

Dehydration



**ASSIGN
BUSTER**

Water is essential to health maintenance because over 60 to 70 percent of your body is made up of water and because water does not store in your body for future use, you must always replenish the loss of water in your body. Water in your body provides many functions to help keep you healthy. Water passes through your cells to equalize the concentration of dissolved particles. This process is called Osmosis; the passive movement of water across a membrane to equalize the concentration of solutes on both sides. For an athlete, drinking adequate amounts of water is essential.

Water is lost quickly through sweat and evaporation therefore continual hydration is essential for an athlete. Water also acts as a solvent in your body to help breakdown substance such as minerals and glucose and it also aids in the absorption of substances into the cells of your body. There are many functions that water provides for your body. It acts as a lubricant such as providing tears to cleanse the sensitive eye area and water also helps to cleanse the inside and outside of your body. Water also helps to maintain your body temperature.

When it is hot outside the blood flow increases allowing our blood vessels to dilate and allow your body to cool. You also sweat as another way to cool down your body heat. Heat is released through the evaporation of water. When it is cold outside your blood slows down and this conserves body heat. When your body does not get enough water it is very possible that you could become dehydrated: the excessive loss of water resulting in the depletion of body fluids. The feeling of being thirsty is one indication of dehydration.

This is your body's natural defense to tell you that you are lacking water. Because water is not stored in the body it is essential that you are

continually replenishing the water that is lost. Dehydration can affect physical performance and the ability to think clearly. Symptoms of dehydration include headache, loss of appetite, fatigue, and dark colored urine. After long periods of dehydration there are more serious symptoms that can occur such as confusion and disorientation. Dehydration can be life threatening so it is important to drink enough water every day.

There are some minerals, such as iron copper and zinc that are only needed in your body in small amounts but there are some minerals, such as sodium, potassium and chloride that are needed in larger amounts. These three minerals are also the three key electrolytes in your body. Electrolytes are substances that separate in water to form positively and negatively charged ions that conduct an electrical current. In order to keep your body alive electrolytes are essential for nerve conduction and muscle contraction.

Nerve conduction is created by the in balance of sodium and potassium, both positively charged ions. When this happens sodium is attracted and rushed to the center of the cell, this causes an electrical charge that is spread down the nerve as a nerve impulse. When this impulse travels to the muscle cell the result is a muscle contraction. Electrolytes help balance your body fluids. When too much salt is consumed, sodium and chloride, this causes you to feel thirsty, therefore helping you to regulate the amount of water consumed.

The kidneys also help regulate the balance of sodium, potassium and chloride in your body. Your kidneys excrete less of these minerals when intake is low and excretes more when intake is higher. Potassium is a substance that helps the kidneys function properly. It is possible to have too

much potassium in your diet but is very rare in people whose kidneys are functioning properly. It is important to control the levels of sodium in the blood. When sodium levels in the blood are higher than in the surrounding cells water is drawn and dilutes the sodium levels in the bloodstream.

If there is too much of a drop in the sodium levels this can cause a drop in blood pressure. The kidneys control the release of certain enzymes and hormones that help regulate blood pressure. If sodium levels are high and there is not enough water to dilute the levels of sodium in the bloodstream, this can cause high blood pressure. It is common for this to occur after exercising in high heats with little or no water consumption. Alcohol and Caffeine are diuretics that can cause water loss in your body when consumed.

I recently read of a study done on the effect that caffeine has on the hydration levels in the body. In the study athletes were given high doses of caffeine two hours before exercise and given another dose 30 min before exercising began. During the exercise routine blood samples were taken and then afterwards water loss was calculated. The researchers found that caffeine ingestion produced no significant difference in plasma volume, or overall water loss and had little effect on hydration levels in the body as long as water was also being replenished during the actually exercising periods.

The effect that alcohol has on the hydration levels in the body is different dramatically then the effects that caffeine has on hydration levels. Alcohol promotes water loss by depressing the production of the hormone vasopressin, which acts on the kidneys, concentrating the urine by promoting the reabsorbtion of water and salt into the body. One research

showed that the same amounts of consumption of alcohol compared to equal amounts of water showed that the amount of urine output was greater when consuming alcohol instead of water and therefore leading to dehydration faster when consuming alcohol.

Athletes should not consume alcohol 48 hours before exercising. Drinking a weaker drink with less alcohol content could reduce this effect. There are many things that you can do to prevent dehydration. One way is to eat a diet low in sodium. Another way to prevent dehydration is by avoiding alcoholic beverages especially before exercising. When you do exercise make sure to drink plenty of water before, during and after you exercise. Finally the best way to avoid dehydration is to drink 8 to 10 glasses of water per day as the bare minimum.