

Preventing Heat Illness

Many workers in construction projects spend all or part of their day working in hot environments and may be subject to heat illness.

Discomfort is not the only problem with working in hot environments. The consequences of heat illness can

be seen in decreased worker productivity, increased accident rates, illnesses and fatalities.

Disorders—their causes, symptoms, treatment and prevention—are described in the following table:

Physical Disorder	Symptoms	Causes	Treatment/Prevention
Transient Heat Fatigue	Decreased productivity, alertness, coordination and vigilance.	Not acclimated to hot environment.	Gradual adjustment to hot environment.
Heat Rash ("Prickly Heat")	Rash in area of heavy perspiration; discomfort, or temporary disability.	Hot and humid environments where perspiration is not easily removed from skin surface; sweat glands plugged; sweat glands inflamed.	Period resting in a cool area; regular bathing; allow skin to dry.
Fainting	Blackout, possible collapse.	Standing still in the heat, shortage of blood to the brain, reducing oxygen.	Lying down; elevate feet slightly above head; moving around.
Heat Cramps	Painful spasm of heavily used skeletal muscles (extremities, back or abdomen).	Loss of salt by sweating; large quantities of water consumed; excess water seeps into active muscles and causes pain.	Adequate salt with meals; salted liquids for relief (unless advised differently by a physician).
Heat Exhaustion	Extreme weakness or fatigue; giddiness; nausea; headache; pale or flushed complexion; body temperature normal or slightly elevated; clammy/moist skin; vomiting and/or loss of consciousness in extreme cases.	Blood volume reduced by loss of water or salt during sweating. Inadequate fluid and/or salt intake.	Rest in cool area; drink plenty of liquids.
Heat Stroke	Skin is hot, dry and often red or spotted; body temperature is usually 105°F or higher and rising; mental confusion; delirium; convulsions; possible loss of consciousness. Death or permanent brain damage may result unless treated immediately.	Body's cooling system breaks down under stress, and sweating stops. The body's ability to remove excess heat is almost eliminated.	Remove to cool area; soak clothing with cold water; vigorously fan body; call ambulance immediately.

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Most heat related health problems can be prevented or the risk of developing them reduced. The following basic precautions should lessen heat illness.

Acclimatization to heat through short exposures followed by longer periods of work in the hot environment can reduce heat illness.

A variety of engineering controls can be employed, including:

- General ventilation and spot cooling by local exhaust ventilation at points of high heat production
- Shielding (either reflective or absorptive) of radiant heat sources
- Evaporative cooling and mechanical refrigeration cooling fans
- Eliminating steam leaks
- The use of power tools to reduce manual labor
- Personal cooling devices or protective clothing

Work practice controls include:

- Providing a period of acclimatization for new workers and those returning from long absences
- Making plenty of drinking water available
- Training first aid workers to recognize and treat heat disorders
- Alternating work-rest cycles with rest periods in a cool area

If possible, heavy work should be scheduled during cooler parts of the day and appropriate protective clothing provided.

Employee education is vital so that workers are aware of the signs and symptoms and prevention of heat disorders. Supervisors should be trained to detect early signs of heat strain, and should permit workers to interrupt their work if they are extremely uncomfortable.

The key to preventing excessive heat illness is awareness by you as well as your employees. Establish a program designed to acclimatize workers who must be exposed to hot environments and provide necessary work-rest cycles and water to minimize heat illness. Also, educate workers on the hazards they face and their role in preventing heat illness.

If you have further questions about heat illness and/or think you may have a heat illness problem, more information is available through your Zenith Safety & Health Consultant.