

# NAVAL SAFETY COMMAND SAFETY AWARENESS DISPATCH



### Heat-Related Injuries

BLUF: Our dedicated professional warfighters had more heat-related injury mishaps in FY24 compared to the previous three years. As seasons change and temperatures rise, we have to pay more attention to the risk of heat-related injuries. The factors we see most in the injury reports include insufficient hydration, poor nutrition and inadequate (*or absent*) cooldown breaks. Please review these examples of what NOT to do and learn from others' past mistakes so you stay in the game.

• <u>You Knew It Was Hot Outside, Right</u>? A Sailor was in full firefighting equipment as part of the fire team for general quarters training. During the drill, he gave a signal that he was 'out of it,' as the report put it. He was instructed to take his mask off and drink water. While sitting on a fixture drinking water he passed out and fell to the deck with the Self-Contained Breathing Apparatus (SCBA) gear still donned. The Sailor hadn't had any food that day and was dehydrated. Of course, the 106-degree heat index didn't help his situation. — *Operating in extreme environments like this doesn't allow much room for error* 



when it comes to proper nutrition and hydration. With an IV and some rest, this Sailor recovered. If it had been a real fire, he would've been a serious detriment to his team—not a help. Hydrate early and often (and maybe eat something) to stay ahead of the heat stress curve. Drinking water isn't an instant fix; being prepared is a much more effective strategy. Supervisors, evaluate the ambient temperature for heat stress conditions and monitor your teams for early signs of dehydration.

• <u>Hydrate Right, Stay in the Fight</u>. During a spell of unusually hot weather, a Sailor was engaged in an open-area construction project. Around mid-day, he started feeling overheated and mentioned blurred vision—*ooh, that's not good*. A coworker guided him to the camp's medical facility, but he collapsed upon arrival and had a seizure—*and that's worse*! Despite receiving immediate aid, including two IVs, his condition didn't improve. He was transported to the hospital, where he was diagnosed and treated for heat exhaustion and shock. The report concluded this Sailor had not taken enough breaks in the shade to stay cool under the extreme heat conditions nor had he replenished his electrolytes to compensate for excessive sweating. —*We commend his initiative, but the job was ultimately left unfinished (at least by him) as he spent the next three days recovering. Supervisors, just like the first narrative, do some of that supervising and time-critical risk managing with the heat! To ensure you can keep working (and not be in the hospital), prepare to work in the heat, make real-time risk assessments along the way, and stop to rehydrate and regroup as needed. Some sports drinks<sup>1</sup> contain electrolytes, and when coupled with water consumption, may have helped in this scenario to replenish minerals lost due to heavy sweating.* 

• <u>If You Can't Handle the Heat, Seriously...Get Out of the Kitchen</u>! A Sailor was working in a galley where insufficient air circulation led to excessive heat buildup. Despite a functional ventilation system, the small space and closed door caused cooking heat to accumulate faster than the exhaust could manage, resulting in temperatures over 85 degrees. Upon leaving the galley, the Sailor felt dizzy, squatted in the passageway and collapsed when he attempted to stand up. He was taken to medical, received an IV drip and 48 hours SIQ. Two days before the incident, he had reported the overheating problem to his supervisor (*hmm*). On the day of the incident, Engineering was scheduled to troubleshoot the ventilation system. —*The problem was communicated and a plan to evaluate the issue was put in place*—both positive steps forward. For this Sailor, unfortunately, the actions weren't quick enough. The Sailor should have helped himself by intentionally hydrating to better cope with the galley heat. The Supervisor (do you see a trend here?) could have also been proactive, such as talking with the galley team about staying hydrated and temporary actions like opening the door and service window while cooking to improve airflow, as noted in the report. These steps might have better managed the heat and kept the lunch line moving efficiently. Refer to the OPNAVINST 5100.19 PHEL charts for more guidance on safe stay-times in a heated environment.

 $^1$ Sports drinks, **not** energy drinks. Most energy drinks have lots of caffeine, which dehydrates you and makes things worse.

## Heat-Related Injuries

• <u>A Three Mile Run Turns Critical</u>. A Marine in training suffered heat stroke during a 3-mile run. In the field, his body temperature was assessed just over 106 degrees. He was actively cooled on scene for 20 minutes, dropping his temperature by 4 degrees, stabilizing him for transport to the hospital where he spent the night. The report identified Body Composition Index and a poor previous home diet—specifically being overweight and out of shape—as the primary factors contributing to his over-temp condition. *—This example highlights the critical role a balanced nutritional strategy and a proper exercise plan play in achieving and maintaining a 'fight-ready' state. It also shows how quickly things can worsen in their absence, especially when environmental heat is a factor.* 

• <u>No Water, No Lunch, No Chance</u>. A Sailor was found unconscious on the deck in a machinery room at the end of a four-hour shift. He did not hydrate or eat lunch before beginning a shift in a space designated as a heat stress area. The Sailor misjudged the changing environment and suffered heat exhaustion due to improper hydration and nutrition. He was given IV fluids and one day SIQ —*Proper hydration and nutrition are critical when working in heat stress areas. If you don't prepare for the heat, seriously bad things can happen, such as heat exhaustion or unconsciousness (or even death). Know your environment and take care of yourself.* 

• <u>Overheated Runner Gets to Chill in the ER</u>. At around 0800, a Marine and his buddy embarked on a 12mile run. The Marine was training for a marathon, so a '12-miler' was not unusual. At the 8-mile mark, approximately 2 hours into it, he started to feel dizzy and lightheaded. They wisely decided to stop, seeking shade and water. However, the Marine quickly became severely ill, experiencing uncontrollable movements, vomiting and disorientation. Fortunately, being on a base, his buddy managed to flag down a corpsman who immediately initiated heat injury prevention tactics. With the Marine's core temperature alarmingly high, he was swiftly transported to the hospital where he was admitted for two days of treatment and observation, followed by four weeks of limited duty. Thankfully, he made a full recovery. —*Humidity and nutrition were primary factors leading to this mishap. The Marine had proper rest and a snack before the run, but when working out for several hours in high heat and humidity, it's going to take more preparation than that. Planned hydration and cool down stops combined with nutrition likely would have helped. Keep that in mind for your next long run.* 

#### Key Takeaways

**Feeling lucky**? Luck played an important role in the recovery of some of these incidents. The machinery room Sailor is lucky someone found him and the 12-miler Marine is lucky his buddy was able to flag down a corpsman, whose quick actions likely saved him. <u>Don't depend on luck</u> — plan for success whatever the task with proper hydration and nutrition, awareness of environment and by knowing the physical signs of impending trouble. The better we manage the risks, the *"luckier"* we get.

**1. Hydrate or die.** It's not just a saying. Prep for the heat by drinking plenty of water in advance and while you're at it (maybe some sports drinks too; but not energy drinks). Eat something too. Your body needs fuel in all that heat.

**2. Signs of impending trouble**. Heat cramps  $\rightarrow$  heat exhaustion  $\rightarrow$  heat stroke is the typical progression for heat-related injuries. Prevention is key, but if preventative measures weren't enough, <u>early recognition</u> of symptoms followed by <u>quick action</u> is vital to stop symptoms from getting worse. **Heat exhaustion symptoms include** — Cool, moist skin with goose bumps when in the heat, heavy sweating, faintness, dizziness, fatigue, weak rapid pulse, low blood pressure upon standing, muscle cramps, nausea, headache. **Heat stroke symptoms include** — Core body temp of 104°F or higher, confusion, agitation, slurred speech, irritability, seizures, skin feels dry and hot to the touch, nausea, vomiting, rapid shallow breathing, racing heart rate, throbbing headache.

**3. What to do.** If you or someone you're with has symptoms, stop all activity and rest, move to a cooler place, drink cool water or sports drinks and seek medical attention if symptoms get worse or don't improve within an hour. If heat victim becomes confused, distressed, loses consciousness or is unable to drink, seek immediate medical attention. More detail can be found at:

https://www.mayoclinic.org/diseases-conditions/heat-stroke/symptoms-causes/syc-20353581

### And remember, "Let's be careful out there."