SAFETY UNLIMITED, INC.

Weekly Safety Meeting

Heat Stress Causes Body Reactions

Four environmental factors affect the amount of stress a worker faces in a hot work area: temperature, humidity, radiant heat (such as from the sun or a furnace) and air velocity. Perhaps most important to the level of stress an individual faces are personal characteristics such as age, weight, fitness, medical condition, and acclimatization to the heat.

The body reacts to high external temperature by circulating blood to the skin, which increases skin temperature and allows the body to give off its excess heat through the skin. However, if the muscles are being used for physical labor, less blood is available to flow to the skin and release the heat.

Sweating is another means the body uses to maintain a stable internal body temperature in the face of heat. However, sweating is effective only if the humidity level is low enough to permit evaporation and if the fluids and salts lost are adequately replaced.

However, the body cannot dispose of excess heat. It will store it. When this happens, the body's core temperature rises and the heart rate increases. As the body continues to store heat, the individual begins to lose concentration and has difficulty focusing on a task, may become irritable or sick, and often loses the desire to drink. The next stage is most often fainting. Death is possible if the person is not removed from the heat stress.

How the Body Keeps Temperatures within Safe Limits:

The body must get rid of its excess heat, primarily through varying the rate and amount of blood circulation through the skin and the release of fluid onto the skin by the sweat glands.

In this process of lowering internal body temperature, the heart begins to pump more blood, blood vessels expand to accommodate the increased flow, and the microscopic blood vessels (capillaries) that thread through the upper layers of the skin begin to fill with blood.

The blood circulates closer to the surface of the skin and the excess heat is lost to the cooler environment.

If heat loss from increased circulation is not adequate, the brain continues to sense overheating and signals the sweat glands in the skin to shed large quantities of sweat onto the skin surface.

Evaporation of sweat cools the skin, eliminating large quantities of heat from the body. But as environmental temperatures approach normal skin temperature, it’s harder for the body to cool off.

If cooling is not adequate, the worker may experience a decrease in:

- Strength;
- Alertness;
- Mental capacity;
- Accuracy;
- Comprehension; and
- Retention of information.

Ways to Prevent Heat Stress:

- Drink plenty of cool water (one small cup every 15-20 minutes).
- Wear light, loose-fitting, breathable (like cotton) clothing.
- Take your breaks away from heat sources or direct sunlight. (Allow your body to cool down.)
- Avoid eating large meals before working in hot environments.
- Avoid caffeine and alcoholic beverages. (These beverages make the body lose water and increase the risk for heat illnesses.)

Workers Are at Increased Risk When:

- They take certain medication (check with your doctor, nurse, or pharmacy and ask if any medicines you are taking affect you when working in hot environments);
- They have had a heat-induced illness in the past;
- They wear personal protective equipment (like respirators or suits); or
- They are of an older age.

Remember:

Recognizing the warning signs and symptoms of heat-related illnesses, and using preventive and control measures, can reduce the frequency and severity of heat illness while increasing worker productivity.

Don't leave heat safety in the dust, staying hydrated is a must!!

Safety Meeting Sign-In Sheet

Supervisor:	*Subject:*
Location:	*Date:*
Conducted By:	*Trainer Signature:*

Name (print clearly)	Signature	Comments / Safety Concerns / Training Requests