRODUCTION BY **SPERMATOGENESIS**

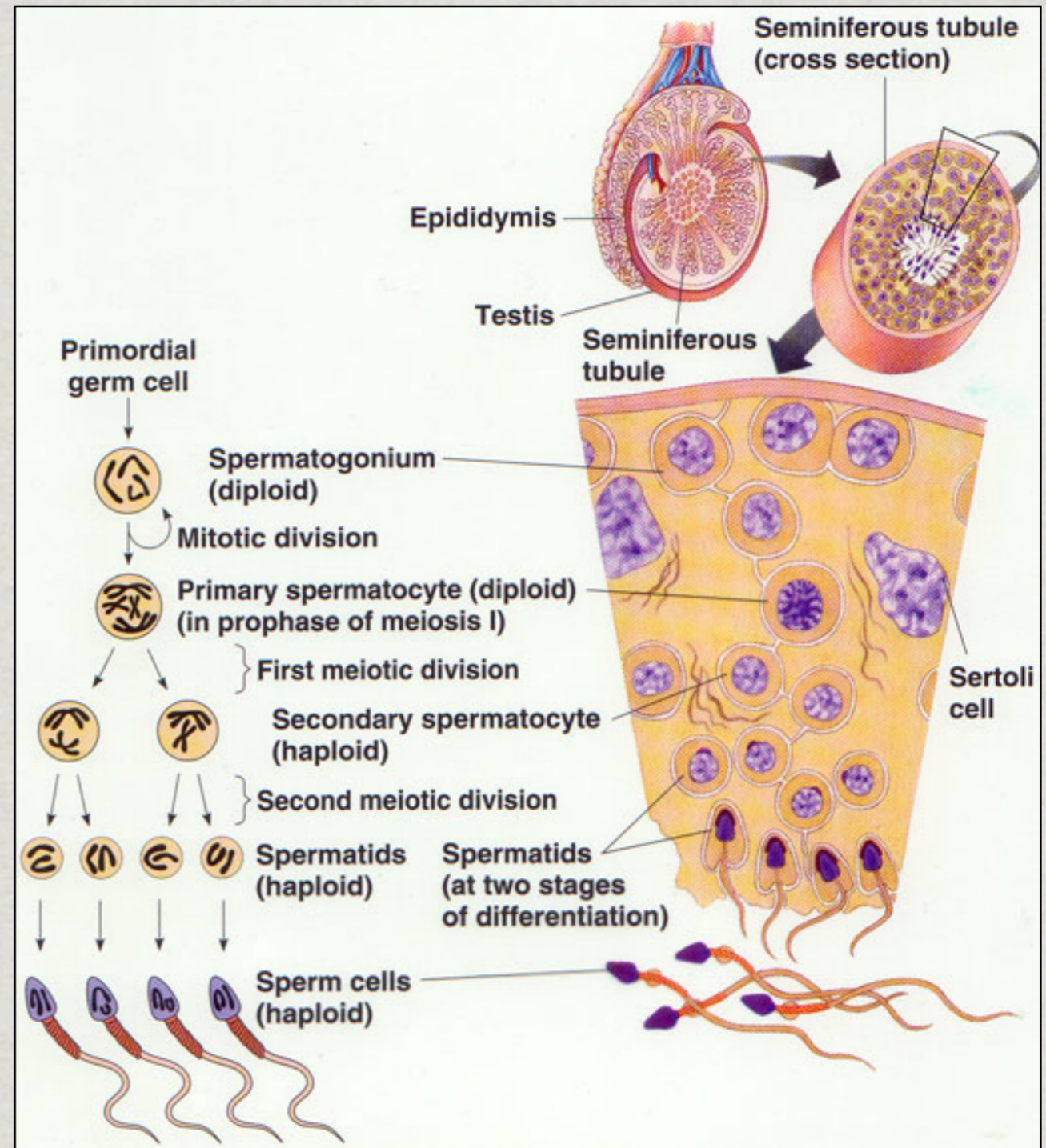
- **SPERMATOGENESIS** INVOLVES THE FOLLOWING EVENTS

1. **SPERMATOGONIA** WHICH ARE FOUND IN THE OUTER WALLS OF THE SEMINIFEROUS TUBULES, DIVIDE BY **MITOSIS** AND DIFFERENTIATE INTO **PRIMARY SPERMATOCYTES**
2. THE **PRIMARY SPERMATOCYTES** UNDERGO THE FIRST DIVISION OF **MEIOSIS** TO PRODUCE **SECONDARY SPERMATOCYTES**
3. THE **SECONDARY SPERMATOCYTES** UNDERGO THE SECOND DIVISION OF MEIOSIS TO PRODUCE **SPERMATIDS**
4. WITH THE HELP OF **SERTOLI CELLS**, THE **SPERMATIDS** DIFFERENTIATE INTO **SPERM CELLS** OR **SPERMATOZOA** WHICH ENTER THE LUMEN OF THE **SEMINIFEROUS TUBULES**



Epididymis

- THE EPIDIDYMIS IS A COILED TUBE WHICH LIES ON THE SURFACE OF THE TESTES
- ONCE THE SPERM CELLS HAVE BEEN PRODUCED IN THE SEMINIFEROUS TUBULES, THEY MIGRATE TO THE EPIDIDYMIS WHERE THEY ARE STORED AND **MATURE**

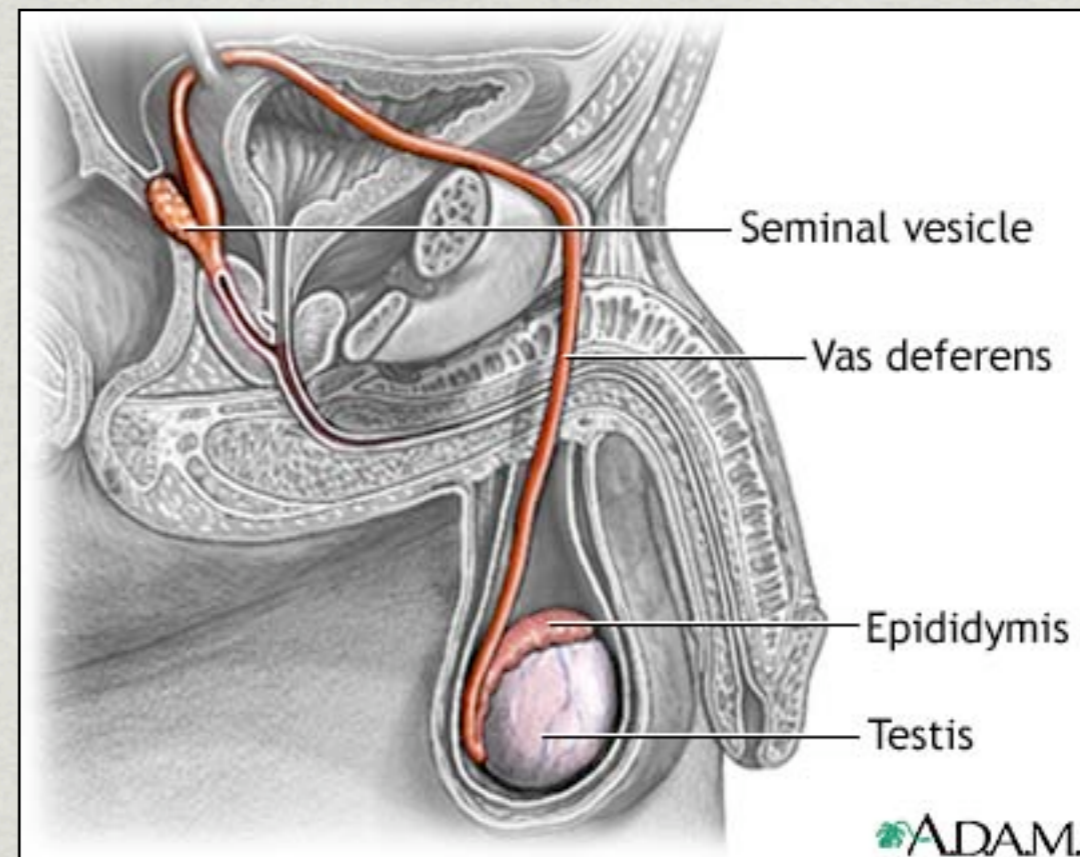
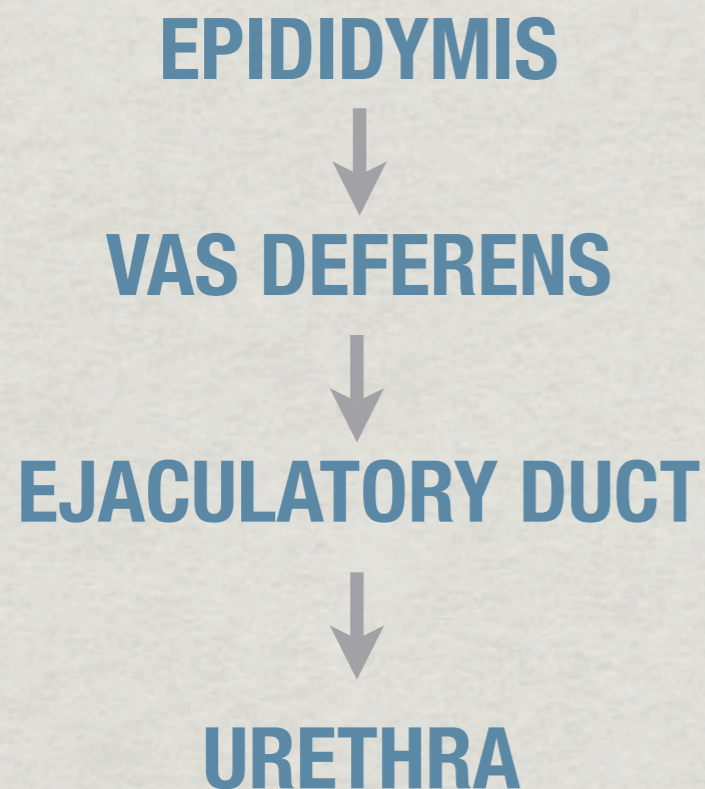


Vas Deferens

- THE VAS DEFERENS IS THE TUBE THROUGH WHICH **MUSCULAR CONTRACTION** OF ITS WALLS, PROPELS THE SPERM FROM THE EPIDIDYMIS TO THE **URETHRA**

Ejaculatory Duct

- The two vas deferens join to form the ejaculatory duct which carries the sperm cells to the **urethra**

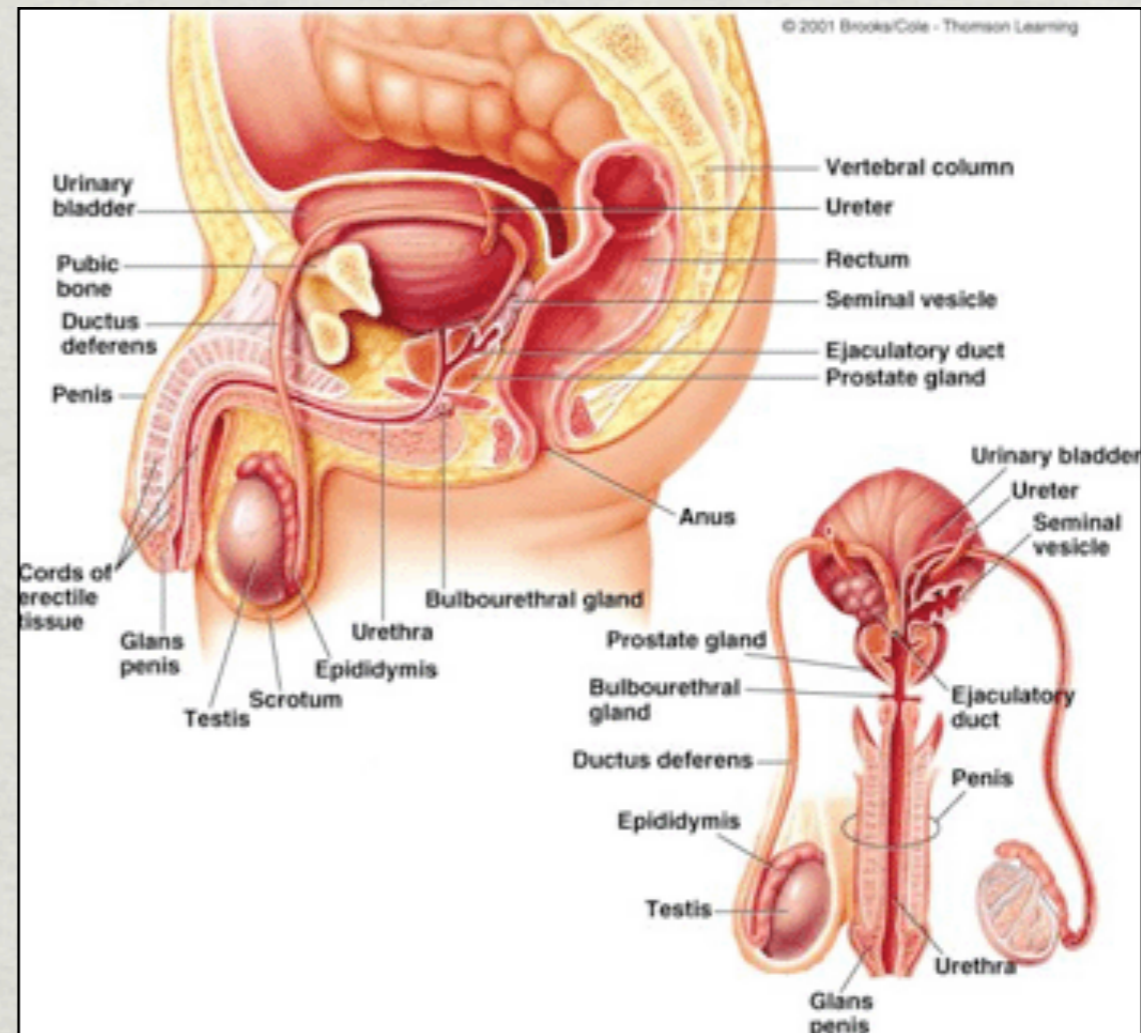


Seminal Vesicles

- THE SEMINAL VESICLES ADD A **FLUID** TO THE SPERM
- THE FLUID FROM THE SEMINAL VESICLES CONTAINS LARGE AMOUNTS OF **FRUCTOSE** WHICH PROVIDES THE SPERM WITH **ENERGY**
- THE SEMINAL VESICLES ALSO SECRETE THE HORMONE **PROSTOGLADIN** WHICH CAUSES THE FEMALE'S UTERINE MUSCLES TO CONTRACT, THUS HELPING THE SPERM MOVE UP THE FEMALE REPRODUCTIVE SYSTEM
- THE COMBINATION OF **SPERM** AND **SEMINAL FLUID** IS CALLED **SEMEN**

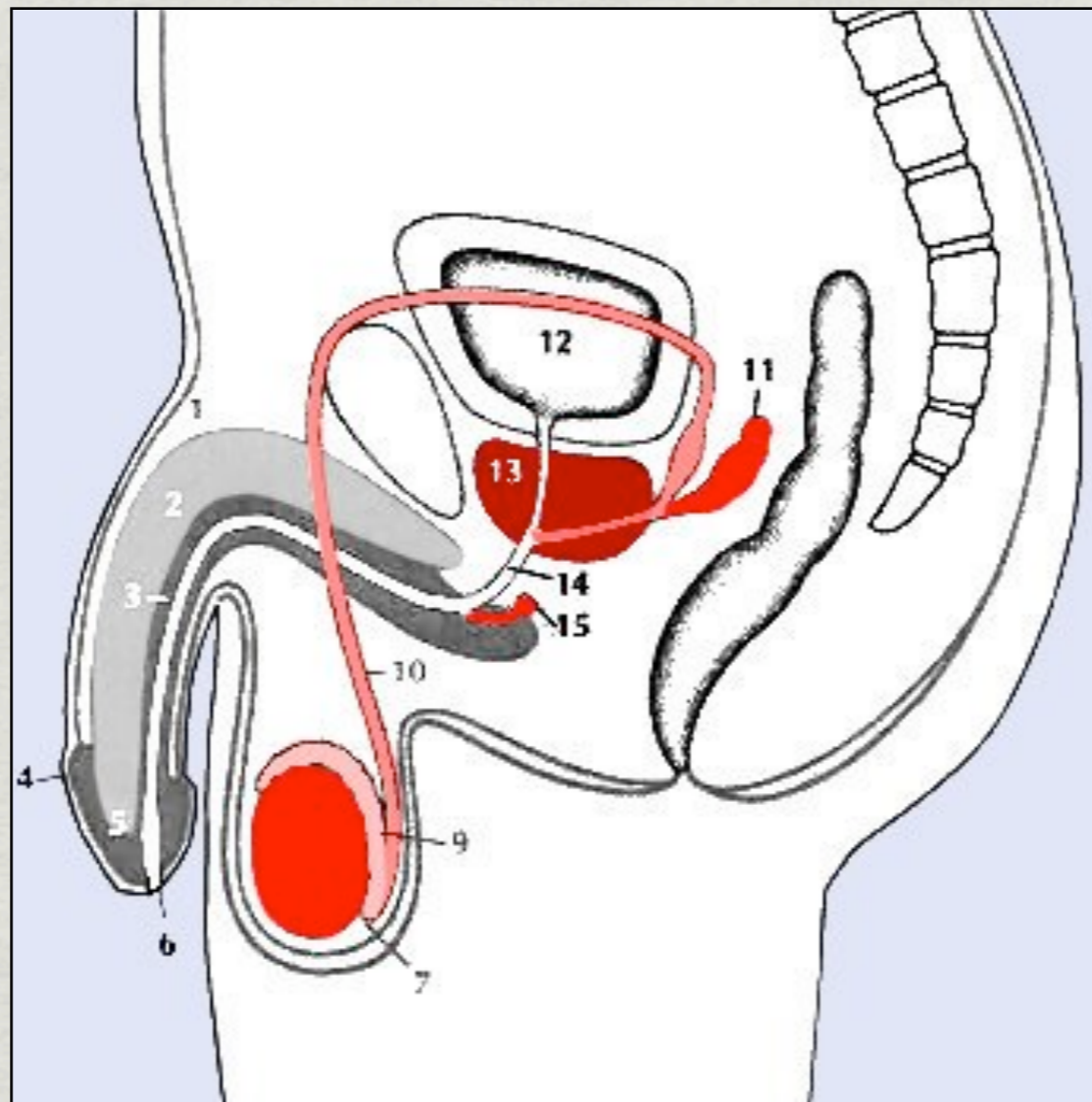
Prostate Gland

- THE PROSTATE GLAND ALSO SECRETES FLUID WHICH IS ADDED TO SEMEN
- THE FLUID FROM THE PROSTATE GLAND HAS A **BASIC PH** WHICH HELPS TO **NEUTRALIZE** THE **ACIDIC** CONDITIONS OF THE VAGINA



Cowper's Gland

- THE COWPER'S GLAND ALSO SECRETES **MUCOID** FLUID THAT IS ADDED TO SPERM



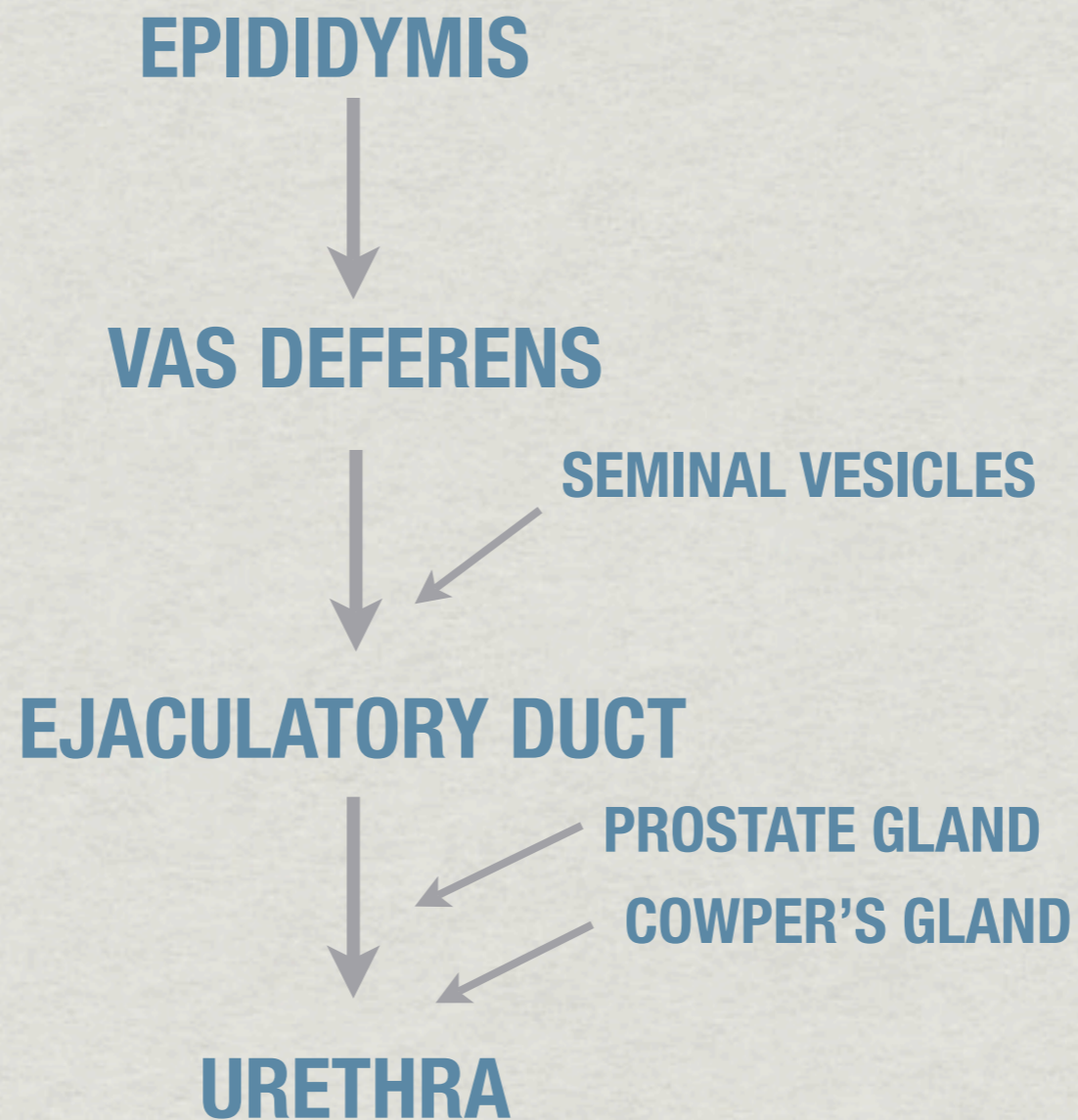
Urethra

- THE URETHRA IS THE TUBE WHICH CONDUCTS THE **SEMEN** THROUGH THE PENIS AND OUT OF THE BODY
- THE URETHRA ALSO CONDUCTS **URINE** FROM THE URINARY BLADDER TO THE OUTSIDE OF THE BODY

Penis

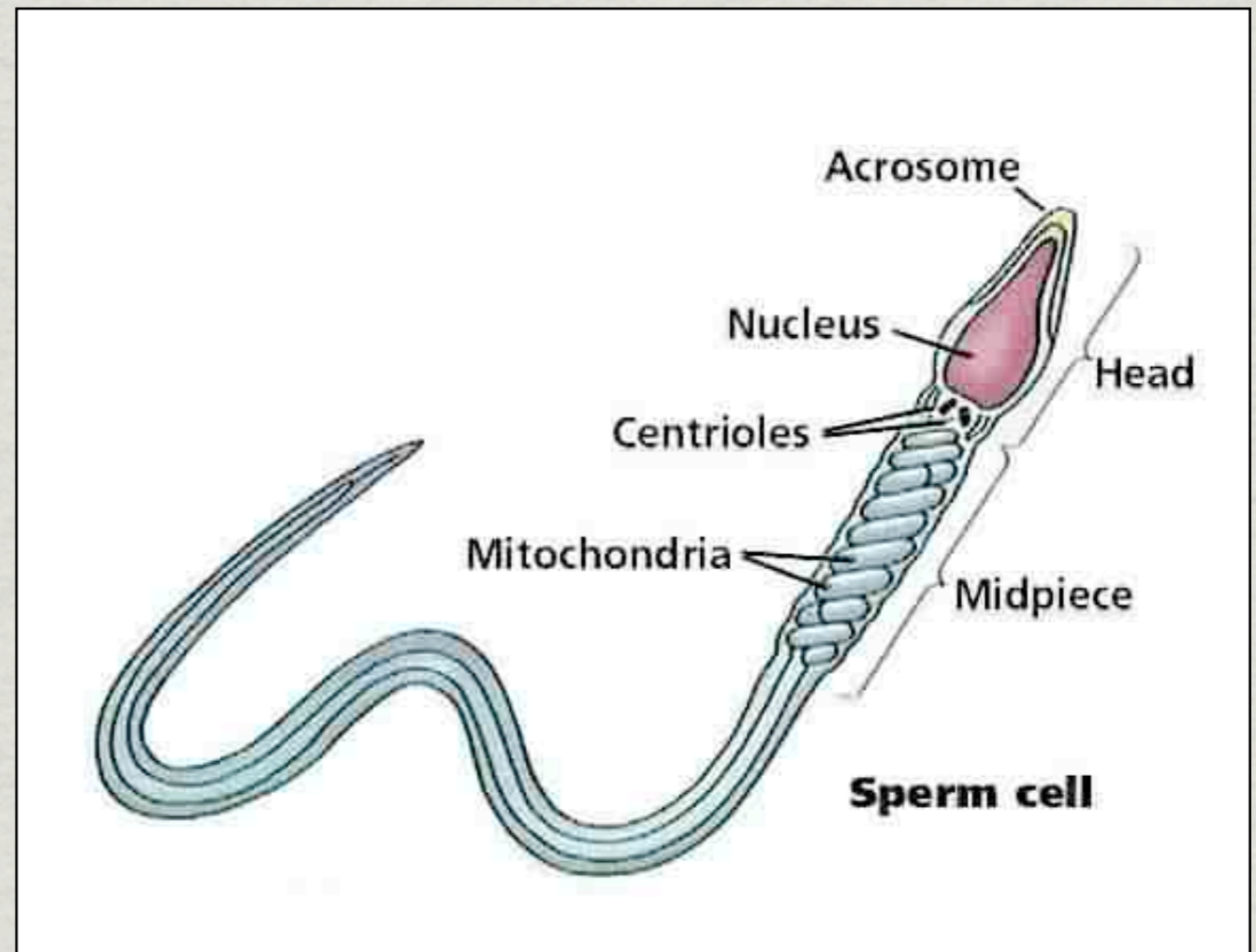
- THE PENIS CONTAINS THE URETHRA WHICH CONDUCTS **URINE** AND **SPERM** TO THE OUTSIDE OF THE BODY
- THE PENIS CONTAINS **ERECTILE TISSUE** WHICH, DURING SEXUAL INTERCOURSE, FILLS WITH BLOOD CAUSING AN ERECTION

Sperm Pathway



Sperm Structure

- **HEAD**
 - CONTAINS THE NUCLEUS AND CHROMOSOMES
- **ACROSOME**
 - CAP OVER THE HEAD THAT CONTAINS THE ENZYMES NEEDED TO PENETRATE THE EGG
- **MIDPIECE**
 - CONTAINS MITOCHONDRIA WHICH PROVIDE THE ENERGY NEEDED FOR MOVEMENT
- **TAIL**
 - BEATS LIKE A FLAGELLUM TO PROPEL THE SPERM FORWARD



What makes a sperm successful?

What makes a sperm successful?



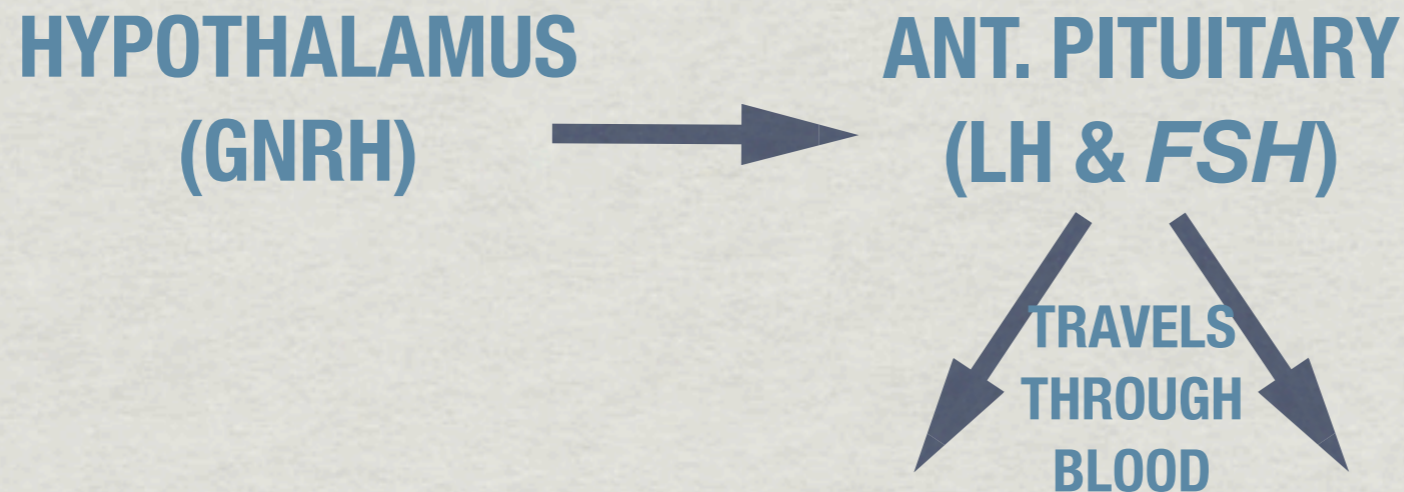
Testosterone

SOURCE

- TESTOSTERONE IS PRODUCED BY THE **INTERSTITIAL CELLS** WHICH ARE FOUND BETWEEN **SEMINIFEROUS TUBULES** IN THE TESTES

Release

- THE **HYPOTHALAMUS** RELEASES **GONADOTROPIC RELEASING HORMONE (GNRH)** WHICH TRAVELS TO THE **ANTERIOR PITUITARY**
- **GNRH** STIMULATES THE **ANTERIOR PITUITARY** TO RELEASE TWO HORMONES CALLED **LEUTENIZING HORMONE (LH)** AND **FOLLICLE STIMULATING HORMONE (FSH)** INTO THE BLOOD



SOUND FAMILIAR?....

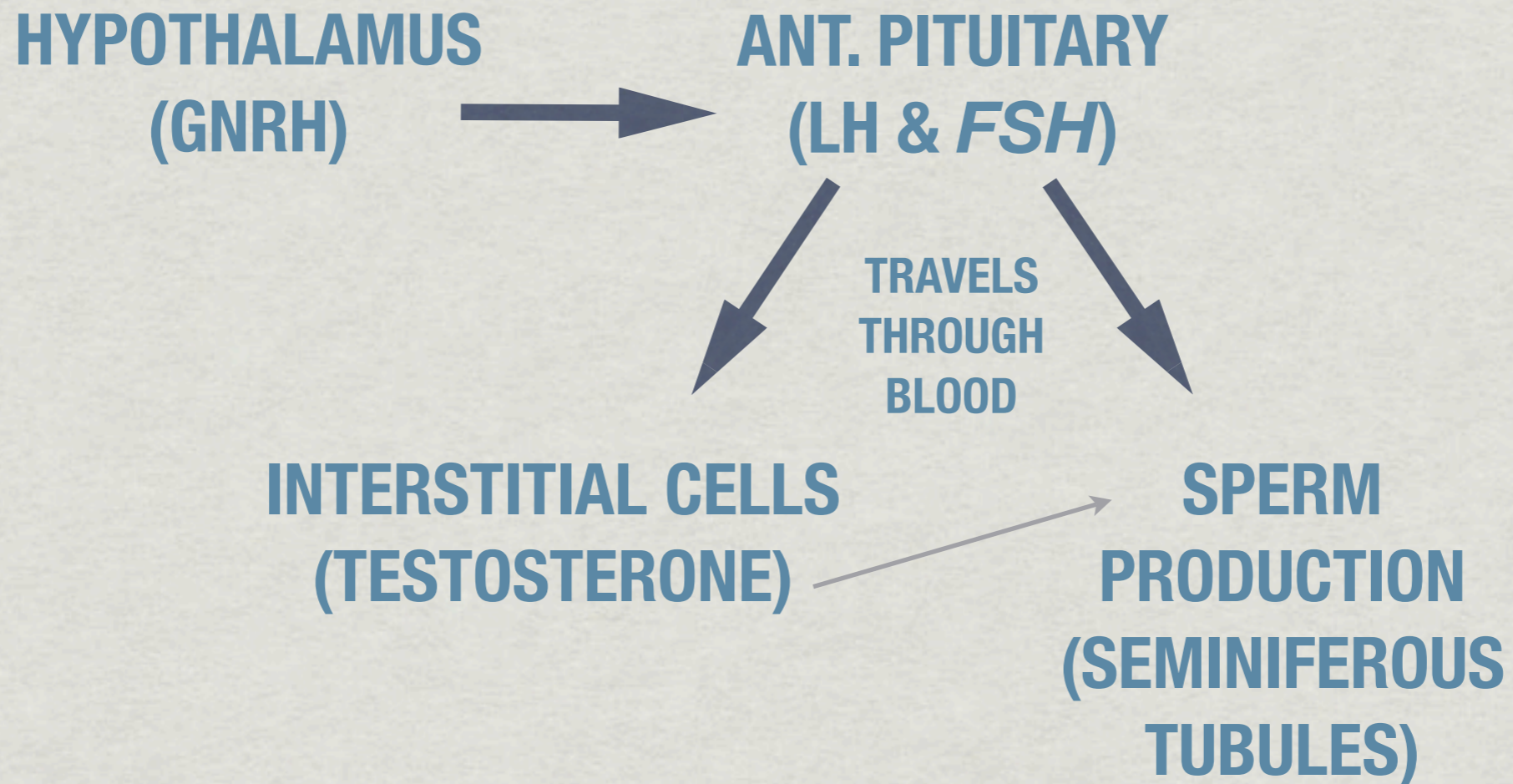
Release

- **LH** AND **FSH** ARE CARRIED IN THE BLOOD TO THE **TESTES**
- **LH** STIMULATES THE INTERSTITIAL CELLS OF THE TESTES TO PRODUCE AND RELEASE **TESTOSTERONE** INTO THE BLOOD (UNLIKE FEMALE, WHERE LH CAUSES RELEASE OF PROGESTERONE)
- **FSH** (ALONG WITH **TESTOSTERONE**) STIMULATES **SPERM** PRODUCTION BY THE SEMINIFEROUS TUBULES IN THE TESTES
- ALL OF THESE HORMONES ARE INVOLVED IN **NEGATIVE FEEDBACK** WHICH KEEPS THE PRODUCTION OF SPERM AND TESTOSTERONE RELATIVELY CONSTANT

ESTROGEN: CAUSES FEMALE
GAMETE PRODUCTION. IT IS
RELEASED DUE TO THE
PRESENCE OF **FSH**

TESTOSTERONE: CAUSES MALE
GAMETE PRODUCTION. IT IS
RELEASED DUE TO THE
PRESENCE OF **LH**

To sum it up...



Functions

- THE FUNCTIONS OF TESTOSTERONE INCLUDE THE FOLLOWING:
 - TESTOSTERONE, ALONG WITH FSH STIMULATES **SPERM PRODUCTION** IN THE SEMINIFEROUS TUBULES OF THE TESTES
 - DURING **FETAL DEVELOPMENT**, TESTOSTERONE STIMULATES THE DEVELOPMENT OF THE MALE REPRODUCTIVE SYSTEM
 - AT PUBERTY, TESTOSTERONE STIMULATES THE DEVELOPMENT OF **SECONDARY SEXUAL CHARACTERISTICS** INCLUDING DISTRIBUTION OF BODY HAIR, THE ENLARGEMENT OF THE LARYNX RESULTING IN A DEEPER VOICE AND THE GROWTH OF MUSCLE