Three Seasons Ayurveda

Electrolyte Balance

Electrolytes are chemical elements or minerals (sodium, potassium, magnesium, and calcium, as well as salts (chloride, bicarbonate, and phosphates) which when mixed with water undergo a process called disassociation turning them into electrical charges "ions" which carry a positive or negative charge.

This is important because these electrolytes balance each other out and are found both inside and outside of the cells, signaling cells, regulating nerve impulses, contracting muscle function, hydrating the body, balance blood acidity and pressure, maintain pH levels, and help rebuild damaged tissue.

Muscles and nerves are both stimulated by the activity of electrolytes in the intracellular, extracellular and interstitial fluid. Ion channels exist on the surface of the cell membrane to transport electrolytes to and from the cell. For instance, muscle contraction depends on the presence of potassium, calcium and sodium ions, and insufficient levels of these ions may lead to muscle weakness or spasms.

Electrolytes levels change in relation to water levels in the body, and are most commonly lost during exercise but other reasons for an imbalance can include: improper diet and lifestyle, kidney disease, prolonged periods of vomiting and diarrhea, dehydration, imbalance of acids and alkaline, congestive heart failure, cancer treatments, overuse of diuretics, bulimia and old age.

The muscles, heart, and nervous system all rely on electrolytes to carry electrical impulses throughout the bodily tissues. Imbalances depend on which Electrolyte is out of balance and whether the level of that substance is too high or too low. Symptoms can include: irregular heartbeat, overall weakness, bone disorders, twitching, increase and decrease of blood pressure, confusion, seizures, numbness, nervous disorders, fatigue, and convulsions.

Evaluation and monitoring can be done by an electrolyte panel, which is usually administered during your yearly physical, but one treatment merely involves drinking more water. Treating an electrolyte imbalance involves either restoring levels if they are too low or reducing concentrations that are too high. If levels are too high, the treatment will depend on the cause of the excess. Low levels are usually treated by supplementing the needed Electrolyte.

Sources for replenishing and ensuring balance could be:

- Drink water and/or Electrolyte infused water
- Eat a balanced diet
- Electrolyte supplements
- Electrolyte sports drinks, gels, and candies (Caution, overuse can increase imbalance)

On the following page, you will find more detailed information on each Electrolyte.

Jeff Perlman is a Clinical Ayurvedic and Panchakarma Specialist, Massage and Marma Therapist and AHG Registered Herbalist, a Certified Iyengar Yoga instructor, IAYT-AyurYoga Therapist and Cordon Bleu Chef ~ www.threesesonsayurveda.com ~ 310-339-8639 ~ jeff@tsayurveda.com

Detail Information and US Recommend Daily Allownaces

Electrolyte	USDA RDA (mg)		Food Sources
	0-49 yr.	50+ yr.	
Sodium (Na+) Sodium is the most important ion in the fluid outside the cells regulating the volume of liquid inside the cells including the volume of plasma in blood. Vital to both nerve and muscle function and it helps to control and maintain the acid-base balance of the body.	1500	1300	Sea vegetables, beets, celery, cantaloupe, carrots, chard, spinach, seafood, artichokes.
Potassium (K+) Potassium is the most important cation (positive charge ion) in the fluid inside the cells, and together with sodium maintains both the acid-base balance, and the water balance of the body. They regulate nerve and muscle activity, and insufficient potassium interferes with glycogen storage, and is the primary source of energy for muscle activity.	4700		Avocado, acorn, potatoes, spinach, salmon, apricots, grapefruit, broccoli, banana.
Calcium(Ca2+) Most of the calcium in human body is found in the skeleton and teeth (99%), and the remainder occurs in our bodies as ionized calcium (electrolyte), called the "second messenger", it reacts to changes in calcium levels inside the cells regulateing heartbeat and blood clotting.	100	1200	Dairy, sardines, broccoli, kelp, okra, greens, soy, white beans, oranges, seafood.
Magnesium ((Mg2+) Most magnesium in the human body is located in bone, but about 1% of magnesium is found in the fluids outside the cells, and is the most important cofactors in enzyme reactions.	320-men 420-women		Spinach, quinoa, wheat, nuts and seeds, soy, black beans, edamame, avocado.
Chloride ((Cl-) Chloride is one of the most important electrolytes in the blood helping to keep the amount of fluid inside and outside of your cells in balance. It also helps maintain proper blood volume, blood pressure, and PH.	2300	2000	Tomato products, rye, sea vegetables, celery, lettuce, olives.
Calcium Phosphate (HPO42-) Calcium phosphate provides bone structure and assists in cellular communication, and helps to maintain your body's acidity level.	1000	1200	Chia, soy, almonds, figs, white beans, sunflower seed, broccoli.
Calcium Carbonate (HC03-) Calcium carbonate consists of calcium cations and carbonate which maintains bodily functions.	1000	1200	Dairy products, nuts and seeds, legumes, broccoli, greens, oranges, black-eyed peas.
The plus or minus symbol indicates the ionic nature of the substance and its either positive or negative charge as a result of dissociation.			