Surviving the Hot Weather

Heat illness includes a range of disorders that result when your body is exposed to more heat than it can handle. The human body is constantly engaged in a life-and-death struggle to disperse the heat that it produces. If allowed to accumulate, the heat would quickly increase your body temperature beyond its comfortable 98.6° F.

Who is at risk?

Heat-related illness can affect anyone not used to hot weather, especially when it's combined with high humidity.

Those especially at risk:

- Infants, young children, elderly and pets
- Individuals with heart or circulatory problems or other long-term illness
- Employees working in the heat
- Athletes and people who like to exercise (especially beginners)
- Individuals taking certain medications that alter sweat production
- Alcoholics and drug abusers

Heatstroke

Heatstroke is the most serious and life-threatening heat-related illness. In certain circumstances, your body can build up too much heat, your temperature may rise to life-threatening levels, and you can become delirious or lose consciousness. If you do not rid your body of excess heat fast enough, it "cooks" the brain and other vital organs. It is often fatal, and those who do survive may have permanent damage to their vital organs.

Symptoms of heatstroke

- The victim's body feels extremely hot when touched.
- Altered mental status (behavior) ranging from slight confusion and disorientation to coma.
- Conscious victims usually become irrational, agitated, or even aggressive and may have seizures.
- In severe heatstroke, the victim can go into a coma in less than one hour. The longer the coma lasts, the lower the chance for survival.

What to do

1. Move person to a half-sitting position in the shade.
2. Call for emergency medical help immediately.
3. If humidity is below 75%, spray victim with water and vigorously fan. If humidity above 75%, apply ice packs on neck, armpits or groin.

Heat Exhaustion

Heat exhaustion is characterized by heavy perspiration with normal or slightly above normal body temperatures. It is caused by water or salt depletion or both (severe dehydration). Heat exhaustion affects workers and athletes who do not drink enough fluids while working or exercising in hot environments.

Symptoms of heat exhaustion include:

Severe thirst, fatigue, headache, nausea, vomiting and sometimes diarrhea.

The affected person often mistakenly believes he or she has the flu.

Uncontrolled heat exhaustion can evolve into heatstroke.

Other symptoms

Profuse sweating

Clammy or pale skin

Dizziness

Rapid pulse

Normal or slightly above normal body temperature

What to do

1. Sit or lie down in the shade.
2. Drink cool, lightly salted water or sports drink.
3. If persistent, gently apply wet towels and call for emergency medical help.

Heat Cramps

Heat cramps are painful muscular spasms that happen suddenly affecting legs or abdominal muscles. They usually happen after physical activity in people who sweat a lot or have not had enough fluids. Victims may be drinking water without adequate salt content.

What to do

1. Sit or lie down in the shade.
2. Drink cool, lightly salted water or sports drink.
3. Stretch affected muscles.

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Heat Illness Prevention Tips

The topic of heat illness has received a great deal of attention following the tragic experiences of athletes in hot climates. Heat illness can happen to anyone in a hot environment and is an issue that athletes especially need to be aware of **– and know how to prevent.**

Athletes increase their risk of heat illness as they become dehydrated. According to the National Athletic Trainers' Association, it is not uncommon to reach dehydration levels significant enough to place athletes at risk of developing exertional heat illness in as little as an hour of exercise. Athletes can reach this level even more rapidly if they begin the workout, practice or competition dehydrated. Many of the risk factors for heat illness can be eliminated to help prevent heat injury to the athlete.

10 Tips to "Beat the Heat"

Recognize the early warning signs of dehydration.
These can include: dark yellow urine, loss of energy, dizziness, loss of coordination, cramps, headaches, or unusual fatigue. If left untreated, more extreme symptoms can occur.

Allow for acclimation.
Acclimation is the body's adaptation to a hot environment. Slowly increase practice intensity and duration over the first two weeks of training. Most cases of heat illness occur in the first 2 to 3 days of training.

Drink up.
Once acclimated, fluid intake needs to be greater because sweat losses will be higher.

Have fluids within arm's reach.
Fluids should be easily accessible during workouts, practices and games.

Don't rely on thirst.
Drink during exercise to minimize losses in body weight but don't over drink.

Favor sports drinks over water.
Research demonstrates that the carbohydrate in sports drinks fuels muscle[2,3,4,5] and sodium encourages voluntary drinking and promotes hydration.[1,6,7]

Drink it. Don't pour it.
Pouring fluid over your head may feel great but won't help restore body fluids or lower body temperature.

Exercise in the morning or evening.
This is when the weather is coolest. Also, avoid the direct sun to minimize radiant heat from the sun and hot playing surfaces.

Dress for the weather.
Keeping cool in hot weather means wearing fewer clothes and frequently removing gear like helmets during breaks.

Break it up.
Increase the frequency and duration of rest breaks to help you stay hydrated and cool.

If You Feel Like This	Do This
Dehydration	
Loss of Energy & Performance	Drinking sports drinks with small amounts of carbohydrate speeds absorption, prevents fatigue and provides energy. Avoid beverages containing caffeine or carbonation.
Muscle Cramps	Stop activity, gently stretch and massage cramped muscles. Consuming a sports drink that contains sodium (at least 110mg/8oz) may reduce the risk of muscle cramps.
Heat Exhaustion	
Dizziness, Light-headedness, Chills or Loss of Coordination	Replace fluids. Rehydration is critical. Rest in a cool, shaded area until all symptoms pass. If dizziness continues, lie with the legs elevated to promote circulation to the head, then seek medical attention.
Nausea/Headaches	Rest in a cool place until nausea passes. Rehydration is critical; drink slowly as nausea passes. Lying down is often helpful in relieving headaches. Do not resume practice if any symptoms continue.
Heat Stroke	
High Body Temperature	Immediately cool the athlete by immersion in a tub of ice water and seek immediate medical treatment.
Confusion or Unconsciousness	Confusion or unconsciousness can be indicators of heat stroke. **Heat stroke is a medical emergency that calls for immediate medical assistance.**

The above symptoms of dehydration, heat exhaustion and heat stroke are not additive, which means an athlete could experience heat stroke in the absence of other indicators. These are a few symptoms, some athletes may experience others. **Seek immediate medical assistance at the first signs of serious or unusual symptoms.**

1. Casa, DJ. et al. J. Athl Train 35:212-224, 2000. 2. Below PR et al. Med. Sci. Sports Exerc. 27: 200-210, 1995. 3. Murray R et al. Med. Sci. Sports Exerc. 27: 1057-1062, 1995. 4. Fritzsche, R.G. et al. J. Appl. Physiol. 88: 730-737, 2000. 5. Davis, J.M. et al Int. J. Sport Nutr. Exerc: Metab. 10: 476-485, 2000. 6. Passe, D.H. et al. Appetite 35: 219-229, 2000. 7. Wilk, B. and O. Bar-Or. J. Appl. Physiol. 80:1112-1117, 1996.

Tips for Preventing Heat-Related Illness

The best defense is prevention. Here are some prevention tips:

- Drink more fluids (nonalcoholic), regardless of your activity level. Don't wait until you're thirsty to drink. Warning: If your doctor generally limits the amount of fluid you drink or has you on water pills, ask him how much you should drink while the weather is hot.
- Don't drink liquids that contain caffeine, alcohol, or large amounts of sugar–these actually cause you to lose more body fluid. Also, avoid very cold drinks, because they can cause stomach cramps.
- Stay indoors and, if at all possible, stay in an air-conditioned place. If your home does not have air conditioning, go to the shopping mall or public library–even a few hours spent in air conditioning can help your body stay cooler when you go back into the heat. Call your local health department to see if there are any heat-relief shelters in your area.
- Electric fans may provide comfort, but when the temperature is in the high 90s, fans will not prevent heat-related illness. Taking a cool shower or bath, or moving to an air-conditioned place is a much better way to cool off.
- Wear lightweight, light-colored, loose-fitting clothing.
- NEVER leave anyone in a closed, parked vehicle.
- Although any one at any time can suffer from heat-related illness, some people are at greater risk than others. Check regularly on:
    - Infants and young children
    - People aged 65 or older
    - People who have a mental illness
    - Those who are physically ill, especially with heart disease or high blood pressure
- Visit adults at risk at least twice a day and closely watch them for signs of heat exhaustion or heat stroke. Infants and young children, of course, need much more frequent watching.

If you must be out in the heat:

- Limit your outdoor activity to morning and evening hours.
- Cut down on exercise. If you must exercise, drink two to four glasses of cool, nonalcoholic fluids each hour. A sports beverage can replace the salt and minerals you lose in sweat. Warning: If you are on a low-salt diet, talk with your doctor before drinking a sports beverage. Remember the warning in the first "tip" (above), too.
- Try to rest often in shady areas.
- Protect yourself from the sun by wearing a wide-brimmed hat (also keeps you cooler) and sunglasses and by putting on sunscreen of SPF 15 or higher (the most effective products say "broad spectrum" or "UVA/UVB protection" on their labels).

This information provided by NCEH's Health Studies Branch (www.cdc.gov/nceh/hsb).

For more information, visit www.bt.cdc.gov/disasters/extremeheat, or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (español), or (866) 874-2646 (TTY).

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