



ALLEN ACADEMY

Hydration, Dehydration and Heat Illness

How Much Water Should You Drink Each Day?

If you are training regularly, you will probably need between one half and one whole ounce of water (or other fluids) for each pound of body weight per day.

To determine your baseline range for water requirement, use the following formula:

Low end of range= Body weight (lbs) x 0.5 = (ounces of fluid/day)

High end of range=Body weight (lbs) x 1 = (ounces of fluid/day)

For example, if you weigh 150 pounds, your approximate water requirement will be between 75 and 150 ounces each day.

When to Drink Water Before, During, and After Exercise

Begin the day with a large glass of water each morning, whether it's a training or a rest day. On training days, the following schedule works well for most athletes:

Water (Fluid) Intake Schedule

1. **Before Exercise** o Drink two to three cups(16 to 24 oz) of water within the two hours before your workout. o Drink a cup to cup and a half(8 to 12 fl oz)of water 10 to 20 minutes before practice.
 - o Weigh yourself immediately before you begin your workout.
2. **During Exercise** o Drink one cup(8 oz) of water every 15 minutes.
 - o Make sure you are drinking water during practice! You will be supplied with an unlimited supply of cold water.
3. **After Exercise** o Weigh yourself immediately after you finish your workout. o Drink two to three Cups of water for each pound lost during exercise.

How Much Water Should You Drink During Endurance Exercise

If you are exercising at a moderate to high intensity for more than 90 minutes, you will want to consume more than plain water. You need to replenish glycogen stores with easy-to-digest carbohydrate. Sports drinks can be an easy way to add the necessary energy. If drinking sports drink, mix the sports drink to a 50/50 ratio with water. For longer workouts, choose a drink with 60 to 100 calories per eight ounces and consume eight to ten ounces every 15 to 30 minutes based upon your preference. CHO (sugar) concentrations greater than 8% increase the rate of CHO delivery to the body but compromise the rate of fluid emptying from the stomach and absorbed from the intestine leading to gastrointestinal distress and directs water away from the muscle tissue increasing muscle cramping. Fruit juices, CHO gels, sodas, and some sports drinks have CHO concentrations greater than 8% and are not recommended *during* an exercise session as the sole beverage.

Dehydration

Definition: Dehydration refers to an inadequate amount of fluid in the body. Among athletes who participate in endurance sports or long workouts, dehydration can occur quickly. In general, a person is considered dehydrated when they have lost more than 2 percent of their body weight during exercise.

Adequate fluid intake is essential for athletes before, during, and after exercise. Whether to use sports drinks or just water depends upon your duration and intensity of exercise. A 1% state of dehydration can result in 10% decrease in athletic performance.

Symptoms of Dehydration

- Dry or sticky mouth
- Low or no urine output
- very dark colored, concentrated urine
- Not producing tears
- Weakness
- Dizziness
- Skin may 'tent' when pinched (doesn't bounce back quickly when released).
- Urine color is a good way to asses hydration status, see chart below

Preventing Dehydration

Athletes need to take certain precautions when exercising in the heat in order to prevent dehydration. Drinking the right fluids at the right times can help.

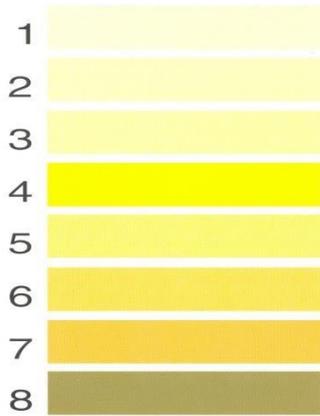
Proper Hydration for Athletes

Athletes need to stay hydrated for optimal performance. Studies have found that a loss of two or more percent of one's body weight due to sweating is linked to a drop in blood volume. When this occurs, the heart works harder to move blood through the bloodstream. This can also cause muscle cramps, dizziness and fatigue and even **heat illness** such as:

- Heat Exhaustion
- Heat Stroke

DO NOT OVERHYDRATE

Flushing the system of essential nutrients is dangerous. Find the balance that works for your body.



The Urine Color Chart shown here will assess your hydration status (level of dehydration) in extreme environments. To use this chart, match the color of your urine sample to a color on the chart. If the urine sample matches #1, #2, or #3 on the chart, you are well hydrated. If your urine color is #7 or darker, you are dehydrated and should consume fluids. See Chapter 2 for details.

The scientific validation of this color chart may be found in the *International Journal of Sport Nutrition*, Volume 4, 1994, pages 265-279 and Volume 8, 1998, pages 345-355.



Heat Illnesses: Signs, Symptoms, & What to Do

Illness	Definition/Description	Signs/Symptoms	What to Do
Muscle (Heat) Cramps	Occurs during or after intense exercise. Athlete will experience acute, painful, involuntary muscle contractions typically in the arms, legs, or abdomen.	Dehydration Thirst Fatigue Sweating Muscle cramps	<ul style="list-style-type: none"> Stop all activity and sit quietly in a cool place. Drink clear juice or a sports drink. Do not engage in exercise/strenuous activity for a few hours after cramps subside, as this may lead to heat exhaustion or heat stroke. Seek medical attention if heat cramps do not subside in one hour.
Heat Syncope	Occurs as result of exposure to high temperatures. Typically occurs during the first five days of acclimation to physical activity in the heat. May also occur after a long period of standing after physical activity.	Dehydration Fatigue Fainting Lightheadedness Tunnel Vision Pale or sweaty skin Decreased pulse rate	<ul style="list-style-type: none"> Lie down in a cool place. Drink clear juice or a sports drink.
Heat (Exercise) Exhaustion	The inability to continue exercising that is associated with heavy sweating, dehydration, energy depletion, and sodium loss. *Frequently occurs in hot, humid conditions	Normal or elevated body-core temp (97-104°F) Dehydration Dizziness/Lightheadedness Headache Nausea/Diarrhea Weakness Persistent muscle cramps Profuse sweating Chills Cool, clammy skin	<ul style="list-style-type: none"> Seek medical attention immediately if symptoms are severe, the athlete has existing heart problems or high blood pressure. You may attempt to cool the athlete using: cool, non-alcoholic beverages (as directed by physician), rest, cool shower/bath/sponge bath, moving to an air conditioned environment, and wearing lightweight clothing.
Heat Stroke	Life-threatening unless promptly recognized and treated. Occurs as a result of prolonged heat exposure while engaging in physical activity. Symptoms are a result of the body shutting down when it is no longer able to regulate temperature naturally.	Same Symptoms as Heat Exhaustion and: High body-core temp (>104°F) Change in Mood (e.g., apathy, irrational) Hot and wet or dry skin Increased heart rate Confusion	<ul style="list-style-type: none"> If any symptoms are evident-CALL 9-1-1 or seek immediate medical assistance. Move the athlete to a shady area. Cool the athlete rapidly using whatever methods you can: immerse the victim in a tub of cool water; place the person in a cool shower, spray the victim with cool water from the hose, sponge the person with cool water; fan the athlete. Monitor body temperature and continue to cool the athlete until temp drops to 101-102°F. Continue until medical professionals arrive and take over, if medical attention is delayed, call the emergency room for further instructions.

Brinkley, H.M., Beckett, J., Casa, D.J., Kleiner, D.M., & Plummer, P.E., (2002). National Athletic Trainers' Association position statement: Exertional heat illnesses. *Journal of Athletic Training*, 37 (3), 329-343.

Center for Disease Control (2003). Hot weather health emergencies. Retrieved from <http://www.cdc.gov/nceh/hsb/extremeheat/heatillness.htm>. (June 14, 2004).