

Energy Control

Your thyroid powers your body.

By Sharon Guynup

Do you like to shoot hoops or swim? Without the help of your thyroid, you wouldn't have the energy to compete—or to get off the couch. Your thyroid is a 1-ounce gland that controls the speed of your heartbeat, the speed with which your body burns calories, and the growth of your bones, teeth, and brain. The pinkish, butterfly-shaped gland wraps around the windpipe in front of the throat. It affects nearly every organ in your body.

The thyroid is your body's factory for a *hormone*, or body chemical, called *thyroxine*. The thyroid secretes this chemical into your bloodstream, which is your body's superhighway. The bloodstream delivers the chemical's message to your cells: Get to work! Thyroxine controls your body's *metabolism*. That means it sets the pace for how quickly cells transform food into energy. The hormone also affects the speed of many chemical reactions in your body.

The thyroid is one of many *endocrine glands* that control body functions. The glands are part of a system that regulates hormones. When the thyroid springs into action, the original work order comes from your brain. From atop your brain stem, an organ called the *hypothalamus* keeps tabs on hormone levels in your body—about 200 in all. When thyroxine levels drop too low, the hypothalamus sends off a warning to its neighbor, the *pituitary gland*. That pea-sized "master gland" kicks the thyroid into production—and kicks you into gear.

Pay attention to your body: Diseases of the thyroid are common. These problems affect millions of Americans. An overactive thyroid (*hyperthyroidism*) can affect a person's heart and make the person skinny and nervous. People with an underactive thyroid (*hypothyroidism*) feel exhausted, gain weight, and are often cold.

Pollution may cause thyroid disease. Some industrial chemicals are absorbed by the body through air, water, or food. Those substances can disrupt the body's hormone balance. Toxins from smoking cigarettes or chewing tobacco can damage the thyroid too.

The good news: There are treatments for some thyroid conditions. And if you are like most people, your body's energy control system keeps everything in balance so that you're raring to go!

Thyroid

Alias: Butterfly gland

Mission: Controls heart rate, metabolism, and growth of bones, teeth, and brain

Power: Speeds work of organs and chemical reactions

Weaknesses: Damaged by pollution, which disrupts hormone balance; hurt by radiation, which can cause cancer; harmed by tobacco use, which may triple the threat of thyroid disease

Upgrades: Iodine in food and salt keeps the thyroid in running order.

Maintenance: Watch for symptoms of an underactive thyroid (hypothyroidism), such as sluggishness, weight gain, and a constant feeling of cold. Look for symptoms of an overactive thyroid (hyperthyroidism), such as weight loss and nervousness. Do not smoke or chew tobacco.

Name: _____

Date: _____

1. Your thyroid gland plays an important part in all of the following EXCEPT

- A the rate at which your body converts food into energy
- B how quickly your heart beats
- C how fast you can run
- D how energetic or tired you feel

2. Read these sentences from the passage: "The thyroid is one of many *endocrine glands* that control body functions. The glands are part of a system that regulates hormones."

Which of the following describes the relationship between the first sentence and the second sentence?

- A The first sentence names a cause, and the second sentence describes an effect.
- B The first and second sentences describe steps in a sequence.
- C The second sentence adds information to the description in the first sentence.
- D The sentences make comparisons about the thyroid.

3. Why might an overactive thyroid make a person skinny?

- A It could help the person eat less fattening foods.
- B It could make the person's body absorb calories more quickly.
- C It could make the person want to do more exercise.
- D It could make the person feel sleepy and less energetic.

4. Read the following sentence: "The thyroid secretes this chemical into your bloodstream, which is your body's superhighway."

In this sentence the word **secretes** means

- A hides
- B delivers
- C removes
- D cleans

5. The main purpose of this passage is to

- A** compare and contrast the thyroid with the pituitary gland
- B** persuade young people to eat better and exercise more
- C** describe the thyroid and explain how it works
- D** provide a list of hormones and explain what each one does

6. The thyroid is one of many endocrine glands in the body. What other endocrine glands are mentioned in the passage, and what do they have in common with the thyroid?

7. Why might living in a high-pollution area have a negative effect on a person's thyroid?

8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

_____ the pituitary gland is only the size of a pea, it can push the thyroid into production, which is why it is called the "master gland."

- A** Overall
- B** First
- C** Although
- D** Because

9. Answer the following questions based on the sentence below.

From atop your brain stem, an organ called the hypothalamus keeps tabs on hormone levels in your body.

What? an organ called the hypothalamus

(does) What? _____

(from) Where? _____

10. Vocabulary Word: sluggishness: a feeling of having little energy.

Use the vocabulary word in a sentence: _____

Teacher Guide and Answers

Passage Reading Level: Lexile 950

Featured Text Structure: Descriptive – the writer explains, defines, or illustrates a concept or topic

Passage Summary: This passage includes a brief description of the functions, importance, and diseases of the thyroid gland. It is accompanied by a list of facts about the thyroid.

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6. The thyroid is one of many endocrine glands in the body. What other endocrine glands are mentioned in the passage, and what do they have in common with the thyroid?

Suggested answer: Endocrine glands control body functions and regulate hormones. The pituitary gland and the hypothalamus are two of the body's other endocrine glands. (paragraph 3)

7. Why might living in a high-pollution area have a negative effect on a person's thyroid?

Suggested answer: The thyroid produces hormones, which are chemicals made by our bodies. Living where there is a lot of pollution would expose a person to many other chemicals -- gas fumes, contaminants in food and water, and so on. Those materials could mix with the body's normal chemicals and confuse the thyroid.

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10. **Vocabulary Word:** sluggishness: a feeling of having little energy.

Use the vocabulary word in a sentence: answers may vary.