

DJS HEAT INDEX GUIDELINES & RESTRICTION OF OUTDOOR ACTIVITIES TO PREVENT HEAT RELATED ILLNESS

SUMMARY

Hydrating fluids such as water or electrolyte sports drinks should always be available to youth and staff. Hydration is most critical during periods of high heat and humidity, during athletic activity or physical labor, and for youth and staff with health conditions that put them more at risk for heat related illness and injury. DJS will follow the guidelines outlined in the Heat Index Precautions Table. For periods of the day when the heat index reaches 95 to 100°F, some youth will require exclusion from outdoor activities based on their medical conditions. If the recommendations in the Table cannot be followed, then the facility should cancel outdoor activities. For periods of the day when the heat index is over 100°F, all outside activity lasting 15 minutes or more will be suspended (exception: on-site recreation in the pool for youth residing on campus). Each facility will determine staff responsible for tracking the heat index, documenting on the Heat Index and Activity Log, and communicating with staff regarding activity modification during hot weather. Residential, medical/nursing, and education staff shall work together to ensure that staff and youth are safe from heat related illness and injury. Transportation staff must also ensure prevention of heat related illness to youth under their care while in motor vehicles and during periods of transport.

DETERMINATION OF HEAT INDEX

The heat index is calculated from the temperature and humidity and is the “feel like” or apparent temperature.

Web based calculation through accuweather.com or weather.com

- **For accuweather.com**
 - Enter zip code for the facility
 - Select hourly to view the temperature, humidity, and heat index hour by hour
 - The “RealFeel” number is the heat index.
- **For weather.com**
 - Enter zip code for the facility
 - Select hourly
 - Select details to view the temperature, humidity, and heat index hour by hour
 - The “Feels like” temperature is the heat index.

Optional Use of a Psychrometer

If desired, facilities may purchase a psychrometer (for example from Medco) to measure temperature and humidity levels on-site. The heat index may then be calculated from the temperature and humidity using various website heat index calculators or heat index charts. Use of the psychrometer is the most accurate way to measure on site heat index and allows ability to re-calculate the heat index minute by minute as needed over the course of the day.

PROCEDURE FOR USING HEAT INDEX

The heat index should be tracked daily by each facility when the temperature is consistently staying at or above 85 degrees.

Follow the Heat Index Precautions Table for those specific times of the day when the heat index is 95 or above and recheck the heat index as needed over the course of the day for updates or modifications to outdoor activity levels. The heat index should be re-measured or re-checked at least every hour if the heat index is 95 or above and outdoor activities are still occurring.

DJS HEAT INDEX GUIDELINES & RESTRICTION OF OUTDOOR ACTIVITIES TO PREVENT HEAT RELATED ILLNESS

HEAT INDEX PRECAUTIONS TABLE

Heat Index	Precautions required for outdoor sports and outdoor activities lasting 15 minutes or more	Medical precautions
Heat Index Under 95°F	<p>Youth should be well hydrated prior to participating in sports: ideally 8 to 16 oz 15-30 minutes prior to exercise.</p> <p>Provide easy access to ample supply of water or electrolyte sport drinks during athletic participation, swimming, and physical labor: water should always be available and plentiful to youth and staff!</p> <p>Allow water breaks every 20-30 minutes for up to 10 minutes a break.</p> <p>Provide sun screen.</p> <p>Clothes for exercise should be lightweight and of a light color.</p> <p>Monitor youth for signs of exhaustion or heat stress.</p> <p>Have mechanism for rapidly cooling youth who get overheated: close access to air conditioning, fans, shade, cold shower, ice, iced-down towels.</p> <p>Follow medical precautions.</p>	<p>Certain youth may be restricted from participation in sports/physical labor – nurses must communicate to residential staff restrictions for specific youth.</p> <p>For youth with increased likelihood of dehydration or heat illness (examples: pregnancy, sickle cell disease, diabetes), physicians should consider orders for daily water bottle or electrolyte sports drink and notify staff of increased risk for dehydration and symptoms to watch for.</p> <p>Medical staff must have ability to take core temperature with thermometer (rectally most accurate): if core temp over 102, cool youth immediately with ice bath/iced-down towels.</p> <p>Organ damage begins at core temp of 104.</p>
Heat Index 95° to 100°F	<p>Same as above plus:</p> <p><u>Mandatory</u> water breaks during outdoor activities and sports every 20 minutes for 10 minutes even if youth not thirsty: recommend at least 8 ounces water or sport drink every 20 minutes for youth and staff.</p> <p>Recheck heat index every 30 minutes while outdoor activities taking place until Heat Index less than 95.</p> <p>Consider reducing duration of outside activity to no more than 40 minutes at a time or rearranging schedule to allow outdoor activity during cooler periods of the day.</p> <p>Ideally there should be a source of shade.</p> <p>Remove helmet and other protective gear when not in play.</p> <p>Vans used for transporting youth off grounds must have working air conditioning.</p>	<p>See above and add:</p> <p>Youth with certain medical conditions that put them at risk for dehydration or heat related illness should NOW be excluded from outdoor sports (except swimming): this includes youth with sickle cell disease, pregnancy, insulin dependent diabetes, poorly controlled asthma or seizure disorder, cystic fibrosis, anorexia, heart disease, prior heat injury, recuperation from recent fever, illness, surgery, or giving birth, or youth not accustomed to heat or exercise. Obese or underweight youth, youth with sickle cell trait, and youth on certain medications may be more at risk for heat related illness.</p> <p>Staff with medical conditions or on medications that put them at risk for heat related illness and injury should consult with their doctor for ways to protect themselves as the heat index increases.</p>
Heat Index Over 100°F	<p>Stop all outside activity.</p> <p>Allow swimming for youth on-site if youth have sun screen, access at all times to drinking water or sport drinks and if youth are staying cool in the water rather than out of water in sun. Ideally area of shade should be provided.</p> <p>Reduce time or cancel indoor sports activity if air conditioning unavailable inside.</p> <p>Facility should have iced-down towels available.</p> <p>Vans used for transporting youth off grounds must have working air conditioning.</p>	<p>As heat index goes above 104, heat exhaustion is probable and possibility of heat stroke increases.</p>

DJS HEAT INDEX GUIDELINES & RESTRICTION OF OUTDOOR ACTIVITIES TO PREVENT HEAT RELATED ILLNESS

DEFINITIONS/FURTHER INFORMATION

Electrolyte Sports Drink

Acceptable sports drinks should be a flavored electrolyte or salted beverage with NO caffeine. Examples: Gatorade.

Iced down towels

Towels saturated in water and then frozen to use for rapid cooling to arm pits, groin, and back of neck

Medications and drugs that may increase risk of heat related illness

- Alcohol
- Amphetamines
- Anticholinergics
 - anti-parkinson medication, atropine
- Antihistamines
 - allergy medication like Benadryl
- Caffeine
- Cocaine
- Cold medications
 - with ephedrine or pseudoephedrine
- Ecstasy
- Laxatives
- Heart/high blood pressure medication
 - Betablockers
 - Calcium channel blockers
 - Diuretics
 - Vasoconstrictors
- Psychiatric medication
 - Antipsychotic medication
 - Benzodiazepines
 - Haloperidol
 - Lithium
 - Tricyclic antidepressants (Elavil)
- Thyroid agonists

What are heat cramps?

Heat cramps are caused by physical exertion and/or exposure to high environmental temperatures.

Signs and symptoms of heat cramps:

- Profuse sweating
- Fatigue
- Thirst
- Muscle cramps usually in stomach, arms, legs

Treatment of heat cramps:

- Rest
- Hydration with electrolyte sports drink or water
- Cool down: Move to air conditioned or shaded area

DJS HEAT INDEX GUIDELINES & RESTRICTION OF OUTDOOR ACTIVITIES TO PREVENT HEAT RELATED ILLNESS

What is heat exhaustion?

Progression of heat cramps or other heat stress due to lack of appropriate intervention or treatment.

Signs and symptoms of heat exhaustion:

- Headache
- Dizziness/lightheaded
- Nausea
- Muscle cramps
- Skin may feel cool and moist

Treatment of heat exhaustion:

- Drink cool water or preferably electrolyte sports drink
- Get into cooler environment such as air conditioned area
- Take a cool shower
- Rest

What is heat stroke?

A life threatening condition that occurs when the body temperature reaches 104° F (40° C) or more. It is one of the 3 leading causes of death among athletes yet is preventable.

Untreated, heat exhaustion can lead to heat stroke. Heat stroke occurs due to high environmental temperatures, strenuous physical activity, and/or other condition that raises your body temperature and requires immediate medical attention to avoid brain damage, organ failure, or death.

Signs and symptoms of heat stroke include:

- High body temperature (104° F or higher)
- Lack of sweating – skin dry and hot if heatstroke due to hot weather; skin may still be moist if heatstroke brought on by strenuous exercise
- Flushed skin – skin may appear red
- Rapid, shallow breathing
- Racing heart rate
- Headache
- Muscle cramps
- Weakness and fatigue
- Altered mental status: difficulty speaking or understanding others, confusion, agitation, hallucinations, seizure, loss of consciousness, coma
- Shock: very low blood pressure, blue lips/nails, cool and clammy skin

Treatment

- Call 911
- Quickly cool the body to reduce damage to brain and vital organs by placing iced towels, ice packs, or a cooling blanket to groin, neck, back, and arm pits
- Remove from heat exposure by getting into air conditioned space
- Mist with or soak in cool water and direct air onto person with a fan
- Best to have person lie down with feet slightly elevated
- Rehydrate

DJS HEAT INDEX GUIDELINES & RESTRICTION OF OUTDOOR ACTIVITIES TO PREVENT HEAT RELATED ILLNESS

Dangers of hot weather and motor vehicles

When parked in the sun, the temperature in the vehicle can rise by 20° F in 10 minutes. Never leave youth in a parked car in hot weather for any period of time.

REFERENCES

American Academy of Pediatrics Committee on Sports Medicine and Fitness. Climatic Heat Stress and the Exercising Child and Adolescent. *Pediatrics*. 2000;106:158-159.

Kentucky High School Athletic Association. Procedure for Avoiding Heat Injury/Illness through Analysis of Heat Index and Restructuring of Activities. Revised 2007.

<http://www.khsaa.org/sportsmedicine>.

Mayo Foundation for Medical Education and Research. Heat Stroke. [MayoClinic.org](http://www.MayoClinic.org). 2009

University of Maryland Medical Center. Dehydration and Stroke. www.umm.edu. 2008.

www.STOPSportsInjuries.org