Preparing For and Playing In the Heat

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When athletes train during the warm summer months, it is important for them to be prepared for the environment in which they will be training and playing.

Heat illness is an inherent risk when exercising in hot conditions and can affect even the best-conditioned athlete. There are a number of different categories of heat illness that can cause harm to an athlete. Failure to respond to an athlete in distress by removing them from activity, cooling their body and giving them fluids can result in severe dehydration and, in extreme conditions, death.

Exercise-associated muscle (heat) cramps are painful, involuntary muscle contractions most often caused by dehydration, electrolyte imbalance and fatigue.

Heat syncope, or light-headedness, is usually seen at the end of a race or after an individual stands for a long period of time after completing a physical activity. The possible weakness, dizziness and fainting experienced during heat syncope can be attributed to pooling of blood in the extremities.

Exercise (heat) exhaustion should be suspected in an athlete whose performance rapidly declines and who lacks the ability to continue exercising. The athlete may experience extreme thirst; dizziness; headache; profuse sweating; weak and rapid pulse; and gray, cool, clammy skin.

Exertional heat stroke is an elevated core temperature to a level (104° F) that causes organ failure. This condition is life-threatening unless promptly recognized and treated. Confusion, disorientation, profuse sweating, hot, red skin, hyperventilation, loss of balance, rapid pulse and possible loss of consciousness are all signs to look for in an athlete suffering from heat stroke.

Athletes especially at risk for developing a heat illness are individuals who are overweight, dehydrated, under-conditioned or very muscular. Those who practice during the hottest times of the day (usually 10 a.m. – 5 p.m.) and who are not acclimated to the environment, have to wear protective equipment (helmet, shoulder pads) or have a history of heat illness are also at elevated risk.

There are several factors that should be addressed to improve an individual's tolerance to warm environments and to prevent heat illness from occurring. Maintaining hydration by matching

fluid intake with water lost through sweat is one of the most critical factors in preventing heat illness. Athletes should be instructed to drink water throughout the day (at least half of their body weight in ounces), before practice (7-10 oz. 20 minutes before exercise), during practice (8-10 oz. every 15 minutes), within two hours after practice (24 oz. for every pound lost) and on successive days.

If an athlete is training for periods longer than 90 minutes, an 8-10 oz. sports drink can be consumed to replace electrolytes lost through sweat. Fluid should be easily accessible and in abundance throughout the training session and should not contain caffeine, carbonation or alcohol. An athlete's level of hydration can be monitored by observing the color of his or her urine, which should be clear to light yellow, and by monitoring pre- and post-practice body weight. Body weight taken before and after training sessions can be used to determine if adequate amounts of fluids are being consumed (to replace fluids lost through sweat) between training sessions and to determine if unsafe (greater than 2 percent of body weight) weight loss has occurred during the training session.

Heat acclimatization or practicing in the environment the athlete will be playing in will allow the body to adapt to the warm environment, which will improve performance and heat tolerance. Athletes should progressively increase the intensity and duration of their training sessions over a 10-14 day period to become fully acclimated to their environment. Initially, training sessions should last 15-40 minutes for the first couple of days and can progress to a two- to four-hour training session by day 14. An individual properly acclimated should be able to train in the warm environment for one to two hours at an intensity equal to competition.

Choosing clothing and equipment that is light-colored, loose-fitting, and moisture-wicking will help keep an athlete cool. As the temperature increases, athletes should minimize the amount of clothing and equipment (helmet, shoulder pads) worn. The body's ability to cool itself through the evaporation of sweat decreases significantly as the amount of equipment worn increases. Athletes who must wear protective equipment should allow time to start training in shorts and T-shirt and gradually add equipment each day as their bodies acclimate.

Exercising at the right time of day and at the right temperature can also help decrease the chance of heat illness. The risk for developing heat illness is extremely high when the Wet-Bulb Globe Temperature is greater than 82° F (28° C). At these temperatures, athletes should consider rescheduling their training session for another day or moving it to early morning or late evening to avoid the hottest period of the day. If competition must occur in a hot, humid environment, proper hydration must be strongly encouraged and precautions such as longer and more frequent water breaks, removing equipment during breaks and taking breaks in cool, shaded areas must be taken to prevent heat illness.

Being aware of these precautionary measures and preparing for the demands a warm environment can put on the body will help decrease the frequency and severity of heat illness in athletes.