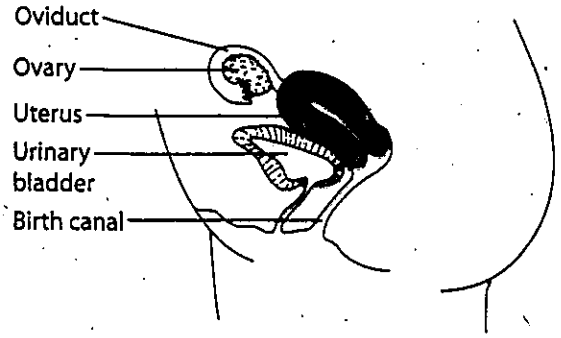
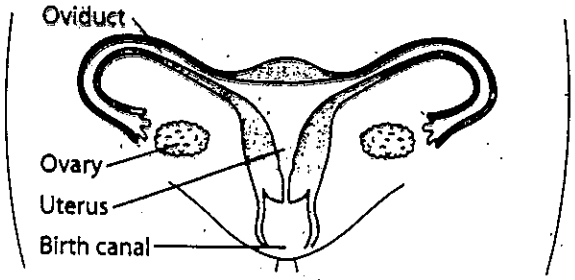
I. The Female Reproductive System

A. Two Views of the Human Female Reproductive System



SIDE VIEW



FRONT VIEW

B. Structure & Function of the Female Reproductive System

(1) **OVARIES** (female gonads)

- PRODUCE ESTROGEN AND PROGESTERONE
- STORE AND RELEASE FEMALE SEX CELLS (GAMATES) CALLED EGGS.

(2) **OVIDUCT** (fallopian tubes)

- CONNECT THE OVARIES TO THE UTERUS
- SITE OF FERTILIZATION (SPERM + EGG)

(3) **UTERUS**

- SITE OF IMPLANTATION (ZYGOTE INTO UTERINE WALL)
- SITE OF ZYGOTE DEVELOPMENT (EMBRYO → FETUS)

(4) **CERVIX**

- OPENING TO THE UTERUS

(5) **BIRTH CANAL** (vagina)

- PASSAGEWAY FOR BABY

II. The Menstrual Cycle

- In the human female, a mature egg develops in a follicle and is released from one of the ovaries about once every 28 days. Leading up to this, the muscular wall of the uterus thickens to prepare to accept a "possible" fertilized egg for development.

THIS CYCLE IS KNOWN AS THE MENSTRUAL CYCLE.

- If the egg is NOT fertilized, the thick muscular wall of the uterus breaks down and, along with the UNFERTILIZED EGG and small amounts of blood, is discharged out of the women's body through the birth canal or VAGINA.
- This discharge is called the women's PERIOD or MENSTRUATION.
- A women's menstrual cycle starts at PUBERTY and stops at MENOPAUSE.

A. Hormonal Regulation

- **Hormones** - chemicals (proteins) produced by ENDOCRINE GLANDS and carried by the BLOOD STREAM to *SPECIFIC* areas of the body where they perform certain functions.

B. Hormones of the Menstrual Cycle

1. *Pituitary (Brain) Hormones*

a) Follicle Stimulating Hormone (FSH)

- PROMOTES THE GROWTH OF THE FOLLICLE IN THE OVARY.
- _____

b) Lutenizing Hormone (LH)

- STIMULATE OVULATION (THE RELEASE OF THE EGG
- FROM THE OVARY) _____

2. *Ovarian Hormones*

a) Progesterone

- SECRETED BY THE CORPUS LUTEUM
- CONTINUES THE GROWTH OF THE UTERINE LINING

b) Estrogen

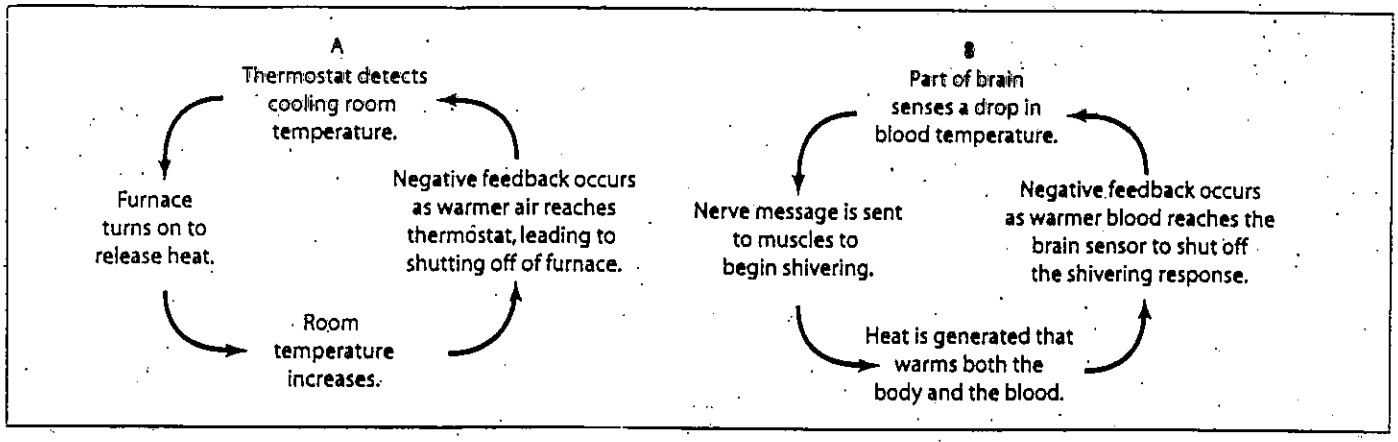
- SECRETED BY THE FOLLICLE
- INITIATES THE GROWTH OF THE UTERINE LINING
- *Responsible for the development of female secondary sex characteristics which include:*
  - (1) BREAST ENLARGEMENT
  - (2) WIDENING OF THE PELVIS
  - (3) DISTRIBUTION OF BODY FAT

C. HORMONAL FEEDBACK MECHANISMS

- A ***feedback mechanism*** involves a CYCLE in which the PRODUCT (S) of a process "feeds back" to either INCREASE (+) or DECREASE (−) the resulting action taken by that process.

1. Positive Feedback - RESULTS / PRODUCTS INCREASE

2. Negative Feedback - RESULT / PRODUCT DECREASE



** Positive and Negative Feedback systems help to maintain* HOMEOSTASIS

D. STAGES OF THE MENSTRUAL CYCLE (p. 460)

1. *Follicle Stage* (lasts about 10 days)

- FSH produced by the PITUITARY stimulates the growth of the egg sac or FOLLICLE in the ovary.
- The growing follicle inside the OVARY produces ESTROGEN which causes the wall of the muscular UTERUS to grow and thicken.

2. *Ovulation* (*lasts 1 day*)

- ESTROGEN produced by the *ovary* is carried by the BLOOD STREAM and is detected by the *brain*. The PITUITARY GLAND inside the *brain* DECREASES its production of FSH and INCREASES its production of LH.
- This sudden INCREASE of LH causes the OVARY to release an EGG in a process called OVULATION.

3. *Corpus Luteum Stage* (*lasts about 14 days*)

- LH causes the now empty FOLLICLE to turn into the CORPUS LUTEUM or "yellow body".
- The *corpus luteum* amazingly changes into an ENDOCRINE GLAND and is now capable of producing and secreting the hormone PROGESTERONE
- PROGESTERONE maintains the thick wall of the UTERUS.
- *Progesterone* is often called the "HORMONE of PREGNANCY".

4. *Menstruation* (*lasts about 4 days*)

- If FERTILIZATION does NOT occur, secretion of LH decreases and the UTERINE WALL breaks down.
- NO *corpus luteum* means NO PROGESTERONE NO *progesterone* means NO more maintenance of the newly formed thickened wall of the UTERUS.
- The thick muscular wall of the *uterus* starts to break down and, along with the UNFERTILIZED EGG and small amounts of BLOOD, is discharged out of the women's body though the *birth canal* or VAGINA.
- This discharge is called the women's PERIOD or MENSTRUATION.

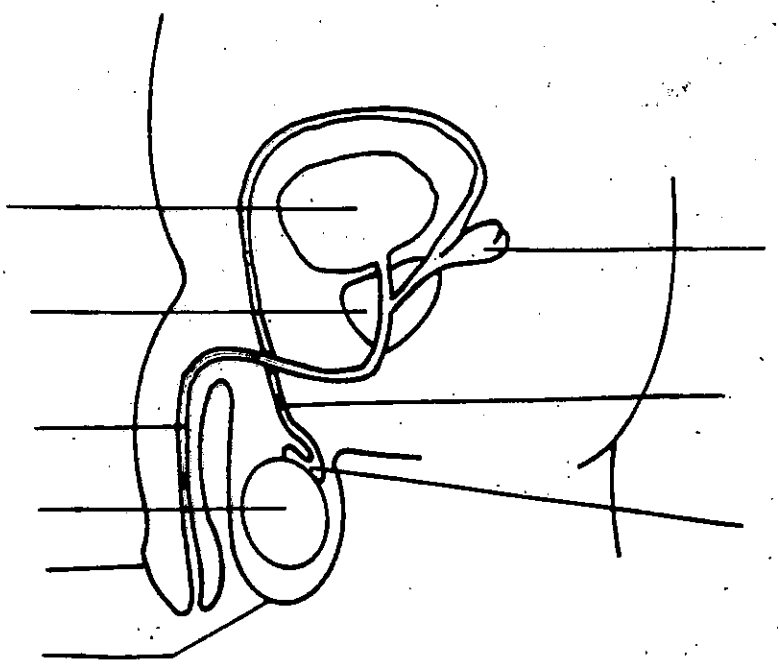
III. The Male Reproductive System

A. Two Main Functions of The Male Reproductive System

(1) SYNTHESIS AND RELEASE (SECRETE) TESTOSTERONE

(2) PRODUCE AND DEPOSIT MALE GAMETES (SPERM)

B. Structure of the Human Male Reproductive System



(1) **PENIS**

- ORGAN USED TO DEPOSIT SPERM INSIDE THE VAGINA OF A WOMAN.

(2) **TESTES** (male gonads)

- SYNTHESIZE AND RELEASE (SECRETE) TESTOSTERONE
- SPERMATOGENESIS = CREATION OF SPERM

(3) **SCROTUM**

- HOLDS THE TESTICLES
- CREATES AN OPTIMUM ENVIRONMENT FOR SPERMATOGENESIS

(4) **EPIDIDYMIS**

- STORES SPERM AND ALLOWS THEM TO MATURE; GROW TAILS (FLAGELLA).

(5) **VAS DEFERENS**

- CARRIES SPERM FROM THE TESTICLE/EPIDIDYMIS TO THE URETHRA

(6) **URETHRA**

- PASSAGEWAY THROUGH WHICH SPERM LEAVE THE BODY.
- PASSAGEWAY FOR THE EXCRETION OF URINE

(7) **PROSTATE**

- SECRETES AN ALKALINE SUBSTANCE (pH > 7) THAT PROTECTS THE SPERM FROM THE ACIDITY OF THE ♀ REPRO. TRACT
- PRONE TO CANCER IN OLDER MEN

(8) **SEMINAL VESICLE** (Cowper's Gland)

- SECRETES A FRUCTOSE-RICH SUBSTANCE THAT NOURISHES THE SPERM

(9) **BLADDER**

- STORES THE URINE PRODUCED BY THE KIDNEYS