Heat Stress

Keeping Your Cool During the Summer Months

The Rising Temperatures

- As temperatures rise, so does the stress on your body
- Two critical actions can help you battle the heat
  - Acclimation to the heat
  - Consumption of water

Your Body is a Good Regulator of Heat

- Your body reacts to increased temperature by circulating blood to the skin's surface.
- There, the heat passes to cooler surrounding surfaces.
- As sweat evaporates the body is also cooled.
- Physical activity can limit the amount of blood that flows to the skin to release heat.

Your Body is a Good Regulator of Heat

- Sweating cools the body as long as humidity levels are low, but fluids you lose HAVE to be replaced.
- When your body generates more heat than it can dissipate, core temperature and heart rate start to rise, putting you at risk of heat-related illnesses.

Factors Affecting Your Body's Ability to Deal With Heat

- Many factors can cause unbalances in your body's ability to handle heat.
  - Physical characteristics
    - Age
    - Weight
    - Fitness
    - Gender
    - Excessive alcohol use
  - Medical conditions
    - Cardiac/circulatory disorders
    - Medications
  - Acclimatization

Summer Heat

- Heat stress is a serious hazard
- When your body temperature rises even a few degrees above normal, you can experience:
  - Muscle cramps
  - Weakness
  - Disorientation

Six Factors Affecting Body Heat Load

- Temperature
- Humidity
- Air movement
- Radiant Heat
- Clothing
- Physical activity

Heat Stress

- Heat stress will reduce your work capacity and efficiency.
- Signs of heat stress include:
  - Tiredness
  - Irritability
  - Inattention
  - Muscular cramps

Heat Rash

- Also known as ‘prickly heat’, it occurs when people are constantly exposed to hot and humid air, causing a rash.
- First Aid for Heat Rash
  - Cleanse the affected area thoroughly and dry completely.
  - Calamine or other soothing lotion may help relieve the discomfort.

Heat Cramps

- Painful intermittent spasms of the abdomen and other voluntary muscles
- May occur after prolonged exposure to heat
- Heat cramps usually occur after heavy sweating, and may begin towards the end of the workday

Heat Cramps- First Aid

- First aid for heat cramps will vary. The best care is:
  - Rest
  - Move to a cool environment
  - Drink plenty of water- **No soda or alcohol.**
  - Electrolyte fluids, such as Gatorade or Powerade, may also be used

Heat Exhaustion

- Heat exhaustion develops when a person fails to replace fluids and salts that are lost through sweating
- May result from physical exertion in hot environments

Heat Exhaustion Signs and Symptoms

- Profuse Sweating
- Weakness
- Paleness of skin (cool and clammy)
- Rapid Pulse
- Dizziness
- Headache
- Nausea
- Vomiting
- Fainting

Heat Exhaustion- First Aid

- Rest in the shade or a cool place
- Drink plenty of water (preferred) or electrolyte fluids
- Loosen clothing to allow for your body to cool
- Use cool wet rags to aid cooling

Heat Stroke

- This is a serious medical condition that requires emergency medical care.
- Sweating is diminished or absent, which makes the skin hot and dry.
- Body temperature is very high (105 degrees F. and rising).

Heat Stroke
Signs and Symptoms

- Mental confusion
- Delirium
- Chills
- Dizziness
- Loss of consciousness
- Convulsions or coma
- A body temperature of 105 degrees F. or higher
- Hot, dry skin that may be red, mottled or bluish
- A strong fast pulse

Heat Stroke- First Aid

- **This is a Medical Emergency!!**
- Brain damage and death are possible.
- Until medical help arrives, move the victim from the heat and into a cool place.

Call 9-1-1

Heat Stroke- First Aid

- Use extreme caution when soaking clothing or applying water to a victim. Shock may occur if done too quickly, or if the water is too cool.
- Soak the victim's clothes with water, and use a fan or ice packs.
- Douse the body continuously with a cool liquid, and call for medical aid immediately.

General Heat Stress Index

Danger Category	Apparent Temperature (°F) (Humiture)	Heat Syndrome
IV. Extreme Danger	>130°	Heatstroke or sunstroke imminent
III. Danger	105° – 130°	Sunstroke, heat cramps, or heat exhaustion likely. Heatstroke possible with prolonged exposure and physical activity.
II. Extreme Caution	90° – 105°	Sunstroke, heat cramps, and heat exhaustion possible with prolonged exposure and physical activity.
I. Caution	80° - 90°	Fatigue possible with prolonged exposure and physical activity.

Note: Degree of heat stress may vary with age, health, and body characteristics.

		Relative Humidity								
		10%	20%	30%	40%	50%	60%	70%	80%	90%
TEMPERATURE °F	104	98	104	110	120	>130	>130	>130	>130	>130
	102	97	101	108	117	125	>130	>130	>130	>130
	100	95	99	105	110	120	>130	>130	>130	>130
	98	93	97	101	106	110	125	>130	>130	>130
	96	91	95	98	104	108	120	128	>130	>130
	94	89	93	95	100	105	111	122	128	>130
	92	87	90	92	96	100	106	115	122	128
	90	85	88	90	92	96	100	106	114	122
	88	82	86	87	89	93	95	100	106	115
	86	80	84	85	87	90	92	96	100	109
	84	78	81	83	85	86	89	91	95	99
	82	77	79	80	81	84	86	89	91	95
	80	75	77	78	79	81	83	85	86	89
	78	72	75	77	78	79	80	81	83	85
	76	70	72	75	76	77	77	77	78	79
	74	68	70	73	74	75	75	75	76	77

NOTE: When the air temperature is above 80 degrees F., and the relative humidity is above 40%, the temperature the body experiences is greater than the air temperature.

Final Tips

- Use common sense
- Acclimate yourself to the heat
- Drink 5-7 ounces of water every fifteen minutes when out in the heat, even if you are not thirsty
- Take frequent breaks to cool down
- Wear light colored clothing
- Do not drink alcohol excessively
- Do not eat a heavy or hot meal when working in the heat