

## TEST ANSWERS: COLD STRESS

The *BSO Plus Safety Topic* is a review designed from the BSO Plus agenda. This safety topic is your way to stay current on the safety information over the 3 years between BSO Plus and BSR.

1. When your body shifts blood flow from your extremities (hands, feet, arms, and legs) and outer skin to your core (chest and abdomen) to protect your internal organs, your body is experiencing:
- a. Temperature Regulation
  - b. Heat Stress
  - c. Cold Stress
  - d. Wind Chill

**RATIONALE:** When the body reacts to cold environments it automatically protects your internal organs. Frostbite occurs when the skin tissue becomes damaged due to lack of blood flow. After prolonged exposure, your core loses heat faster than it can be generated, resulting in hypothermia. The toes, fingers, ears, and nose are at the greatest risk for exposure because they do not have a major muscle group for heat production.

2. In addition to alcohol, certain medications may prevent the body from generating heat normally. These include sedatives, anti-depressants, tranquilizers and some heart medications.
- a. True
  - b. False

**RATIONALE:** A hat can help prevent up to 50% of the body's heat loss while clothing layers trap heat close to the body. Caffeine contributes to dehydration, which affects the body's ability to function properly, and should be avoided. When exposed to cold temperatures you should avoid drinking alcohol. Alcohol increases blood flow to the outer layer of skin which leads to faster loss of body heat. Certain medications may prevent the body from generating heat normally.

3. Symptoms of frostbite include: (Circle all that apply)
- a. Increased blood flow to the hands and feet
  - b. Numbness
  - c. Tingling or stinging
  - d. Firm / waxy skin

**RATIONALE:** Frostbite is an injury that occurs when body tissue temperature falls below the freezing mark, either from lack of blood flow or from exposure to cold temperatures or contact with extremely cold objects (especially metal). The body tissues may be severely, even permanently, damaged from frostbite injuries.

4. Overexposure to cold environments can cause reduced mental alertness, putting a worker's safety at risk.

a. True

b. False

**RATIONALE:** Prolonged exposure to cold can lead to hypothermia, which can lead to symptoms of confusion and disorientation. A person in this state is unable to recognize what is happening to them, and they won't be able to take steps to protect themselves.

5. Which factors must be assessed when planning for work in cold environments? (Circle all that apply)

a. Air temperature

b. Wind speed

c. Wind direction

d. Humidity

**RATIONALE:** Three conditions affect a person's response to cold: air temperature, wind speed, and humidity. When planning for work in cold environments all three factors must be assessed in order to limit exposure to extreme cold. "Wind Chill" is a still-air temperature that would have the same cooling effect on exposed human skin as a given combination of temperature and wind speed. It can be used as a general guideline for deciding clothing requirements and the possible health effects of cold.