

HOW TO DECREASE THE RISKS OF HEAT ILLNESS

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Although the summer seems to be coming to an end, the heat wave just keeps coming. Since last week was one of the warmest on record, it is a perfect time to present information about exertional heat illnesses. As a result, the purpose of this article is to present recommendations for preventing, recognizing, and treating heat illnesses. In addition, this article contains definitions of exertional heat illnesses and various risk factors associated with each type of condition.

Typically, there are 3 classifications of exertional heat illness: heat cramps, heat exhaustion, and heat stroke. There are a few other conditions worth mentioning here including heat syncope (dizziness while standing) and hyponatremia (water intoxication). The signs and symptoms for these heat illnesses are shown in Table 1 (For future reference, cut it out and place on your refrigerator). Keep in mind that exertional heat illnesses are more likely to occur in hot, humid weather but can also occur without heat and humidity.

Muscle cramps (heat cramps) usually occur during or after hard exercise. These cramps cause painful uncontrolled muscle contractions and significant pain. Some studies have suggested that heat cramps are caused by dehydration, electrolyte imbalances, fatigue, or other factors. Treatment should consist of stopping the activity, replace lost fluids, and begin mild stretching with massage. Fluid replacement can be enhanced with sports drinks. A reclined position can increase the blood flow to cramping leg muscles.

Heat syncope (dizziness while standing) can occur during exposure to very high temperatures, standing for long periods, or standing up too fast from a sitting position. Researchers have demonstrated that this can be caused by dehydration, decreased heart function, and pooling of blood in the legs. Individuals with heart disease and those taking diuretics (such as Lasix) are at a higher risk. Treatment should consist of moving the individual to a shaded area, monitor body temperature, elevate the legs above the level of the head, and begin fluid replacement.

Heat exhaustion is a serious condition characterized by heavy sweating, dehydration, sodium loss, and energy reduction. Generally, this condition occurs in hot and humid conditions. In advanced stages, heat exhaustion is difficult to distinguish from heat stroke without measuring rectal temperature (less than 104° F). For other signs and symptoms, see Table 1. Treatment should consist of moving the individual to a shaded area, cool with fans or ice bags, and begin fluid replacement

Heat stroke is characterized by elevated body temperature (greater than 104° F). This significant body temperature increase can cause organ failure and eventually death if proper treatment is not administered. The first sign of heat stroke is usually central nervous system changes caused by damage to the hypothalamus (the brains temperature control center). In other words, the body's thermometer breaks and the person can no longer control their body functions. This is the most severe type of heat related illness and it is a medical emergency. Failure to promptly recognize and treat this condition usually results in death. Treatment should consist of immediate activation of the Emergency Medical System (EMS) and immersing the individual into a pool of cool water. Research has demonstrated that aggressive cooling is the most critical factor in the treatment of heat stroke. In fact, out of 252 cases of heat stroke in the mili-

tary, cold-water immersion demonstrated a 0 percent fatality rate. Monitor the body temperature until it reaches approximately 101-102° F then remove the individual from the pool to avoid overcooling.

Hyponatremia (or water intoxication) is a fairly uncommon condition where the body's sodium levels are severely depleted. It is caused by excessive water consumption and inadequate sodium replacement. In activities lasting longer than 4 hours, the body loses a larger amount of sodium and it cannot be replaced with just water. Sports drinks should be used during any activity lasting longer than 1 hour to minimize sodium loss. Treatment should consist of immediate activation of EMS. You should seek advice from a physician before administering fluids.

Ben Franklin once said, "An ounce of prevention is worth a pound of cure." Over the years, I have learned that statement to hold true. The good news is that most exertional heat illnesses can be prevented. First, be aware of your environment. Take a look at the weekly weather forecast and plan ahead for outdoor activities. You should also sleep at least 6 to 8 hours at night in a cool place, eat a well-balanced diet, and stay well hydrated. Proper hydration involves consuming fluids such as water and sports drinks. Stay away from soft drinks and coffee because these can cause dehydration. You can check the color of your urine to see if your fluid intake is adequate. For example, clear or light colored urine indicate proper hydration while dark colored urine indicated dehydration. And finally, pay special attention to high risk populations such as infants, elderly individuals, and unhealthy sedentary adults. Hopefully, these tips will keep you healthy and hydrated this summer and many summers to come.

Reference: NATA Position Statement on Exertional Heat Illnesses at <http://www.nata.org/publicinformation/files/exertionalheatillness.pdf>.

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