Hydration

Now that the summer days are upon us, it's important to respect the body's need for water. Although we generally understand our intrinsic need for water, it is also important to understand the importance of electrolytes in this equation.

Electrolytes
All of life's cellular functions depends greatly on water and electrolyte balance. Electrolytes are negatively or positively charged ions such as sodium, potassium, calcium, chloride, phosphorous and magnesium. The primary function of an electrolyte is to transmit electrical impulses such as nerve impulses and muscle contractions from one cell to another while maintaining the voltage of that signal. Simply put, with an electrolyte imbalance, your brain to muscle communication suffers dramatically.

Water
Believe it or not your body on a cellular level is approximately 70-80% water. During the course of the day our body looses up to 2.5 liters of water through the lungs as vapor, the skin through sweat, and the kidneys through urine. On average 8-10 8oz glasses of water will replenish your system. As recreational athletes you will loose much more water simply through sweating. You also gain water by consuming fruits and vegetables. Beware; caffeinated beverages and alcohol do not count as water. In fact they act as diuretics, depleting water from your system.

If you consume caffeinated beverages and or alcohol you should increase your water consumption by 12-15 8 oz glasses per day.
Without replenishing water and electrolytes your performance and your overall health will begin to decrease. It's been noted that your athletic performance can decrease by as much as 50% while dehydrated. The following are only some signs & symptoms of dehydration.

Dizziness
Headaches
Dry Mouth
Decreased blood pressure
Constipation
Dry Skin
Loss of appetite
Abnormally dark urine
Unexplained fatigue

What, When, & How Much?
According to the American College of Sports Medicine one should consume adequate fluids during the 24 hour period before an event and drink about 500 ml (about 17 ounces) of fluid about 2 hours before exercise to promote adequate hydration and allow time for excess water to be eliminated. When exercise exceeds 60 minutes, a carbohydrate & electrolyte mix should be consumed

approximately every 20-30 minutes for the duration of the activity.
It's also important not to rely on thirst. Thirst is a symptom of dehydration. Therefore once you experience thirst you are already well into a state of dehydration. Stay ahead of the curve and drink frequently throughout the day.

Conclusion

The primary objective for replacing body fluid loss during exercise is to maintain normal hydration. One should consume adequate fluids during the 24-h period before an event and drink about 500 ml (about 17 ounces) of fluid about 2 h before exercise to promote adequate hydration and allow time for excretion of excess ingested water. To minimize risk of thermal injury and impairment of exercise performance during exercise, fluid replacement should attempt to equal fluid loss. At equal exercise intensity, the requirement for fluid replacement becomes greater with increased sweating during environmental thermal stress. During exercise lasting longer than 1 h, a) carbohydrates should be added to the fluid replacement solution to maintain blood glucose concentration and delay the onset of fatigue, and b) electrolytes (primarily NaCl) should be added to the fluid replacement solution to enhance palatability and reduce the probability for development of hyponatremia. During exercise, fluid and carbohydrate requirements can be met simultaneously by ingesting 600-1200 ml ? h^{-1} of solutions containing 4%-8% carbohydrate. During exercise greater than 1 h, approximately 0.5-0.7 g of sodium per liter of water would be appropriate to replace that lost from sweating.

