

Strongsville Athletic Training & Southwest General Hospital Sports Medicine

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The Role of Hydration in Athletic Performance

Present day athletes are always looking for ways to improve performance. Supplements, outside of the box lifting, high intensity training programs are but a few of the means to the improved athletic performance end. However, one area that is frequently not fully addressed is the role of hydration.

The human body is made up of approximately 70% water, so it makes sense that adequate hydration would help to positively fuel performance. Water is vital to our survival (we cannot live without it for more than 5-7 days – depending on the environment). Add athletic performance, and the role of hydration becomes much more important.

There are many vital roles that water plays in the body. Below is a list of some of its functions:

- Maintain the health of every cell in the body
- Body temperature regulation
- Transport of oxygen, nutrients, major component of blood
- Cushions our joints
- Helps remove toxins from our body
- Encourages normal bowel movements
- Helps prevent dry skin
- Helps regulate blood pressure
- Decreases risk of urinary tract infection
- Aids in digestion

After review of the aforementioned roles, it becomes clearer how important hydration is to the athletic body. Without proper water intake, the body becomes more susceptible to:

- Heat illness
- Early fatigue
- Decreased mental capacity
- Mood changes
- Decreased reaction/response time
- Weakness
- Headaches
- Nausea
- Greater cardiovascular stress

With the importance of proper hydration established, what is the most efficient way to rehydrate? There are many different kinds of fluids available for rehydration and some are more effective than others. Water is still the fluid of choice but there are athletes who prefer more taste which helps increase the amount of ingested fluid. Some examples are:

- Water - ~20 oz of water 2-3 hours prior to performance and 7-10 oz every 10-20 minutes during performance. This in conjunction with adequate water intake throughout the day.
- Sports drinks (ie Gatorade, Powerade, etc) are good sources of hydration and also replace electrolytes (sodium, chloride, potassium) which are important part of many bodily functions.

However, sports drinks contain sugar and can be an excessive calorie source. Mostly recommended for activities of 2 hours or longer to help replace energy as well as rehydrate.

- Milk – milk is mostly water and is a good choice, particularly chocolate milk post-exercise due to its 3:1 carbs to protein ratio, however, some athletes are unable to drink milk. In addition, milk is not a drink of choice during athletic contests.
- Juice – fruit and/or vegetable juice is another fluid choice comprised mostly of water. Fruit juice contains sugar which can slow gastric emptying time and can also cause spikes in blood sugar with a subsequent crash which can negatively impair performance. Vegetable juice can contain excessive sodium but is a good source as long as it's not abused.
- Caffeinated drinks – these are not good a source of fluid due to the diuretic component of caffeine. Anotherwards , caffeine causes the body to rid itself of fluid via urination which can lead to dehydration.
- Alcohol – see caffeinated drinks.

Adequate hydration and prevention of dehydrated related problems is not difficult to achieve. A good rule of thumb for daily water consumption is 60-70% of your body weight in ounces. For example a 200 lb individual would consume 120-140 oz of water/day. That amount is based on normal activities of daily living. When athletic activity is added, the above consumption scenario applies in addition to the daily water intake mentioned above. Furthermore, drinking a variety of fluids will help to provide a good dietary balance, as will a healthy diet (fruits/vegetables, lean meats, etc.) which will also provide body hydration.

There is more than one way to evaluate your level of hydration. One way is based on urine color. A well hydrated individual will have a light colored urine, like the color of straw. The darker the urine, the more dehydrated so its very important to monitor your urine color. Another means to assess hydration level is based on weight. Football players have weighed in before practice and out after practice for years to insure they are regaining the weight they lost each day. However, it doesn't have to be for football players only. A well hydrated person is +1 to -1% of their original body weight. An athlete is significantly dehydrated if their weight is 3-5% lower than original. This level of dehydration negatively effects mental and physical performance. Finally, an athlete who has lost 5% or > of their body weight is in serious jeopardy of a heat related illness!

Proper hydration doesn't require rocket science to achieve. A hydration plan is easy and once established provides enhanced performance in the classroom, work place as well as on the field. All it takes is a little planning and a little discipline and you're off to better performance!!