**CAP health & wellness** HSO Briefing: HEAT INJURIES

**Purpose:**

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| (U) **Bottom Line:**   * Risk to populations**: very low** **| low** | **moderate** | **high** * **Heat injuries are usually preventable.** * **Hydration, frequent rest breaks in the shade are useful preventive measures** * **Prompt recognition and treatment of heat casualties is important to prevent sever injury.** |

**Overview:**

Our body temperature is regulated across a wide temperature range using four methods of heat transfer:

* **Evaporation**: The conversion of water and other liquids on the skin or clothing to water vapor cools the body. Example: sweating.
* **Radiation**: The transfer of heat in the form of electromagnetic energy between two objects. Example: warming hands over a fire.
* **Conduction**: The direct transfer of heat from warmer to cooler objects in direct contact. Example: sitting on a block of ice.
* **Convection**: The transfer of heat to or from a gas or liquid that is in motion.

Example: Sitting in front of a fan.

**Heat Exhaustion**

*Causes*:

* Exertion or exercise in the heat
* Inadequate fluid intake
* High humidity

*Signs and symptoms:*

* Thirst
* Headache
* Dizziness
* Increased sweating
* Flushed and red skin
  + The skin functions like a radiator with increased blood flow resulting in red, flushed skin. The redness is due to dilated surface capillaries.
* Rapid pulse
* Fatigue
* Confusion
* Headache
* Weakness

*Treatment of heat exhaustion:*

* Immediately move to shade
* Loosen tight clothing
* Give fluids to drink (cool is better and more easily tolerated than cold liquids)
* Allow patient to rest
* Monitor temperature

*Prevention of heat exhaustion:*

* Ensure frequent rest breaks for your team members
* Enforce adequate hydration
  + “Ok, everybody takes a drink”
* Limit extreme exertion in climate with high humidity and temperature
  + Especially if not acclimated to the temperature
* Loosen clothing
  + Untuck shirts
  + Un-blouse pants
* Wear a hat
* Heat injuries can indicate failure of leadership

**Sunstroke**

* Also known as Heatstroke
* This is a medical emergency
* Caused by overheating with an eventual failure of sweating
* High body temperature >104 F measured rectally
* Associated with altered mental status
  + Confusion, coma, or seizures

*Signs of sunstroke*

* Hot and dry skin
* Rapid pulse
* Rapid respiration
* Confusion
* Unconsciousness
* Seizures

*Treatment of sunstroke*

* This is a life-threatening medical emergency
* Do not forget ABC's in rush to treat patient
  + Airway
  + Breathing
  + Circulation
* Move the patient to the shade
* Insulate from the ground
  + Sleeping pad or sleeping bag
* Actively cool the patient
  + Undress the patient
  + If possible, immerse in cold water
  + Wet the skin
  + Apply ice, especially to back of neck and armpits
  + Expose to a breeze or fan
  + Monitor the rectal temperature if possible
  + Do NOT rely on tympanic, oral, or skin temperature measuring devices
    - We are interested in central temperature and measurement requires rectal thermometer
  + If not available, cool to the point of shivering
  + Patient is generally not dehydrated

**Heat Cramps**

* Previously known as "Coal Stoker's Disease
* Strenuous work
* High temperature
* Dehydration
* Inadequate dietary salt intake
  + Does **NOT** require use of salt tablets for prevention
* May have history of prior heat cramps
* Lack of effective acclimatization
* Results in muscle cramping

**Prevention of Heat Injuries**

* Insure adequate hydration
  + We sweat water so drink water
    - Gatorade is NOT water and contains too much sugar
    - Recommend that Gatorade be diluted with equal quantities of water
  + Drink water **before** heavy exertion
  + Frequent sips are better than chugging a quart at a time
  + Avoid sugar or caffeine containing drinks
  + No added salt
  + Goal is clear urine
* Frequent rest in shade
* Un-blouse pants and shirt
* Wear a hat
* Cover skin
* Wear loose clothing

Camelbacks are superior to water bottles and canteens

* Permit continuous hydration while working
* Encourages frequent sipping
* Large bladder capacity (2-3 liters)
* Are more ergonomically friendly
  + Weight is on your back and close to the body.

***Recommendations:***

**Remember: Prevention is better than treatment**

* When possible, allow acclimatization
* Maintain adequate hydration
* Take frequent rest breaks in shade
* Wear proper clothing

**Questions**: **Contact your Region/Wing/Unit Health Services Officer or**

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