

Hyponatremia: Too Much of a Good Thing

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Before, during, and after exercise many athletes are very conscious of staying well hydrated. Dehydration can be devastating to performance, recovery, and health. Proper hydration should remain a primary concern of any athlete but they should also be aware that it is possible to consume too much fluid.

Hyponatremia occurs when blood sodium levels are below normal. In athletes this can be caused by excessive fluid intake combined with heavy sweating. Because sodium plays a role in many essential bodily functions such as cardiac function and nerve impulse conduction, this condition can be dangerous and even lethal. Neural impairment can also occur when blood sodium levels become too low and the osmotic balance across the blood-brain barrier is disrupted. The brain swells as a result, which can cause headaches, confusion, dizziness and if very severe, seizure and coma.

Symptoms of mild hyponatremia can include bloating, mild nausea, and upset stomach. In this situation increased urine production will generally rid the body of excess water and sodium balance will be restored. Symptoms of more severe hyponatremia include: rapid weight gain, vomiting, throbbing headache, dizziness, severe fatigue, lack of coordination, wheezy breathing, and seizure. If you believe someone may be experiencing hyponatremia, seek emergency medical care as soon as possible. Treatment generally includes administration of an intravenous concentrated sodium solution and a diuretic medication (to speed water loss).

When we exercise for prolonged periods of time there can be large losses of sodium in sweat. This, combined with excessive drinking while exercising, increases the risk of developing hyponatremia. Under resting conditions excessive fluid intake is generally not a problem; the kidneys step-up urine production and balance is restored. During exercise however, kidney function decreases 20-60%. This helps us conserve water but also makes us more susceptible to hyponatremia if we do consume excess fluids.

Those at greatest risk for hyponatremia are lighter athletes and those not acclimated to an exercise environment that induces excessive sweating. This doesn't necessarily have to be a hot environment. When exercise is intense, such as in a race, the body dissipates a large amount of heat through perspiration regardless of temperature. Furthermore, kidney function decreases with exercise intensity. This makes it even more difficult to rid the body of the excess fluid that is diluting sodium concentration in the blood. Also at risk are athletes that are hypervigilant about hydration and those who use water as their primary source of hydration.

To prevent hyponatremia doesn't mean to induce dehydration. Staying hydrated is critical to health and performance. The goal of drinking during exercise should be to maintain normal body weight. If body weight is higher after a workout than before this is a sure sign of excessive fluid intake. Fluids with sodium and other electrolytes should be consumed during exercise. This will help to partially offset sodium losses from sweat. Most commercial sports drinks have some sodium. Drinks like lemonade and soda don't have as much sodium so become a label reader. Look for a beverage that has about 4-6% of your daily sodium requirement.