heat-induced illness prevention

Young athletes in the North Texas region are challenged with excessive heat, humidity and ozone fluctuations. Heat-induced illness is one of the most preventable sport injuries. These illnesses include dehydration, muscle cramping, heat exhaustion and heat stroke. All can be prevented with proper hydration (drinking fluids to replace fluids lost during sweating) and participating in sports during optimal conditions regarding temperature, humidity and ozone levels.

why is the young athlete more at risk for heat-induced illnesses?

• The young athlete absorbs more heat from a hot/humid environment than the adult athlete due to a greater surface area to body mass ratio. The younger/smaller the athlete, the higher the rate of heat absorption.
• The young athlete (who is more likely to have a decrease in the skin surface area) will have a more difficult time regulating heat absorbed through sweating compared to the adult athlete.
• The young athlete often does not have the physiological drive (how the body signals thirst) to drink during prolonged exercise to replace the fluids lost during the activity.
• The young athlete is more likely distracted by the activity and forgets to rest and replenish lost fluids.
• The young athlete often will not report initial symptoms of a heat-induced illness.
• The young athlete acclimates slower than the adult athlete to hot and humid conditions.

what are the signs and symptoms of heat-induced illnesses?

Dehydration: Noticeable thirst, irritability, fatigue, weakness, dry lips, sunken eyes, nausea, headache, decreased performance, muscle cramping, dark yellow urine, not urinating, lightheadedness, dizziness and/or difficulty paying attention. Dehydration occurs when fluid loss exceeds one percent of body weight.

Muscle cramping: Muscle spasms/knotting, muscle pain, excessive sweating, salty skin appearance and excessive dehydration.

Heat exhaustion: Decrease in sweat production, dizziness, fatigue, rapid heat rate and a sense of feeling cold/goose pimples.

Heat stroke: Very high core body temperature, confusion, extreme lethargy/fatigue, rapid weak pulse, unconsciousness or a sudden collapse. Heat stroke is a medical emergency and death can result if not recognized and treated properly. Seek medical attention immediately.

how can I prevent heat-induced illnesses in young athletes?

Heat-induced illnesses can be prevented by avoiding dehydration using basic hydration guidelines.

<table>
<thead>
<tr>
<th>Pre-game</th>
<th>During game</th>
<th>Post-game</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 hours before practice/game</td>
<td>Every 15 minutes</td>
<td>Drink 16-24 oz. of water and/or sports drink for every pound lost. It is best to weigh the young athlete prior to and after each practice/game.</td>
</tr>
<tr>
<td>4 to 8 oz. of water for under 12 years of age</td>
<td>5 to 9 oz. of water for under 12 years of age</td>
<td></td>
</tr>
<tr>
<td>8 to 16 oz. of water for over 13 years of age</td>
<td>5 to 10 oz. of water for over 13 years of age</td>
<td></td>
</tr>
</tbody>
</table>

Hydration schedules should be tailored to the individual athlete to prevent fluid losses greater than one percent of the body weight.

Recommendations for the young athlete:

• Drink on a schedule, not when thirsty.
• Have individual water bottles to monitor fluid intake.
• Avoid sugary juices/carbonated drinks (as they are not substitutes for water or sports drinks) because they contain more than 10 percent carbohydrate content, primarily fructose, which decreases the absorption of water into the body.
• Avoid all caffeinated beverages, as caffeine is a diuretic and removes water from the body.

CookChildren’s. Sports Performance Orthopedic Rehab Team Specialists

SPORTS
1-866-205-7270

This handout is for information purposes only. It does not replace medical advice from a qualified physician or physical therapist. Cook Children’s Medical Center will not be responsible for any harm or injury resulting from interpretation of the materials.