Hydrating Kids - Why Children Have Special Needs
By Suzanne Nelson, Sc.D., RD

While the most important part of any athlete's diet is fluids, the type, amount, timing, and even temperature of fluids consumed by a preadolescent child before, during, and after exercise play an especially critical role in maintaining the health and optimal performance of your child athlete because they react differently to exercise and heat differently than adults, or even teenagers.

Children are at increased risk of dehydration and heat-related illness because they:
1. Sweat at a lower rate (both in absolute terms and per sweat gland)
2. Tolerate temperature extremes less efficiently
3. Get hotter during exercise
4. Have more skin surface for their body weight (that results in excessive heat gain in extreme heat and heat loss in extreme cold)
5. Have hearts that pump less blood; and
6. Adjust more slowly to exercising in the heat (a child may require five or six sessions to achieve the same degree of acclimatization acquired by an adult in two or three sessions in the same environment).

As a result, parents, trainers and coaches need to:
1. Educate youth athletes about the importance of hydration and the dangers of heat-related illness
2. Take precautions to minimize the risk of heat illness
3. Ensure that they drink enough fluids before, during and after sports.

Here are the key points to keep in mind in making sure your child gets adequate fluids while playing sports:

• **Kids should drink before, during and after sports**. To prevent dehydration, or, worse yet, heat illness, you should encourage your child to drink cool fluids before, during, and after physical activity.

• **Kids should drink on a schedule, not when thirsty**. Your child need to regulate his fluid intake by drinking according to a schedule, rather than in response to thirst, because thirst is not an accurate measure of a child's need for fluid. By the time your child says he is thirsty, he is *already* dehydrated. Consuming cool fluids at regular intervals during exercise protects your child's health and optimizes athletic performance.*

• **Kids should drink from their *own* water bottles**. Children should have their own personalized water bottles and need to be reminded to drink 5 to 9 ounces (10 to 18 1/2 ounce "gulps") every 20 minutes during activity, depending on weight (Teenagers should drink more). Younger children should be given water bottles with marks on the sides showing how much they should drink each time or told how many "gulps" to drink.

• **Kids' fluid intake needs to be supervised**. Children do not instinctively drink enough fluids to replace water losses, so it is essential that you watch to see how much water they actually drink.

• **Kids need to be watched for signs of heat illness**. During prolonged exercise, children and adolescents may not recognize the symptoms of heat strain and may push themselves to the point of heat-related illness. It's your job, and the coach's, to recognize the warning signs and act immediately

Choosing the right fluids

• **Sports Drinks Are Best**. The best source of fluid to hydrate the body is a sports drink. Your child will be more likely to drink the fluids she needs if you give her a flavored sports drink that tastes good and stimulates thirst. While sports drinks are absorbed just as quickly, and promote optimal cardiovascular function and temperature regulation as well as plain water, they offer the following advantages:

o Sports drinks contain glucose and sodium, which increase the rate of fluid absorption by the small intestine;

o By providing carbohydrates for working muscles, sports drinks improve performance during both prolonged exercise (lasting an hour or more) and when exercising for an hour several times a day; and

o They encourage drinking by "turning on" the thirst mechanism (research has shown that children stay better hydrated when drinking sports drinks compared to plain water).

For optimal absorption and performance, look for sports drinks that contain:

o 4 to 8% carbohydrate (10 to 18 grams per 8 ounces)
o About 36 to 77 calories per 8 ounces.

Because most sports drinks contain 5 to 8% carbohydrates, it's a matter of personal preference: have your child try several sports drinks to find the one that works best for her. Note, however, that research has shown that children and those in early adolescence prefer *grape-flavored* sports drinks to apple or orange.

• **Avoid sugary or carbonated beverages**. Beverages that contain more than 10% carbohydrate (about 96 or more calories per 8 ounces), such as fruit juices, or are high in fructose, like carbonated soft drinks, should be avoided. They are absorbed more slowly and can causes stomach cramps, nausea, bloating and diarrhea.

• **Avoid caffeinated beverages**. Children should avoid drinking ice tea or soft drinks containing caffeine because they are diuretics (promote urination), and because the potential side effects - agitation, nausea, muscle tremors, palpitations and headaches - work against peak athletic performance.

*** Note to parents of water and winter sport athletes**. Don't be lulled into thinking your child doesn't have as great a need to replace fluids as other athletes. A swimmer still loses body water through sweat in the pool, and can become dehydrated by sitting on the pool deck (a hot, humid environment) between exercise sessions or during a long meet (they always are!). Winter sports athletes (figure skaters, hockey players, skiers) also may not realize the importance of fluid replacement because they practice and play in a cool or cold environment, and because their clothing and equipment reduces the ability of the body to cool itself.

Fluid Guidelines For Young Athletes
By Suzanne Nelson, Sc.D., RD

Surprising, as it may seem, the most important part of an athlete's diet isn't what they eat, it is what and how much they drink. Hydration before, during and after exercise is especially important for preadolescent children because they have special fluid needs compared to adults, or even teenagers. As a parent or coach, you are responsible for taking precautions to prevent heat illnesses in exercising children and making sure they drink enough fluids.

One of the most important functions of water is to cool the body. As a child exercises, his muscles generate heat, raising his body temperature. When the body gets hot, it sweats. The

evaporating sweat cools the body. If the child does not replace the water lost through sweating by drinking more fluids, the body's water balance will be upset and the body may overheat.

To keep from becoming dehydrated, your child must drink fluids before, during and after exercise. To promote fluid intake in kids, fluids containing salt (i.e. sports drinks) have been shown to increase voluntary drinking by 90% and prevent dehydration compared to drinking plain water. To ensure that your child is drinking enough, you should see that she drinks fluids according to the following schedule:

Ages 6 to 12:

Before Sports
Drinking fluids prior to exercise appears to reduce or delay the detrimental effects of dehydration.
• 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

During Sports
• 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)

After Sports
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

Ages 13 to 18:

Before Sports
Drinking fluids prior to exercise appears to reduce or delay the detrimental effects of dehydration.
• 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

During Sports
• Every 20 minutes: Between 5 and 10 ounces of a sports drink, depending on weight

After Sports
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

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