

HEAT ILLNESS PREVENTION

The body responds to heat by dilating the blood vessels in the skin and increasing the heartbeat. The body loses heat by conduction and convection which is caused by the cooling effect of air flowing next to the skin, radiation of heat to surrounding objects which come in contact with the skin, and evaporation of sweat. Excess sweating, however, causes loss of salt and water from the body fluids, which creates an increased workload on the circulatory system.

Physical work increases the effects of high temperature on the body. Other conditions make people more vulnerable to heat injury, including: **heat rash, dehydration, lack of sleep, feverish conditions, acute sunburn fatigue, vascular disease, previous heatstroke, and use of alcohol.**

HEAT-RELATED ILLNESSES	
WHAT TO LOOK FOR	WHAT TO DO
HEAT STROKE	
• High body temperature (103°F or higher) • Hot, red, dry, or damp skin • Fast, strong pulse • Headache • Dizziness • Nausea • Confusion • Losing consciousness (passing out)	• Call 911 right away-heat stroke is a medical emergency • Move the person to a cooler place • Help lower the person's temperature with cool cloths or a cool bath • Do not give the person anything to drink
HEAT EXHAUSTION	
• Heavy sweating • Cold, pale, and clammy skin • Fast, weak pulse • Nausea or vomiting • Muscle cramps • Tiredness or weakness • Dizziness • Headache • Fainting (passing out)	• Move to a cool place • Loosen your clothes • Put cool, wet cloths on your body or take a cool bath • Sip water Get medical help right away if: • You are throwing up • Your symptoms get worse • Your symptoms last longer than 1 hour
HEAT CRAMPS	
• Heavy sweating during intense exercise • Muscle pain or spasms	• Stop physical activity and move to a cool place • Drink water or a sports drink • Wait for cramps to go away before you do any more physical activity Get medical help right away if: • Cramps last longer than 1 hour • You're on a low-sodium diet • You have heart problems
SUNBURN	
• Painful, red, and warm skin • Blisters on the skin	• Stay out of the sun until your sunburn heals • Put cool cloths on sunburned areas or take a cool bath • Put moisturizing lotion on sunburned areas • Do not break blisters
HEAT RASH	
• Red clusters of small blisters that look like pimples on the skin (usually on the neck, chest, groin, or in elbow creases)	• Stay in a cool, dry place • Keep the rash dry • Use powder (like baby powder) to soothe the rash



**CONTACT A MEMBER OF THE HEALTH AND WELLNESS TEAM
IMMEDIATELY IF ANYONE HAS THESE SYMPTOMS!**

	SYMPTOMS	TREATMENT / FIRST AID
HEAT CRAMPS	> Irritability, loss of appetite > Prickly heat rash, nausea > Muscle spasms/ twitching, moist cool skin > Painful muscle cramps (limbs and abdomen)	> Drink more water > Have a cold shower or bath > Lay in cool place with legs supported and slightly elevated > Massage limbs gently to ease spasms or firmly if cramped, then apply ice packs and drink electrolyte replacement solutions > Do not give salt tablets or high sodium solutions
HEAT EXHAUSTION	> Profuse perspiration > Cold, clammy, pale skin > Headache and vomiting > Weak, but rapid pulse > Poor coordination > Normal temperature, but faintness	> Lay victim down in a cool place as for heat cramps. > Loosen clothing and apply wet clothes to head and body. > Fan the victim, or move them to an air conditioned environment > Give sips of cold water or electrolyte drink > If vomiting continues, seek medical assistance immediately
HEAT STROKE	> Skin flushed, hot and unusually dry > Dry swollen tongue > High body temperature (more than 40°C) > Deep unconsciousness may develop rapidly	> Seek medical assistance urgently > In the meantime; > Lay victim in a cool place and remove outer clothing > If unconscious, check airway and breathing > Cool victim quickly by applying cold water or wrap in a wet sheet and fan them (keep the sheet wet) > When conscious, give sips of water

SERIOUS HEAT ILLNESSES REQUIRING IMMEDIATE CARE

There are 3 types of serious heat illnesses that require immediate care. Please contact the Health & Wellness Team immediately if anyone has these symptoms!

- **Heat Cramps – Caused by excessive loss of salt from the body.**
 - Symptoms: Painful cramps in muscles of the extremities and abdominal wall. Body temperature is normal
- **Heat Exhaustion – Caused by excessive dehydration and lack of salt.**
 - Symptoms: Profuse perspiration, skin is cool and pale, rapid pulse (140-200 beats per minute), low blood pressure, headache, mental confusion, dizziness, drowsiness, weakness, loss of appetite, vomiting, visual disturbance, occasional cramps of extremities or abdominal muscles.
- **Heat Stroke – Caused by a breakdown of the body's heat regulating mechanism. A very serious condition in which there is extremely high body temperature – can lead to coma or death. Risk: Persons not acclimatized to heat; physical exertion; alcoholism; diarrhea caused by dehydration.**
 - Symptoms: Absence of sweating, cool skin surface, headache, dizziness, mental confusion, weakness, nausea, urination. Early stages are characterized by hot, red, dry skin; full and rapid pulse; normal or elevated blood pressure; rapid and deep respiration; body temperature 106-110F. The onset is usually dramatic with collapse and loss of consciousness. Convulsions may occur.

HEAT ILLNESSES REQUIRING PREVENTION POLICY

The following guidelines will be utilized to determine what to do with practice when the heat and humidity become a health risk. These guidelines have been based off the NCAA Sports Medicine Handbook and the NATA's position statement on Exertional Heat Illness.

We will utilize specialized equipment to track heat, humidity, and wind conditions that result in a "Wet Bulb Globe" reading. This reading will be used to determine rehearsal limitations and modifications.

The following page contains a wet bulb globe temperature chart and our policies for rehearsal medication, based on these readings.

Wet Bulb Globe Temperature (WBGT) from Temperature and Relative Humidity																		
Relative Humidity (%)	Temperature in Degrees Fahrenheit																	
	68.0	71.6	75.2	78.8	82.4	86.0	89.6	93.2	96.8	100.4	104.0	107.6	111.2	114.8	118.4	122.0		
	0	58.6	60.9	64.3	65.5	67.7	69.9	72.1	74.3	76.4	78.5	80.6	82.6	84.7	86.6	88.6	90.5	
	5	59.6	62.1	65.6	67.0	69.3	71.7	74.0	76.4	78.6	80.9	83.1	85.3	87.5	89.9	92.1	94.2	
	10	60.7	63.3	66.9	68.4	70.8	73.3	75.8	78.2	80.7	83.0	85.5	88.0	90.3	92.8	95.1	97.6	
	15	61.7	64.5	68.1	69.6	72.2	74.8	77.4	80.0	82.6	85.2	87.8	90.2	92.8	95.4	98.0		
	20	62.7	65.6	69.4	70.9	73.6	76.3	79.2	81.8	84.5	87.1	89.8	92.5	95.2	97.8			
	25	63.8	66.7	70.5	72.2	75.1	77.8	80.6	83.4	86.2	89.0	91.8	94.6	97.4				
	30	64.8	67.6	71.7	73.4	76.3	79.2	82.1	84.9	87.8	90.8	93.6	96.6	99.4				
	35	65.6	68.6	72.7	74.6	77.5	80.5	83.5	86.4	89.4	92.4	95.3	98.3					
	40	66.7	69.6	73.8	75.7	78.8	81.8	84.8	87.8	90.9	94.0	97.0						
	45	67.5	70.6	74.8	76.8	79.9	83.0	86.1	89.2	92.3	95.4	98.6						
	50	68.4	71.5	75.8	77.8	81.1	84.1	87.4	90.5	93.7	96.9							
	55	69.3	72.4	76.7	78.8	82.1	85.3	88.5	91.9	95.1	98.3							
	60	70.1	73.3	77.7	79.8	83.2	86.4	89.8	93.1	96.3	99.6							
	65	70.9	73.8	78.6	80.9	84.2	87.5	90.8	94.1	97.5								
	70	71.7	75.0	79.5	81.7	84.9	88.6	91.9	95.3	98.6								
	75	72.4	75.9	80.3	82.7	86.1	89.6	92.9	96.4									
	80	73.2	76.7	81.2	83.6	87.1	90.4	93.9	97.4									
	85	74.0	77.4	82.0	84.5	88.0	91.5	94.9	98.5									
	90	74.7	78.2	82.9	85.3	88.9	92.3	95.9	99.4									
	95	75.5	78.9	83.6	86.1	89.6	93.2	96.8										
	100	76.1	79.7	84.4	86.9	90.5	94.1	97.7										
NOTE: This chart is calculated using temperature and humidity, assuming a very clear sky (maximal solar load), and atmospheric pressure of 1ATA (760 mmHg). Chart A was developed by Professor Yoram Epstein to be used in Ariel's Checklist for hikers in Israel.																		

Heat Stress Category (WBGT)	Moderate Work		Hard Work	
	Work/Rest Cycle	Water Intake Per Hour	Work/Rest Cycle	Water Intake Per Hour
White ≤76.9°F (≤24.9°C)	60/15 MINUTES	300 ml (1/3 qt)	40/20 MINUTES	500 ml (1/2 qt)
Green 77-81.9°F (25-27.7°C)	60/15 MINUTES	750 ml (3/4 qt)	40/20 MINUTES	1000 ml (1 qt)
Yellow 82-84.9°F (27.8-29.4°C)	40/20 MINUTES	1000 ml (1 qt)	30/30 MINUTES	1000 ml (1 qt)
Red 85-88.9°F (29.5-31.6°C)	30/30 MINUTES	1000 ml (1 qt)	Exercise is forbidden. Very high risk for heat casualties.	
Black ≥89°F (≥31.7°C)	Exercise is forbidden. Very high risk for heat casualties.			