

# PENTAGON EMERGENCY MANAGEMENT



## Summer Awareness & Preparedness 2014 Beat the Heat

**Summer is Here!** The Washington DC metropolitan area is no stranger to 90 degree plus temperatures, with heat indices in the 100s. In fact, this scenario is in our near-term forecast. High heat and humidity is an extremely dangerous combination; but, if you take the precautions outlined in this newsletter, you can beat the heat.



### Extreme Heat

A heat wave is an extended period of extreme heat, and is often accompanied by high humidity. These conditions can be dangerous and even life-threatening for people as well as pets. It is essential to take the proper precautions in order to reduce the risks of heat related injuries. According to the National Weather Service, in 2011, there were 206 heat-related fatalities well above the 9 year average of 119. Children are at a much higher risk for hyperthermia because their bodies warm at a faster rate than adults (under 65 years of age). One of the easiest ways to prevent heat related injuries is to stay hydrated.

### Hydrate, Hydrate, Hydrate

Drink plenty of water and natural juices, even if you don't feel thirsty. According to the National Weather Service, "Even under moderately strenuous outdoor activity, the rate your body can absorb fluids is less than the rate it loses water due to perspiration." The chart to the right, Work/Rest and Water Consumption Table, is used by the United States Army to help safeguard soldiers.

### Work/Rest and Water Consumption Table

*Applies to average sized, heat-acclimated soldier wearing BDU, hot weather. (See TB MED 507 for further guidance.)*

		Easy Work		Moderate Work		Hard Work	
Heat Category	WBGT Index, F°	Work/Rest (min)	Water Intake (qt/hr)	Work/Rest (min)	Water Intake (qt/hr)	Work/Rest (min)	Water Intake (qt/hr)
1	78° - 81.9°	NL	½	NL	¾	40/20 min	¾
2 (GREEN)	82° - 84.9°	NL	¾	50/10 min	¾	30/30 min	1
3 (YELLOW)	85° - 87.9°	NL	¾	40/20 min	¾	30/30 min	1
4 (RED)	88° - 89.9°	NL	¾	30/30 min	¾	20/40 min	1
5 (BLACK)	> 90°	50/10 min	1	20/40 min	1	10/50 min	1

- The work/rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hrs of work in the specified heat category. Fluid needs can vary based on individual differences (± ¼ qt/hr) and exposure to full sun or full shade (± ¼ qt/hr).
- NL = no limit to work time per hr.
- Rest = minimal physical activity (sitting or standing) accomplished in shade if possible.
- CAUTION: Hourly fluid intake should not exceed 1½ qts. Daily fluid intake should not exceed 12 qts.**
- If wearing body armor, add 5°F to WBGT index in humid climates.
- If doing Easy Work and wearing NBC (MOPP 4) clothing, add 10°F to WBGT index.
- If doing Moderate or Hard Work and wearing NBC (MOPP 4) clothing, add 20°F to WBGT index.

For additional copies, contact: U.S. Army Center for Health Promotion and Preventive Medicine Health Information Operations Division at (800) 222-9698 or CHPPM - Health Information Operations@acc.army.mil. For electronic versions, see <https://chppm-www.apgea.army.mil/heat>. Local reproduction is authorized. June 2004



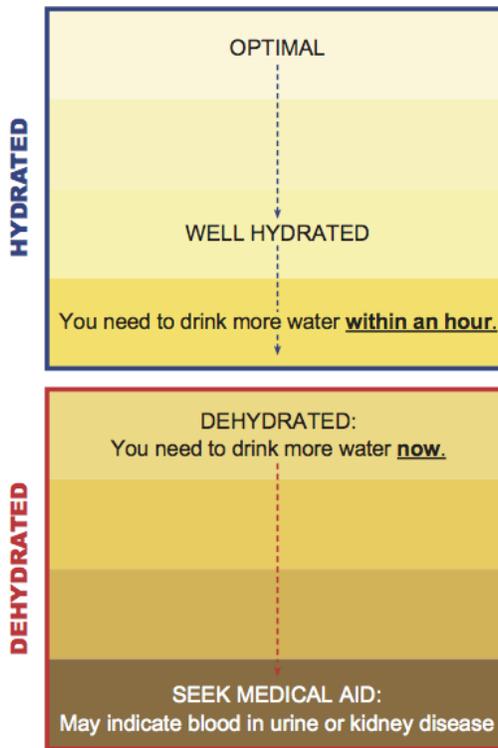
This chart applies to the average sized, heat-acclimated soldier wearing a Battle Dress Uniform. High heat and humidity is hard on the body no matter who you are but it's harder on those with heart disease, high blood pressure, diabetes, as well as children and the elderly.

In order to determine whether your body is hydrated, I've included a urine color chart. As you can see, the lighter the urine, the more hydrated your body. Used in conjunction with the water consumption chart, you can protect yourself and your family against hyperthermia.

Hyperthermia occurs when the body absorbs more heat than it can dissipate. The body cools itself by sweating and allowing that sweat to evaporate. This requires enough fluid in the body to make sweat, air circulating across the skin, and low air humidity to allow that sweat to evaporate. In order to lessen your chances of heat exhaustion or a heat stroke, you should:

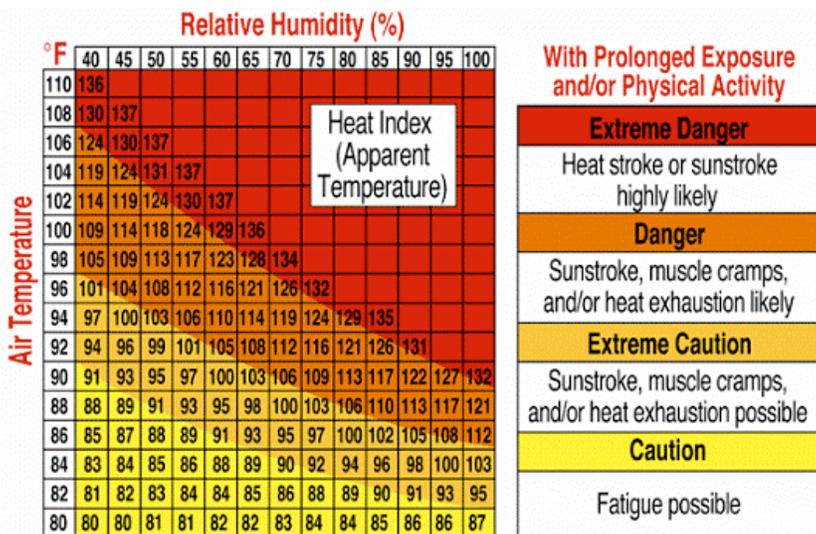
- Reduce or reschedule strenuous activities to the coolest time of the day.
- Wear lightweight light-colored clothing to help reflect the heat and sunlight.
- Eat less foods like proteins because increased metabolic heat production also increases water loss.
- Drink plenty of fluids (non-alcoholic) even if you don't feel thirsty. For those who have medical conditions requiring fluid restrictions, you should consult your physician before increasing fluid consumption.
- Do not leave children or pets in an unattended car: **Not even for a "Minute"**.

Urine Color Chart



**Terminology**

- Heat Wave: Period of extreme heat, usually accompanied by high humidity.
- Heat Index: The relative humidity added to the air temperature (how hot it feels).
- Heat Cramps: Muscle pains due to exertion (the first sign of heat-related problems).
- Heat Exhaustion: A mild form of shock brought on by strenuous activity in the heat.
- Heat Stroke: A life-threatening



condition occurring when the body's temperature control system shuts down. Brain damage or death can result if the body is not cooled at once.

## **Signs & Symptoms of Heat Related Illnesses**

### Heat Exhaustion

- Profuse sweating
- Weakness
- Nausea
- Vomiting
- Headache
- Lightheadedness
- Muscle cramps

Heat Stroke - Heat exhaustion can progress to a heat stroke when the body's temperature regulation fails. The following symptoms can occur but the line between heat exhaustion and heat stroke are not always cut and dry.

- Confusion
- Lethargic
- Skin stops sweating
- Seizure
- Racing heart
- Rapid breathing
- Body temperature may exceed 104 F: this is a life-threatening condition and emergency medical attention is needed immediately

### **Risk Factors**

- Your ability to cope with extreme heat depends on the strength of your central nervous system. The central nervous system in the very young is not fully developed and in adults over 65, it begins to deteriorate making their bodies less able to cope with body temperature.
- Sudden exposure to hot weather. If you're not used to high temperatures or high humidity, you may be more susceptible to heat related illness. You should limit your physical activity for several days until your body acclimates.
- Certain medications can place you at greater risk to heat related illnesses. Be especially careful if you take the following medications:
  - Vasoconstrictors (narrows blood vessels) – decongestants with pseudoephedrine, cough and cold combinations, and caffeine
  - Beta Blockers (blocks adrenaline) – used to treat angina and other heart rhythm disorders, migraines, high blood pressure, panic attacks, and tremors

- Diuretics (rids body of sodium and water) – used to treat high blood pressure. Tomatoes and watermelon are natural diuretics
- Antidepressants & Antipsychotics – Reduces psychiatric symptoms
- Stimulants
- Certain health conditions – Illnesses such as heart and lung disease as well as individuals who are overweight or lack physical fitness are at increased risk to heat-related problems

## **Treatment & When to Call 911**

### Heat Exhaustion

- Seek a cool area (shade or air conditioning)
- Drink water or fluids containing electrolytes (i.e. Gatorade or other sports drinks)

### Heat Stroke

- Call 911 or seek medical attention immediately if you suspect a person is experiencing a heat stroke
- Seek a cool area (shade or air conditioning)
- Remove excess clothes
- Place ice packs or cold, wet towels on the person's head, neck, armpits and groin
- Mist the person with water while a fan is blowing on them

It's imperative to know the signs and symptoms of heat related illnesses in yourself and others. Rapid assessment and response can save a life!

### Useful Links

- Weather Watches and Warnings:

<http://www.weather.gov/>

Heat Index Calculation:

<http://www.hpc.ncep.noaa.gov/html/heatindex.shtml>

- Preparedness:

[http://www.bt.cdc.gov/disasters/extremeheat/heat\\_guide.asp](http://www.bt.cdc.gov/disasters/extremeheat/heat_guide.asp)

<http://www.ready.gov/heat>

- Heat Exposure (medical):

<http://www.mayoclinic.com/health/heat-stroke/DS01025/METHOD=print&DSECTION=all>

Point of Contact:

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