HAMAR BOARDING SCHOOL

CHAPTER TWO

THE ENDOCRINE SYSTEM

The Structure of the Endocrine system

1. Define Endocrine system?

1. **The Endocrine system** is collection of ductless glands that produce hormones into the circulatory system.

2. List Functions of Endocrine system?

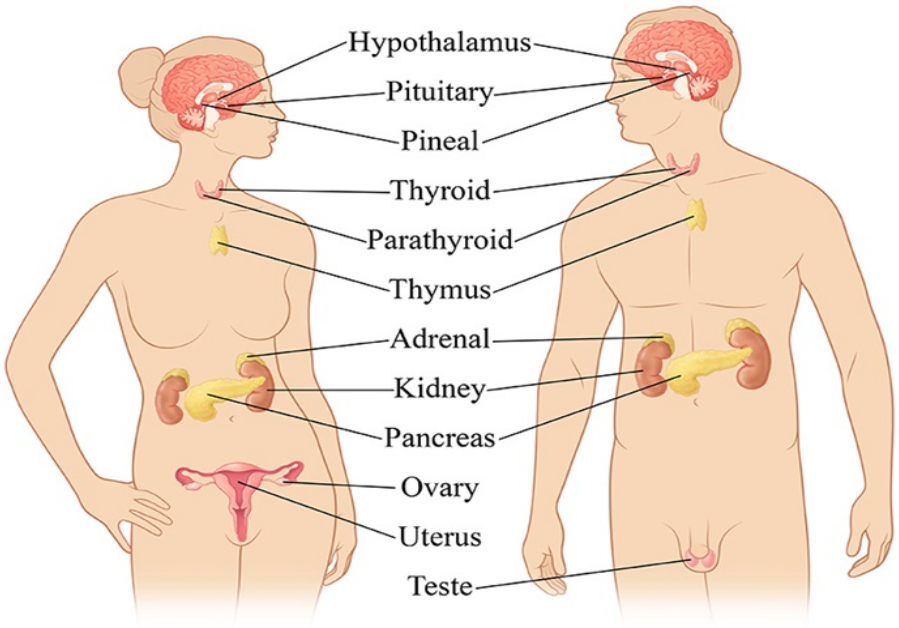
2. The functions of **Endocrine systems are:**
    - ⊙ It regulates how much hormones are released.
    - ⊙ It helps the release of hormones into the blood stream.
    - ⊙ It helps to control growth, development, metabolism and reproduction.

3. Define Hormones?

3. **Hormones** are defined as:
    - ⊙ **Hormones** are substances secreted by cells that act to regulate the activity of other cell in the body
    - ⊙ **Hormones** are organic compounds which are either protein or steroids in nature.

4. What does the Endocrine system comprises of?

4. **The endocrine system** consist of glands widely separated from each other:



5. State classification of hormones according to mechanism of action?

5. **Hormones are classified as:**

   - **Steroid hormones.**
   - **Non steroid hormones.**

6. Give examples of steroid hormones?

6. Examples of steroid hormones are: **Estrogen** and **Testosterone.**

7. Give examples of non steroid hormones?

7. Examples of non steroid hormones are: **Insulin** and **Growth hormones**.

8. What is the difference between steroid and non steroid hormones?

8. Defenses are:

Steroid hormones	Non steroid hormones
■ Are soluble in lipids.	⊙ Are soluble in amino acids.
■ Can diffuse through the plasma membrane of a target cell.	⊙ Must bind to receptor found in the plasma membrane of target cell.
■ Cannot travel through the blood.	⊙ Can travel through the blood.

9. State difference between lipophilic and hydrophilic hormones?

9. **Lipophilic** is a non polar which are fat soluble. While **Hydrophilic** is polar which are water soluble

10. State the role of Hormone?

10. **Hormones** play important roles in regulating growth and development, control of behavior of animals, during breeding and in proper functioning of cells.

The Feedback Mechanisms

11. Define types of feedback mechanism?

11. Types of feedback mechanism:

- **In negative feedback:** the final step in a series of events inhabits the initial signal in the series.
- **In positive feedback:** when hormones are regulated by positive feedback release of an initial hormone stimulus release of other hormones which stimulate further release of the initial hormone.

12. Define Homeostasis?

12.Homeostasis is defined as a stable internal environment.

13. Define Antagonistic Hormone?

13.Antagonistic Hormone is a number of hormones work together in pairs to regulate the levels of critical substances.

14. Give examples of antagonistic hormone?

14. Examples of antagonistic hormone are:

- **Insulin hormone**
- **Glucagon hormone**

The Endocrine glands and their Hormones

15. What are the types of gland?

15. Types of gland are :

- **Endocrine gland**
- **Exocrine gland**
- **Mixed gland**

16. Define pituitary gland?

16. Definitions are:

- **Pituitary gland** is small gland with the diameter of 1cm that is located at the base of the hypothalamus.
- **Pituitary gland** is the master gland that controls the activities of the other endocrine glands.

17. State two lopes of pituitary gland and their secretion of hormones?

17. The two lopes of pituitary gland are:

A. Anterior pituitary:

- ✓ **Prolactin hormone**
- ✓ **Growth hormone**
- ✓ **Luteinizing hormone**
- ✓ **Thyroid hormone**
- ✓ **Follicle stimulating hormone**

B. Posterior pituitary:

- **Antiduiretic hormone**
- **Oxytocin hormone**

18. State function of thyroid stimulating hormone?

18.Thyroid stimulating hormone stimulate the thyroid gland to produce thyroxin hormone.

19. State other name of thyroid stimulating hormone?

19.Thyroid stimulating hormone also called **Thyrotrophin.**

20. Describe Hormone thyroxine?

20.The hormone thyroxine is produced by the thyroid gland found at the neck region. It is a compound of iodine.

21. State function of growth hormone?

21.Growth hormone stimulates cell division and growth especially bone and muscular cells in childhood and adolesce.

22. State function of prolactin hormone?

22.Prolactin hormone stimulating the mammary gland to produce milk in mammals.

23. State function of follicle stimulating hormone?

23. Follicle stimulating hormone stimulates the development of ovarian follicles in females, In males for development of sperm.

24. State function of Antdiuretic hormone?

24. Antidiuretic hormone stimulates water reabsorbtion by the kidneys.

25. State function of oxytocin hormone?

25.Oxytocin hormone stimulates uterine contraction in woman during childbirth.

26. State the role of calcitonin?

26. Calcitonin plays a role in maintaining proper levels of calcium (Ca^{2+}) in the blood.

27. Define parathyroid glands?

27.The parathyroid glands are four small glands attached o the thyroid gland.

28. State function of parathyroid hormone?

28.Parathyroid hormone increases blood calcium levels by stimulating the bones to release calcium.

29. Where does located adrenal glands?

29. Adrenal glands are located just above each kidney.

30. State function of **adrenaline?**

30.Adrenalin prepares the body for emergency-fight or flight.

31. What is composed of each adrenal gland?

31.Each adrenal gland is composed of:

- **Inner portion** called **adrenal medulla.**
- **Outer portion** called **adrenal cortex.**

32. What is the function of cortisol?

32. Cortisol promotes the production of glucose from proteins making usable energy available of the cell.

33. Define Gonads?

33.Gonads are gamete producing organs that also produce a group of steroid hormones.

34. Define testosterone?

34.Testosterone is a androgen that regulates male sex characteristics.

Health Complication of the Endocrine system

35. List disorders of the endocrine system?

35. Disorders of the endocrine system are:

- **Diabetes**
- **Growth hormone disorders**
- **Abnormalities in thyroid activity.**

36. Define diabetes?

36.Diabetes is a disease that results from the body not producing enough insulin or not properly using insulin.

37. What is hyperthyroidism?

37.Hyperthyroidism is the overproduction of the thyroid hormone.

38. List symptoms of hyperthyroidism?

38.Symptoms of hyperthyroidism include:

- **Loss of weight**
- **High blood pressure**
- **High heart rate**
- **High body temperature**

39. Define hypothyroidism?

39.Hypothyroidism is the deficiency of thyroid hormone.

40. List symptoms of hypothyroidism?

40.Symptoms of hypothyroidism include:

- **Growth retardation**
- **Weight gain**
- **Low heart rate**
- **Low body temperature**

41. Define goiter?

41.Goiter is the swelling of the thyroid gland.

42. List similarities between Endocrine and Nervous Systems?

42.Similarities Between Endocrine and Nervous Systems are:

- Both provide means of communication within the body of an organism.
- Both involve chemical transmission.
- Both bring about survival response.

43. List difference between Endocrine and Nervous Systems?

43. Differences between **endocrine** and **nervous systems are:**

Endocrine system	Nervous system
1. Chemical substance to evoke a response, **2.** Chemical transmitted through blood, **3.** Responses slow but affect several parts of the body. **4.** Effects are long-lasting, **5.** Response takes place involuntarily.	**1.** Nerve impulse to evoke a response. **2.** Impulse only through nerve fiber. **3.** Responses quick, specific and localized. **4.** Effects rapid and short-lived. **5.** Takes place voluntarily & involuntarily.

Some abbreviated Hormones

- **GH—Growth Hormone**
- **TSH–Thyroid Stimulating Hormone**
- **FSH –Follicle Stimulating Hormone**
- **PRL –Prolactine Hormone**
- **LH –Luteinizing Hormone**
- **ADH –Antidiuretic Hormone**
- **ACTH –Adrenocorticotropic Hormone**
- **GHD –Growth Hormone Deficiency**

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