

## Hawaii Youth Soccer Association Heat Monitoring Program

Heat-related illnesses, such as heat stroke and heat exhaustion can be serious and potentially life-threatening conditions. U.S. Soccer's RECOGNIZE TO RECOVER program prepared a guide for coaches, referees and players when training or playing in warmer climates, outlining recommendations for hydration breaks and participant safety during extreme temperature conditions. HYSA Heat Monitoring Program is adapted from U.S Soccer's Recognize to Recover program and Hawaii High School Athletic Association's Heat Acclimatization Guidelines.

Heat-related illnesses, such as heat exhaustion and exertional heat stroke (EHS), can be serious and potentially life-threatening conditions which can be brought on or intensified by physical activity. Recognizing the signs and symptoms as early as possible allows for treatment and rapid recovery with hydration and cooling down the individual.

- Early signs and symptoms of heat illness include weakness or fatigue, headache, nausea and dizziness
- Altered mental status, such as confusion, irritability, aggressive behavior, dizziness
- Slurred speech
- Hallucinations
- Loss of balance, falling down
- Throbbing headache
- Body temperature above 104 degrees Fahrenheit
- Complaining of chills, while skin may be warm to the touch

Preventing heat related illness is the best medicine. It may become important to adjust training, match play and hydration breaks when playing in warmer climates and during extreme temperature conditions.

- Develop and implement a heat policy (heat acclimatization guidelines, activity modification guidelines based on environmental conditions and management of heat-related illness) as part of your emergency action plan (EAP)
- Frequently monitor environmental conditions using Wet Bulb Globe Temperature (WBGT) device (e.g., increase in the number and duration of hydration breaks, shortening practice, postponing practice/competition until cooler parts of the day)
- Ensure appropriate hydration policies are in place with athletes having unlimited access to water during practice and competition, especially in warm climates.
- Educate staff on the signs and symptoms of heat related illness and early management
- Consider having a health care provider such as an athletic trainer onsite for all practices and competitions.

## Monitoring of Temperature and Humidity

A tournament designee (athletic trainer) can monitor temperature and humidity in a variety of ways. However, best practice is to utilize wet bulb global thermometer (WBGT) which is a device that monitors temperature, wet bulb global temperature, relative humidity, and wind speed (i.e., Kestrel heat monitor).

The following chart can be used to determine practice modifications or cancellations. (Hawaii High School Athletic Association WBGT Chart, Heat Acclimatization Guidelines)

### Wet Bulb Globe Temperature (WBGT) Chart

WBGT °F	Activity Guidelines	Rest Break Guidelines
<82	Normal Activities.	Provide at least 3 separate rest breaks each hour of minimum of 3 minutes.
82-86.9	Use discretion for intense or prolonged exercise; watch at-risk players carefully	Provide at least 3 separate rest breaks each hour of a minimum of 4 minutes.
87-89.9	Maximum practice time is 2 hours. For football: players restricted to helmets, shoulder pads, and shorts during practice. All protective equipment must be removed for conditioning activities.	Maximum of 2 hours of training. Provide at least 4 separate rest breaks each hour of a minimum of 4 minutes. OR a 10 minutes break every 30 minutes of training.
90-92	Maximum length of practice is one hour, no protective equipment may be worn during practice, and there may be no conditioning activities.	There must be 20 minutes of rest breaks provided during the hour of practice.
>92.1	No outdoor workouts	Cancel exercise; delay practices until a cooler WGBT reading occurs.

**It is recommended to include scheduled hydration breaks when the WBGT reaches 89.6°F. Provide hydration breaks of four minutes for each 30 minutes of continuous play. In a regulation 90-minute match, this would schedule the hydration break at minute 30 and 75.**

Provide adequate communication of environmental conditions, cooling methods and other resources to players and staff. This includes ensuring unlimited access to water and other fluids, making sure players and coaches are aware of planned breaks for hydration and the duration and time of training.

## **Emergency Action Plan (EAP) for Heat Illness**

Waipio Soccer Complex

Waipio Point Access Road, Waipahu, HI 96797

### Prevention

1. Medical tent to monitor WBGT throughout the day
2. Notifies main tent of temperature periodically
3. Have available separate tent near medical tent with:
  - a. WBGT unit
  - b. Pulse oximeter to assess heart rate and oxygen levels
  - c. Blood pressure cuff
  - d. Thermometer (preferably rectal thermometer)
  - e. Ice source available on site or in close proximity
  - f. AED
4. Education for coaches and athletes of proper hydration prior to participating in the tournament.
5. Review of plan with tournament staff and coaches

### Emergency Communication

1. Field marshal identifies injury either by view it themselves or by another party
  - a. Call Medical Tent on walkie talkie
  - b. Notifies athletic trainer that there is an injury on field #
  - c. Reports injured athletes team color and location of injured athlete or person
2. Athletic trainer response to call
  - a. Evaluate the injured athlete or person
  - b. When possible transport injured person to the medical tent for further evaluation and treatment
3. Medical Tent
  - a. Evaluate injured athlete
  - b. Records core body temperature with rectal thermometer ( $>104^{\circ}\text{F}$ )
  - c. Call 911 and notified main tent of EMS arrival. Have them escort ambulance to site of injury
  - d. Immediate cold water immersion until core body temperature reaches  $101-102^{\circ}\text{F}$
  - e. Monitors vitals
  - f. AED available if needed
  - g. Records injury in injury log

### Return to Play (See NATA, JAT September 2015)

1. A period of 7 to 21 days of inactivity is recommended
2. No return to activity until cleared by physician and asymptomatic
3. Activity progression at low intensity in cool environment and slowly progress to high intensity under medical supervision

## Treatment (source NATA, JAT September 2015)

<b><u>Heat Illness</u></b>	<b><u>Signs and Symptoms</u></b>	<b><u>Treatment</u></b>
<b><u>Heat Cramps</u></b>	<ul style="list-style-type: none"> <li>• Dehydration</li> <li>• Thirst</li> <li>• Sweating</li> <li>• Transient muscle cramps</li> <li>• Fatigue</li> </ul>	<ul style="list-style-type: none"> <li>• Stop activity</li> <li>• Replace fluids</li> <li>• Mild stretching of area containing muscle spasm</li> <li>• If available, provide sports drinks that contain sodium</li> <li>• Recumbent position may allow more rapid redistribution of blood flow to cramping leg muscles</li> </ul>
<b><u>Heat Syncope</u></b>	<ul style="list-style-type: none"> <li>• Dehydration</li> <li>• Fatigue</li> <li>• Tunnel vision</li> <li>• Pale or sweaty skin</li> <li>• Decreased pulse rate</li> <li>• Dizziness</li> <li>• Lightheadedness</li> <li>• Fainting</li> </ul>	<ul style="list-style-type: none"> <li>• Move athlete to shaded area</li> <li>• Monitor vital signs</li> <li>• Elevate legs above level of the head</li> <li>• Rehydrate</li> </ul>
<b><u>Heat Exhaustion</u></b>	<ul style="list-style-type: none"> <li>• Normal or elevated body core temperature</li> <li>• Dehydration</li> <li>• Dizziness</li> <li>• Lightheadedness</li> <li>• Syncope</li> <li>• Headache</li> <li>• Nausea</li> <li>• Diarrhea</li> <li>• Decrease urine output</li> <li>• Persistent muscle cramps</li> <li>• Pallor</li> <li>• Profuse sweating</li> <li>• Chills</li> <li>• Cool, clammy skin</li> <li>• Weakness</li> <li>• Hyperventilation</li> </ul>	<ul style="list-style-type: none"> <li>• If feasible, measure core temperature and assess cognitive function and vital signs</li> <li>• If temperature elevated, remove excessive clothing to facilitate cooling</li> <li>• Remove athlete to cool or shaded area, if possible</li> <li>• Cool with fans, ice towels, ice bags or whole body immersion in appropriate device</li> <li>• Start fluid replacement</li> <li>• Transfer to physician or Emergency Medical System (EMS) if intravenous fluids are needed or if recovery is not rapid and uneventful</li> </ul>
<b><u>Heat Stroke</u></b>	<ul style="list-style-type: none"> <li>• High core temperature (&gt;104 °F)</li> <li>• Central nervous system changes               <ul style="list-style-type: none"> <li>○ Dizziness</li> <li>○ Drowsiness</li> <li>○ Irrational or unusual behavior</li> <li>○ Confusion</li> <li>○ Irritability</li> <li>○ Emotional instability</li> <li>○ Hysteria</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Best Practice is measurement of Rectal Temperature to differentiate between heat exhaustion and stroke</li> <li>• Assess cognitive function and vital signs</li> <li>• Call EMS</li> <li>• Lower core temperature as quickly as possible               <ul style="list-style-type: none"> <li>○ Remove equipment and clothing</li> <li>○ Best practice is full body cold water immersion (35 °F to 59 °F)</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Apathy</li> <li>○ Aggressiveness</li> <li>○ Delirium</li> <li>○ Disorientation</li> <li>○ Staggering</li> <li>○ Seizures</li> <li>○ Loss of consciousness</li> <li>○ Coma</li> <li>● Dehydration</li> <li>● Weakness</li> <li>● Hot and wet or dry skin</li> <li>● Tachycardia (100 to 120 Beats per minute)</li> <li>● Hypotension (Blood Pressure &lt; 100mHG)</li> <li>● Hyperventilation</li> <li>● Vomiting</li> <li>● Diarrhea</li> </ul>	<ul style="list-style-type: none"> <li>▪ Immersion tub, wading pool, taco wrap</li> <li>▪ Keep circulating water to enhance cooling</li> <li>▪ Monitor cooling every 5 to 10 minutes</li> <li>▪ Once temperature is 101 °F to 102°F, the athlete should be removed</li> <li>○ Alternative methods of cooling: sponging down, ice towels, ice bags, and fanning the body</li> <li>○ Transport once temperature is below 102°F</li> </ul>
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## Hydration strategies to Prevent Heat Illness

Proper **HYDRATION** and **ACCLIMATIZATION** practices stand out as the two primary prevention methods for decreasing the risk of heat illness. The following are some basic hydration principles to follow:

Appropriate hydration before, during and after exercise is important for maintaining peak athletic performance. Fluid losses of as little as 2% of body weight (less than 4 pounds in a 200-pound athlete) can impair performance by increasing fatigue. This is important because it is common for some athletes to lose between 5-8 pounds of sweat during a game or intense practice. It is easy for athletes to become dehydrated if they don't drink enough to replace what is lost in sweat.

Recognize and respond to early warning signs of dehydration.

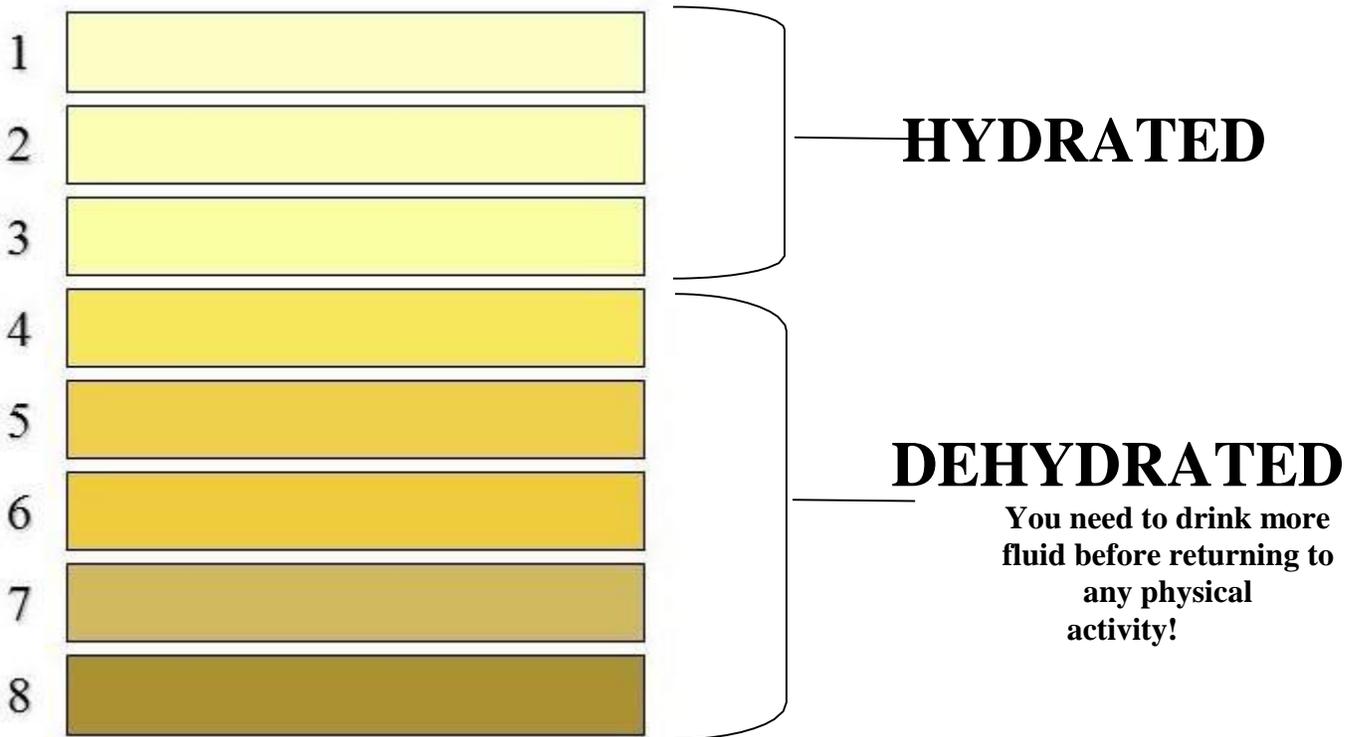
- **DRINK EARLY** and **DRINK OFTEN** during activity. Do not let athletes rely on thirst. Schedule frequent fluid breaks for re-hydrating. If athletes wait until they are thirsty it may be too late.
- Athletes should be weighed before and after warm weather practices. They need to drink appropriate amounts of fluid for the amount of weight lost. Also, use a urine color chart to determine hydration levels before activity.
- Encourage GOOD hydration choices: **water, sport drinks with low sodium and carbohydrates,**  
*AVOID: soda, fruit juices, carbonated beverages, and caffeine and "energy drinks".*
- Encourage drinking fluids, not pouring them. Dumping fluid over the head won't help restore body fluids or lower body temperature.
- Provide easily accessible fluids.

<b>Before</b> Exercise	Drink 16 oz. of fluid before activity/exercise (2 hours) Drink another 8-16 oz. of fluid 10-15 minutes before exercise
<b>During</b> Exercise	Drink 4-16 oz. of fluid every 15-20 minutes
<b>After</b> Exercise	Drink 24 oz. of fluid for every (one) pound lost during exercise within 6 hours of stopping the activity. This is to achieve normal fluid state and not begin the next practice dehydrated.
Fluid counter 	24 oz. of fluid = 1-½ of water bottle 16 oz. of fluid = 1 full water bottle 7 oz. of fluid = ½ full water bottle or 10 BIG gulps of water 4 oz. of fluid = ¼ full water bottle or 5 BIG gulps of water

Source Kansas Heat Acclimatization program

## Urine Color Chart- How Hydrated are You?

This urine color chart is a simple tool you can use to assess if you are drinking enough fluids throughout the day to stay hydrated.



**Be Aware!** If you are taking vitamin supplements they can change the color of your urine for a few hours, making it bright yellow or discolored.