

Dehydration

or

HOW TO HAVE A HOT TIME WITHOUT BOILING OVER!

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NAR 15058 SR L1

CPT, US Army Field Artillery, Retired

M109 Howitzer and Pershing Missile System

OVERVIEW

Caffeine (coffee, tea, soda/pop, chocolate) and alcohol are diuretics. They dehydrate the body and decrease the amount of sweat the body produces. That is, you visit the Port-A-Potty more often and have less water in your body to make sweat. The best fluids to prevent heat injury are those that leave the stomach quickly, contain little sodium and less than 8% sugar. The fluid that best fits this description is water. Soda and juice drinks with more than 8% sugar aren't absorbed by the body as easily as plain ol' water.

Commercial sport drinks usually have between 5% and 8% sugar. They are good supplements to the water you drink. However, sport drinks should only be about 25% of your total fluid intake. Check out the sources below for more details. Here's a synopsis based on my research, training, and experience as a soldier, safety professional, and certified Combat Lifesaver.

GETTING HOT

Your body gains heat from external and internal sources. In direct sunlight your body temperature can increase as your body absorbs the sun's radiation. Muscle movement generates internal heat. The harder you work, the hotter you get.

STAYING COOL

Your body cools itself by radiation and evaporation. At temperatures of 70 degrees Fahrenheit and below, your body is cooling itself primarily by radiation. The closer the air temperature is to normal body temperature, the more your body uses evaporative cooling -- sweat.

Your stomach can absorb water most easily when the water is cool; say about 50 degrees Fahrenheit. Even at its most efficient, your body can only absorb about 1.5 quarts per hour. On a hot day, with strenuous activity, you can sweat 2 quarts an hour. If you wait to drink until you are thirsty, you are dehydrated already. For best results, drink about 8 ounces of water every 15 to 20 minutes. Because there is a limit to how fast your stomach can absorb water, you can't play 'catch up' by drinking a lot after you get thirsty. You can increase your hydration level by drinking more water and avoiding coffee, soda, and alcohol before exposing yourself to heat.

Yes, it is possible to drink too much water (water intoxication), but it is not easy. More than 1.5 to 2 quarts an hour, for an extended period, could be harmful. The Army counters this by reducing work load and increasing rest breaks during periods of high temperature and humidity. Staying in the shade can also help to reduce your fluid requirement.

Humidity is another issue. At about 70% humidity, your body's natural evaporative cooling becomes ineffective. So, even though the temperature may not be blisteringly hot, the combination of heat, humidity, and searching for a lost rocket could be hazardous.

SPECIAL PRECAUTIONS

Children are more susceptible to heat injury than adults. Adults must make sure that children are drinking water even when they don't think they are thirsty. Avoid caffeinated soda because the caffeine will cause them to lose fluid and the sugar will reduce the absorption of fluid. If juice or sports drink is all they'll drink, it's better than soda or nothing. Remember, you're the adult. It's your responsibility to safeguard the children in your care.

Dress for the occasion. Cover as much skin as possible with light colored clothing. Wear a hat with a brim. This will reduce the dehydrating effects of the sun's radiation.

Sources:

- * Department of Horticulture, Iowa State University, Ames, Iowa
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