

## Athletes – Adjusting to the Heat

A large concern of parents and coaches alike is the safety of children as they go back into school sports and athletics. Most heat-related problems occur within the first few days of activity for athletes going into a practice schedule.<sup>1</sup> Athletes and coaches should be encouraged to slowly get used to working in the heat.<sup>2</sup>

Here are some guidelines for activity in a hot environment that can help your athlete adjust to the heat and keep heat illness at bay:

- Get used to the daytime heat by working out in it for 20 minutes a day. Work up to 30-60 minutes 5 to 10 days ahead of the sport start date.<sup>2</sup> Note that young athletes may need up to 14 days to safely acclimate to heat;<sup>12</sup> therefore, young athletes should take a two-week period to adjust to the heat.<sup>3</sup>
- Stretch before and after exercise.<sup>2</sup>
- Take in fluids before, during, and after practice or competitions.

**Before:** Drink 1-1/2 to 2-1/2 cups of cold water 10 to 20 minutes before exercising in the heat (1 cup = 8 ounces).

**During:** Try to match fluid loss with fluid intake. A rule of thumb would be about 1 cup of water every 10 to 15 minutes.

**After:** Continue drinking water after the activity, even if you don't feel thirsty. It can take up to 12 hours to achieve fluid replacement after strenuous activity.<sup>2</sup> Athletes should try to

replace fluid deficit within 1 to 2 hours after exercise is complete.<sup>4</sup>

Note: While water is fine for activity up to 30 minutes in duration, for activity 30-60 minutes in duration, encourage sports drinks. A flavored sports drink may promote an increase in the quantity of fluids consumed.<sup>3</sup> Avoid carbonated or caffeinated beverages. They are absorbed at a slower rate and can cause greater dehydration due to their diuretic effect (frequent urination).<sup>2</sup>

- Have convenient access to hydration for scheduled breaks as well as outside of scheduled breaks.<sup>3</sup> Overdrinking should also be avoided since it can compromise physical performance and health due to low sodium levels in the blood – this condition is rare but can occur among endurance athletes.<sup>5,6</sup>
- Have athletes weigh themselves before and after practice. Their goal should be to regain weight lost during practice (within 1 to 2 pounds) between practice bouts.<sup>2</sup> Note that this weight loss is water loss, not fat loss.
- Encourage athletes to check the color of their urine during training/competitions in the heat. Urine should be clear and normal quantity, indicating good hydration. Dark yellow and/or reduced quantity indicates dehydration.<sup>2</sup>
- After an exercise period, don't just stop cold and rest.<sup>7</sup>

Make sure athletes cool down immediately following strenuous exercise.<sup>2</sup> Athletes should move about at low intensity for 10 to 20 minutes after exercise to remove lactic acid that has accumulated. During exercise, lactic acid builds up in the muscle and can cause soreness, fatigue, and possibly cramping.<sup>7</sup> Cool down is very important for recovery between multiple bouts of exercise, such as "2-a-days."<sup>2</sup> Cooling down can help athletes feel better as well as reduce muscle soreness.<sup>7</sup>

- Encourage exercise before 10 am or after 6 pm, when it is likely to be cooler outdoors. If possible, exercise/practice in shaded areas.<sup>8</sup>
- Wear light-weight (like cotton), loose fitting, light-colored clothing as much as possible. Minimize the amount of equipment and clothing worn by athletes/players in hot and humid conditions, particularly during the acclimation period.<sup>3</sup>
- Take steps to avoid sunburn. Sunburn decreases the body's ability to cool itself.<sup>8</sup> Encourage athletes to use a sunscreen with SPF 15 or higher and to reapply it as needed. Wear a hat to cover the face and neck.



- Provide proper rest periods during and in between practice sessions.<sup>3</sup>
- Encourage athletes to get plenty of sleep. Most young athletes need a minimum of 7-8 hours of sleep to recover from strenuous activity. Encourage rest or naps during leisure time if an athlete needs to catch up on sleep.<sup>2</sup>
- Those who are supervising athletes should be able to recognize the basic signs and symptoms of dehydration and heat illness.<sup>6</sup> Remember, children produce more heat, sweat less, and may be less likely to drink enough fluids during exercise.<sup>1</sup> So, it is the responsibility of the adults in charge to be sure that children remain safe in the heat by taking appropriate precautions.

Parents, athletic staff, athletes, and kids of all ages should be educated about the negative effects of heat and how to minimize them. Modifications should be made when it is hot, especially when working with prepubescent and adolescent athletes, but also for anyone who is not yet acclimated. Taking steps to adjust to the heat, staying hydrated, and simply staying out of the hottest parts of the day can go a long way to prevent heat illness.

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## A Measure of Heat: Wet Bulb Globe Temperature

"Sometimes, it's just too hot and muggy to go full throttle on the field. To determine when heat and humidity make strenuous exercise inadvisable for youngsters, coaches should use a device called a psychrometer to measure wet bulb globe temperature (WBGT)."<sup>1</sup>

The WBGT is the standard index of temperature and humidity combined. The American Academy of Pediatrics (AAP) has issued these guidelines for safe outdoor activity based on WBGT:

- **WBGT below 75 °F.** All activities are allowed, but coaches should be alert for heat-related symptoms.
- **WBGT between 75 °F and 78.6 °F.** Children should take rest periods in the shade for long enough to cool off. They should also drink fluids every 15 minutes.
- **WBGT between 79 °F and 84 °F.** Children who haven't yet acclimated to the heat or who are at higher risk of dehydration and heat-related illnesses should stop playing and get out of the heat.
- **WBGT 85 °F and above.** Cancel or postpone all outdoor games or activities. Practice may be held in an air-conditioned space.<sup>1,9</sup>

If your coach doesn't have access to such a measurement device, he/she can follow guidelines represented by measures of temperature and relative humidity (heat index or apparent temperature). For more information, see the [Parents' and Coaches' Guide to Dehydration and Other Heat Illnesses in Children](#).

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