Heat and Human Health

Extremely hot weather can be dangerous to human health. During a heat wave, the body struggles to maintain a healthy temperature of about 98.6°F. Heat stress may set in before the air temperature exceeds this mark, however, because the body also produces heat when it does work. The figure shows how the brain and body respond to excessive heat.

The additional stress this response places on the heart and blood vessels can trigger heart and other medical problems, especially in the elderly. Because of this, death rates often rise when a heat wave strikes.

Answer the following questions on a separate sheet of paper.

1. Heat can be lost from the body in the same ways that heat is lost from Earth’s surface, that is, by radiation, conduction, and convection. Based on what you know about heat transfer from Earth’s surface to the atmosphere, describe how the body can lose heat in each of these ways.

2. The body also loses heat by the evaporation of sweat. How is a tea kettle boiling on a stove similar to the evaporation of sweat from the body?

3. You lose heat only from the surface of your body, so the warmer your body surface, the more quickly you cool down. When you are overheated, your blood vessels expand, allowing your blood to carry more heat from deep inside your body to your body surface. Explain how this helps cool your body.

4. Why are you more likely to become dehydrated in hot weather?