Sports Medicine

Hydration Nation

By Paul Steinbach
Source: Athletic Business June 2005

Every second, 142 bottles of Gatorade are sold in the United States. That fact – culled from *First in Thirst*: *How Gatorade Turned the Science of Sweat Into a Cultural Phenomenon*, a new book by ESPN sports business reporter Darren Rovell – may suggest that Americans are buying into the importance of hydration while exercising. However, research published over the past five years cautions against the danger of excessive hydration.

When the body sweats, it loses sodium. Overhydrating, particularly with pure water, can dilute the remaining sodium in the blood to dangerously low levels causing a condition known as exertional hyponatremia. Mild symptoms may include headache, dizziness, nausea, abnormal fatigue and swelling of the feet and hands. But severe cases can present themselves through swelling of the brain (cerebral edema) or lungs (pulmonary edema) and result in death.

A female runner competing in the 2002 Boston Marathon died after consuming excessive amounts of sport drinks. A study published in the April edition of *the New England Journal of Medicine* examined 488 runners in that year's race and found that 62 were overhydrated – three of them critically.

Hyponatremia-related fatalities are rare, according to Doug Casa, leading author of National Athletic Trainers Association position statement on the subject, published in 2000. But, he adds, recent media spin on overhydration sometimes muddies the issue. "Some of the news items that have come out have been scaring people away from hydrating, and that's the wrong message to send," says Casa, director of athletic training education at the University of Connecticut. "The message should be about finding a balance between avoiding dehydration and avoiding overhydration."

It starts with determining an individuals sweat rate – the amount of fluid lost over a set period of time. This can be as straightforward as comparing a person's weight before and after exertion. "We tell people who are training for a given event or sport that if they're lighter when they finish that activity, then drink more next time. If they're heavier, drink less," Casa says. "Eventually, people start to understand what their needs are."

Heavy sweaters are actually less likely to exhibit signs of hyponatremia simply because it's harder for them to consume enough fluids during exercise to replace what's being lost. On the other hand, light sweaters and smaller individuals can more easily overload their systems with fluids. The duration of exertion also can influence health risks. Marathoners, particularly slow ones, have more time over which to dilute their blood sodium, compared with someone out for an hourlong jog.

While better than pure water at replenishing lost sodium, Casa cautions that sport drinks alone aren't equal to the task. "Not even close," he says. Higher-sodium drinks are now available, as are sodium packets that boost a regular drink's sodium content once diluted. Consumption of pretzels or other salty snacks during extended training sessions – four or five hours of a football practice, for example – can serve as another hedge against hyponatremia, according to Casa, who offers a final caveat: "t can happen to anyone. Learn what the appropriate amount of fluid is for yourself."