Hydration Tips

Hyponatremia and the effects of over hydration

By TBA member Carol Lilley RN, CCM

We hear a lot about proper hydration and you may have some questions about the idea of over hydration as I did when I experienced the event below and went in search of answers.

Several years ago Tom and I rode the metric century during the

Great Emporia Peanut Ride on a very HOT day. At that time, I knew the importance of hydration and became over zealous in my attempt to cool down and finish the ride. We made it back to the campground and I decided to sit in the shade while Tom went out on the 13 mile ride. While sitting in the shade I became very nauseous and acquired a splitting headache. I also noticed some bloating. About the time Tom came back the nausea became vomiting and the dizziness became vertigo. Someone else would have sought medical care but I chose to try a tepid shower and sleep. Tom went in search of dinner and came back to the room with a hamburger, not the sort of thing a nauseous dizzy lady would seek out but after he dumped several packets of salt on the bread and about 20 minutes of slow chewing and sips of soda, I started to feel the headache and nausea abate.

After returning to work I told my tale to a physician I worked with and he asked about my electrolyte consumption on the day in question and referred me to medical articles about Hyponatremia. Hence the next article.

My take away from my experience is, don't be shy in replenishing your sodium and potassium while riding. Have the pretzels / chips during the ride, if needed. Drink water in proportion to what you are losing in sweat and know YOUR symptoms of early electrolyte depletion and replenish early.

Electrolytes, Food and Us

By TBA member Carol Lilley RN, CCM

Summer's coming with beautiful days to cycle the country side. Most of us are working to improve our performance, increase our speed or stay longer in the saddle. We have read many fact sheets and reports emphasizing the importance of drinking water during a long ride with the rising temperature.

Two (2) articles, Hyponatremia of Exercise and Hyponatremia in Distance Athletes points to another factor that can lead to sub-optimal exercise performance called Hyponatremia.

Hyponatremia is a low serum concentration of sodium, better known as low sodium (Na) level of the blood. Sodium is the most important electrolyte of the body because it is responsible for cellular metabolism, water movement at a cellular level , nerve conduction and maintenance of our blood pressure. To demonstrate the importance of sodium (Na), lets look at some of its functions. Sodium and chloride work together at the cellular level on the concentration of water in our blood thereby supporting the normal hydration. Sodium and potassium work together across the cell membrane to produce muscle

contractions. Obviously an adequate sodium level will optimize the performance of one of the most important muscle contractions - the heart.

Signs and symptoms of mild hyponatremia include weakness, cramps, extreme fatigue, nausea, disorientation, un-coordination, confusion and a increase in body mass (swelling). GOSH it sounds a lot like dehydration - doesn't it! If left untreated the symptoms may increase to seizures, pulmonary edema, respiratory arrest and coma.

According to both articles, the key is to recognize the symptoms, evaluate the possible causes of symptoms and treat the problems rather than to assume you are suffering from dehydration or a heat related illness.

Simply

1. Drink enough water to compensate for the amount lost through sweat, respiration, and urination.

2. If you are prone to hyponatremia due to the use of diuretics and other medications, do not hyperhydrate with water prior to exercise.

3. Don't be afraid to consume foods containing sodium, like pretzels, while exercising.

Proper Hydration – A Two-Edged Sword

by TBA member David Swain, PhD - Exercise Science Professor at ODU

On long bike rides in the heat, do you ever feel like you can't take in any more fluid? Do you feel bloated, nauseous or burp a lot? You may be drinking too much fluid.

We all know the dangers of becoming dehydrated during exercise in the heat – heat exhaustion, heat stroke, even death. To prevent dehydration during exercise, we've been told to drink even if you're not thirsty, drink at least 8 oz every 15 minutes. Well – that's wrong.

Recent research shows that low blood sodium (hyponatremia) has become a common side effect of our aggressive hydration practices. Hyponatremia causes bloating, nausea, swelling of the brain and even death. It is caused, pure and simple, by drinking too much. Some victims of hyponatremia have actually been killed by well-meaning rescuers who, mistaking their symptoms for heat stress, made them drink more.

While hyponatremia is due to too much water being absorbed by the body, a study published this January (2003) found that it doesn't matter if you are drinking water or sports drinks; taking in too much volume of fluid will cause the problem.

So, what are we supposed to do??

New guidelines tell us to let our thirst be our guide. Drink only as much as your thirst tells you to drink. For most people, this will be LESS than 8 oz every 15 minutes. And it is best if you are drinking a sports drink that has sodium in it, rather than plain water.

You can do a test on yourself to see how much you should be drinking. You must warm-up until you are perspiring, then stop, urinate, get naked, quickly dry yourself, and measure your weight accurately. Then do an hour of exercise at your normal pace (you can put your clothes back on first if you don't want to make a spectacle of yourself). If you drink during the ride, it must be a measured amount. Do not stop to urinate during the ride. Immediately after the ride, get naked and dry, and weigh yourself again (before any further drinking or urinating). Subtract your post-ride weight in pounds from your pre-ride weight, and multiply this value by 15.3 to get fluid ounces. Add any fluid you drank during the ride: the total is how much you sweated and is the maximum amount you should drink during exercise. If you want to measure your fluids in milliliters, multiply the fluid ounces by 29.6. This test is not easy to perform, and should be performed again if the weather conditions or your state of training changes. If all that is too much trouble, that's OK. The key point is to drink based on thirst.

The USA Track & Field federation changed its guidelines for hydration during marathons in April of this year (2003). For more information, go to www.usatf.org. Click on Sports, scroll to Road running, scroll to bottom and click on "Don't forget to hydrate properly"

Take Home Message:

Heat injury is caused by exercising hard in hot conditions. Drinking properly is important to reduce the chance of heat injury, but it won't prevent it by itself. To prevent heat injury – exercise in the coolest part of the day or slow down!

Drinking too much over a long period of time is hazardous. Drink based on thirst!