# Heat Injury

WEEK 2: 1 JUNE, 2020

## TYPES OF HEAT ILLNESSES

**Marines should understand that the prevention of heat injuries is vital to sustaining the force. Leaders must continually be aware of the condition of their Marines and be especially alert for signs and symptoms of heat and sun injuries.**

Prevention, early detection, and immediate treatment are the leader initiatives through which heat and sun injuries should be managed. Here is a list of different types of heat illnesses.

**Heat Cramps.** Athletes are familiar with this syndrome caused by salt depletion. It is easily treated with rest and drinking electrolyte-balanced fluids such as sports drinks or plain water and eating salty chips or nuts. Avoid salt tablets due to the risks of overdosing.

**Heat Syncope and Fainting.** Fainting happens when blood pools in the legs, often after standing too long. It is temporary; being horizontal usually prompts a return to consciousness. To help blood return to the heart, elevate the person's legs, and cool the body with wet compresses and fanning. Turn the unconscious person on his or her side to prevent choking. One exception is if the person has been working hard; then consider the fainting due to heat stroke and call 911. Anyone who faints should be medically evaluated and not return to work.

**Heat Exhaustion.** This condition is serious and is caused by severe dehydration. Symptoms can include fatigue, dizziness, nausea and vomiting, plus early neurological signs such as headache, impaired judgment and anxiety. Exhaustion causes profuse sweating and cool, clammy skin. Move the person out of the heat, provide fluids as tolerated, strip off extra clothing, and cool them by wetting clothing and fanning. Have them medically evaluated.

**Heat Stroke.** This is a medical emergency. It can look like exhaustion except the body temperature is 104 degrees or higher, and the brain is seriously affected. Neurological effects can include confusion, irrational or aggressive behavior, incoherent speech, collapse, convulsion, and coma. When the body's heat-coping mechanisms have failed, sweating stops and the skin becomes red, dry and hot to the touch. Call 911 and quickly lower the body temperature.

MCIWEST-MCB CAMPENO 6200.4A - Heat Injury Prevention Program

### THE WATER IN YOU:

- **Up to 60% of the human adult is water**
- **Your brain is 73% water and even your bones are 31% water**
- **Drinking plenty of water combats fluid retention**
- **Water acts as an internal air conditioner, regulating body temperature**

## DEHYDRATION WARNING SIGNS

**Once dehydration has set in, the body slowly begins to shut down, eventually causing problems such as kidney failure, seizures and brain swelling.**

Fortunately, your body will tell you that you're dehydrated before you get to that stage, by displaying the following warning signs.

**Dry Mouth** - One of the earliest signs of dehydration.

**Fatigue** - Fatigue is another common sign of dehydration, so if you feel tired after a workout or sluggish while working in the afternoon, it may be because you haven't had enough to drink.

**Headache** - Many headaches are caused by dehydration and this is especially true for children and teens.

**Feeling Hot** - Your body's temperature regulation is dependent on water.

**Dizziness And Difficulty Concentrating** - Severe dehydration can also cause confusion and can make it difficult to concentrate.

**Nausea and vomiting** - Nausea is another symptom of severe dehydration, which may require medical attention.

**Urine Color** - By far, the best indicator of dehydration is the color of your urine. Your urine should actually be clear; if it isn't, that means that you haven't taken in enough fluids. How much are you lacking? The color will tell you. If the urine is a dark color, that's a sign of severe dehydration. But if the urine is a lighter color, that's a sign of mild dehydration. Either way, if your urine isn't clear, it's time to pour yourself a glass of water.

**Although dehydration can easily occur when you're sick or spending time in the sun, it can be just as easy to prevent. All you need to do is just keep drinking water!**

# 3 STEPS TO PREVENT HEAT INJURIES

**An ounce of prevention is worth a pound of cure! When it comes to heat injury, that is especially true. Follow these three steps to lower the risk of heat injury or illness.**

## 1. HYDRATE

Hydration is the most important step to combating heat stress. In extreme heat and humidity, you can use the half-half rule: drink ½ liter every ½ hour. You should not wait until you feel thirsty to drink; if you are thirsty, you may already have lost 2% of your body's water. The onset of heat exhaustion can begin after losing 3% of the body's water and heat stroke occurs once 8% is lost. The bottom line is, if you are not regularly urinating or have dark urine, you are dehydrated and at risk for heat illnesses!

## 2. ASSESS

Assess the relative danger of the CONDITIONS and your PERSONAL risk factors. Conditions: Be aware that high heat, high humidity, low air circulation all increase risk. When more than one of these variables is present, the danger is compounded. In these conditions, you need to take breaks in the shade and wear light, breathable clothing and hats. Some people wear excess clothing to protect themselves from the sun, but this is a dangerous practice that has resulted in death. Personal risk factors include being out of shape, overweight, old age, drinking sugary and caffeinated drinks, sleep deprivation, and certain medical conditions and medicines.

## 3. ACCLIMATIZE

If you are new to the area or if you are returning after time away: ease back into full-time activities over the course of 5 days. Starting strenuous work and exercise at half-time or 50% effort and increasing to a full work load (by 10% each day) can greatly reduce your susceptibility to heat stress.

## FLAG CONDITIONS

The Wet Bulb, Globe Temperature (WBGT) Index is the most effective means of assessing the effect of heat stress on the human body. The WBGT Index is used to determine **Flag Conditions** as a safety standard. Knowing and understanding these Flag Conditions will help keep you safe. Color coded flags are flown in strategic locations on Marine Corps Installations to communicate hazardous conditions to personnel so that work and outdoor activity can be adjusted accordingly.

| Flag Color | WGBT Index (F) | Intensity of Physical Exercise |
|---|---|---|
| Green | 80-84.9 | *Unacclimatized personnel must perform heavy exercises with caution and under constant supervision. Organized PT evolutions in boots and utilities are allowed for all personnel.* |
| Yellow | 85-87.9 | *Strenuous exercise and activity ( e.g., close order drill) should be curtailed for new and unacclimatized personnel during the first 3 weeks of heat exposure.* |
| Red | 88-89.9 | *Strenuous exercise curtailed for all personnel with less then 12 weeks training in hot weather. Troops who are thoroughly acclimatized may perform limited activity not to exceed 6 hours a day.* |
| Black | 90 and above | *Physical training and strenuous exercise suspended for all personnel (excludes operational commitment not for training purposes).* |

**2,792**

**Active Duty personnel suffered heat stroke or heat exhaustion in 2018.**

## CAMP PENDLETON SAFETY CENTER

We provide a wide range of safety support services aimed at preserving combat readiness by identifying hazards and reducing risk to people and resources. We perform inspections, provide technical support, assist with safety program implementation, conduct mishap investigations, and offer safety training opportunities for all base personnel to include tenant commands. We want to empower all Sailors, Marines, civilians, and their families to embrace a proactive culture of risk identification and management to achieve zero preventable mishaps.

Have a question? Email us at: **Cpen_safety_help@usmc.mil**

Commanding General's Safety Hotline: 760.763.7233