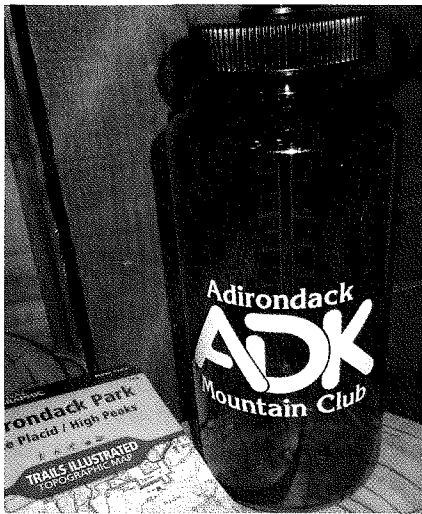


# Too Much of a Good Thing?

Most of us probably remember being told to drink at least eight glasses of water per day for better health. It turns out that there is absolutely no supporting evidence for this advice; it is difficult to determine exactly where it came from. Now, we learn that unfounded advice about the importance of drinking water can actually kill you.

First, a bit of background.



The element present in our body fluids, such as blood, in the highest concentration is sodium. Proper functioning of body systems requires that the concentration of sodium be maintained in a very narrow range. Outside that range, some very serious consequences can develop.

Maintaining the right concentration of sodium depends on the way we handle water. If our blood concentration of sodium starts getting too high, it triggers our thirst mechanism and we drink more. It also results in messages to our kidneys to concentrate the urine and hold on to the water we drink. On the other hand, if our blood concentration of sodium is too low, our thirst shuts off and our kidneys start excreting the extra water until the sodium concentration rises to normal.

If these mechanisms fail, and the concentration of sodium falls because of an overload of water, a dangerous condition called hyponatremia ensues. Hyponatremia can

result in rapid neurologic deterioration and death. Because the major symptoms relate to the nervous system, the possibility of a disturbance in body water may be unrecognized until it is too late.

Over the past decade or so, there have been some worrisome reports of fatal hyponatremia developing in athletes, especially during marathons and similar endurance activities. There are a couple reasons for this. First, the mantra for such athletes has been to avoid dehydration and to drink even if one does not seem thirsty. (I mentioned this in a recent column on "sports drinks.") Second, the stress of exertion may impair the kidney's ability to excrete excess water. The combination of drinking too much and peeing too little becomes a set-up for dangerous hyponatremia.

Could this possibly happen to someone hiking? Until a few weeks ago, my answer would have been "possibly, but no one has ever seen it." Sadly, we now have seen it. The current issue of the medical journal *Wilderness and Environmental Medicine* includes a case report of a previously healthy 47-year-old woman who was hiking in the Grand Canyon on a warm, sunny day. She was observed by her husband to be drinking copious amounts of water. At the end of the hike, she had some vague neurologic complaints, which rapidly evolved into stupor and unresponsiveness. She was urgently evacuated to a hospital, where she was found to have hyponatremia. Imaging of the brain showed severe

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swelling, the classic complication of hyponatremia. She died within less than a day of her hike. Although the differential diagnosis at first had included such problems as head injury, the ultimate determination was that she had fatal water overload.

This report has stimulated a lot of interest and discussion among wilderness physicians and educators. For many of us, the comment has been "...saw this one coming...." Concerns about dehydration during exercise have been overblown for years. In particular, advice to "keep drinking even if you're not thirsty" has never made physiologic sense. We now realize that it is dangerous. The best advice for the hiker, or any athlete: If you're thirsty, drink. If you're not, don't. That's what thousands of years of evolution has prepared us for!



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