

Endocrine Concept Questions

1. What must a target cell have to respond to a hormone? Why do only target cells respond to a given hormone?
3. How do the nervous and endocrine systems help maintain homeostasis?
4. How do the nervous and endocrine systems differ in how they allow cells to communicate? What are the advantages of having both a nervous system and an endocrine system?
5. How would an increase or decrease in growth hormone affect someone during childhood? After puberty?
6. Why is the antagonistic relationship between insulin and glucagon important?
7. Some diabetics produce sufficient insulin but they lack sufficient receptors. Explain how a lack of receptors could cause the same symptoms as a lack of insulin?
8. Why is insulin injected rather than taken orally?
9. Imagine that a virus infects and kills cells in the anterior pituitary. Predict the effect on blood sugar.
10. How are the effects of hypothalamus releasing factors similar to the effects of most of the hormones of the anterior pituitary?
11. In some of its functions, the hypothalamus seems to be part of the nervous system. In other functions, it seems to act as an endocrine gland. Explain.
12. Why is negative feedback an efficient way to regulate a system? Give an example.
13. Some textbooks refer to the pituitary as “the master gland.” Why is this inaccurate?
14. A friend’s mom complains of recent weight gain, lethargy, and feeling chilly all the time. What would you tell her might be wrong? Another friend’s mom is visiting and, feeling impressed with your knowledge, decides to ask you about a problem she is having. She says she feels like a bundle of energy and feels warm even cold days. Sometimes she sweats more than she would like. She loves to eat but, luckily, never seems to gain weight. What do you tell her?
15. If you look at a box of table salt you’ll see that it says “iodized” on it. What does this mean and why do we do it?
16. How do the pituitary and hypothalamus interact to regulate thyroxine levels?
17. You’re home alone one night watching a scary movie and you hear a noise in the basement. How do your nervous and endocrine systems respond and interact?
18. You walk into class one day and sit down as usual. The teacher starts handing out a test but you had forgotten about it completely. Oh-no! Which endocrine gland starts working?
19. Your friend is really into track and field and he says his heart always beats faster before and during a race. He understands that before the race it’s because of epinephrine but doesn’t know why it would be higher during the race. What do you tell him?
20. How does the secretion of epinephrine contribute to your response to danger?
21. Why do insulin levels increase during times of stress?
22. A disorder called testicular feminization syndrome occurs when the testosterone receptor molecules are defective. Predict the effect and explain how the hormone activity is interfered with.
23. Provide an explanation for the following symptoms of diabetes mellitus: frequent lack of energy, increased urine production, thirst.
24. Suppose the secretion of a certain hormone causes an increase in [X] in the blood. A low [X] causes the hormone to be released. A patient has a diet deficient in the mineral needed to produce substance X. What would a blood test show about the level of the hormone?
25. How would high levels of ACTH affect secretions of cortisol from the adrenal glands? How would a high level of cortisol affect ACTH secretion?