Endocrine System Learning Outcomes

As a result of study the theory and related practical class on the endocrine system you should be able to:

1. Know that the endocrine system is responsible for the control of a large number of homeostatic variables.
2. Appreciate that the endocrine system is involved in the control of development, growth and reproduction functions.
3. Understand that there is a lot of interaction between the nervous system and endocrine system in controlling many body functions.
4. Know that many disorders that affect humans involve endocrine system malfunction and that a number of drugs used to treat these disorders either mimic or block the actions of hormones.
5. Know that the study of the endocrine system is referred to as endocrinology.
6. Understand what is meant by the terms, hormones, tropic hormones, endocrine glands, endocrine cells and target tissues.
7. Know where the major endocrine glands are located and the hormones that they secrete.
8. Understand how some hormones interact with carrier proteins and why these complexes are useful.
9. Understand that peptide hormones are made up of chains of amino acids and be able to describe the cellular structures involved in their synthesis and release.
10. Describe in general terms how peptide hormone receptors produce responses in target cells.
11. Know the molecular pathway responsible for the synthesis of noradrenaline in most catecholamine secreting cells and how this is different in the adrenal medulla.
12. Know the subclass of adrenergic receptor located on cardiac muscle and bronchial smooth muscle and the physiological consequence of activation of these.
13. Explain how steroid hormones such cortisol and aldosterone are synthesised.
14. Describe in general terms how steroid hormones produce responses in target cells.
15. Explain what is meant by a circadian rhythm and give an example of or hormone that is under this type of regulation.
16. Describe what is meant by negative feedback as it relates to hormone control systems and be able to illustrate this with an example of a hormone that is regulated in this fashion.
17. Understand what is meant by positive feedback as it relates to hormonal control systems.
18. Understand that human growth is a progressive process regulated almost entirely by the endocrine system and be able to list the factors that determine the size that a person can attain.
19. Describe the macroscopic and cellular processes involved in growth.
20. Know where growth hormone comes from, its pattern of secretion and the consequences of it association with growth hormone-binding protein.
21. Understand the metabolic effects of growth hormone.
22. Be able to describe the growth-promoting effects of growth hormone and explain how these are mediated by the insulin-like growth factors.
23. Know where growth hormone-releasing hormone and somatostatin come from and how they regulate the secretion of growth hormone.
24. Understand how growth hormone secretion is regulated by growth hormone itself as well as somatostatin, ghrelin and insulin-like growth factor I.
25. Describe the consequences of growth hormone deficiency and hypersecretion.
26. Be able to explain the clinical uses for recombinant growth hormone.