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Handling the Heat

When a great big professional football player collapses in the heat, the headlines are ubiquitous. What gets much less publicity, however, is the fact that several young athletes die each year from heat-related illness.

Why are kids at risk?

Kids are more at risk for heat exhaustion and heat stroke than adults for several reasons.

Kids:

- Have relatively more surface area per pound than adults, making them more likely to become chilled in the winter and overheated in the summer.
- Are dependent upon their parents to move them out of the heat and into a cool place
- Have fewer sweat glands per inch of skin surface, and therefore are less well equipped to lose heat by evaporation
- Generate more heat per pound of body weight than adults during physical activity
- Take longer to acclimatize to a warm environment than an adult

Types of heat-related illness

Heat illnesses can be mild or severe, and are divided into three types:

- Heat cramps are painful muscle spasms of the legs, shoulders and belly which result from water loss by sweating during physical activity in a hot environment. They usually last only seconds, but can occur in bouts of several spasms over a short period of time, most often several minutes after the activity is finished. The painful cramped area often feels like a hard knot in the muscle. Heat cramps are treated by moving the child into a cool place and providing plenty of cold water, along with salty foods. How about salt tablets? Pretzels are much better. Salt tablets often cause cramping and even vomiting, which may contribute to dehydration. Pretzels and crackers are the perfect accompaniments to that water bottle.

- Heat exhaustion is next up the ladder of severity, and results from significant water and salt loss from prolonged play or exercise in a hot environment. Symptoms of heat exhaustion are easy to miss; they're the same nonspecific complaints that parents see in a child with a viral infection, including:

- Low grade fever
- Headache
- Nausea and vomiting
- Dizziness, weakness, mild confusion.
- Eventually, fainting may occur.

Heat exhaustion is treated in the same way as heat cramps: fluids, salty foods, and finding a cool, shady spot to rest. If the fluid and salt loss is severe, a trip to the hospital is in order for intravenous fluid replacement. A child with heat exhaustion should be kept out of sports for at least 48 hours, and given lots of fluids during this recuperation period.

- Heat stroke is at the top of the scale. Heat exhaustion is a warning sign; if it's nonspecific symptoms are missed, it can progress to heat stroke, a breakdown in the body's temperature-regulating mechanism. Heat stroke can be classic or exertional. Classic heat stroke is seen most often when a child is active on a very hot day, has inadequate fluid replacement, and has a febrile illness or an underlying medical problem. Kids with classic heat stroke typically have three symptoms:

- High fever (105 or more)
- Hot, dry skin: the body has lost its ability to lose heat by sweating
- Coma

Older kids, teens and adults who get heat stroke usually do so at the beginning of training season, before their bodies have become acclimated to the environment. This is called exertional heat stroke. The symptoms are the same, but skin usually is wet, rather than dry.

Heat stroke is a life-threatening emergency, and must be treated immediately in an emergency department, with intravenous fluid replacement and rapid cooling.

Preventing heat-related illness

Prevention of heat-related illnesses is the best form of treatment. To reduce your little athlete's risk of becoming sick on that hot soccer field:

- Limit the duration of exercise on very hot, humid days. High humidity days are particularly dangerous, since a muggy day makes sweating less effective, and without sweating, it's hard for kids to properly lose heat.
- Fluids are a young athlete's best friend. How much? A child should drink 16 ounces of water two hours before the sport, 8 ounces 1/2 hour before, and 8 ounces for every 30 minutes of exercise. Teens should multiply all of these numbers by 1 1/2 (24 ounces two hours before, 12 ounces 1/2 hour before and 12 ounces every half hour). Which fluids? Water is best, unless the activity is especially vigorous and lasts over an hour, in which case an electrolyte solution (Pedialyte, etc.) or a sports drink (Gatorade, etc.) is appropriate.
- Clothing should be thin, lightweight and changed when it becomes very damp (to allow for heat loss by sweating -- you need dry clothes to sweat effectively)

While we're on the subject of heat-related illnesses, two more topics should be touched upon.

- Never leave a child (or a pet, for that matter) alone in a closed hot car, even for "just a minute." On a hot summer day, the temperature inside a closed car can go from 80 to 140 in a matter of minutes!
- Keep your child out of hot tubs, saunas and steam baths. For the reasons mentioned earlier, kids are more prone to overheating than adults.



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