PIVOT
ONSITE INNOVATIONS

Heat Injury and Illness Panel

MACSC Conference 2022

May 10, 2022

Introduction

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- Bachelors in Sports and Fitness from Florida International University
- Masters in Athletic Training from Florida International University
- Experience working with collegiate athletics such as FIU men's basketball and baseball, as well as a local high school football and soccer.
- Previous physician extender for Miami's top orthopedic surgeons
- Previous personal trainer and current health coach
- Athletic Trainer for Pivot Onsite Innovation (construction division) for a little over two years

What Is Heat Stress?

- In a warm environment, especially when physically active, the human body relies on its ability to get rid of excess heat to maintain a healthy internal body temperature. This happens naturally through sweating and increased blood flow to the skin.
- If heat dissipation does not happen quickly enough, the internal body temperature continues to rise, and the individual may experience symptoms that include:
  - Thirst
  - Irritability
  - A heat rash
  - Cramping
  - Heat exhaustion
  - Heat stroke
- However, the most **common** presentation: cramping, fatigue, exhaustion, vomiting
- Heat illness can be **FATAL**!!

Personal and Occupational Risk Factors

Some individuals are more susceptible to heat-related illness.

- Personal risk factors include:
  - Previous medical conditions
  - Lack of physical fitness
  - Previous episodes of heat-related illness
  - Alcohol or drug consumption
  - Use of certain medications
- Occupational risk factors include:
  - Heavy physical activity
  - Warm or hot environmental conditions
  - Lack of acclimatization
  - Wearing clothing that holds in body heat

Types of Heat Stress, Signs, and Symptoms

HEAT RASH

- What to look for:
  - Red clusters of small blisters that look like pimples on the skin
- What to do:
  - Stay in a cool, dry place
  - Keep the rash dry
  - Use powder (like baby powder) to soothe the skin

Types of Heat Stress, Signs, and Symptoms

HEAT CRAMPS

- What to look for:
  - Heavy sweating during intense exercise or work
  - Muscle pain or spasms
- What to do:
  - Stop physical activity and move to a cool placed
  - Drink water or a sports drink
  - Wait for cramps to go away before you do any more physical activity
  - Seek medical help right away if cramps last longer than 1 hour, you are on a low sodium diet, or you have heart problems.

Types of Heat Stress, Signs, and Symptoms

HEAT EXHAUSTION

- What to look for:
  - Heavy sweating
  - Cold, pale, and clammy skin
  - Fast, weak pulse
  - Nausea or vomiting
  - Muscle cramps
  - Fatigue or weakness
  - Dizziness
  - Headache
  - Fainting
- What to do:
  - Move to a cool place
  - Loosen clothes
  - Place cool, wet clothes on the body or cool bath
  - Sip water
  - Seek medical help right away if the person is throwing up, symptoms worsen, or last longer than 1 hour.

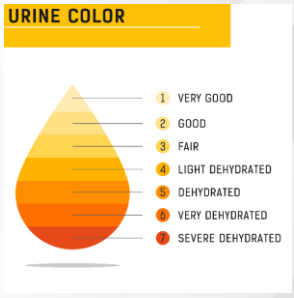
Types of Heat Stress, Signs, and Symptoms

HEAT STROKE (*MEDICAL EMERGENCY*!)

- What to look for:
  - High body temp (103 F or higher)
  - Hot, red, dry, or damp skin
  - Fast, strong pulse
  - Headache
  - Dizziness
  - Nausea
  - Confusion
  - Losing consciousness
  - Abnormal thinking
  - Slurred speech
  - Seizures
- What to do:
  - Call 911 **IMMEDIATELY**
  - Move the person to a cooler place
  - Cool the worker immediately. Immerse the worker in cold water or an ice bath. Create the ice bath by placing all available ice into a large container with water (standard practice in sports). This is the best method to cool workers rapidly in an emergency.
  - Remove outer layers of clothing, especially heavy protective clothing.
  - Place ice or cold wet towels on the head, neck, trunk, armpits, and groin.
  - Use fans to circulate air around the worker.
  - Stay with the individual until help arrives

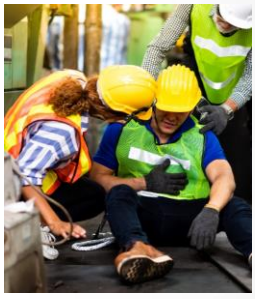
How to Prevent Heat Stress

- Ease into work: **3 out or 4 fatalities from heat illness** occur during the first week of work (OSHA). Build a tolerance to heat by increasing intensity by 20% each day
- Wear proper clothing
  - Light weight, loose fitting, and made of breathable fabric that allows airflow and movement
  - Light colored clothing that reflects the heat better than dark colored clothing (which absorb the heat)
  - Long sleeved clothing can help protect the skin from sunburn if outside
- Drink water regularly (even if you aren't thirsty) to prevent dehydration
  - The average adult doing minimal physical activity requires at least 2.5 liters, or 10 glasses, of water per day.
  - How to know if you are properly hydrate? Check your urine color
    - Completely clear: over hydration
    - Light yellow: hydrated
    - Dark yellow-orange: dehydrated



How to Prevent Heat Stress

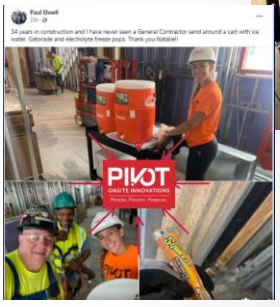
- Take breaks throughout the day to drink water and get out of the sun- long enough to recover from the heat (take these breaks in a shady or cool area)
- Be aware of high exposure areas (where there may be work with tar, any welding, etc. or work where heavy clothing layers are required)
- Watch out for each other- verbally check on others.
- Engineering controls such as air conditioning, with cooled air, and increased airflow, leading to increased evaporative cooling, can make the workplace safer.
- At a minimum, all supervisors and workers should receive training about heat-related symptoms and first aid.



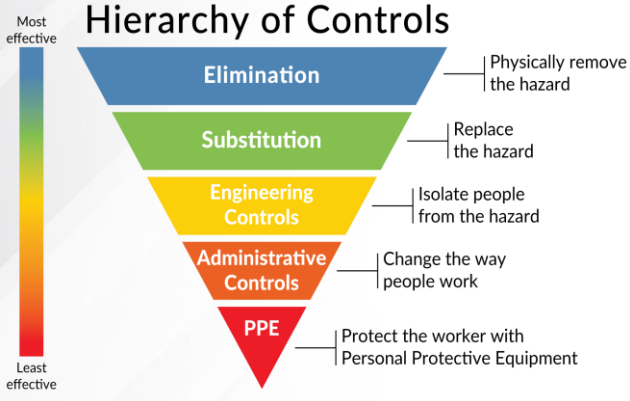
How to Stay Hydrated Out In The Field

How people out in the field can stay hydrated and what to do when they don't have easy access to get and store water to have it handy:

- **Stay ahead of dehydration**: drink water regularly (before coming into work, the night before work, during any breaks, etc.)
- Avoid sugary drinks or coffee, and stick to water or electrolyte beverages
- Create cooling stations (areas out of the sun, with coolers for water/Gatorade and misters to help workers cool off)
- Carry electrolytes preferably containing sodium or potassium. Some examples are Pedialyte & Gatorade (in powder or liquid form)
- Hire an onsite athletic trainer or medic to provide preventative and emergency care: providing hydration on warmer days such as Gatorade, hydration freeze pops, water, and sunscreen.



Hierarchy of Controls



- Elimination: Cancel all work (in extreme cases)
- Substitution: Change work for the day, or focus on smaller, less intensive tasks
- Engineering controls: Air conditioning with cooled air, increased airflow, increased evaporative cooling
- Administrative controls: Cooling stations, misters, frequent breaks, athletic trainer with hydration cart
- PPE: Light weight, loose fitting clothing made of breathable fabric that allows airflow and movement, light colored clothing that reflects the heat better that dark colored clothing (which absorb the heat), long sleeved clothing can help protect the skin from sunburn if outside

By being prepared and preventing heat illness occurrences, you are saving loss of time, money, and most importantly, you are keeping the workforce safe.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Thank You