Cynthia DiLaura Devore, MD

HOT WEATHER PROTOCOLS

INTRODUCTION:
It is important that a few health considerations be kept in mind for safe participation in outdoor activities as the weather reaches hotter temperatures. In general, think in terms of humidity or temperature extremes. Even lower temperatures with extremely high humidity can place a student at risk. Likewise, extremely high temperatures even with low humidity can do the same.

A ballpark guide of need for caution and increased awareness among staff is when temperatures reach 80°F with humidity over 70%. The National Weather Service has a temperature index, similar to cold weather wind chill, you can get from their website at http://www.nws.noaa.gov/om/heat/index.shtml (click tab for heat index). If a student has a medical condition where he/she cannot regulate body temperatures, the nurse will be able to advise staff.

OTHERWISE, MOST STUDENTS CAN SAFELY EXERCISE IN ALMOST ANY HOT WEATHER EXTREME THAT WE GET IN WESTERN NEW YORK AS LONG AS:

1. There is a build-up phase for adaptation and acclimatization spread out over 10-14 days with gradual and progressive conditioning and exertion.

2. Students are educated of the signs, symptoms, and dangers of heat related illness. (see below). Educate student athletes on the merits of proper preparation, ample hydration before, during, and after practice, honest reporting, and effective management of other factors under their control, such as recovery and rest, which will directly affect exercise-heat tolerance and safety.

3. Students are dressed for the weather in loose, light clothing and are reminded to use sunscreen and ideally wear hats. In extreme heat, tight or constraining uniforms should be modified to suit the weather.

4. Students are reminded frequently to drink fluids from their own cups or bottles, or from a faucet style dispenser of shared fluid before, during, and after practice. There is no sharing of cups or dipping into buckets. Exercising students 9-12 years of age should replace 3-8 oz of water every 20 to 30 minutes in extreme heat. Exercising adolescents should replace up to 1 – 1.5 liters per hour.

5. Water is sufficient for activities lasting no more than one hour. For activities lasting more than one hour or for repeat training sessions on the same hot day, liquids supplemented with electrolytes, such as sport drinks, are more appropriate.

6. In extreme heat, students are given scheduled opportunities to cool off, reapply sunscreen, and rest, regardless of how they feel at the moment (at least ten minutes every hour)

7. In extreme heat and humidity for our area (i.e. above 90 degrees F with 100% humidity), the activity level of students and athletes should be adjusted to include
less strenuous activities or drills, shorter training sessions, additional recovery time between scheduled sessions, and longer breaks during practice. In extreme situations, outdoor activity or practices might need to be rescheduled to take place during cooler times of the day, like earlier in the morning or in the evening. Playground activities require heightened awareness of students who appear over-heated, but most playground activities are short and should not create problems. Allowing students to drink after playground is a good idea.

8. Adults believe students if they complain of feeling too hot or ill to participate and allow the student to cool down without penalty

9. Adults understand, recognize, and quickly respond to the symptoms of heat illness

10. Times for water breaks for students inside or outside must be scheduled on extremely hot days. Withholding liquids must never be used as punishment; adding extra punitive “laps” or other strenuous activity as punishment on a hot day is also inappropriate.

11. For children identified with special respiratory conditions, such as but not limited to asthma, adults recognize that symptoms like cough, shortness of breath, or complaints of difficulty breathing require immediate attention. In these instances, the adult should ask the child if they have medicine like an inhaler or Epi-Pen that they take, and ideally refer them to the school nurse or call the parent for assistance. If a nurse or parent is not available and you are not sure when they last took their medicine, before it is given, please seat the student in a cool location and contact their emergency contact.

12. For children with other medical conditions, like diabetes and especially sickle cell disease or trait, or conditions that affect heat regulation, be sure to review the Emergency Care Plan, if available, or speak with the parent and/or school nurse about what the child may do in extreme heat. Be extra vigilant and cautious for signs of poor heat tolerance.

13. Any student and especially an athlete with vomiting or diarrhea within one week prior to training or strenuous outdoor activity should limit or avoid training in hot conditions until fully recovered. If that student seems not to tolerate heat, sit him or her out for the remainder of the session and advise the parent to give the student more recovery time before restarting activity.

14. Supervisory staff should closely monitor all children and adolescents at all times during sports and other physical activity in the heat for signs and symptoms of developing heat illness. Any significant negative changes in performance such as notable signs of struggling, personality changes, or sense of well-being, and appearance, such as pale color, bright red flushing, dizziness, headache, excessive fatigue, vomiting, or complaints of feeling cold or extremely hot, should be sufficient reason to immediately stop participation, offer cooling and hydration, and seek appropriate medical attention for those affected.

15. First aid for evolving heat illness should not be delayed.
SYMPTOMS AND TREATMENT OF HEAT ILLNESS:

Heat illness is entirely preventable. There are three forms of heat illness. Heat illness is an evolving process from least to most dangerous. If you suspect any suggestion of heat illness described below, please take immediate action.

1. **HEAT CRAMPS** are painful and forceful muscle contractions, usually of the thigh or calf. Treatment includes moving the individual to a cool place, giving water or a sports drink (or any fluid available), and allowing rest in many cases for the remainder of the day. Left untreated, heat cramps can evolve to heat exhaustion.

2. **HEAT EXHAUSTION** is a condition with symptoms of exhaustion, normal or near-normal body temperature, thirst and faintness. Treatment includes immediately moving the individual to a cool place, giving cold fluids to drink, and allowing rest for the remainder of the day. However, a physician should be consulted, as recovery may be spontaneous or may actually require intravenous fluid replacement. Untreated heat exhaustion can evolve to heat stroke.

3. **HEAT STROKE** is a serious, life threatening condition. Individuals may have headache, nausea, confusion, agitation, or unconsciousness. There is usually hot, flushed, dry skin (they are so dehydrated, they no longer sweat), high blood pressure initially, and a rapid pulse (again from fluid depletion). The body temperature is elevated as high as 108°F. Untreated, this condition can evolve to shock and/or death. **THIS CONDITION IS A LIFE THREATENING MEDICAL EMERGENCY and must be handled correctly and promptly to prevent death.** Fluid replacement almost always requires intravenous delivery. Therefore, at the first sign of heat stroke for any child or adolescent who collapses or exhibits moderate or severe central nervous system dysfunction or change in mental status during or after practice, competition, or other physical activity in the heat, especially if the athlete is wearing a uniform and/or protective equipment potentially contributing to additional heat storage, 911 with advanced life support should be immediately activated.

**PROPER EMERGENCY RESPONSE FOR HEAT STROKE**
- Call 911 immediately, and remove child to shade or air-conditioned room
- Remove or loosen the individual’s clothing,
- Either immerse the person in ice water or place ice on the neck, groin area, and armpits.
- Loosen, open, or remove uniforms and helmets.
- Begin on-site whole-body rapid cooling using ice packs or cold water to armpits, neck, and groin.
- Promptly move the victim to the shade and rotate ice water-soaked towels to all other areas of the body for 10-15 minutes or until signs of improvement emerge or medical support arrives.
- If the child or adolescent is alert enough to ingest fluid, offer sips of cold water while awaiting arrival of medical assistance.
RISK FACTORS ASSOCIATED WITH HEAT ILLNESS:

1. Young age
2. Inappropriate, excessive, or tight clothing
3. Certain medications (diuretics, amphetamines, haloperidol, thyroid hormone, antihistamines, anticholinergics)
4. Underlying medical conditions (diarrhea, vomiting, diabetes, inflammatory bowel disease, asthma, cystic fibrosis, mental deficits or developmental delays, some seizure disorders, thermoregulatory disorders, sickle cell trait or disease)
5. Double session practices where a cumulative effect of dehydration can occur
6. Poor conditioning and/or lack of heat acclimatization, especially with dramatic temperature extremes

If ever you are in doubt about issues of safety or concern, please err on the side of caution. However, if everyone is alerted to the need for vigilance, water availability, shady rest areas, and some modifications of practice in hot weather extremes, in general heat illness can be prevented and students can enjoy this brief window of warmth and sunshine. In general, as long as the precautionary measures and understanding of heat illness are in place, there is almost no reason to cancel school or sport activities because of hot weather extremes. Please do not hesitate to contact me at 585-721-1918 with any additional questions.