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Author: Geri Patrone
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Guidelines for Preventing Heat Stress

To counteract all heat stress, all District personnel must pay attention to weather conditions and use common sense and good judgment for modifying activities and /or school days. This policy applies to all school-sponsored activities.

I. Introduction

To mitigate potential heat stress, all District personnel must pay attention to these contribution factors:

- Air Temperature
- Humidity
- Air circulation
- Radiant heat
- Air pollution
- Classroom temperature
- Classroom location
- Medical problems and use of medications
- Fluid intake
- Appropriate clothing
- Physical conditioning
- Acclimation to heat
- Intensity, type and duration of exercise

Heat Stress is the overall effect of excessive heat on the human body. The body dissipates heat in various ways: by increasing blood circulation, by losing water through sweating, and as a last resort, by panting or altered breathing. When heat gain exceeds the level the body can remove, body temperature begins to rise and heat related illnesses and disorders may develop.

Those at highest risk are the very young, the elderly, people with acute or chronic health problems, and people using certain medication or taking illicit drugs. For various reasons, not all people tolerate heat to the same extent.

Heat Index is a measure of how hot it really feels when relative humidity is factored with the actual air temperature. High relative humidity slows evaporation of water, and therefore counteracts the cooling mechanism of sweating. Most heat alert procedures are based on a heat index, rather than just temperature. To estimate the Heat Index using temperature and relative humidity, see the Heat Index chart below.

The Heat Index																					
Air Temp (° F)	Relative Humidity (%)																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
122°	107	112	119	126	135	143															
119°	106	109	115	121	128	136															
116°	104	107	112	117	123	130	138	146													
113°	102	105	109	112	116	123	129	137	145												
110°	99	102	105	108	112	117	123	130	137	143	152										
107°	96	99	101	104	107	112	117	122	128	134	141										
104°	94	96	99	101	104	107	111	115	120	126	132	136	144								
101°	92	94	97	98	100	102	105	109	113	118	123	130	135								
98°	89	91	93	94	85	98	100	103	106	109	113	118	123	130	137						
95°	87	88	90	91	92	93	95	98	99	103	106	110	114	119	124	130	136				
92°	85	85	87	88	88	89	90	92	94	97	99	102	105	108	113	117	122	127	131		
89°	82	83	84	84	85	86	87	88	89	91	93	95	97	100	103	106	110	114	118	122	126
86°	79	80	82	82	83	83	84	85	85	87	88	90	92	94	96	97	100	103	105	108	112
83°	76	77	78	79	80	81	81	82	82	83	84	85	86	88	90	91	94	95	96	99	103
80°	73	74	75	76	77	77	78	78	79	80	81	81	82	83	85	86	86	87	88	89	91
77°	71	71	72	73	74	74	75	75	76	77	77	78	79	79	80	81	82	83	84	84	85

Exposure to full sunshine can increase Heat Index values by up to 15° F.

Heat Index	Category	Possible heat disorders for people in high risk groups
130°F +	Extreme Danger	Heatstroke risk extremely high with continued exposure.
105° - 129°F	Danger	Sunstroke, Heat Cramps and Heat Exhaustion likely, Heatstroke possible with prolonged exposure and/or physical activity.
90° - 105°F	Extreme Caution	Sunstroke, Heat Cramps and Heat Exhaustion possible with prolonged exposure and/or physical activity.
80° - 90°F	Caution	Fatigue possible with prolonged exposure and/or physical activity.

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II. Conditions for Modifying Classroom Activities or School Day

The District's Environmental Health and Safety office will provide advisories upon receipt of heat alert notices from the local health department and may send additional information during periods of inclement weather; however, all schools and offices must comply with these guidelines regardless if an advisory has been distributed.

The decision to modify school activities will be made by the school principal after consulting with the District's Superintendent.

Attachment A provides a guideline for consideration in modifying instructional programs, physical activity, and school schedules based on the Heat Index.

Please Note:

Students with certain health problems may require more attention. If students complain about the heat, allow them to rest and inform school administration who may want to have their health status clarified by a parent or guardian.

Employees with specific health problems making them more sensitive to heat should alert the site administrator.

On very hot, humid days, administrators, teachers, and other staff should be aware of the following procedures to help minimize possible heat stress;

- A. Faculty and staff must be informed at the beginning of the spring semester and as needed thereafter, about the school's program for preventing heat stress, and the most efficient methods for reducing heat and maximizing ventilation in the classrooms.
- B. Doors and windows must be closed in air-conditioned rooms, and any air conditioned equipment malfunction should be reported at once through the work order system, and a phone call to Facilities Management.
- C. When possible, all air-conditioned rooms should be used as classrooms.
- D. Non-air conditioned classrooms should be surveyed by teacher or principal's designee when temperatures require that maximum cooling efforts be instituted, including:
 1. Windows, doors, transoms, and venation blinds should be adjusted for maximum ventilation and air circulation.
 2. Electric fans, where available, should be placed to bring in fresh air and exhaust stale air rather than just blowing it around the room. Fans should be placed in or next to an open window at one end of the room to bring in air, and a window or door (not one that opens into a hall) at the opposite end of the room should be opened to exhaust the air. For rooms with unusual heat problems, installing an electric fan in one window or transom and covering it with security screen should be considered. Fans should be turned on as early as possible.

3. Adjusting custodial hours should be considered by supervisors to permit early entry into classrooms to open doors, windows, transoms, and turn on fans.
 4. Precautions should be taken to ensure that when fans, coolers, or other devices are used they meet safety standards and that cooling strategies do not place an overload on existing electrical systems.
- E. When classroom temperatures exceed 92° F, consideration should be given to moving students to cooler rooms or other appropriate areas, such as the auditorium, multipurpose rooms, library, or shaded outdoor areas. When possible, classes should be combined in air-conditioned rooms not to exceed the occupancy load.
- F. Teachers, especially at the elementary level, may adjust their programs to use the cooler early hours for physical activity.
- G. Water must be available. Personal water containers are recommended for use when heat is excessive as a means to prevent dehydration. Use at other times should be a local school option. School sites and secondary physical education departments should establish policies for use of water containers and inform students and parents.

A personal water container is a firm, non-breakable plastic receptacle which is no more than 9” high and 4” wide that will hold no more than 32 ounces of water. The container may have a pressure seal, screw or pop-up cap, or a straw drink device on its top. The use of all other types of personal water containers is prohibited. The following are recommended precautions:

1. For health reasons, water containers should not be shared.
 2. For safety reasons, 1) students should not run with straws or containers in mouth, and 2) containers may not be used while riding District buses.
 3. Students should not bring containers to physical education activity areas unless given permission by the physical education teacher.
- H. Staff and all personnel supervising physical activities, including after-school Boys and Girls Clubs, should observe students during activity periods and modify activities as recommended in Attachment A. Students known to have health problems should be closely observed and their activity modified or restricted.

III. Strategies for Preventing Heat Stress During the School Day

- A. Each school should review this bulletin with their staff on an annual basis. Teachers, staff, parents, and students should be instructed by school nurses regarding awareness of signs and symptom and first aid for problems attributable to excessive heat. Teachers should explain precautions to students.

- B. A “cool room” should be established for use by students showing early signs of heat stress. This should provide maximum coolness possible. During an emergency if an air-conditioned classroom is to be used as a "cool room" and is occupied by students, the students should be moved to another location. During excessive heat the “cool room” should be available for use at all times during the school day.

Students showing any signs of heat stress should be cared for using the guidelines in Attachment B.

- C. Prior to boarding buses, traveling students should be encouraged to drink water and be given time to drink cool water located near the pickup areas. For safety reasons, personal water containers may not be used while riding District buses. When the Heat Index is 95 or greater, schools may consider providing large moist towelettes for use by students.

IV. Strategies for Preventing Heat Stress During Athletic Practice and Completion

1. Conditioning period: It is recommended that all sports have a minimum of five (5) days of pre-practice progressive conditioning prior to more strenuous and sport specific practices to develop the level of conditioning necessary for more strenuous and stressful workouts. Pre-conditioning workouts should incorporate strength, endurance, speed, plyometric, agility and flexibility training in a progressively and structured program.
2. Progressive build-up to acclimate to extreme heat conditions should include:
 - a. Shorter workouts
 - b. Reduce pace of workout
 - c. Reduce required equipment
 - d. Modify drills
 - e. Increase breaks between work periods
 - f. Plenty of ice water available during practice
 - g. Cooling areas
 - h. Educate students and coaches on pre-hydration and adequate hydration during activity.
 - i. Postpone or schedule practice session during cooler period of day.
 - j. It is recommended that football not be allowed to have two-a-day workouts.
3. Include information and strategies for preventing heat related injuries at annual coaches meeting. This presentation would include:
 - a. Cases of heat related injuries
 - b. Hydration and preventive strategies
 - c. Using the Heat Index ranges to identify activity recommendations and modification strategies.

4. Use current medical health history and physical to identify students susceptible to or at high risk for heat related injuries. Students identified as high risk should be removed from participation at a lower Heat Index. These would include:
 - a. Students with history of previous heat illness
 - b. All current illnesses and
 - c. Students who have experienced recent injuries.

Attachment A

Category	Outdoor Instructional Activities including Physical Education and Events	Precautions and Practice Lengths	SUGGESTED Fluid Intake
Under 95 Deg. F Heat Index "Green Flag"	Learning skills decrease with long exposure Heat Index is above 95 Deg.	Low to Moderate Risk. Use caution for practice sessions and monitor on basis of risk factors. Workout; Res Ratio as needed or 6:1	Fluid Replacement beverages should be easily accessible in individual fluid containers to permit easier monitoring of fluid intake. Allow athlete to carry water bottle of hydration when practical.
95 Deg. To 99 Deg. Heat Index "Yellow Flag"	Encourage loose-fitting light colored, lightweight clothing; encourage wide brimmed hats and sun screen (sun Protection Factor [SPF] 15 or higher) during recess and outdoor activities; encourage students to bring water bottles or take frequent water breaks; Increase room ventilation (open window/doors, use fans); provide wet wipes, damp clothes and/or spray bottles to cool forehead, arms legs and face	High Risk: Use increased caution for practice sessions and consider modifying practice lengths and intensity level. Decrease physical activity at recess and in PE classes and limit recess to cooler morning hours. Workout Ration 2-3:1	Athlete should consume approximately 17-20 fluid oz of water 2-3 hours before exercise and 7-10 fluid oz of water 10 to 20 minutes before exercise. Fluid replacement should occur every 10-20 minutes 7-10 fl. Oz.
100 Deg. To 105 Deg. Heat Index "Red Flag"	All of the above mentioned and move students/staff to cooler areas of the building, as often as necessary, to avoid being in the above 90 Deg Heat Index areas for longer than 60 to 90 minutes at a time.	Very High Risk: If possible, events should be rescheduled or delayed until safer conditions prevail. If the event must take place, be on high alert. Take Steps to reduce risk factors (e.g., more and longer rest breaks, reduced practice time, reduced exercise intensity, access to shade, minimal clothing and equipment, cold tubs at practice site, etc.) Heat index should be rechecked every 30 minutes. Workout: Rest Ration 1-2:1	Mandatory water breaks every 20 minutes in duration. Traditional sports drinks with appropriate carbohydrate (CHO) and sodium may provide additional benefit for the athlete. A 6-8% addition of CHO to water is the maximum that should be utilized. All fluids should be cold to optimize gastric emptying.
Above 105 Deg. Heat Index "Black Flag"	All of the above and immediately move the students/staff to cooler areas of the building. If there are no suitable locations below the "Black Flag" level, immediately contact the Office of Environmental Health and Safety (OEHS) the Superintendent's Office to determine what actions, including the possible dismissal/modification of school to initiate.	Extreme Risk. No Practice. Heat Index should be rechecked every 30 minutes	All students must have water readily available to them

Attachment B

Heated Related illnesses, Signs/Symptoms and Treatment

Heat Illness	Definition/Description	Signs/Symptoms	What to Do
Muscle (Heat) Cramps	Occurs during or after intense exercise. Athlete will experience acute, painful, involuntary muscle contractions typically in the arms, legs or abdomen.	<u>Dehydration</u> <u>Thirst</u> <u>Sweating</u> <u>Muscle Cramps</u>	<ul style="list-style-type: none"> • Stop all activity in a cool place. • Drink clear juice or a sports drink. • Do not engage in exercise/strenuous activity for a few hours after cramps subside, as this may lead to heat exhaustion or heat stroke. • Seek medical attention if heat cramps do not subside in 1 hour.
Heat Syncope	Occurs as result of exposure to high temperatures. Typically occurs during the first 5 days of acclimation to physical activity in the heat. May also occur after long period of standing after physical activity.	Dehydration Fatigue Fainting Lightheadedness Tunnel Vision Pale or sweaty skin Decreased pulse rate	<ul style="list-style-type: none"> • Lie down in a cool place • Drink clear juice or sports drink
Heat (Exercise) Exhaustion	The inability to continue exercising that is associated with heavy sweating, dehydration, energy depletion, and sodium loss. *Frequently occurs in hot, humid conditions.	Normal or elevated body-core tem (97-104° F) Dehydration Dizziness/Lightheadedness Headache Nausea/Diarrhea Weakness Persistent Muscle Cramps Profuse sweating Chills Cool, clammy skin	<ul style="list-style-type: none"> • Seek medical attention immediately if symptoms are severe, the athlete has existing heart problems or high blood pressure. • You may attempt to cool the athlete by giving: cool, non-alcoholic beverages (as directed by physician), res, cool shower/bath/sponge bath, moving to an air conditioned environment, and wearing lightweight clothing.
Heat Stroke	Life-threatening unless promptly recognized and treated. Occurs as a result of prolonged heat exposure while engaging in physical activity. Symptoms are a result of the body shutting down when it is no longer able to regulate temperature naturally.	Same Symptoms as Heat Exhaustion and High body-core temp (.104° F) Change in Mood (e.g., apathy, irrational) Hot and wet or dry skin Increased heart rate Confusion	<ul style="list-style-type: none"> • If any symptoms are evident-Call 911 or seek immediate medical assistance. • Move athlete to shady area. • Cool athlete rapidly using whatever methods you can; immerse the victim in a of cool water;; place the person in a cool shower, spray the victim with cool water from the hose, sponge the person with cool water, fan the athlete. • Monitor body temperature and continue to cool the athlete until temp drops to 101-102° F. • Continue until medical professionals arrive and take over. If medical attention is delayed, call the emergency room for further instructions.