Hyponatremia - What is it?

Facts on Hyponatremia
For years, heath care and fitness professionals have stressed the importance of fluid intake and replacement in preventing dehydration. For years, the mantra among runners, for instance, has been: "Drink as much water as possible." But a condition called exercise-related hyponatremia shows that, like many things, too much of a good thing can be unhealthy. Most health conscience individuals are educated about dehydration and cases of dehydration have decreased in recent years. Yet, in some cases, people may take dehydration prevention a bit too far and unintentionally drink too much water. Drinking an excessive surplus of water can lead to over- hydration or hyponatremia. Although hyponatremia is rare and seen primarily in serious endurance athletes, such as marathon runners. It can be dangerous and mountain bikers involved in endurance like events should be aware of the condition.

The MedTerms.com medical dictionary defines hyponatremia as an abnormally low concentration of sodium in the blood. Hyponatremia is also known as water intoxication. Sodium (salt and chloride) is an electrolyte, which helps the body distribute water. This is essential for water balance and for your muscles and organs to function effectively. Electrolytes are lost through sweat. When exercising, our body temperature rises and we sweat to keep cool. The more we sweat, the more sodium lost. For this reason, it is important to replace lost body fluids during and after exercise. Studies have shown that athletes can lose 2 (or more) grams of salt per liter of sweat. If you consider that athletes may lose up to a liter (or more) of sweat each hour, you can see that over a long endurance event (12 hour race), it is not unimaginable that an athlete could sweat out 30 or 40 grams of salt. Replacing this loss of sodium during the event is critical to performance and safety. To completely replace these fluids, you must not only replace water, but also sodium and chloride. Those who consume excessive amounts of water after exercise can further deplete sodium and chloride levels, leading to electrolyte depletion and possibly over-hydration.

The Danger
As you consume large amounts of water over the course of a day, blood plasma (the liquid part of blood) increases thereby diluting the salt content of the blood. At the same time, your body also loses salt by sweating. Consequently, the amount of electrolytes available to your body tissues decreases over time to a point where that loss interferes with brain, heart, and muscle function! You have to replace these electrolytes! They're essential to the normal electro-chemical operation of your nervous system.

Symptoms of Hyponatremia
The symptoms of hyponatremia are very similar to the symptoms of heat illness. Both illnesses can be life threatening, therefore, if you or someone you know is experiencing the symptoms below, it is extremely important to seek medical attention immediately. The most common symptoms are:

Fatigue
Lightheadedness
Weakness
Cramping
Weight gain

Nausea
Bloating and/or swelling
Dizziness
Headache
Confusion
Fainting
Disorientation
Seizures (severe cases)
Coma (severe cases)
The early warning signs are often subtle and may be similar to dehydration; nausea, muscle cramps, disorientation, slurred speech, confusion, and inappropriate behavior. At this point, many athletes get into trouble by drinking water because they think they are dehydrated. In fact, water alone will increase the problem of hyponatremia, as outlined and explained above. At the most extreme an athlete may experience seizures, coma, or death. Treatment of Hyponatremia At the first sign of nausea, muscle cramps, disorientation, an athlete should drink a sodium containing sports drink, such as Gatorade, or eat salty foods. If possible, an athlete should plan ahead and estimate his or her fluid loss and need for sodium replacement during the event, and stay on a hydration schedule during the race. If the symptoms are extreme, a medical professional should be seen.

Prevention of Hyponatremia
Prevention is **MUCH** better than a cure and over-hydration can be easily prevented by carefully monitoring your fluid intake and replacing all necessary fluids after a long bout of intense exercise. USA Track and Field (USATF), the governing body of track and field recommends that exercisers be sensitive to the onset of thirst as the signal to drink, rather than staying ahead of thirst. By being aware of when you are thirsty, you will help prevent dehydration as well as decreasing the risk of over-hydration (ACE Fitness Matters). In other words, drink fluid only when you need to. To replace lost fluids during and/or after exercise, drink small amounts of fluid as needed throughout your workout to remain hydrated. Sports drinks, such as Gatorade, contain electrolytes and are therefore a good source of sodium and chloride. Also, prior to a race, endurance athletes may be instructed to eat salty snacks, such as pretzels or tomato juice to build sodium reserves. Furthermore, if an endurance athlete is taking any over-the-counter pain medications or prescription medicine (such as aspirin, ibuprofen, and other non- steroidal anti-inflammatory agents), he or she may be asked to consult a doctor as some medications reduce the bodys capability to conserve salt. As a start, Tylenol® 8 Hour is a safe over-the-counter choice during endurance sports activity, but as usual get your own independent medical advice!

Sorting out how much water is right for you is pretty easy; weigh yourself prior to your endurance exercise. Then weigh yourself when you finish. If you weight less, then you probably need to have taken on more hydration, if you weigh more then you have taken too much hydration. More generally, endurance athletes should train ahead of time in the same conditions they will encounter during the actual race. This is true for all vigorous and unusual exercise, but it is especially important for marathons and triathlons. The only way to determine how we'll respond to certain circumstances is by subjecting ourselves to those circumstances before the actual events.

Important Message Remember that hyponatremia is a rare condition for the everyday exerciser, which classifies the majority of the active population. Please do not regularly

substitute other fluids for water. Our bodies are made up of approximately 65% water and water intake is essential for healthy living. However, if you consider yourself an endurance athlete (e.g. marathon cyclist or solo 12 - 24hr cyclist), you also need to replace electrolytes to avoid water intoxication. Likewise, please do not increase salt in your diet as a prevention method for hyponatremia as an excess of salt is believed to be a risk factor for hypertension. A sports drink will do the trick for most people.