

Josh's Story – Part I

How much heat can you take? How does your body respond to the stress of a hot summer day, especially if you are involved in demanding physical activity? Perhaps you have experienced something like this and would not make the same mistake Josh made ...

Josh had just graduated from college in Minnesota and was visiting his parents in central Texas. He was planning to surprise his parents, who would be gone all day, by clearing a large area of brush in preparation for a barn they wanted to build.

As his parents drove off, Josh loaded the pickup truck with the gear he needed for the job. Their dog, Maggie, wanted to come along, so Josh let her hop in the truck. This June day was already hot. The temperature climbed past 35°C (95°F) by late morning.

Josh began the job enthusiastically. He started clearing brush, digging up sharp-spined cacti and raking debris. Even though he worked up a sweat, the small brush and cacti were no match for his muscles and tools. He thought that he could clear the entire area with one day of hard work, finishing before his parents returned.

After two hours had passed, Josh could see that the job might be bigger than he originally thought. This environment was about as hot as he had ever worked in. His shirt was soaked with sweat, and he kept having to wipe drips away from his eyes. He was grateful for the liter bottle of ice-cold juice that he had brought. He drank often, although he kept reminding himself to conserve and make it last for the day. Maggie was obviously hot, too. She tried to find a spot of shade. She lay on the ground panting. Josh was sorry he hadn't thought to bring water along for the dog. He vowed that he and Maggie would get plenty to drink when they got back to the house. But first, he wanted to finish the job he started.

By midafternoon, Josh was out of juice. He noticed that his mouth was extremely dry. He wanted to stay and finish the work but decided that he should drive back to the house and get something more to drink. As Josh opened the kitchen door, Maggie eagerly ran to her dog dish and lapped up all the water in it. Josh opened the refrigerator to look for a refreshing beverage. The first thing he spotted were cans of a popular energy drink. He saw on the back of the can that it contained 300 mL of water, caffeine, sugar, vitamins and minerals. He helped himself to one can and then another. Josh changed into a dry shirt and sat for a while in the air-conditioned house to cool down; then he drank one more can of energy drink. He refilled Maggie's dish with water, made a bathroom stop, and then headed back out to the truck. "Those energy drinks sure went through me fast," Josh thought as he drove back to the work site. Because he had less than an hour's work left, he didn't take anything along to drink.

Josh quickly worked up a sweat in the blazing afternoon sun. After half an hour, he experienced some dizziness and a faint touch of nausea. Nothing much, he decided. Besides, he would be quitting shortly. Soon, however, he noticed a pounding in his head and some changes in his vision. Instead of seeing in sharp color, Josh began to feel as though his world was slowly

becoming black and white. His muscles ached, and he suddenly felt very tired. His dizziness increased so that he had a difficult time driving the pickup back to the house.

Josh's parents returned at the same time that he pulled into the yard. Josh collapsed on the couch and his father brought him a big glass of water and a cool washcloth. Later, when Josh explained what had happened, his parents were pleased to hear about the work he had done, but they were not surprised by his condition.

1. What stresses from the external environment did Josh's body (his internal environment) have to balance?
2. How did the choices that Josh made affect how his body was being stressed by the external environment?
3. What symptoms did Maggie show that were evidence that her body (her internal environment) was under stress from the conditions outdoors (her external environment)?