

INTEGRATING HEALTH**● Recording Electricity in the Brain**

Brain activity and function are carried out by nerve cells, or *neurons*. Neurons use chemicals to produce electrical signals. These signals are passed from neuron to neuron along pathways called circuits. When the brain is active, the neurons in the brain show intense electrical activity. The electroencephalogram machine, sometimes called an electroencephalograph, is used to detect and record electrical activity in the brain.

To administer the test, a medical technician attaches a number of small electrodes to the test person's scalp. The electrodes are receptors through which electric current from the brain and scalp are gathered and are sent to the machine. The electrical activity of the brain is recorded on paper tape. The tape moves forward under ink pens that move back and forth with each change in the brain's electrical activity. The wavelike patterns in these recordings are called brain waves. The entire record is called an electroencephalogram, or EEG.

Medical Uses of the EEG

The most common medical use of EEGs is to diagnose and study epilepsy. The brains of people who have epilepsy have excessive electrical activity that sometimes interferes with normal brain function. The interference can result in seizures. By studying a person's EEG, a physician can determine the parts of the brain that are responsible for causing the seizures.

EEGs are also used to study sleep. Research using EEG machines show that the pattern of brain waves changes as a person falls asleep. The changes continue as the person moves through the various stages of sleep and returns to wakefulness.

Your Turn to Think

1. What does EEG stand for?
2. What is likely to happen to the brain waves when you relax?
3. What happens to the brain waves during epilepsy?
4. How do neurons communicate with each other?