

Name: _____

ATHLETIC ABILITY

In "Making Waves" (p. 14), you read about an artificial wave pool where surfers can show off their skills. In the following passage, you'll learn how surfers are able to balance on their boards and perform stunts in midair without wiping out. Read the following passage, study the diagram, and then answer the questions that follow.

BODY SENSE

Athletes like surfers are experts at balancing on wobbly surfaces. And they can twist and flip their bodies and boards in the air yet still land safely upright. How do they pull off these feats? The key to balancing and landing tricks is *proprioception*—a person's awareness of his or her body in space.

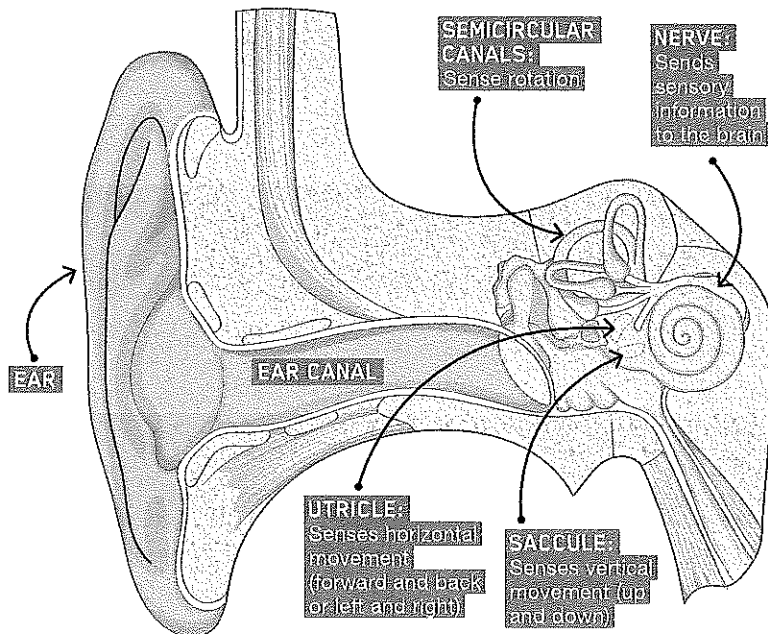
Proprioception has been dubbed humans' sixth sense, along with touch, taste, smell, hearing, and sight. Scientists believe that this sense may be enhanced in some athletes. Athletes may develop better proprioception by practicing tricks over and over again. But research also suggests that some of what

makes a person good at proprioception is inherited.

Scientists have identified a *gene*—a unit of hereditary material—that contributes to a person's ability to move and balance. The researchers found the gene by analyzing the *DNA*—the molecule that carries genetic material—of two people. They have difficulty walking and performing tasks such as fastening buttons, particularly when they're not able to see their limbs. The pair were found to have *mutations*, or changes, to a gene called *PIEZO2*. The researchers believe that different versions of the gene may give people different levels of proprioception.

KEEPING YOUR BALANCE

Information from many parts of the body, like the fluid-filled vestibular system in the inner ear, contributes to our sense of proprioception. Specific structures found there detect different body movements.



SHUTTERSTOCK (DIAGRAM)