

# Gaining Apex Coaching Centre

(Where Toppers make..... Toppers)

Compiled By: Ms Priyanka Mam

## Additional Topics ( Biology)

### CHAPTER-2

#### Male Reproductive System – Hormonal Control

1. Hypothalamus releases GnRH (Gonadotropin-Releasing Hormone).
2. GnRH stimulates the anterior pituitary to release:  
  
LH (Luteinizing Hormone) → Stimulates Leydig cells in the testes to produce testosterone.  
  
FSH (Follicle-Stimulating Hormone) → Stimulates Sertoli cells, which support sperm production (spermatogenesis) and release inhibin.
3. Testosterone:
  - \* Promotes development of male secondary sexual characteristics.
  - \* Supports spermatogenesis.
  - \* Provides negative feedback to the hypothalamus and pituitary to regulate hormone levels.
4. Inhibin: Specifically inhibits FSH secretion from the anterior pituitary

#### Female Reproductive System – Hormonal Control

1. Hypothalamus secretes GnRH.
2. GnRH triggers the anterior pituitary to release:  
  
FSH → Stimulates growth of ovarian follicles.  
  
LH → Works with FSH to trigger ovulation.
3. Growing follicles secrete estrogen:  
  
Low to moderate levels inhibit FSH and LH (negative feedback).  
  
High levels (pre-ovulation) stimulate an LH surge (positive feedback).
4. LH surge leads to ovulation (release of an egg).
5. The ruptured follicle becomes the corpus luteum, which secretes progesterone and some estrogen

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6. These hormones:

- \* Maintain the uterine lining for possible pregnancy.
- \* Inhibit GnRH, FSH, and LH (negative feedback).

7. If no fertilization occurs:

- \* The corpus luteum degenerates.
- \* Estrogen and progesterone levels fall.
- \* The uterine lining is shed menstruation and Cycle restart

## DISORDERS OF MALE AND FEMALE REPRODUCTIVE SYSTEM

### Male Reproductive System Disorders

#### 1. Erectile Dysfunction

Inability to achieve or maintain an erection suitable for intercourse.

#### 2. Infertility

Caused by low sperm count, poor sperm quality, or blocked reproductive ducts.

#### 3. Prostatitis

Inflammation of the prostate gland; leads to pain, discomfort, and urinary problems.

#### 4. Benign Prostatic Hyperplasia (BPH)

Non-cancerous enlargement of the prostate, common in older men; causes urinary issues.

#### 5. Prostate Cancer

A malignant tumor in the prostate; often slow-growing but serious if untreated.

#### 6. Testicular Torsion

Twisting of the spermatic cord; cuts off blood flow to the testis (a medical emergency).

#### 7. Varicocele

Enlarged veins in the scrotum; may lead to infertility.

#### 8. Cryptorchidism

Failure of one or both testicles to descend; associated with infertility and cancer risk if untreated.

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## **Female Reproductive System Disorders**

### **1. Polycystic Ovary Syndrome (PCOS)**

Hormonal imbalance causing irregular periods, ovarian cysts, and potential infertility.

### **2. Endometriosis**

Uterine-like tissue grows outside the uterus; leads to pain, menstrual problems, and infertility.

### **3. Fibroids**

Benign tumors in the uterus; can cause heavy bleeding, pain, and pressure symptoms.

### **4. Pelvic Inflammatory Disease (PID)**

Infection of the uterus, fallopian tubes, or ovaries; often results from STIs.

### **5. Amenorrhea**

Absence of menstruation; may be due to hormonal imbalance, stress, or underlying illness.

### **6. Dysmenorrhea**

Painful menstruation; can be primary (normal) or secondary (due to a disorder like endometriosis).

### **7. Cancers (Cervical, Endometrial, Ovarian)**

Malignant growths affecting reproductive organs; often detected via screening or symptoms like abnormal bleeding.

## **Human Reproduction – Terms and Definitions**

### **1. Puberty**

The stage of life when a person becomes sexually mature and capable of reproduction.

### **2. Gametogenesis**

The process of formation of gametes (sperms in males and ova in females).

### **3. Spermatogenesis**

The process of sperm production in the seminiferous tubules of the testes.

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## 4. Oogenesis

The formation and development of the ovum (egg) in the ovaries.

## 5. Menstrual Cycle

The monthly cycle of changes in the female reproductive system that prepares the body for pregnancy.

## 6. Ovulation

The release of a mature ovum from the ovary around t...

