

## DENTEC SAFETY SPECIALISTS, INC



### PREVENTING HEAT STRESS IN THE WORKPLACE

With the changes in modern business policies and the onset of OSHA compliance, most industries have implemented and enforced effective safety programs, which have proven to be extremely beneficial. For the most part, employers have succeeded in reducing lost time accidents and improving worker safety conditions. However, even the most effective safety programs will sometimes overlook vital areas such as handling heat stress. A great deal of the problems workers encounter occur due to heat stress and fatigue, a factor commonly seen throughout most industries. Reinforcing daily preventative measures could have helped these workers avoid many heat stress problems or accidents.

Typically, occupations that place employees in routinely hot environments are more subject to heat stress than those with less severe duties. In environments where an employee is continually subjected to hot extreme temperatures, that individual is more likely to experience a reduction in work performance or possibly encounter health problems related to heat stress. Heat illness is basically the result of overheating the body and the manner in which the body reacts to it. An employee's can experience any of the different levels of heat stress shown. Recommended first aid responses are described for each case.

- **Sunburn** Redness and pain. In severe cases, swelling of skin, blisters, fever and headaches. **First Aid:** Ointments for mild cases. Do not break blisters. If they do break, apply dry, sterile dressing. For severe cases, see a physician.
- **Heat Cramps** Painful muscle spasms, usually in legs and abdomen. Possible heavy sweating. **First Aid:** Firm pressure on cramping muscles, then gentle massage to relieve spasm. Give sips of Squwincher every 15 minutes.
- **Heat Exhaustion** Heavy sweating, weakness, dizziness, skin cold, pale and clammy. Pulse steady, normal temperature, possible fainting and vomiting. **First Aid:** Lie victim down out of sun, loosen clothing and apply cool cloths. Fan or move victim to air-cooled room. Give sips of Squwincher every 15 minutes for 1 hour. If victim vomits, seek medical attention.
- **Exertional Heat Illness** Stuporous appearance, tired, nausea with possible vomiting. Unsteady gait, heavy perspiration, dehydrated with high body temperature (up to 108° F); often accompanied by headache, rapid respiration and pulse. **First Aid:** Cease exertion and promptly cool body exterior. Initiate replacement of fluids - water first, then Squwincher. If victim cannot retain fluids, transport to hospital.
- **Heat Stroke** High body temperature (106° F or higher); hot, red and dry skin; strong and rapid pulse, possible unconsciousness. **First Aid:** Heat stroke is a severe medical problem. Move the victim to a cooler area and reduce body temperature with cold bath or sponging. Use fans and air conditioners. GET VICTIM TO HOSPITAL IMMEDIATELY - DELAY CAN BE FATAL. **DO NOT GIVE FLUIDS.**

Heat Stress takes its toll on workers. Whether it is poor worker performance, an injury or fatality, the fact is, if heat stress is not recognized and properly managed it costs both the employer and employee significantly, through loss of staff and/or loss of revenue. Put it into a monetary perspective, the national average cost per worker for a disabling injury is an astounding \$26,000. (National Safety Council, "Accident Facts" 1996 edition.) Simply put, heat stress prevention is cheaper than the alternative.

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## Prevention Habits

The best recommendation for handling heat stress is to combat the problem through proper hydration procedures coupled with a well-balanced diet and various other common sense methods.

### • Body Hydration

*The most important element is proper body hydration.* In order to combat the effects of heat the body produces perspiration, releasing essential moisture to cool the skin. The sweat acts as a built-in cooling system for the skin and body. Once perspiration begins, dehydration has started taking its effect on the body. A dehydrated system pulls water and minerals from many locations inside the body to compensate for the lack of vital elements elsewhere. It is important to keep the intake of fluids equal to the amount being released through sweating or urination throughout the day. An important step to remember is to begin hydrating the body before dehydration starts. This means instructing employees to start each day by drinking plenty of "essential" fluids designed with the purpose of keeping the body's hydration and electrolyte balance stabilized.

A misconception of most people is that water is the complete solution to re-hydration. When a person perspires, they do not only release water out of their cellular composition, they lose essential mineral salts and electrolytes which are necessary in keeping the body safely balanced throughout a rigorous workday. Electrolyte replacement drinks such as "Sqwincher" are specifically formulated to promote continuous consumption and prevent muscle cramps by providing essential carbohydrates and minerals for quick body stabilization. Compared to pure water, which is absorbed slowly from the stomach and cannot be retained in the extracellular cavity to preserve the proper concentration of electrolytes, Sqwincher is absorbed 98% faster, allowing the body to replenish the electrolytes and minerals needed for proper re-hydration.

### • Diet

*Another factor influential in coping with heat stress is a proper diet.* Taken from the reference book "Fundamentals of Industrial Hygiene," metabolic rate can add 10 to 100 times more heat to the body than radiation and convection combined. Employees who are exposed to heat should avoid eating heavy meals during working hours. A person can lose as much as six quarts of water daily through perspiration and/or urination. Entice employees to drink a good balanced rotation of water and electrolyte replenishing drinks throughout the day. Workers who drink more liquids during work are less likely to eat heavy meals due to a smaller appetite. Liquids do not need to take place of proper eating habits. A well-balanced diet is key to the body's ability to combat other illnesses besides heat stress.

### • Minimize Caffeine Consumption

It's easier said than done. *Reduce the worker's intake of caffeine containing beverages and foods.* Look at the averages. An average cup of brewed coffee contains 80-115 mg of caffeine. The average coffee consumer consumes as many as five cups of coffee daily, adding up to 400-575 mg of caffeine consumed daily. The effects of caffeine on workers range from moderate alertness to an elevated stress levels on the body, through both anxiety and/or tension. **It does affect worker performance.** In average doses (*more than 200 mg.*) caffeine can produce common reactions such as trembling, nervousness, chronic muscle tension, irritability and throbbing headaches, to more severe responses like disorientation, sluggishness, depression and insomnia. These reactions are only intensified with the additional element of a heat stress. *Surprisingly, most people assume that drinking coffee prevents these symptoms from happening.* Caffeine does not make up for declining performance caused by lack of rest or physical exhaustion. Other health problems documented from continual caffeine use are linked to heart disease and high blood pressure, tension-nervousness and anxiety disorders, as well as a connection to bone loss through caffeine interference with the kidney's ability to absorb calcium back into the body, thus increasing its excretion. Coffee acts as a diuretic. A coffee drinker will have a significant loss of body fluids through increased urination, thus removing minerals essential in keeping their body at a safe, protected working level. In a heat-stressed work environment, it is essential that vital body fluids and mineral salts be replenished.

*An effective electrolyte replacement drink becomes the right solution.* They have specific functions for workers whose vocation or avocation causes a drastic reduction in the body fluids and electrolyte imbalance. Maintaining alertness can reduce accidents and productivity can be increased through balanced energy from an electrolyte replacement drink such as Sqwincher.

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### ***Other recommended worker safety practices:***

- *When possible, wear loose lightweight clothing*
- *Wear hats and other clothing that will protect you from damaging UV exposure*
- *Apply a good sunscreen to protect against skin burns*
- *Use personal protective clothing and cooling devices designed to protect against heat and exposure*
- *Take frequent breaks in cool areas*
- *Climitize workers according to working conditions. (OSHA recommends 6 days to gradually get used to extreme environments.*

Know your employees. Know their habits. Keep them informed of the dangers associated with heat stress in their workplace. An alert awareness to the danger signs and a thorough safety program are key to safely maintaining heat stress. The Sqwincher Corporation offers a heat stress analysis on CD-ROM that can assist you in determining the kind of program to best suit your workers. They can be contacted at **888-533-6832**.