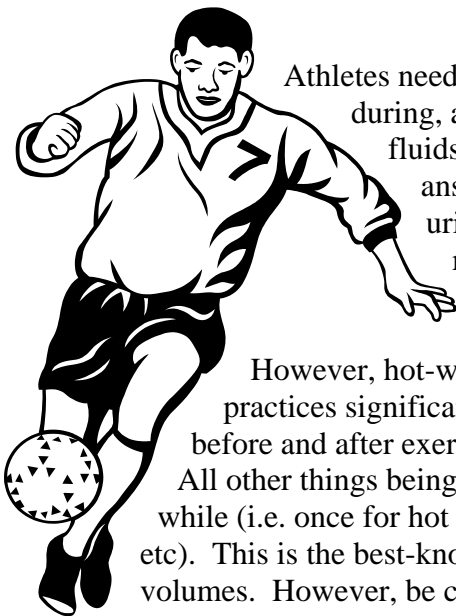


Fluids and Hydration

Athletes have increased needs for fluid. Dehydration decreases performance, slows recovery, and can threaten an individual's health. Numerous factors affect an athlete's need for fluids such as temperature, intensity and duration of training, uniforms and equipment, body size, age, and gender. Feeling thirsty is a late-stage marker for hydration

(by then it's too late). A dehydrated athlete can experience dizziness, fatigue, poor physical performance, decreased blood pressure, weakness, a low volume of dark urine, and under extreme conditions heat stroke. If you feel any of these stop exercising and see the coaches.



Athletes need to consume adequate liquids before competition, during, and always after competition. Ask yourself which fluids are best and how much you need. The simplest answer is to drink water throughout the day until the urine is mostly colorless, and then drink enough to replace that which is lost during the event. Drinking water throughout the day will help minimize any chance for dehydration during competition.

However, hot-weather sports that involve extended hours of outdoor practices significantly increase fluid needs. If possible, weigh yourself before and after exercise to see how much fluid is lost and needs replacing. All other things being constant, you would only need to do this once in a while (i.e. once for hot outdoor practices, once for cooler indoor practices, etc). This is the best-known method of determining fluid replacement volumes. However, be careful not to overload on liquids, which can also decrease performance by diluting the body's supply of sodium.

The Institute of Medicine's Food and Nutrition Board, an expert panel of Canadian and U.S. scientists, established the following guidelines in 2004.

<p>Female athletes require > 2.7 liters of water per day (11 ½ cups) Male athletes require > 3.7 liters of water per day (15 ¾ cups)</p>
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Some athletes will require more or less total fluid than others; therefore the above guidelines will not be suitable for everyone. A young female golfer may only need 2 liters per day while a 17 year old male hockey player may need up to 5 liters per day.

An Activity Just For You!

Another way to estimate your fluid needs is to ingest one milliliter (ml) of water for every calorie you eat, and then to add the amount of water lost during exercise.

1. Multiply your calorie needs (see previous handout) by one to equal the number of ml you should drink for regular hydration.

For example, multiply 3291 calories by 1 = 3291 ml's per day ÷ by 240 (since there are about 240 ml per cup) = 13.7 cups/day.

Your calorie level _____ X 1 ml = _____ ÷ 240 = _____ cups/day

2. Then, weigh yourself before and after exercise to note the change.

For example, you weighed 134 pounds before and 131.5 pounds after. The difference is 2.5 pounds.

Your weight before exercise = _____ - your weight after exercise _____
= weight lost

3. There are 16 ounces in a pound; therefore you need to multiply your lost weight by 16 to know how much water to replace.

For example, 2.5 pounds X 16 = 40 oz. Since there are 8 oz in a cup, divide 40 by 8 = 5 cups.

Your weight lost _____ X 16 = _____ oz ÷ by 8 = _____ cups

4. How much total water is that? Add your answers from steps one and three to equal the total number of cups you should drink in a 24-hour day.

For example, 13.7 + 5 = 18.7 total cups of fluid per day.

Your answer for number 1 = _____ cups + your answer for number 3
= _____ total cups of fluid per day.



When considering the diet it is important to understand that all the water found in foods counts towards the total. For example, the water in soups, milk, Jell-O, salads, and popsicles all contribute valuable fluid. Furthermore, the goal of fluid intake is for the entire 24 hours, not just what should be consumed before or during exercise. Drinking fluids throughout the day makes it so much easier to meet your goals. It takes time for the body to properly absorb enough water, which is why drinking a lot of fluid over a short period of time will not be helpful.

As mentioned before, *water* is always a good choice for fluid replacement. However, some athletes prefer liquids with flavor. Juices, soda pop, coffee, tea, and sports drinks can also be counted towards the total fluid goal. Athletes should experiment with different beverages to decide which ones they want to incorporate into their training plan. Keep in mind that many of these fluids may have extra calories so if you're a weight-sensitive athlete (wrestler), you may want to avoid some

of these. For example 4 cups of a standard sports drink has 200 calories and a 20 ounce cola has 270 calories. Additionally, some beverages contain artificial sweeteners and caffeine, which may upset some athlete's stomachs.



Sports drinks may be useful for certain athletes because the sodium contained within them has been shown to actually improve water absorption. Furthermore, endurance athletes can benefit from the added carbohydrates to replenish their energy stores faster.

Non-caloric flavored water is a good alternative to enhance taste without excess calories. There are several claims attached to bottled beverages that advertise improved performance and recovery. However, there is little to no scientific evidence to support the claims and caution is needed before purchasing. For example, a manufacturer will add trace amounts of a mineral or amino acid and then take a statement out of a journal that makes reference to energy production to promote the product. The consumer is tricked into believing that the beverage will significantly impact their performance. These drinks are expensive and may or may not contain harmful or illegal substances.

Other Hydration tips

- Drink 16 ounces of liquid two hours before the event.
- Drink 4-8 ounces of liquid for every fifteen minutes of exercise to minimize dehydration.
- Weigh yourself before and after the event to learn how much fluid is lost in sweat, then drink freely to replace it.
- Remember, just because you don't feel thirsty it doesn't mean you don't need to drink.
- Cold-weather athletes (skiers) may not experience the build-up of heat as quickly as summer soccer players, yet they still need to replace their fluids, so do it!

In Summary

Proper fluid intake is vital for athletic performance and recovery. Drink fluids on a regular basis throughout the day to be sure you are well hydrated for exercise. Plan ahead by bringing fluids with you so you don't fall behind. If you feel any symptoms of dehydration see your coaches immediately and get something to drink.

