



## Heat Induced Illness

While many of us look forward to the warmth of the summer season and the Scout associated outings and camps it is important to recognize that the season also brings with it an increased risk of heat related illnesses. Our bodies are very susceptible to increases in temperatures. In fact, some heat illnesses are considered to be life threatening.

### Human Body and Heat

A change of just a few degrees from the optimal temperature of 98.6°Farenheit (F) can have significant impacts on a body’s ability to function. A body temperature that approaches 109°F will experience heatstroke – a condition that leads to death. At prolonged exposures to 110°F the skin on our bodies begins to breakdown at the cellular level.

The body heats up mainly due to two factors: 1) Temperatures of the outside/skin-level environment and 2) As a result of working muscles. The higher the temperature outside and the greater amount of work that the body is doing, the greater the likelihood of a core temperature increase and heat-related illness.

Primary among the internal mechanisms the body utilizes to regulate core temperatures is sweat production and evaporation. Outside humidity can greatly reduce the rate at which sweat can evaporate from the surface of the skin and therefore reduce the body’s capacity to cool down.

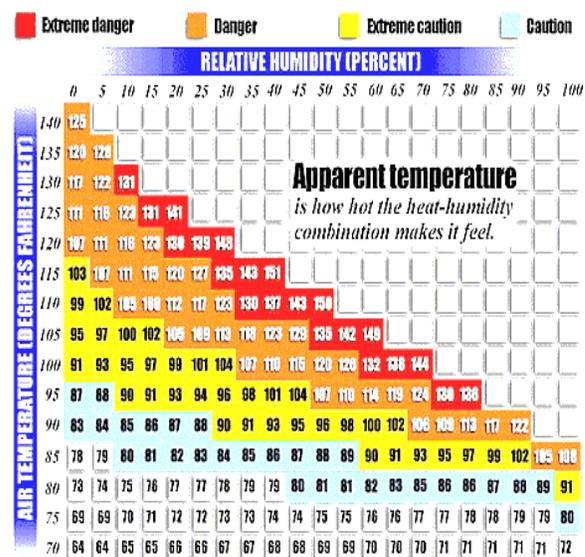
Research has shown that there are a number of personal factors that reduce our bodies’ abilities to regulate our body temperature. For example, our body’s internal temperature reducing mechanisms do not function as well for those over the age of 65.

Many of the boys and leaders that will participate in summer activities have spent the majority of their time in air conditioned buildings and will not be acclimated to the heat of a summer camp. Research has shown that it takes most of us 3-6 weeks to acclimate to a big temperature change in our environment so extra care should be taken where the risk is high for heat-related illnesses.

## Heat Induced Illness Prevention

The most important thing we can do to minimize the risk of heat-related illnesses is to have a plan in place to prevent excessive exposures to heat and excessive generation of heat from heavy duty work.

The following data taken from the National Oceanic and Atmospheric Administration shows the temperatures and humidity at which preventative controls should begin to be implemented (marked in light blue).



The dangers of the temperature shown in this chart would increase proportionally to the physical work that one is performing.

Prevention efforts to minimize the onset of heat induced illness should include the following:

- **Water** – Research has shown that hydration is one of the best things that can be done to reduce risk of heat illness as it replaces the body’s fluids lost through sweating.



Generously replenishing our fluids also lowers the body’s temperatures and reduces the

amount of stress placed on the heart when we are working. Since the body does not sense thirst at the rate that it needs to replace body fluids, Scouts and leaders should be provided with many opportunities and encouragement to regularly hydrate as outside temperatures increase.

- **Rest** – Regular breaks should be scheduled to allow the body to cool down from the work, play or hikes that are common to Scouting activities. Rest schedules should meet the need. As the temperature and work load increases, the rest schedule should also increase in time and frequency. Studies have shown that when not taken, a body temperature can rise at nearly twice the rate when compared to those that take regular and appropriate rests.
- **Shade** – Since the sun's solar energy can greatly increase the body's temperature, it is important that the rest periods be in the shade. Shade should be sought out also in the form of hats, and light colored clothing that covers the skin.

### Heat Induced Illnesses & Symptoms

Heat induced illnesses and symptoms are presented here in increasing danger to health:

- **Heat Cramps** – Heat cramps can cause pain in a number of muscles (e.g. legs, back, stomach) and generally occur to those that have been working in elevated temperature environments. These cramps have been attributed to a lack of electrolytes within the body.
- **Heat Exhaustion** – Heat exhaustion symptoms may include mental confusion, lethargy/fatigue, irritability, heavy sweating, headache and dizziness. These symptoms become progressively worse, may include vomiting and if not treated will lead to heat stroke.
- **Heat Stroke** – Heat stroke is characterized by skin that is red and dry as well as small pupils, a rapid weak pulse, seizures and unconsciousness.

### Heat Induced Illness Treatment

All heat related illnesses can be treated in the same way that they are prevented: by providing fluids, rest and a shaded/cool area to those that are experiencing symptoms.

In the case of the heat exhaustion the individual should be promptly removed from the heat to a cool area and efforts should be made to quickly decrease the body temperature of the individual. These efforts could include removing the individual's clothes, pouring water over the person or placing them in front of a fan to increase cooling.

If a person shows any symptoms of heat stroke, emergency medical services should be immediately contacted (911) in addition to taking the above measures.

### Make it happen

It is important to recognize the severe consequences of not addressing heat induced illnesses. It is equally important to recognize that relatively small efforts can greatly reduce the risks and worries presented by the hotter weather. These are not just measures that should be used in the Scouting environment but will also prevent adverse incidents and make that family vacation time even sweeter this summer (unless of course you are vacationing in the Antarctic – in which case you should bundle up).

For more information on heat risks and other risks to know go to <http://www.scouting.org/scoutsource/healthandsafety/resources.aspx>.