HEAT STRESS
Prevention Program
FACTS

- Although heat-related illness and death are **readily preventable**, the CDC reports an annual average of 600 Heat related deaths and over 7,000 Heat related illnesses in the USA.
More Facts

- If muscles are being used for physical labor, less blood is available to flow to the skin and release heat.
- If the body can’t dispose of excess heat, it will store it. When this happens, the body’s core temperature rises and the heart rate increases.
More Facts

- Don’t use the feeling of thirst as an indicator that you need water.
- You can deplete as much as 30% of your body’s water before you feel thirsty. Drink plenty of water before, during and after time spent in the heat.
- Individuals vary in their tolerance to heat stress conditions.
Major Heat Stress Injuries and Illnesses

- Heat Rash
- Heat Cramps
- Heat Syncope
- Heat Exhaustion
- Heat Stroke
Preventing Heat Illnesses

- Know the factors that increase risk:
  - The environment you’re working in
  - The work you’re doing
  - Your own conditioning

- Think about what you can do to prevent heat stress.
Basic Steps to a Heat Stress Prevention Program: *(P.A.S.T.)*

**Planning**
Plan the job including checking the weather and providing shade and emergency response capabilities.

**Access to Water**
Ensure the proper amounts of clean, cool water are available.

**Shade**
Provide shaded areas for breaks and cool down.

**Training**
Train workers on how to recognize and avoid heat issues. As with any task, workers should be aware of the hazards before starting a job.
Planning: What to Do?

If you suspect that someone is suffering from heat exhaustion:

- get them to a cool spot
- lay the person down
- elevate their feet
- loosen their clothing
- give cool (not ice) water

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Planning: Clothing & Schedule

- Choose proper clothing.
  - Choose light colors and lightest weight possible
  - Select proper personal protective equipment
- Schedule tasks with some consideration for the heat.
  - Work/rest cycles
  - Heaviest tasks early morning or dusk
- Eat properly, get enough sleep & rest.
Access to Water

- **Drink plenty of fluids:**
  - Don’t rely on your thirst.
  - Drink 5-7 oz. every 20 minutes.
  - Salt tablets are not recommended and may be hazardous to many people.

- **Acclimatization – adjust to the heat:**
  - The body takes 3-5 days or more to get used to the heat.
  - Be careful when returning from a change in routine (e.g. vacation).
Access to Water

- Potable drinking water must be made available to the employee.
- Maintain, at all times, sufficient quantities of cool, potable drinking water (i.e.: enough to provide at least one quart per employee per hour for the entire shift).
Access to Water

- Water must be fit to drink. Water containers CANNOT be refilled from non-potable water sources (e.g. irrigation wells, sprinkler or firefighting systems).

- Care must be taken to prevent contamination of the drinking water supplied to the workers.
Access to Water

- Place the water containers as close as possible given the working conditions and layout of the worksite.
- Make it readily accessible!
- Encourage the frequent drinking of water.

Remind workers not to wait until they are thirsty!
When the temperatures are extreme:

Shade Up!

- Have and maintain one or more areas of shade at all times, when employees are present.

- Locate the shade as close as possible to the area where employees are working.
Shade Up (continued)

- Provide enough shade to accommodate at least 25% of the employees on the shift at any one time.

- *Remember*: Access to shade must be permitted at all times.
Shade Up (continued)

- Encourage employees to take a cool-down rest in the shade, for a period of no less than 5 minutes at a time.

- Shaded area must not cause exposure to another health or safety hazard. Areas underneath mobile equipment (e.g.: tractor), or areas that require crouching in order to sit fully in the shade are not acceptable.

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Training: Environmental Factors

- Air temperature
- Humidity
- Radiant heat source
- Air circulation
Training: Work-related Factors

- **Workload**
  - Type of work
  - Level of physical activity
  - Time spent working

- **Clothing**
  - Weight (heavy vs. breathable)
  - Color (dark vs. light)
  - Personal protective equipment and clothing
Training: Personal Factors

- Age
- Weight/fitness
- Use of drugs, alcohol, caffeine, medication
- Prior heat-related illness
- Obesity
- Several days of sustained exposure to hot temperatures
DO NOT!

- **DO NOT** underestimate the seriousness of heat illness.
- **DO NOT** give the victim medications to reduce fever.
- **DO NOT** give the victim liquids that contain alcohol or caffeine.
- **DO NOT** give anything by mouth if HEAT STROKE is suspected.
Training: When Cooling Mechanisms Fail

- High air temperature reduces the effectiveness of the cooling system.
- High humidity reduces the evaporation rate of sweat.
- Excess loss of sodium.
- Dehydration.
Training: Heat Stroke Recognition

- **Cause**
  - Total breakdown of the body’s cooling system

- **Signs & Symptoms**
  - High body temperature (>103)
  - Sweating stops and skin is hot, red and dry
  - Headache, dizziness, weakness, rapid pulse, chills, difficulty breathing
  - If untreated, delirium and unconsciousness
Heat Stroke: Treatment

- Treat as a medical emergency
  - May result in death if not treated
  - 4,000 Americans die each year
- Move victim to a cool area
- Give small cup of water (if not nauseous)
- Loosen and/or remove clothing
- Cool with water or massage with ice
- Fan vigorously to improve evaporation
Heat Exhaustion

- **Cause**
  - Too much loss of water & salt: sweating

- **Signs & Symptoms**
  - Heavy sweating, intense thirst, skin is pale and cool, rapid pulse, fatigue or weakness, nausea & vomiting, headache, blurred vision, fainting

- **Treatment**
  - Move to cool area, rest with legs elevated, loosen clothing, give fluids, cool with water & fan

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Heat Syncope

- Usually occurs in individuals standing erect and immobile in the heat.
- The person recovers rapidly after lying down.
Heat Cramps

- **Cause**
  - Loss of salt

- **Signs & Symptoms**
  - Painful spasms in arms, legs and abdomen
  - Hot, moist skin

- **Treatment**
  - Drink water, rest, massage cramped areas
Heat Rash

- **Cause**
  - Inflamed skin

- **Signs & Symptoms**
  - Rash w/pink pimples, itching, tingling

- **Treatment**
  - Cleanse area & dry; apply calamine or other lotions
Risk Management Services

Dehydration

- **Cause**
  - Excessive fluid loss

- **Signs & symptoms**
  - Fatigue, weakness, dry mouth

- **Treatment**
  - Fluids and salt replacement

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Training: The Body’s Response to Heat

- The body tries to maintain a constant internal temperature.

- When the internal temperature rises, the body attempts to get rid of excess heat by:
  - Increasing blood flow to the skin surface
  - Releasing sweat onto the skin surface
Training: Effects of Body’s Response

- Reduced blood flow to the brain
  - Reduced mental alertness and comprehension
- Reduced blood flow to active muscles
  - Fatigue, loss of strength
- Increased sweating
  - Slipperiness

Potential result = a Higher rate of mistakes/injuries from too much heat
Employee Training

- Ensure all employees and supervisors are trained before beginning work that could reasonably be anticipated to result in a heat illness.
- Importance of acclimatization
- Importance of immediately reporting signs or symptoms of heat illness to a supervisor
- Procedures for responding to possible heat illness
Employee Training (continued)

- Procedures to follow when contacting emergency medical services (nearest telephone) and if necessary transporting employees.

- Procedures that ensure clear and precise directions to the worksite; including designating a person to be available to ensure that emergency procedures are invoked when appropriate.
REVIEW

Remember your **P.A.S.T.** so you can **Prevent** Heat injuries in the Future!

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Questions?

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