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# News

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\*\*\*\*\*Athletes need to be slowly conditioned to outdoor practice in the hottest summer on record.

DALLAS--With football, soccer and band practice beginning, many middle and high school students will soon move from air conditioned homes, stores and offices outdoors into the hottest summer ever.

A Dallas environmental heat authority stresses the need for acclimatization so that these kids can work comfortably and safely in the summer heat.

Dr. James Knochel, professor of internal medicine at The University of Texas Health Science Center at Dallas, says that since the students have been living here, they are partially acclimatized, even if they have stayed indoors most of the time. But they are not necessarily acclimatized to working outside.

Coaches and band directors should make sure the kids "guzzle water till they can't drink anymore, and that's still not enough," says Knochel.

In other advice to adult supervisors, Knochel says:

- 1) Avoid serious overheating. Avoid exposure to the noonday sun. Hold practice very early in the day.
- 2) Keep the kids well-watered and carefully salted. They can get enough extra salt just by shaking more salt on their food. Salt tablets overload the stomach and cause nausea. Most people don't drink enough water to dissolve the salt tablets.
- 3) Gradually increase the tempo of the exercise from day to day, starting very slowly. "At the end of two weeks they will be fully acclimatized, but that doesn't guarantee there'll be no trouble," says Knochel. When there is the combination of high heat and high humidity, you just can't cool yourself.

He recommends that every school get a "Sling Psychrometer" for their coaches. This is a "gadget" that has two thermometers; one for measuring wet bulb and the other for dry bulb temperatures. One thermometer has a "cotton sock" around the bulb. You wet the sock and take a temperature reading.

When the water evaporates, it cools the thermometer. The more water the atmosphere will absorb, the lower the wet bulb temperature. So the wet bulb temperature is a measure of the relative humidity and indicates how hot people in that environment will feel.

This gadget costs about \$20, and every school should have one. "Eddie Lane and his staff measure the wet bulb temperature at Cobb Stadium, but that's only good for Cobb Stadium. It's not good for Garland or South Oak Cliff. If you've watered the football field all night and then the sun hits it, the relative humidity there may be 100 percent while the weather bureau reports 25 percent. You need to measure it where you're working out," says Knochel.

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Marathon runners like the wet bulb temperature to be below 60°. If the wet bulb temperature is greater than 75°, "extreme caution should prevail for those in heavy contact sports wearing heavy equipment." If it is greater than 82°, baseball or a slow moving activity is all right, but above 85° on the wet bulb thermometer, there should be no activity.

Acclimatization to the heat involves the expansion of the body fluid volumes and conservation of salt.

"As you work in the heat, you heat up your body, sweat a lot and lose a lot of fluid. This stimulates production of several hormones. As you become acclimatized, your blood volume and the volume of all your body water expands. The sweat glands and kidneys conserve salt more avidly than before," says the heat researcher.

If you are not acclimatized, the fluid loss by sweating and shunting of blood to the skin lowers blood volume. If this becomes severe, blood flow to the brain may fall and you pass out.

Early symptoms of heat exhaustion are headache and nausea. These are followed by cramps, fatigue, malaise (a vague feeling of discomfort) and mild confusion. Heat exhaustion can lead to heatstroke.

People in heatstroke are in a coma; that is, they are unresponsive to any external stimulation. Sweating usually ceases, so their skin is dry, flushed and extremely hot to touch. Body temperature is usually more than 106 degrees. "If their temperature reaches 108 degrees, the heat alters proteins, similar to the change of egg white in hot water. What happens is every tissue and organ--including the brain--gets cooked. At that temperature you may sustain permanent brain damage."

Untreated, heatstroke is always fatal.

First aid for heatstroke is to lower the body temperature as quickly as possible. "Your first inclination might be to call an ambulance. But the victim could die before the ambulance gets there."

Get the victim out of the sun, remove his clothes and douse him with water. Use a piece of his clothing or whatever is available to fan him. The goal is to imitate the sweating mechanism. As sweat evaporates from the skin, it cools the body.

This technique could save the victim's life before the ambulance arrives.

Deaths occur too often in young athletes because of heat exposure and dehydration. "Not only should coaches and directors provide the kids with water, but they should make sure they drink it."

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NOTE: Copies of Dr. Knochel's "Seven Ways to Kill a Football Player" are available on request.

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