

SAFETY NEWSLETTER

SELF INSURED WORKER'S COMPENSATION FUND MEMBERS

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Heat Stress Dealing with Heat at Work and Home



Heat and Fatigue related illness and injuries are on the increase in the work places. What follows is a series of suggested engineering controls, administrative practices and details on personal protective equipment that combine to help employers reduce the chance of illness and injury in relation to heat in the workplace.

Heat stress is a series of conditions where the body is under stress from over heating. The human body has only very limited capacity to adjust to extremes of temperature and humidity. When these limits are exceeded heat cramps, heat rash, heat exhaustion, heat syncope (fainting) and heat stroke can occur. Heat stroke is the most serious of these conditions and can be fatal. As the levels of heat stress conditions rise, mental functions slow down, the ability to handle machinery is impaired and accident rates rise. The heat-affected worker can no longer be the best judge of his or her own condition.

Heat stress management has become a major issue in many industrial workplaces. Not only is it risk to the health and well being of the employee, it can be a major reason for increased accidents and lower productivity in the workplace.

Increasing safety standard regulatory requirements mean the amount of personal protective safety clothing and encapsulating suits required to be worn in the workplace has increased significantly. The more clothing a person wears the greater the heat load.

Heat Cramps

Symptom - painful spasms of the muscles, usually those muscles most used in performing the work. Occurs most often after vigorous exercise and profuse sweating.

Treatment: Resting in cool area with a fluid replacement often eases the cramps.

Heat Exhaustion

Symptom: Heavy sweating, weakness, dizziness, skin cold, pale and clammy. Pulse steady, normal temperature, possible fainting and vomiting.

Treatment -Get victim out of sun, lie victim down in cool environment, loosen clothes and provide water and electrolyte fluids.

Heat Syncope

Symptom: Could experience brief fainting, blurred vision, nauseated feeling, tired and may vomit.

Treatment: Lie down in a cool environment, provide fluids

Heat Stroke

Symptom: Skin is hot and dry, red face, high body temperature of around 106 degrees, possible unconsciousness.

Treatment: -Get victim to hospital immediately. Cool victim to reduce body temperature. Do not give fluids.

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Fluid Replacement?

Don't wait for feelings of thirst before seeking fluids. Once you feel thirst coming, you've already dehydrated yourself. Dehydration occurs when the amount of water in your body falls below normal, leading to an imbalance of electrolytes. Other signs to tell you're dehydrated include a reduced amount of urine that's darker yellow, a dry mouth, weakness, muscles cramps and in more severe cases confusion and unconsciousness.

Loss of body fluid means what it says; loss of water plus its contents (electrolytes) from the body. Electrolytes can be simple inorganic salts of potassium, sodium, calcium, magnesium or complex organic molecules. These minerals are lost through perspiration or other forms of dehydration, particularly in heat stress situations. Intake of plain water replaces part of the loss; intake of an electrolyte drink replaces fluids plus the lost simple inorganic salts, all of which keep the body functioning properly. Within seconds of drinking a correctly balanced electrolyte replacement, the electrolytes are put back where they belong and energy is restored.

Coffee and tea should be avoided as they act as a diuretic. A coffee drinker will have a significant loss of body fluid through increased urination.

While soft drinks, cordials and beverages are capable of providing carbohydrate food energy, they are largely empty calories. Soft drinks will make a person thirstier because of the extra solute entering the fluid environment surrounding the body cells.

Higher temperatures produce greater sweat losses and hence require a greater commitment to a fluid replacement program.

Independent tests in industry have shown that besides preventing dehydration, a regular fluid regime allowed subjects to work at a lower heart rate and at a lower relative workload. Psychologically, subjects reported feeling fresher, stronger more vigorous and more wide-awake when fluid was taken regularly.

		RELATIVE HUMIDITY													
		Ft	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
A	110°	136													
I	108°	130	137												
R	106°	124	130	137											
	104°	119	124	131	137										
T	102°	114	119	124	130	137									
E	100°	109	114	118	124	126	136								
M	98°	105	109	113	117	123	128	134							
P	96°	101	104	108	112	116	121	126	132						
E	94°	97	100	102	106	110	113	119	124	129	135				
R	92°	94	96	99	101	105	108	112	116	121	126	131			
A	90°	91	93	95	97	100	103	106	109	113	117	122	127	132	
T	88°	88	89	91	93	95	98	100	103	106	110	113	117	121	
U	86°	85	87	88	89	91	93	95	97	100	103	105	108	112	
R	84°	83	84	85	86	88	89	90	92	94	96	98	100	103	
E	82°	81	82	83	84	84	85	86	88	89	90	91	93	95	
	80°	80	80	81	81	82	82	83	84	84	85	86	86	87	

Dehydration: The warning signs and what to do

Signs

Dry mouth, dark strong smelling urine, not going to the toilet often, flushed skin, muscle cramps, slower reactions, poor coordination, difficulty concentrating, exhaustion, headaches, irritability.

Prevention

Drink 2/3 cups of balanced fluid replacement before starting work, have small regular drinks throughout the day, avoid soft drinks, undiluted juice, tea, coffee, milk and alcohol before, during and immediately after work, have 2 cups of a balanced electrolyte replacement within 30 minutes of finishing work

Treatment for dehydration

Sit in a cool shady place, remove outer garments, have a large drink immediately, followed by regular small drinks until symptoms disappear, take care to maintain fluid intake throughout the rest of the day.

Recommendations:

Avoid suffering the effects of dehydration by regularly drinking a fluid, which is low in sodium and contains no more than 8% energy, at a rate of 0.5 to 1 liter per hour, especially on hot summer days. Ensure that fluid is readily available close to where the work is performed. Sqwincher, the Drink of Industry, is an electrolyte replacement drink scientifically formulated to replace mineral salts, replenish fluids and sugars at optimal absorption rates, which are depleted as a result of dehydration or through physical exertion. It prevents or reduces the severity of heat stress disorders and provides a supplemental source of energy plus quenches thirst.

Sqwincher has served industrial workers in North America since 1975. It is the only fluid replacement drink especially formulated for the high heat of the industrial workplace. Sqwincher has proved very successful at reducing heat related problems and improving worker productivity

	Heat index Extreme danger 129 or greater. Extreme danger: Heat Stroke or sunstroke highly likely.
	Danger 104 or higher Danger: Sunstroke, Muscle cramps, and/or heat exhaustion possible.
	Extreme caution 92 or higher Extreme caution: Sunstroke, Muscle cramps, and/or heat exhaustion possible.
	Caution below 91 Caution: Fatigue possible.