

Your Body's Fright Reaction

You have probably noticed that when you're watching a scary movie, when you are startled by a loud noise, or when you think about doing something unpleasant, your heart begins to beat very fast. You know your heartbeat speeds up when you are very active, but this time you haven't been running or exercising at all. So what causes such a fast heartbeat?

It all begins with your brain. All parts of the body are connected to the brain by nerves. Some nerves carry signals from the body to the brain, while others carry orders from the brain out to the organs, such as the heart and lungs, and to the muscles. When you see, hear, or even think of something that frightens you or makes you nervous, your brain begins sending signals to special glands in your body, called the adrenal glands, which are located on top of each of the two kidneys. Like other glands, the adrenals produce small amounts of chemicals which the body needs at certain times. As soon as they receive signals from the brain, the adrenals secrete a chemical called epinephrine directly into the bloodstream. When the epinephrine reaches the heart, it causes the heart to beat faster and harder. This makes the blood carry more oxygen and food to the cells, giving the body extra energy, either to run away from or to fight whatever frightens you. When the danger passes, the brain stops sending signals to the adrenals, and they stop producing epinephrine. Your heart slows down to normal again.

Epinephrine causes other changes to take place in the body too. It makes you breathe faster and sends more blood to the muscles and less to the skin and stomach. That is why you will often feel cold when you're nervous or frightened. Epinephrine also causes your hands to perspire, so you could get a better grip on a weapon if you need one. All of these changes make your body ready for action. So even if you never take a step to run away or raise a hand to fight, your brain helps your body to be ready – just in case.

Think About It
Write about an experience that frightened you.
Describe your fright reaction.



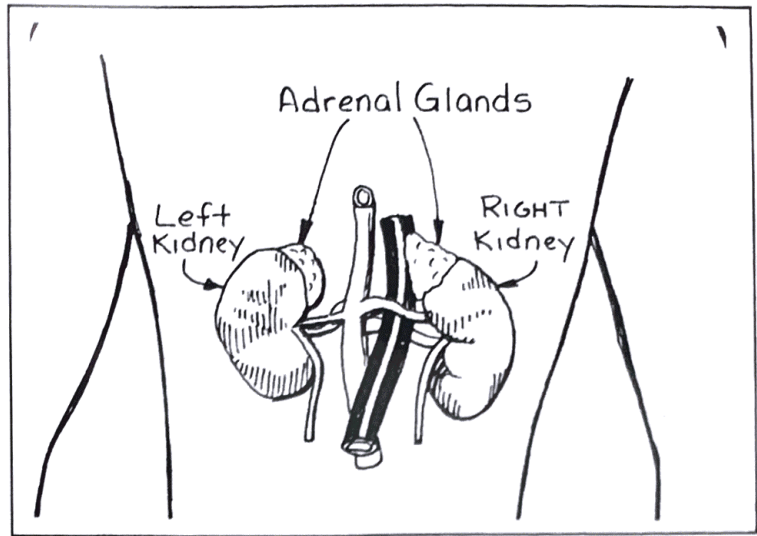
Name _____

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Main Idea

1. Choose another title for this story.

- _____ When Your Heart Beats Fast
- _____ The Adrenal Glands
- _____ How Your Body Prepares for Danger



Sequencing

2. Number the events below in the order that they happened.

- _____ The heart beats faster and harder.
- _____ When there is danger, the brain sends signals to the adrenals.
- _____ The blood carries more oxygen and food to the cells.
- _____ The adrenals secrete epinephrine into the bloodstream.
- _____ When the danger passes, the brain stops sending signals to the adrenals.
- _____ The body receives extra energy to respond to the danger.

Reading for Details

3. Scan the story to answer these questions.

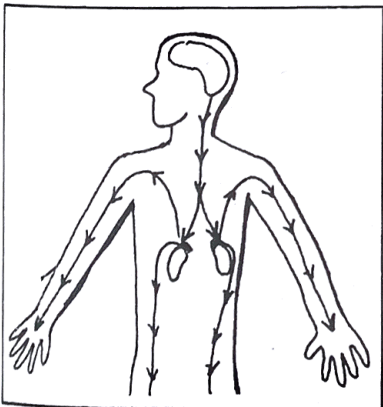
What happens to your heartbeat when you are frightened? _____

Why does your heart need to beat faster? _____

What makes your heart beat faster? _____

What other changes take place in your body when you are frightened? _____

Which organ controls your body's fright reaction? _____



Reading for Understanding

4. Place the correct letter in the blank.

- | | |
|-------------------|---|
| _____ adrenal | a. a chemical secreted by the adrenals |
| _____ signal | b. fluid emitted by a gland |
| _____ epinephrine | c. a gland on top of the kidney |
| _____ nerves | d. a message |
| _____ secretion | e. carry signals between the body and the brain |