**The Importance of Electrolytes to the Human Body**

Ever stopped and wondered while chugging your favorite sports drink ,“What the heck are electrolytes, anyway?” We all know they’re important for hydration, especially in athletics, but why? Aren’t they just salts? In terms of how our bodies function, electrolytes are anything but “just”…

Your body is a complex and carefully-balanced superhighway of cells, tissues, and fluids that, almost every second, directs an incomprehensible array of electrical impulses. This is only possible because those cells, tissues, and fluids thrive in a homeostatic environment where they conduct electricity well enough to carry the signals to their intended destinations. The key to maintaining this conductive superhighway lies with our friend: the electrolyte.

**What Are Electrolytes:** When dissolved in fluid, salts tend to break apart into their component ions, creating an electrically-conductive solution. For example, table salt (NaCl) dissolved in water dissociates into its component positive ion of sodium (Na+) and negative ion of chloride (Cl-). Any fluid that conducts electricity, such as this new saltwater solution, is known as an electrolyte solution: the salt ions of which it’s composed are then commonly referred to as electrolytes.

There are several common electrolytes found in the body, each serving a specific and important role, but most are in some part responsible for maintaining the balance of fluids between the intracellular (inside the cell) and extracellular (outside the cell) environments. This balance is critically important for things like hydration, nerve impulses, muscle function, and pH level.

An electrolyte imbalance, whether too much or too little, can be quite detrimental to your health. Muscle contraction, for example, requires calcium, potassium and sodium; deficiency may result in muscle weakness or severe cramping. Too much sodium, on the other hand, can cause high blood pressure and significantly increase your risk of heart disease. Don’t get too worried about maintaining your electrolytes; luckily, electrolyte levels are mostly determined by food and water consumption so keeping the right balance simply comes down to proper nutrition.

Now let’s take a look at the seven major electrolytes found in the human body to get a better idea of what each does and why it’s important.

**7 Major Electrolytes & Their Function**

**Electrolyte #1 | Sodium (Na+)**

An essential electrolyte for humans, sodium is responsible for controlling the total amount of water in the body. It is also important for regulating blood volume and maintaining muscle and nerve function. Sodium is the major positively-charged ion (cation) outside your body cells and is mostly found in blood, plasma, and lymph fluid. This creates one-half of the electrical pump that keeps electrolytes in balance between the intracellular and extracellular environments (i.e., sodium outside of cells and potassium inside of cells).[3](http://www.builtlean.com/2012/11/28/electrolytes/#fn-10578-3)

**Electrolyte #2 | Chloride (Cl-)**

The major negatively-charged ion (anion), chloride is primarily found in extracellular fluid and works closely with sodium to maintain proper balance and pressure of the various fluid compartments of the body (blood, inside cells, and the fluid between cells). It is also vitally important for maintaining proper acidity in the body, passively balancing out the positive ions of blood, tissue and organs.

**Electrolyte #3 | Potassium (K+)**

Whereas sodium is mainly found outside cells, potassium is the major cation inside cells and is hugely important for regulating heartbeat and muscle function. It forms the other half of the electrical pump that keeps electrolytes in balance and allows conductivity between cells, also making potassium a critical part of neuron transmission.

**Electrolyte #4 | Magnesium (Mg++)**

If you take into consideration how critical it is to life on this planet, magnesium may be the most under-appreciated mineral in your nutritional arsenal. Not only is it necessary for over 300 biochemical reactions in the body, but it also plays an important role in the synthesis of both DNA and RNA, essential to every cell of every known living organism. The fourth most prevalent mineral in the human body, magnesium helps maintain normal nerve and muscle function, boosts the immune system, maintains stable heart rate, stabilizes blood sugar, and promotes the formation of bones and teeth. Nuts, spices, leafy green vegetables, coffee and tea are all generally good sources of the mineral.

**Electrolyte #5 | Calcium (Ca++)**

You probably already know that calcium is necessary for the formation of bones and teeth, but what you may not realize is that it’s also critical for transmission of nerve impulses, blood clotting, and muscle contraction. Being the most abundant mineral in your body, about 99% of all calcium is found in the skeletal structure, but your body also needs a balance in the bloodstream and other cells (especially muscle cells). If there is not enough calcium in your blood, it is taken from your bones to supplement the deficiency; left unchecked, this lack of calcium can eventually lead to Osteoporosis.

**Electrolyte #6 | Phosphate (HPO4–)**

Second to calcium, phosphorus follows as the most abundant mineral in your body, 85% of which is found in your bones as phosphate. The phosphate anion works closely with calcium to strengthen bones and teeth, but it is also essential to energy production within cells, necessary for tissue growth and repair, and is a major building block for cell membranes and DNA.

**Electrolyte #7 | Bicarbonate (HCO3-)**

Our bodies rely on a sophisticated buffering system to maintain proper pH levels. Lungs regulate the amount of carbon dioxide in the body, most of which is combined with water and converted to carbonic acid (H2CO3). This carbonic acid can then be quickly converted to bicarbonate (HCO3-), which is the key component in the pH buffer.

**The Balance of Electrolytes**

So there you have it – your all-star lineup of electrolytes. As you can see, each plays a critical role in keeping your body running well, but the key thing to note is that they function in a very specific balance. The reason it is so important to know just what electrolytes do is because most people don’t realize that it’s all in the balance.[6](http://www.builtlean.com/2012/11/28/electrolytes/#fn-10578-6)Disrupting the equilibrium to either toxic or deficient levels can have disastrous effects. Increasing incidence of hypertension and heart disease all over the world can be attributed to the rising occurrences of sodium imbalances.

Fortunately, now that you know exactly what electrolytes are for and how they should be balanced,  
the solution is simple – eat a healthy, natural diet!

It seems so easy, but this is vitally important for keeping your own superhighway in tip-top shape. Remember: take care of your body and it will take care of you!