

2008 Monthly ES&H Campaign: January

Health Topic: Identify, Treat and Prevent Cold Stress

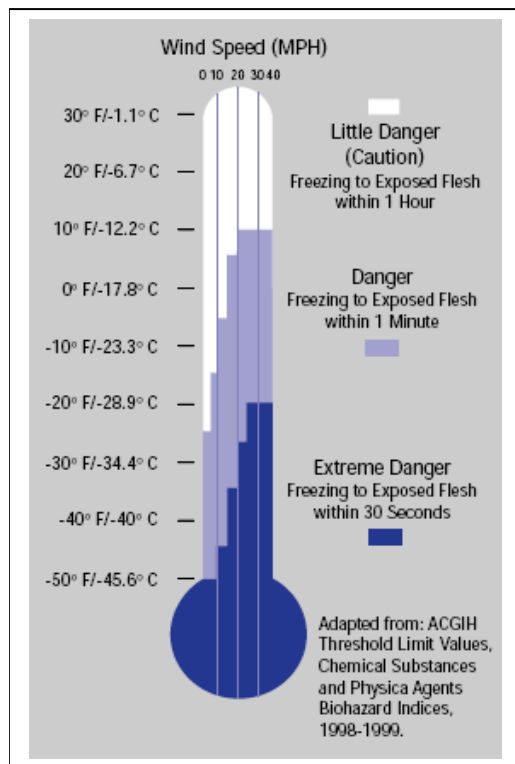
Thursday, 10th

Cold Stress (and in its elevated stages: hypothermia) affects a multitude of workers each year, especially those who must work for extended periods outdoors. During the winter season workers are at the whim of Mother Nature's bitter winds, snow, and freezing rain all leading to ever more exposure to cold stress.

The body's first defense in fighting the cold temperature is to maintain the core temperature to protect your vital organs. Under these conditions, blood vessels in skin, arms and legs constrict decreasing blood flow to extremities. However, by reducing blood flow to the extremities it lowers the skin temperature escalating the potential for frostbite.

Once the body can no longer maintain a core temperature of 95°F your body's last defense to combat hypothermia is to shiver to increase heat production. The body's failure to maintain core temperature generates hypothermia. The most dangerous hazard at this stage is that employees working alone or who are unaware of their worsening physical condition are no longer able to get help.

Here are some key points on how to identify, treat and prevent cold stress.



Hypothermia Signs and Symptoms

Stage 1

- Blue lips and fingers
- Shivering
- Coordination impaired

Stage 2

- Confusion
- Breathing slows down
- Disorientated
- Heart rate slows down

Stage 3

- Shivering stops
- Unconsciousness
- Breathing stops
- Heart rate slows & becomes irregular

Hypothermia First Aid

1. If any symptoms of hypothermia are present, especially confusion or changes in mental status, immediately call 911.
2. If the person is unconscious, check airway, breathing, and circulation. If necessary, begin rescue breathing or CPR if certified. If the victim is breathing less than 6 breaths per minute, begin rescue breathing.
3. Take the person inside to room temperature and cover him or her with warm blankets. If going indoors is not possible, get the person out of the wind and use a blanket to provide insulation from the cold ground. Cover the person's head and neck to help retain body heat.

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4. Once inside, remove any wet or constricting clothes and replace them with dry clothing.
5. Warm the person. If necessary, use your own body heat to aid the warming. Apply warm compresses to the neck, chest wall, and groin. If the person is alert and can easily swallow, give warm, sweetened, nonalcoholic fluids to aid the warming.
6. Stay with the person until medical help arrives.

10 Cold Stress Prevention Tips

1. **Wearing the proper clothes** may be the most significant precaution to reducing cold stress. Workers exposed to cold weather should wear three layers of clothing and protect their heads, hands, and feet.
2. **Drink plenty of fluids**, preferably warm, sweet beverages. Thirst is suppressed in a cold environment and dehydration may occur when fluid intake is reduced.
3. **Increase caloric intake** when working in cold environments. Workers in cold environments who wear heavy, protective clothing expend more heat and so require 10 to 15 percent more calories.
4. **A work warm-up schedule** should be used to provide periodic times for warm-up breaks. Additional breaks should be provided as the wind velocity increases and/or the temperature drops.
5. **Avoid taking certain drugs** such as alcohol, nicotine, caffeine and medication that inhibit the body's response to cold or impairs judgment.
6. **Avoid the cold** if you are becoming exhausted or fatigued. Energy is needed to keep muscles warm.
7. **Shield work areas** from drafty or windy conditions. Provide a heated shelter for workers with prolonged exposure to equivalent wind-chill temperatures of 20 degrees above zero or less.
8. **Select the warmest hours** of the day when braving the cold. Minimize activities that reduce circulation.
9. **Educate employees** on symptoms of cold-related stress, such as heavy shivering, uncomfortable coldness, severe fatigue, drowsiness and/or euphoria.
10. **Use the buddy system.** Always work in pairs when working in extreme weather conditions so partners can monitor one another and obtain help quickly in an emergency

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