



Employee Safety

Cold Stress Solutions

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HYDRATION SOLUTIONS FOR THE WORKING WORLD

Understanding how worker performance and efficiency is affected by environmental conditions is critical to reducing dehydration-related illnesses and accidents. Sqwincher is committed to providing hydration education and solutions that help companies meet the needs of all workers — 365 days a year.

FACTS: THE BODY IS 60-70% WATER*

Maintaining and balancing the body's fluid level is imperative. Factors that contribute to fluid loss include:

- Sweating between skin and winter clothing
- Exhaling
- Urination (increases in cold weather)
- Diuretic intake
- Natural body exertion to maintain core temperature (e.g. shivering)

*Varying factors: age, gender, environment and conditioning

CONSEQUENCES OF FLUID LOSS

2% - Impaired performance
4% - Muscular function and capacity declines
6% - Fatigue and exhaustion
8% - Hallucination and disorientation
10% - Circulatory collapse and hypothermia

HYDRATION LEVEL CHART

USE THE COLOR CHART TO IDENTIFY HYDRATION LEVEL.

TARGET LEVEL

Maintain level



PROPERLY HYDRATED — If urine resembles or matches these colors.

DEHYDRATED

Needs improvement



DEHYDRATED — If urine resembles or matches these colors more fluids should be consumed.

SEVERELY DEHYDRATED

Immediate attention



SEVERELY DEHYDRATED — If urine matches these colors, **SERIOUS DEHYDRATION** has occurred. Contact a physician.

COLD FACTORS:

Contributing to unsafe drop in body temperature and fluid loss:

- Freezing temperature and wind chill
- Improper winter clothing or layering
- Level of exertion/work load or strain
- Direct exposure and duration to weather
- Hydration neglect and poor diet
- Medical precondition
- Lack of physical conditioning

WIND CHILL INDEX:

APPARENT DANGERS POSED BY COLD STRESS

32° to -19° F	-20° to -40° F	-40° F & Below
Discomfort to cold conditions, chilblains and frostbite possible to face and extremities.	Hypothermia possible with prolonged exposure to cold, and frostbite occurs within 10-30 minutes.	Frostbite within 5 minutes. Hypothermia imminent without proper precaution.

RECOMMENDATION FOR PROPER HYDRATION

WATER — Recommended intake:

- 13 cups (men) a day
- 9 cups (women) a day

In colder environments and/or strenuous activity, an increase in fluid intake may be necessary.

Source: Water: How much should you drink every day?

<http://www.mayoclinic.com/health/water/NU00283>

ELECTROLYTES — Recommended intake:

6-10 oz. every 15-20 minutes during strenuous activity, especially in cold environments.*

Water is necessary, but water alone will not replace lost nutrients and minerals such as electrolytes. Electrolytes consist of minerals such as sodium, potassium, magnesium and calcium, which are critical for cell and muscular function.**

*Individual circumstances may vary. Include water with electrolyte consumption.

**Source: Role of Carbohydrate-Electrolyte Fluid Replacement in the Industrial Environment. Human Performance Laboratory, University of Alabama.

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