

Endocrine System Webquest

Visit the following sites to answer the questions below.

Site # 1 - What Is the Endocrine System?

➡ http://kidshealth.org/teen/your_body/body_basics/endocrine.html

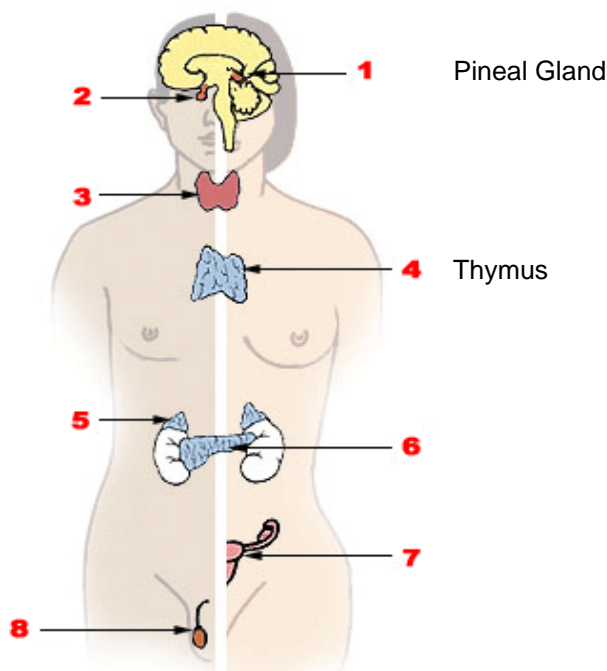
Questions

1. What are the functions of the endocrine system?
2. What are hormones and what is their function?
3. Which factors affect hormone levels in your blood?
4. What is a gland? Give an example.
5. How are exocrine glands different than endocrine glands?
6. List the major glands/organs that make up the endocrine system.

Site # 2 – Parts of the Endocrine System

➡ <http://www.abpischools.org.uk/page/modules/hormones/index.cfm> and then go to page #2

1. Label and identify the functions of the following 6 endocrine glands. Look up the function of the pineal and thymus glands.



2. What two hormones start the production of male and female sex hormones? (Click on page 3)
3. What is the male sex hormone? What is the female sex hormone?
4. Click on page 4 and examine the menstruation cycle graph. Click Play (make sure to watch the graph and the diagram at the same time).
 - a. At which day is the egg released? _____
 - b. Which day is the estrogen level the highest? _____
 - c. Which day is the progesterone level the highest? _____
 - d. Which day is the LH level the highest? _____
 - e. Which day does menstruation begin? _____
5. Click on page 6. What is the main difference between Type 1 and Type 2 Diabetes?
6. Click on page 7.
 - a. What gland controls the release of Growth Hormone?
 - b. Examine the graphs on the page. What age in boys does going slow? _____ For girls? _____

Site #3 – Hormones in the Endocrine System

 http://www.hopkinsmedicine.org/healthlibrary/conditions/endocrinology/hormones_and_the_endocrine_system_85,P00402/

Hormone	Location	Function
Oxytocin		
ADH		
GH		
FSH/LH		
Estrogen		
Progesterone		
Testosterone		
Aldosterone		
Insulin		
Glucagon		
Corticosteroid		
Thyroid hormone (TH)		
Parathyroid hormone (PTH)		

Site #4: The Impact of Stress

Use the information in the link below to answer the following questions:

➡ Link: http://www.wisc-online.com/objects/index_tj.asp?objID=AP13804

1. What main gland is involved with the stress response?
2. What part of the nervous system does the hypothalamus interact with?
3. Explain the physiological changes that occur when the hypothalamus stimulates the sympathetic nervous system. You can make a flowchart or a simple step process. Be sure to include ALL **chemicals/hormones secreted**, **glands** involved and the **functions** of each chemical/hormone.

4. Why is physical exercise often suggested if you experience an abundance of stress?

Site #5: The Hypothalamic-Pituitary-Endocrine Axis and Positive and Negative Feedback Loops

Use the information in the following link to answer the questions below.

➡ Link: http://highered.mcgraw-hill.com/sites/9834092339/student_view0/chapter46/positive_and_negative_feedback.html

- a. What is the difference between negative and positive feedback? Discuss them in terms of the changes in the **process** vs. the changes in the amount of the **product**. *Hint: Read the text above the animation!*
- b. In the animation, what hormone stimulates the release of GnHR and LH?
- c. Explain why the interaction between estrogen, GnHR and LH prior to ovulation is considered to be a positive feedback loop (effect)? *Hint: review the definitions of positive feedback loops.*
- d. After ovulation, what hormone is released in response to increased levels of LH?
- e. Explain why the interaction between progesterone, GnHR and LH after ovulation is considered a negative feedback loop (effect)? *Hint: review the definitions of negative feedback loops.*

For each of the situations described below, explain which hormone(s) might be responsible for the condition as well as which endocrine gland(s) is/are responsible for producing the hormone(s).

1. A 15 year old boy who still displays all the physical characteristics of boys 4-5 years younger than him and has not begun to show any developmental changes indicating he is entering manhood.

Hormone(s):

Gland where produced:

2. Parents of a 5 year old girl are told by doctors that the reasons for the girl's chronic illnesses are a weak immune system and low T-lymphocyte count.

Hormone(s):

Gland where produced:

3. A recently divorced middle-aged man who has also changed jobs and works long hours because he is stressed about receiving a promotion goes to the doctor because he has been gaining a lot of weight, especially in his abdominal region. The doctor notices that his face looks swollen and his blood-sugar levels are low. The doctor advises him to do some activities that will reduce stress and raise his metabolism in order to lose weight.

Hormone(s):

Gland where produced:

4. A patient comes into the ER complaining of a dizzy feeling. Doctors notice the patient has extremely low blood-sugar levels. Further testing reveals that the patient has a hypersecretion of ____ which is causing the problem so they prescribe and administer doses of the hormone ____ to counteract the body's hypersecretion.

Hormone(s):

Gland where produced:

5. A woman in her mid-20's has been having trouble falling asleep. Tests reveal that she has low levels of the hormone ____.

Hormone(s):

Gland where produced:

6. A woman brings her child into the doctor to determine the cause of the child's small stature and extremely slow growth rate. There is no hereditary history of dwarfism in the family.

Hormone(s):

Gland where produced: