



The Role of Hydration on Performance

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The National Athletic Trainers' Association, in their current position statement regarding fluid replacements for athletes, seeks to educate sports medicine personnel and all those involved in athletic competition on the importance of hydration with physical activity. They state that "dehydration can compromise athletic performance and increase the risk of exertional heat injury" (NATA, 212).

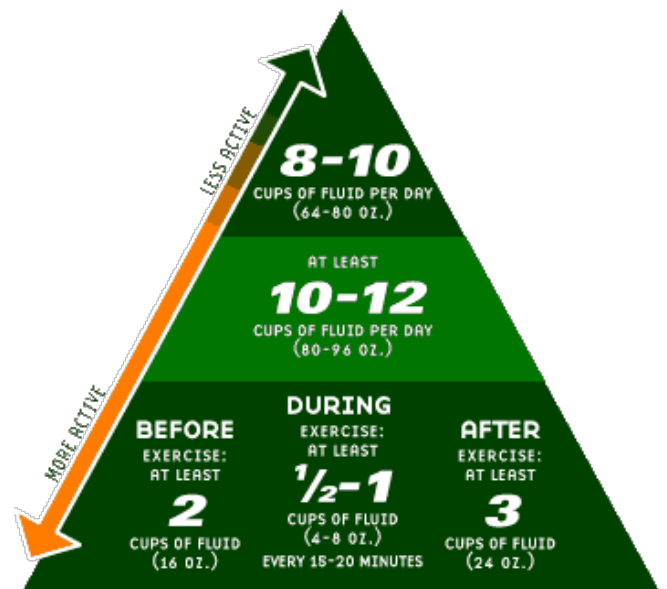
Water makes up around two-thirds, of the human body. It is vital for digestion, joint function, healthy skin, and removal of waste products from the body's system (Hicks, 2). Water makes up about 90% of blood, about 75% of muscle, and about 25% of bone. An average adult loses 2.5 liters of water, or ten cups, every day through normal processes of breathing, sweating, and waste removal (Mayo Clinic). Most water in the body comes from the diet, not only as water we drink but from the water in the other liquids and solid food.

The core of any nutritional plan for energy is based upon the intake of the 3 macronutrients: carbohydrates, fats and proteins. In addition to these three macronutrient demands, a very important aspect of optimizing performance is maintaining levels of adequate fluid and electrolyte intake. Although sometimes not considered a nutritional intake, adequate hydration is absolutely critical because a 2% drop in hydration can significantly impair performance (Tarnoplosky, 10). Dehydration increases the rate of perceived exertion and impairs mental functioning (NATA, 216). Increasing dehydration, due to inadequate fluid consumption, has been shown directly to impair stroke volume and skin blood flow which can increase heart rate and body core temperature (Laquale, 13). It also decreases the motivation to exercise and decreases the time to exhaustion, even in instances when strength is not compromised (NATA, 216).

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Signs & Symptoms of Dehydration:

- Dry mouth, eyes and lips
- Headache
- Tiredness
- Dizziness / Light-headedness
- Decreased urine output
- Muscle weakness or cramping
- Confusion and judgment impairment



ACSM Diagram on Proper Daily Hydration

Tips to Stay Hydrated!

- In normal temperatures, the average sedentary person should drink at least 8-10 glasses of non-caf feinated beverages a day.
 - Don't rely on thirst as an indicator- by the time you are thirsty, you are already dehydrated. Dehydration is insidious, and these effects often occur before you are aware of them. The sensation of thirst often lags behind the need for water.
 - Your urine should be pale yellow/clear and plentiful.
 - Drink small amounts of liquids frequently throughout the day.
- It is generally recommended to drink about 400-600 ml of fluid two hours before the start of exercise, in addition to a normal amount of daily fluid intake.
 - Effective rehydration after exercise can only be achieved when both sweat loss and the sodium lost in sweat are replaced. Ingestion of plain water increases urine output and results in less effective restoration of net fluid balance compared to the inclusion of glucose and electrolytes in the beverage. Fluid should be ingested at regular intervals and should contain some sodium (at least 20 mmol/l). This can be done by drinking a bottle of Gatorade or Powerade following exercise.



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