

Hydration Guide

Given the high temperatures of summer, hydration is a more important characteristic when exercising or in competition, whether casually or with intensity, than during standard exercising modes. If water levels within your body are not in balance you can become dehydrated, thereby risking your health. Extreme possibilities can even cause death.

The American College of Sports Medicine published a three year research project which established guidelines observed by noteworthy programs including the U.S. Soccer Federation, the National Athletic Trainer's Association, universities, colleges, high schools, and elite sports clubs nationwide. The research laid down criteria of great importance to all engaged in activities which may deplete the necessary nutrients to fuel our body's needs.

The National Athletic Trainers' Association recommends the following hydration based on the American College of Sports Medicine's research:

1. Two to three hours before exercise drink 17 to 20 fluid ounces of water or sports drink.
2. Ten to 20 minutes before exercise drink 7 to 10 ounces of water or sports drink.
3. During exercise fluid replacement should approximate sweat and urine losses and at least maintain hydration at less than 2% body weight reduction. This generally requires 7 to 10 ounces of water or sports drink every 10 to 20 minutes. Include carbohydrates in the beverage if the exercise is intense or lasts more than 45-50 minutes. Water alone will suffice, and save calories, if the exercise is moderate or less than 45-50 minutes.
4. Post-exercise: Athletes should weigh themselves nude before and after workouts to learn how much weight is lost from sweat (water and salt) and then ingest fluid equal to 150% of the weight loss, ideally within two hours, and no more than four to six hours after the event. Including sodium in the drink allows fluid volume to be better conserved and increases the drive to drink, and carbohydrate in the drink will improve the rate of intestinal absorption of the fluid as well as replenish glycogen stores in the muscles and liver.
5. The volume of fluid in the stomach is critically important for proper hydration. Maintaining 12 to 20 ounces of fluid in the stomach will optimize gastric emptying and prevent dehydration. Concentrations of 4% to 8% of carbohydrates should be used if they are included in the fluid (for example, Gatorade and other energy drinks). Concentrations higher than 8% slow the rate of fluid absorption, while 6% to 8% concentrations are optimal for hydration and performance.

Recognize dehydration

It is important for the coach, trainer, or team leader to recognize the symptoms of dehydration to better optimize performance during exercise or competition. *The early warning signs of heat-related illnesses include:*

1. Exhaustion
2. Headache
3. Muscle cramping
4. Dizziness
5. Nausea
6. Thirst
7. Decreased athletic performance

Other general symptoms include:

1. Feeling hot or cold
2. Incoherence
3. Visual disturbances
4. Vomiting
5. Stomach cramps
6. Heart palpitations

Further, the symptoms of dehydration can be profound affecting performance and endangering health. Keep in mind the following:

- A loss of just 1% to 2% of body weight begins to compromise cardiovascular, body temperature regulation, and muscular function, and can lead to decreases in aerobic power. For example, heart rate rises an additional three to five beats per minute for every 1% of body weight loss.
- Muscle endurance and maximal aerobic power decreases when 3% to 4% of body weight is lost. Slightly more than 2% loss of body weight can result in as much as a 35% to 48% reduction in physical work capacity.
- Dehydration of greater than 3% of body weight increases the risk of developing exertional heat illness (heat cramps, heat exhaustion, or heat stroke). Heat illness is common in sports and can occur after just one hour of intense exercise in the heat.

Over hydration

And, we must mention it is possible to *over hydrate* and create a different medical situation. There has been some controversy, recently, over the issue of over-hydration during athletic events and the risk of abnormally low sodium (hyponatremia). It started when runners at a marathon presented at the finish line with what appeared to be dehydration. The medical people confused the symptoms of hyponatremia with dehydration (the symptoms are similar), and so they rehydrated the runners with intravenous fluids in the medical tent, then rushed them to the emergency room where they subsequently died, not from dehydration, but from over-hydration.

The solution to over hydrating is

1. Try not to drink more than you sweat.
2. Keep your salt levels balanced by drinking a sports drink with electrolytes instead of plain water and/or eating a salty snack such as pretzels.
3. Drink while you're exercising and you'll be less likely to drink too much.

You can test your water intake by weighing yourself before and after intense physical activity. You should weigh about the same. If you have gained weight, you are probably drinking too much water.

Sports drinks

It is important to note that sports drinks are designed to foster drinking of fluids, and thereby maintain hydration during exercise. Many sports drinks are infused with electrolytes, carbohydrates, and other minerals to replace those lost during exercise, and, therefore, are not intended to promote the sale of their product, as many think. Yes, you want more, but when you are sweating you need replenishment of lost elements necessary for health. That's the purpose.

Rule of Thumb

Drink prior to, during, and after exercise or competition. Here is a table to help simplify the hydration process:

Ages 6 to 12	Ages 13-18
<p>Prior to Sports</p> <p>Drinking fluids prior to exercise appears to reduce or delay the detrimental effects of dehydration.</p> <ul style="list-style-type: none"> • 1 to 2 hours before sports: 4 to 8 ounces of cold water • 10 to 15 minutes before sports: 4 to 8 ounces of cold water 	<p>Prior to Sports</p> <p>Drinking fluids prior to exercise appears to reduce or delay the detrimental effects of dehydration.</p> <ul style="list-style-type: none"> • 1 to 2 hours before sports: 8 to 16 ounces of cold water • 10 to 15 minutes before sports: 8 to 12 ounces of cold water
<p>During Sports</p> <ul style="list-style-type: none"> • Every 20 minutes: 5 to 9 ounces of a sports drink, depending on weight (5 for a child weighing 88 pounds, 9 ounces for a child weighing 132 pounds) 	<p>During Sports</p> <p>Every 20 minutes: Between 5 and 10 ounces of a sports drink, depending on weight</p>
<p>After Sports</p> <ul style="list-style-type: none"> • Post-exercise hydration should aim to correct any fluid lost during the practice. • Within two hours: at least 24 ounces of a sports drink for every pound of weight lost 	<p>After Sports</p> <ul style="list-style-type: none"> • Post-exercise hydration should aim to correct any fluid lost during the practice • Within two hours: at least 24 ounces of a sports drink for every pound of weight lost

In Conclusion

Proper hydration requires you to replenish your body with the nutrients it needs to maintain endurance during your exercise regimen. If water levels within your body fall below certain thresholds you become dehydrated with diminished performance, and the possibility of serious health issues. Stay hydrated, stay healthy.

Download this [Hydration Guide](#), and visit the ThirstMax [Products](#) page for products geared to keeping athletes hydrated.

Articles about Hydration

You can read more about the information contained in this article by visiting the following web links:

[MedicineNet.com](#)

[Gatorade Sports Science Institute](#)

[Hydration Guidelines.pdf \(application/pdf Object\)](#)

[Mom'sTeam-SportsHydration](#)

[Why Hydrate? Expert Advice from REI](#)