

Endocrine System: Response to Stress

1. What two body systems work together to provide well coordinated, generalized, nonspecific responses to combat stress? _____ and _____
2. Increased levels of what three hormones indicate that an individual is experiencing stress?
_____, _____ and _____
3. In the nervous system's response to stress, _____ and _____ exert many effects on the body. Choose the correct response in the pairs listed.

↑ or ↓ CO

↑ or ↓ sweating

↑ or ↓ ventilation

↑ or ↓ insulin

↑ or ↓ BP

↑ or ↓ blood flow to digestive system

↑ or ↓ plasma levels of glucose, fatty acids etc

4. In response to stress, the hypothalamus increases the release of CRH, which increases _____ from the anterior pituitary and _____ from the adrenal cortex. These hormones prolong the response to stress provided by the nervous system.
5. Cortisol enhances _____ (in vessels) to help maintain blood pressure and also (increases or inhibits) the inflammation and immune response.
6. Besides cortisol, the adrenal cortex releases _____, which promotes salt and water retention, which helps maintain blood volume and blood pressure.
7. _____ (posterior pituitary hormone) also aids in the stress response by promoting water retention and at high levels it is a potent _____. Both of these help maintain blood pressure.
8. Epinephrine is a (lipophilic or hydrophilic) hormone. Thus it (does or does not) require a protein carrier and the receptors at the target cell are located _____. Epinephrine is synthesized from _____ and has a very short half-life of _____.
9. _____ is a condition in which there is hypersecretion of catecholamines by a tumor in the adrenal medulla. Which of the following symptoms would be present in a patient with this condition?

sweating

or cool dry skin

↓ BP

or ↑ BP

↓ blood glucose or

↑ blood glucose

↑ HR

or ↓ HR

↑ TPR

or ↓ TPR

10. Cortisol is a (lipophilic or hydrophilic) hormone. Thus it (does or does not) require a protein carrier and the receptors on the target organ are located _____. Cortisol is synthesized from _____ and has a half-life of _____.
11. Hypercortisolism is better known as _____, which is due to a hypersecreting tumor in the anterior pituitary. What hormone is being hypersecreted? _____. Hypercortisolism from all other causes, such as glucocorticoid drugs, is known as _____.
12. Primary adrenal insufficiency is better known as _____. What two hormones are deficient? _____ and _____
13. The following symptoms would be characteristic of which disease? _____
Low blood pressure, decreased plasma sodium and hypoglycemia
14. The following symptoms would be characteristic of which disease? _____
high blood pressure, poor wound healing and hyperglycemia
15. Classify the following as either part of the rapid response (R) to stress mediated by the sympathetic nervous system or the prolonged (P) response of the endocrine system: maintains gas exchange _____
maintains fuel levels _____
maintains body defenses _____
redirects blood flow _____
makes fuel available _____