

## Why Electrolytes are Important to You!

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This last summer as well, as in past years, on our field trips we have had several instances where our members and guests have had problems with electrolytes. So as your Education Chairman, I will attempt to “educate” you about the importance of electrolytes, especially on field-trips.

What are electrolytes? Electrolytes are minerals in your blood and other body fluids that carry an electric charge. They affect the amount of water in your body, the acidity of your blood (pH), your muscle function, and several other important processes. You lose electrolytes when you sweat. You replace them by drinking fluids, not just bottled water, but water that contains the small amounts of minerals that you lose through sweating (particularly sodium and potassium). Bottled water is usually processed to take out most of the “salts” because, let’s face it, they don’t taste that good. Electrolytes are commonly found in juices, coconut water, sports drinks, milk, and many fruits and vegetables, whole or in juice form like potatoes, avocados, even peanuts. The main electrolytes are sodium, potassium, calcium, magnesium, chloride, hydrogen phosphate, sulfate, and hydrogen carbonate. Calcium and magnesium help muscles contract and relax. Sodium and potassium help water stay in the right balance inside and outside of cells. Sodium is the electrolyte lost in the highest concentration in sweat.

Sodium is the main electrolyte in the fluid that surrounds your body’s cells and helps govern the important flow of liquid inside and outside the cells. It maintains your body’s fluid balance and blood pressure as well as certain brain functions. Sodium is critical to the generation of electrical signals in the body. If you have high blood pressure, the first thing the doctor says is-- cut down on salt (sodium chloride). Potassium is essential for cell function and regulates heartbeat and muscles. No matter if you drink lots of water, if you aren’t replacing the minerals you are sweating out, you are eventually going to be in trouble. Electrolytes are critical in hydration as well as blood pH, nerve and muscle function. Muscle contraction is dependent on calcium, sodium and potassium. If you have particular heart problems that affect your heart’s pumping ability, you may well be taking a potassium supplement. An electrolyte imbalance can occur through vomiting, diarrhea, excessive sweating, serious burns, or wounds. In these cases, water and electrolytes need to be replaced. Life-threatening conditions may result if the losses are severe. If you don’t maintain your electrolytes you can experience weakness or severe muscle contractions, blood pressure problems and even seizures.

The body keeps tight control of electrolytes by way of various methods such as hormones. The kidneys general flush out any excess. Sports drinks, such as Gatorade, have some electrolytes as well as very high sugar contents to mask the taste, but are not recommended for everyone. A special alert for our field trip leaders and those of us on field trips when it is warmer weather and the prize requires lots of heavy work or long, strenuous hikes to get those rocks back home, be aware of those around you. Older people are more susceptible to both dehydration and over hydration as well as abnormal electrolytes because their kidneys don’t function as well.

### **Watch Out For**

Twitching	Seizures	Numbness
Muscle spasm	Fatigue	Lethargy
Irregular heartbeat	Convulsions	Confusion
Blood pressure changes	Headache	Irritability
Loss of appetite	Muscle weakness	Nausea
Vomiting	Decreased consciousness	
Hallucinations	Coma	

If you exercise hard for more than four hours in the heat (such as triathletes, marathoners and even rockhounds), you may benefit from replacing electrolytes. A father of a teenage boy on one of our last field trips came to me asking if I had any Tylenol for his son's severe headache. I mentioned his son might be low on electrolytes but the Dad insisted that he had drank 10 bottles of water while hammering and was fully hydrated so didn't need any EMERGEN-C just Tylenol. So be aware—that is not just water on your brow. There are a lot of minerals there too, your precious electrolytes! Drinking too much water, even, can cause you to need more electrolytes.

To confuse things even more, beware of too many electrolytes. An over abundance can be just as harmful as not enough. Don't put one of the electrolyte-containing envelopes in every bottle of water you drink on a very hot day no matter how much you are sweating. You are losing many times more water than electrolytes. Unless you are experiencing symptoms and working super hard, one supplement in four or so hours should work well plus lots & lots of water. When it comes to electrolytes "a little dab will do ya." Ask your doctor the next time you visit if you have any problem that extra electrolytes will influence and how they will go with your medications, if you take any regularly, particularly if you have low functioning kidneys!

For lunch have a banana, a yogurt and a peanut butter sandwich (and stop to eat it) — lots of calcium, potassium and magnesium! If you don't have problems with high sodium, carry salty snacks, particularly if you are prone to muscle cramps. Drink juices and milk if the cooler is near. Electrolytes are "popular" right now, so you might see them in many drinks and those little packets that you pour into your water bottles. Sports drinks, in general, have some electrolytes but most not enough for a good, hard, sustained all day dig. Larry and I carry EMERGEN-C in the car, the first aid kit, and in our pockets and packs when we are in the field. There may be better ones, but it works for us and comes in lots of flavors (none are great tasting but they aren't too bad and work well). I have seen it work wonders in just a few minutes time. We all know those best specimens are the hardest to get so keep yourself healthy to go for them! Hope to see you on a field trip soon!