Ask the Expert

What is a heat stroke and how do I prevent it?

Heat related illnesses have the highest prevalence during the months of July and August, but can occur anytime it is extremely hot outside. Heat cramps, exhaustion, and stroke reflect a spectrum of heat related illnesses that occur. Heat cramps, although not a problem that is closely related to heat, cause fluid and potassium deficits. Heat exhaustion is manifested by profuse sweating, weakness, nausea, vomiting, headache, light headedness, and muscle cramps. The process continues to heat stroke, where mental confusion sets in and the body temperature rises.

Heat stroke, the most serious of the disorders, is defined by two criteria: a high body temperature (104 degrees or higher) and neurological symptoms such as confusion or seizures. A heat stroke can occur when either the body is producing too much heat from exertion in hot weather or when individuals at risk have been subjected to very high temperatures for several days.

To determine who is at risk for heat stroke, we must review individually how the body adjusts to the heat that is produced internally under normal circumstances, and when it is exposed to heat from the environment. The body at rest produces heat primarily from the liver and the heart, as well as muscles during exercise. Under normal circumstances, the body eliminates the heat primarily through the skin, just as blood passes through the warmer internal organs and is carried to the body's surface, releasing heat into the environment. The body is cooled by evaporation of sweat from the skin's surface and also by exhaling through the respiratory system.

The human body can adapt physiologically to high temperatures when exposed to a hot environment for seven to ten days prior to physical activity in the hot weather. The same advice applies to anybody anticipating a new exercise program during the hotter months.

Medicines often impact the body's reaction to heat. Decongestants that contain pseudoephedrine work in a similar manner and should be avoided if possible on days when one expects intense physical activity.

People beginning an exercise program are more likely to sustain a musculoskeletal injury with the lower back or legs and could possibly begin taking anti-spasm medication such as Flexeril or Norflex. These medications significantly impair the sweating process putting the individual who may not have adapted to the heat at a higher risk of heat stroke.

Staying hydrated with fluids that contain sodium and potassium like Gatorade is essential prior to, during, and after exercise. One must not rely on the sensation of thirst to judge whether or not dehydration is coming on. In fact, some victims have developed the symptoms of heat stroke before sensing thirst.

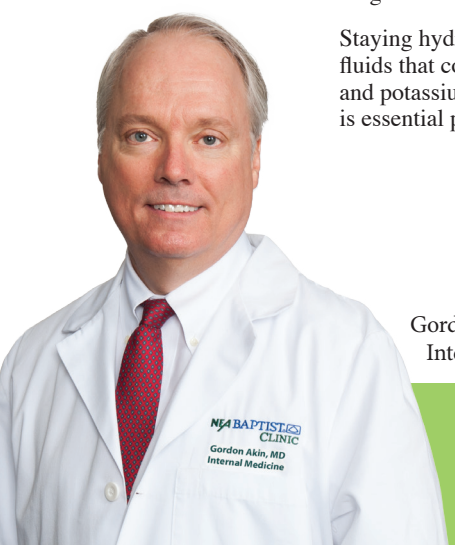
The type of heat stroke that occurs during heat waves tends to impact a different segment of our population, the frail and immobile, who are less able to move to cooler places or access water. Those with a history of congestive heart failure or chronic lung disease are particularly susceptible. Also, people in extremes of age, infants and elderly, are at an even higher risk during heat waves.

People with chronic medical problems are more likely to be taking medications that impair the body's ability to cool it properly. Certain medicines for depression, classified as tricyclics (amitriptyline, nortriptyline) impair the sweating process. Other medications with similar effects include those for intestinal disorders include dicyclomine (Bentyl), Librax, and Levsin. Diuretics that are commonly prescribed for congestive heart failure increase the likelihood of dehydration during hot weather and furthermore impair the body's self-cooling process. As a rule, medications that produce dry mouth or constipation can possibly impair the body's ability to dissipate heat.

Success in treating heat-related illness involves first suspecting the event in the appropriate circumstances, when an individual appears confused or overtly fatigues in hot weather. The skin may not be wet from sweating, because in some cases the body's regulatory system is overwhelmed and sweating ceases. Also, the pulse rate and respiratory rate will likely be high.

Cooling and rehydrating are the cornerstones of treatment. The individual should be moved out of the sunlight, as much clothing as possible should be removed, and the cooling process should be quickly initiated. This task is straightforward: spraying water, rubbing on ice water, and fanning. If the victim is awake and not vomiting, he/she should be given water or a non-alcoholic beverage. Again the individual may not be thirsty, so the caretaker must persist in getting him to drink fluids. In most cases, an ambulance should be summoned to start intravenous fluids at the scene before transporting to the emergency room where further resuscitative efforts can be undertaken.

To prevent heat stroke, discipline and vigilance are key. Allow time to adapt to the heat by gradually increasing outdoor activities, maintain hydration, and avoid risky medications. Also, be wary of the frail and chronically ill and be a steward for your neighborhood and community.



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