LESSON 3-5

The Chemistry of Risk Taking

Overview

In this lesson, students learn about the physiological causes of the chemical rush they get in risk-taking situations and begin to evaluate ways of providing themselves positive experiences without taking unreasonable risks.

Cognitive Objectives

Students will be able to name three body chemicals (endorphin, serotonin, adrenaline), identify some of their triggers, and describe their physiological effects.

Affective Objectives

Students will identify at least one situation in their own lives that has triggered each of these brain chemicals.

Interpersonal Objectives

Students will discuss similarities and differences in their experiences.

Preparation

- ▶ After reading through this lesson thoroughly, please fill out the handout for yourself. Keep in mind that answers may vary. A roller coaster, for instance, might produce adrenalin in one person and endorphins in another.
- ▶ Decide if all students will read all the stories or if fewer will be used.

Material

1. copies of handouts "Experiences and Physical Reaction"
2. copies of appropriate number of stories for journeywork: "Everybody Can Do Something," "Run, Pam, Run," "The Power of Determination"
3. optional: overhead transparencies on the brain from lesson 5-2

TEACHING THE LESSON

Review and Discuss Journeywork

Acceptable and Unacceptable Risks

Give students handouts describing various experiences and their physical effects. You may add other risky experiences from the brainstormed list from the previous lesson. Have students individually mark the kind of physiological effect they think each situation would trigger. They won't do anything with the letters *AES* yet.

Note: Play soft music while students fill out handouts. Then make a sudden loud noise that startles students. Use their reactions to demonstrate brain chemistry.

Discuss class reactions. Note similarities and differences (You will discuss these later). Ask the students what they think causes physical reactions to experiences such as these.

Minilecture on brain chemicals: Why people have these reactions

Now that you've completed the handout about the feelings you get from different situations, I'd like to talk about where those feelings come from. What do you think? . . . Where do feelings like being scared or happy or shaky come from? . . .

In order to understand feelings, we need a little information about what controls our physical and emotional responses, the main control center of the body—the brain.

When you said that a particular situation would make you feel excited or proud or scared or whatever, you were talking about feelings that come from chemicals made by your brain. That's right, your brain has a natural built-in chemical factory! Later on, we'll learn more about how our brains work to run our lives, but for today, we're just going to talk about three specific chemicals and what they do.

One group of these chemicals is called endorphins. Write the word on the board. *The endo- part of the word is from a Greek word that means "inside." The -orphin part of the word doesn't mean a child with no parents. It's related to the word morphine.*

Morphine, as you probably know, is a drug that's made from a plant and it's used as a painkiller. It numbs a part of the brain, kind of like putting it to sleep, so the person doesn't feel the pain.

So endorphin means a substance like morphine that's made inside the brain. That means that our brains can make their own painkillers! When we're injured, either physically or emotionally, sometimes at first we don't realize how badly we're hurt, because our brains automatically deaden the pain with endorphins.

But endorphins do something else besides deadening pain. You may have heard of long distance runners doing a marathon—26 miles. Sometimes they get so tired and achy they want to quit, but if they keep going, they reach a point where they don't feel pain any more, and they can finish the marathon and still feel good. They even say that they feel something called a runner's high. Endorphins can give you a feeling of exhilaration very much like the effects of drugs that some people take. The big difference is that endorphins aren't bad for you.

The second chemical we are going to talk about is called serotonin. Write it on the board. *Its name comes from the words that mean "serum," which is a blood fluid in the body, and "tone," as if the blood flowing through the body is in good tone or condition. Serotonin creates a pleasant mood. Whenever we're feeling happy, content, loved, or other good feelings, it's because the brain is producing serotonin. Some of the new drugs that doctors prescribe for serious depression or anxiety are related to the serotonin that's found in our brains. Can you think of a time when you felt really happy, when serotonin was pumping through your brain? . . . Serotonin also releases the images that occur when we dream. Researchers have found that the dreaming time of our sleep cycle is very important to our health. If our dreamtime gets interrupted too often or we don't get enough sleep, we can't process information that we have stored during the day. This is why it's important to get a good night's sleep before a test, instead of staying up all night to study. Have you ever been so tired that you felt really cranky and "out of sorts" the next day, and maybe had a hard time remembering things? . . .*