

### Fluid Replacement

The importance of drinking fluids during athletic training and competition to prevent dehydration and performance decline is well known. However, the type of fluids to drink and how much to drink can become confusing to athletes and their parents.

Even though many athletes know it is important to stay hydrated, they tend to replace less fluid than what they lose in sweat during training and competition. As little as 2% loss of body water weight can cause performance to decline; however, most people do not get thirsty until they have already lost this amount. This means that by the time you get thirsty you are already underhydrated, which can have a negative affect on athletic performance. Therefore, it is important to stay hydrated during training and competition.

The amount of fluid needed to stay hydrated is dependent on the individual and the environment. Each athlete sweats at differing rates and the athlete who sweats more, needs to drink more to stay hydrated. The environment also plays a role in the amount of fluid lost. Hot and humid temperatures cause a player to lose more water through sweat. More fluids need to be consumed when exercising in higher temperatures not only to replace fluid lost, but also to cool the body's internal temperature.

The difficulty with staying hydrated is if the individual consumes the same amount of fluid that is lost in sweat, the result is feeling bloated. Therefore, it is important to be hydrated going into a game, and throughout the game the goal is to try to stay as close to a 2% loss of body water weight as possible. A guideline for fluid intake prior to a game is to drink two 8 oz drinks one hour prior to competition and to try to drink 6-8 oz every 15-20 minutes during exercise. This can be challenging during competition when a player is on the field for the entire half. An idea to help make fluids available to players is to have water bottles around the field and at each goal for easy access during stoppages of play.

No matter how hard a player tries to drink during play, there will be water loss. So it is extremely important to teach athletes how to replenish fluids after training or a competition. A well accepted recommendation for fluid replacement is to drink three 8 oz drinks (1.5 pints) for every pound of body weight lost during exercise. This should not be done all at one time, but the goal is to be back to pre-exercise weight within 24 hours.

The question of how much to drink has been addressed, but what is best to drink? This depends on the intensity and duration of exercise. When exercising for less than one hour, the athlete can drink water, flavored water or sports drinks – whatever will encourage the player to drink and stay hydrated. When exercising at a high intensity for greater than one hour, it is beneficial for the athlete to drink a sports drink, which will not only keep them hydrated, but will also provide an energy boost.



There are many different types of sports drinks, so which one is the best? Sports drinks provide electrolyte replacement and carbohydrates for hydration and a quick source of energy. Sports drinks include electrolytes such as sodium, potassium and magnesium. Athletes who sweat a lot and have salty sweat are the ones who most need electrolyte replacement. If athletes are provided with water and an electrolyte replacement drink, generally the athlete will choose the drink or mix the drinks to create a solution which closely matches what they lose in sweat. For example, players who are salty sweaters will choose the sports drinks where as those whose sweat is dilute (not salty) will choose to drink water.

Having high carbohydrate solution in sports drinks provides a quick energy boost and is beneficial before a game, at halftime and after a game. High carbohydrate drinks should have about 8% carbohydrate solution, but no more than 10%. Adding more carbohydrate over 8-10% does not provide an added benefit. However, research has shown that adding a small amount of protein to the drink does improve performance. The best ratio of carbohydrate to protein is a 4 to 1 ratio. Accelerade is an example of a high carbohydrate sports drink with a 4 to 1 ratio of carbohydrate to protein. Make sure to check those nutrition labels when considering which drink to buy. But remember that when exercising at a low intensity or for less than one hour, sports drinks are not necessary.

To summarize, it is important for athletes to stay hydrated to prevent a decline in performance. Players need to drink even when they do not feel thirsty because the thirst mechanism will not kick in until after the player has lost 2% body weight from water loss. Sports drinks are beneficial to replace electrolytes lost in sweat and to provide a quick energy boost when exercising for greater than one hour.

## Q & A

### Should I drink water or a sports drink?

*When exercising for <1 hour it does not matter. If exercising at high intensity for >1 hour it is beneficial to drink a sports drink.*

### How do I know if I am dehydrated?

*Some signs and symptoms of dehydration are: thirst, headache, dizziness, decreased urination, and dark-colored urine.*

### What are the consequences of playing when dehydrated?

*An athlete may experience less than optimal performance as well as the possibility of more serious conditions like heat exhaustion or heat stroke.*

### How do I know if I have heat exhaustion?

*Some signs and symptoms of heat exhaustion are: excessive sweating, fatigue, headache, pale clammy skin, thirst, rapid heart rate, dizziness, nausea or vomiting, muscle cramps, and mild increase in temperature. If you have these symptoms you should see a qualified medical professional.*



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