

# Heat Illness Awareness & Prevention Plan for Athletics

This Heat Illness Plan is designed to build awareness and common practice within athletics and across the Irvine Unified School District. In addition to prevention and response guidelines, charts are provided to aid in determining when athletic activities should be altered and/or cancelled based on heat index readings. Site decisions based on local conditions will generally be the rule. However, in extreme heat or weather conditions, direction from district office staff may be necessary.

## **Prevention**

The best way to deal with heat illness is prevention. Prevention includes educating athletes and coaches regarding: recognition and treatment of heat illness; risks associated with exercising in hot, humid environmental conditions; the need for gradual acclimatization for a 10 to 14 day period; guidelines for proper hydration; and following practice/competition modifications based on the local temperature and relative humidity readings.

Heat stress problems occur when: 1) Prolonged perspiration causes dehydration and electrolyte depletion, and 2) External conditions, high air temperature and humidity, impair the body's natural mechanisms for dissipating heat. The heat stress problems seen in athletics are: Heat Cramps, Heat Exhaustion and Heat Stroke.

### **Heat Cramps**

- *Muscle twitching*
- *Muscle cramps*
- *Sweating*

#### ***Treatment***

- *Stop activity and sit in a cool place*
- *Drink clear juice or a sports beverage*
- *Apply stretching and light pressure until cramps subside*

### **Heat Exhaustion**

- *Sweating profusely*
- *Weak and rapid pulse*
- *Cool and clammy skin (pale)*
- *Excessive thirst*
- *Dry tongue and mouth*
- *Fatigue (weakness)*
- *Shallow respirations*
- *Nausea/Vomiting*
- *Dizziness*
- *Elevated core body temp. (up to 104 degrees F.)*

#### ***Treatment***

- *Move athlete to shady area or air conditioned environment*
- *Drink clear juice or a sports beverage*
- *Take cool shower/bath*
- *Remove excess clothing/pads*

### **Heat Stroke (Medical Emergency)**

- *Possible absence of sweating*
- *Increase in pulse (strong and rapid)*
- *Hot and dry skin (flush skin color)*
- *Sensation of burning up inside*
- *Dizziness (mental confusion)*
- *Abrupt onset of headache, fatigue*
- *Labored respirations*
- *Nausea/Vomiting*
- *Unconsciousness*
- *Elevated core body temp. (105 – 109 deg F)*

#### ***Treatment***

- *Call 911*
- *Cool Victim rapidly, using whatever methods available; apply ice packs to armpits, groin and neck areas, place victim in ice tub, use cool water towels*
- *Remove excess clothing/pads*

*\*Those supervising athletes should be able to recognize these basic signs and symptoms of dehydration. A conscious, cognizant, dehydrated athlete without gastrointestinal distress can aggressively rehydrate orally, while one with mental compromise from dehydration or gastrointestinal distress should be transported to a medical facility (activating EMS/911)*

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## Preventing Heat Stress

### 1) **Ensure pre-exercise hydration**

Remember fluids throughout the day. Student athletes should have water bottle or sports drink with them throughout the day. They should drink up to 64 oz a day before athletic activity.

### 2) **Fluid replacement during exercise**

Fluid replacement should approximate sweat and urine losses and at least maintain hydration at less than 2% body weight reduction. This generally requires 200 to 300 ml ( to 10 fl oz) every 10 to 20 minutes.

### 3) **Post exercise hydration**

Ideally completed within 2 hours, rehydration should contain water to restore hydration status, carbohydrates to replenish glycogen stores and electrolytes to speed rehydration.

### 4) **Acclimatization**

Heat acclimation induces physiologic changes that may alter individual fluid replacement considerations. It is suggested that a graduated physical conditioning program be used and that 80% acclimatization can be expected to occur after the first 10 days. \*\* Sweat rate generally increases after 10 to 14 days of heat exposure, requiring a greater fluid intake for a similar bout of exercise.

### 5) **Adequate rest breaks during exercise**

Intensity of exercise increases metabolic heat production, which elevates core body temperature. Rest breaks every 15-20 minutes for 3-5 minutes can help lower core body temperature.

### 6) **Practice Modifications**

Depending on temperature, practice modifications can assist with the body's ability to maintain safe core temperature and allow the body a better opportunity to cool during exercise.

## Practice Modifications

In determining safe athletic participation, the air temperature and relative humidity (RH) must be identified and used to determine whether or not practice/competition should be modified, postponed or cancelled.\*\* If the source of temperature readings is in question, it is advised to be conservative and follow the modifications of the higher zone/flag. Temperature measurement can be obtained by using a sling psychrometer, heat index monitor or from various internet weather-related sites such as: [www.weather.com](http://www.weather.com)

Athletic Trainers will:

- Collaborate, communicate and advise when heat related conditions are not safe to conduct physical activity
- Monitor temperature and humidity readings (by A.T. or assigned school personnel)
  - Temperature readings will be done on different surfaces (turf, grass, concrete, and gyms) and at approximately waist height
  - First temperature readings will be taken by at least 12 pm with a follow up reading by 1pm (to accommodate any transportation changes)
  - Temperatures will be monitored throughout practice/competitions

Coaches must insure that:

- When heat is a concern collaborate with the athletic trainer and administration on modifications that may be necessary
- Each athlete is allowed water at anytime
- Planned water breaks are placed on the practice schedule
- Allow athletes a minimum of 3 minutes during planned water breaks, to reduced metabolic heat production and encourage evaporative cooling.

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- Remove helmets
- A shaded “cooling zone” is available
- Ice/cool towels

### **Suggestions for accommodations:**

- Move practice location (i.e. natural grass, or only on campus activities)
- Move practice indoors (as indoor temps allow)
- Move practice to morning or evening
- Equipment removal when not in live play (i.e. helmets)
- Allow for gradual addition of pads and intensity as the temperature changes

**Game modifications** may vary upon collaboration with Certified Athletic Trainers, Administration, Coaches and Game Officials.

\*\*Determinations and measurements of heat index will be site specific.

### **References:**

Hot Weather Guidelines for Athletic Practice by the Orange County Department of Education  
Hot Weather Guidelines for Schools by the Orange County Department of Education  
National Athletic Trainers’ Association Position Statement: Preventing Sudden Death in Sports  
National Athletic Trainers’ Association Position Statement: Exertional Heat Illness  
National Athletic Trainers’ Association Position Statement: Fluid Replacement for the Physically Active  
National Federation of State High School Federation  
American College of Sports Medicine Position Statement Exertional Heat Illness During Training and Competition  
Gilbert Unified School District Heat Illness Awareness and Prevention Plan  
Phoenix Union High School District Heat Protocol

# Heat Illness Awareness & Prevention Plan for Athletics

		Relative Humidity (%)																				
		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Temperature (degrees F)	80	77	78	78	79	79	79	80	80	80	81	81	82	82	83	84	84	85	86	86	87	
	81	78	79	79	79	79	80	80	81	81	82	82	83	84	85	86	86	87	88	88	90	81
	82	79	79	80	80	80	80	81	81	82	83	84	84	85	86	88	89	90	91	93	93	95
	83	79	80	80	81	81	81	82	82	83	84	85	86	87	88	90	91	93	95	97	97	99
	84	80	81	81	81	82	82	83	83	84	85	86	88	89	90	92	94	96	95	100	100	103
	85	81	81	82	82	82	83	84	84	85	86	88	89	91	93	95	97	99	102	104	104	107
	86	81	82	83	83	83	84	85	85	87	88	89	91	93	95	97	100	102	105	108	108	112
	87	82	83	83	84	84	85	86	87	88	89	91	93	95	98	100	103	106	109	113	117	116
	88	83	84	84	85	85	86	87	88	89	91	93	95	98	100	103	106	110	113	117	121	121
	89	84	84	85	85	86	87	88	89	91	93	95	97	100	103	106	110	113	117	122	122	
	90	84	85	86	86	87	88	89	91	92	95	97	100	103	106	109	113	117	122	127	127	
	91	85	86	87	87	88	89	90	92	94	97	99	102	105	109	113	117	122	126	132	132	
	92	86	87	88	88	89	90	92	94	96	99	101	105	108	112	116	121	126	131	131		
	93	87	88	89	89	90	92	93	95	98	101	104	107	111	116	120	125	130	136	136		
	94	87	89	90	90	91	93	95	97	100	103	106	110	114	119	124	129	135	141	141		
	95	88	89	91	91	93	94	96	99	102	105	109	113	118	123	128	134	140	140			
	96	89	90	92	93	94	96	98	101	104	108	112	116	121	126	132	138	145	145			
	97	90	91	93	94	95	97	100	103	106	110	114	119	125	130	136	143	150	150			
	98	91	92	94	95	97	99	102	105	109	113	117	123	128	134	141	148	148				
	99	92	93	95	96	98	101	104	107	111	115	120	126	132	138	145	153	153				
	100	93	94	96	97	100	102	106	109	114	118	124	129	136	143	150	158	158				
	101	93	95	97	99	101	104	108	112	116	121	127	133	140	147	155	155					
	102	94	96	98	100	103	106	110	114	119	124	130	137	144	152	160	160					
	103	95	97	99	101	104	108	112	116	122	127	134	141	148	157	165	165					
	104	96	98	100	103	106	110	114	119	124	131	137	145	153	161	161						
105	97	99	102	104	108	112	116	121	127	134	141	149	157	166	166							
106	98	100	103	106	109	114	119	124	130	137	145	153	162	172	172							
107	99	101	104	107	111	116	121	127	134	141	149	157	167	167								
108	100	102	105	109	113	118	123	130	137	144	153	162	172	172								
109	100	103	107	110	115	120	126	133	140	148	157	167	177	177								
110	101	104	108	112	117	122	129	136	143	152	161	171	171									
111	102	106	109	114	119	125	131	139	147	156	166	176	176									
112	104	107	111	115	121	127	134	142	150	160	170	181	181									
113	104	108	112	117	123	129	137	145	154	164	175	175										
114	105	109	113	119	125	132	140	148	158	168	179	179										
115	106	110	115	121	127	134	143	152	162	173	184	184										
116	107	111	116	122	129	137	146	155	166	177	177											
117	108	112	118	124	132	140	149	159	170	181	181											
118	108	113	119	126	134	142	152	162	174	186	186											
119	109	114	121	128	136	145	155	166	178	178												
120	110	116	122	130	138	148	158	170	182	182												
121	111	117	124	132	141	151	162	174	187	187												
122	111	118	125	134	143	154	165	178	178													
123	112	119	127	136	146	157	169	182	182													
124	113	120	129	138	148	160	172	172														
125	114	121	130	140	151	163	176	176														

### Heat Index



Extreme Danger	Heat stroke likely.
Danger	Sunstroke, muscle cramps, and/or heat exhaustion likely. Heat stroke possible with prolonged exposure and/or physical activity.
Extreme Caution	Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity.
Caution	Fatigue possible with prolonged exposure and/or physical activity.

## Heat Illness Awareness & Prevention Plan for Athletics

<p><b>Green Flag</b> <b>Under 95 degrees</b> <b>Heat Index*</b></p>	<p>All Sports</p> <ul style="list-style-type: none"> <li>• Practice/Competition as normal</li> <li>• Provide ample amounts of water</li> <li>• 5-10 minute rest and fluid break every 30 mins</li> <li>• Watch and monitor athletes</li> </ul>
<p><b>Yellow Flag</b> <b>95 degrees to 99 degrees</b> <b>Heat Index*</b></p>	<p>All Sports</p> <ul style="list-style-type: none"> <li>• Practice/Competition with modifications</li> <li>• Provide ample amounts of water</li> <li>• 5-10 minute rest and fluid break after every 25mins</li> <li>• Have access to ice down towels for cooling</li> <li>• Reduce conditioning</li> <li>• Off campus sports must remain on campus</li> <li>• Practice to not exceed 2 ½ hours</li> <li>• Recheck temperature every 30 mins</li> </ul> <p>Contact Sports</p> <ul style="list-style-type: none"> <li>• Reduce equipment <ul style="list-style-type: none"> <li>○ Reduce to half pads (helmet and shoulder pads only)</li> </ul> </li> </ul>
<p><b>Red Flag</b> <b>100 degrees to 105 degrees</b> <b>Heat Index*</b></p>	<p>All Sports</p> <ul style="list-style-type: none"> <li>• Practice/Competitions with significant modifications</li> <li>• Provide ample amounts of water</li> <li>• 5-10 minute rest and fluid break after every 15-20 minutes of activity</li> <li>• Have access to ice down towels for cooling</li> <li>• No outdoor conditioning (modified running sports practice)</li> <li>• Off campus sports must remain on campus</li> <li>• Practice to not exceed 2 hours</li> <li>• Recheck temperature every 30 mins</li> <li>• Cancel all off season sport practices</li> </ul> <p>Contact Sports</p> <ul style="list-style-type: none"> <li>• Reduce equipment <ul style="list-style-type: none"> <li>○ Reduce to helmets only</li> <li>○ If helmets not necessary helmet should be removed</li> </ul> </li> </ul>
<p><b>Black Flag</b> <b>Over 105 degrees</b> <b>Heat Index*</b></p>	<p>Cancel or Postpone all activity Practices may be held in an air conditioned space</p>

**\*add 5 degrees F to the temperature between 10am and 4 pm from mid-May to mid-September on bright, sunny days.**