

Heat Illness Prevention for Supervisors

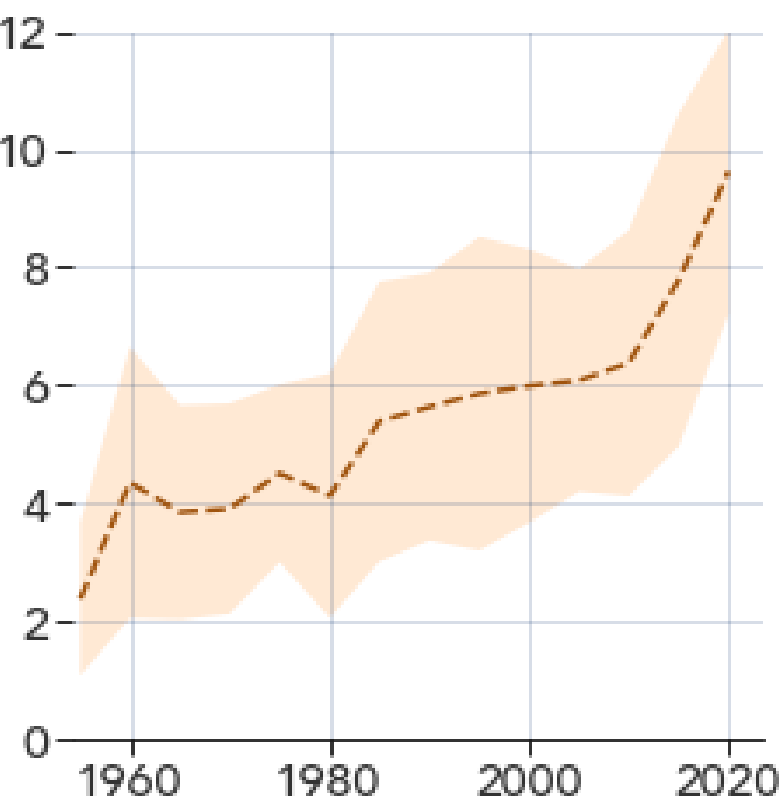
- Importance of heat illness prevention
- Water
- Shade & breaks
- High heat procedures
- Indoor heat
- Monitoring temperatures
- Signs, symptoms, and treatment of heat illnesses
- Acclimatization, environmental & personal factors
- Obligations for supervisors



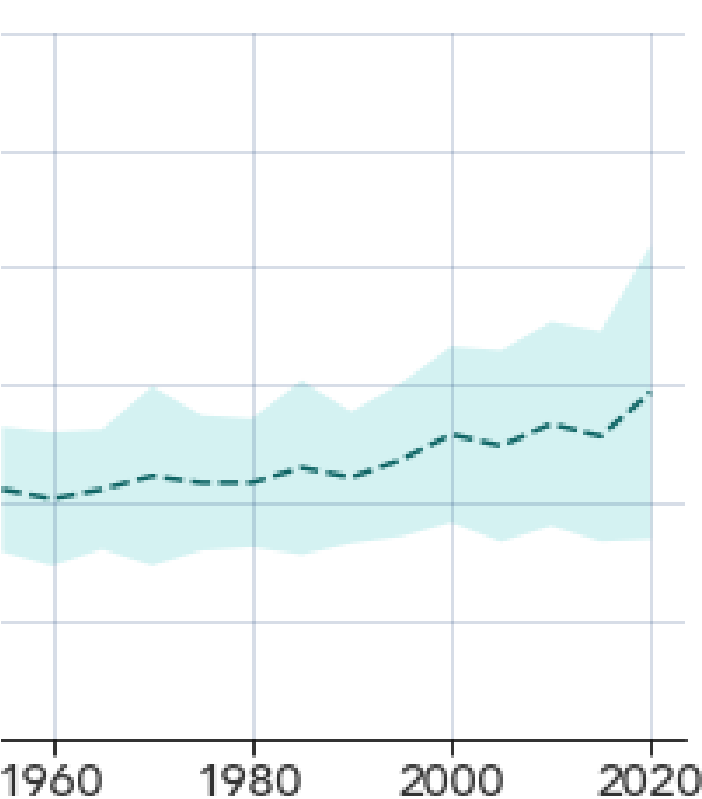
More Frequent, Longer, and Higher Temperatures

Heatwaves affecting inland, urban California are on the rise

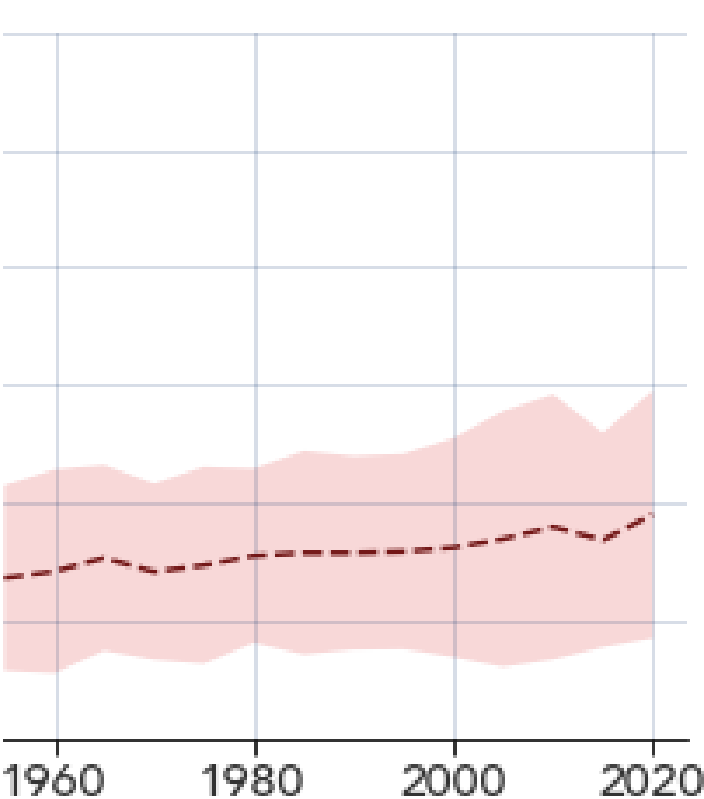
Heatwaves per year



Heatwave duration (days)



Heatwave intensity (°C)



Heat Illness Tragedy

Maria Isabel Vasquez Jimenez, recently immigrated, fainted her fourth day of work in a vineyard outside Stockton during a heat wave. The supervisor allowed coworkers to drive her for care, but they only took her to an emergency room **three hours later**. Maria died two days later and it was discovered that she was two months pregnant.

- Criminal charges: involuntary manslaughter.
- Civil lawsuit: wrongful death.
- Cal/OSHA citations and fines (\$263,000).



Jimenez's fiancé, Florentino Bautista, 19 (right), and her brother, Jose Luis Vasquez, 20 (second from right), stop at a rest break along the 50-mile march route from Lodi to Sacramento.



Stigmatization Heat Related Illness

Workers may ignore symptoms or avoid taking breaks because they fear being made fun of, not being believed, or seen as weak.

Anyone can suffer from heat illness, even healthy experienced workers.



Miguel Angel Guzman Chavez

24 years old

Picking tomatoes in Georgia in 95°F

Heat stroke caused cardiac arrest

Died in 2018



Cruz Urias Beltran

52 years old, lifelong farmworker from Arizona

Detasseling corn in Nebraska in 91°F

Found with an empty water bottle

Died in 2018



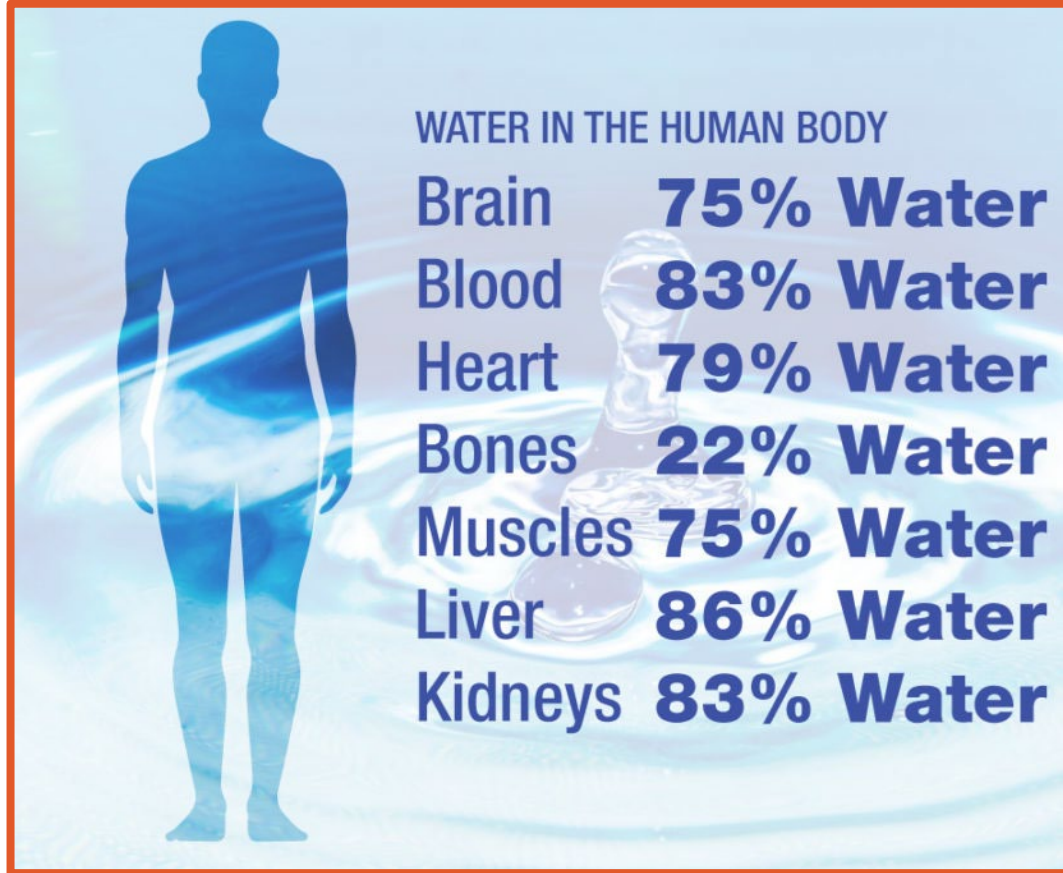
Cal/OSHA Sec. §3395 Heat Illness Prevention

1. Provide sufficient fresh drinking water.
2. Provide shade.
3. High heat procedures.
4. Emergency procedures.
5. Heat illness prevention training.
6. Written procedures to comply with this rule.

Cal/OSHA inspector may ask to see the written Heat Illness Prevention Plan- it must be onsite available immediately at all times.



Provision of Water



- Fresh, pure, suitably cool water
- At no cost
- Check water regularly (sufficient amount & clean)
 - Keep water covered
- At least one quart per employee per hour
- As close as practicable to where employees are working
- Encourage workers to drink frequently



What is the minimum amount of water that must be provided for an 8-hour workday?

- A) 1 gallon per employee.
- B) 1.5 gallons per employee.
- C) 2 gallons per employee.
- D) 3 gallons per employee.



4 cups = 1 quart • 4 quarts = 1 gallon



As Close as Practicable



Feb. 2023 St. Helena - An FLC was fined \$27,000 for failure to locate water as close as practicable which could result in employees not frequently drinking water.

Obstacles discouraged employees from frequently drinking water and there were other reasonable options available.



Replenishment Procedures

There must always be enough water present and readily accessible allowing every employee to **at least one quart of water per hour**.

If the full amount of water required per person for the full-shift is not supplied at the start, there must be effective written procedures to replenish the drinking-water.

If the water replenishment procedure is not reliable then it is not in compliance.

Water should **NEVER be empty**. Do not wait to replenish it.

Drinking water must ALWAYS be available.



Cal/OSHA Inspector: Checking Drinking Water

- How far is it from workers? Multiple locations?
- Have to climb/over under anything?
- Is there enough for the number of workers? What are the replenishment procedures?
- Is the container clean? No odor?
- Will water stay cool through the day?
- Disposable cups? Personal insulated bottles?

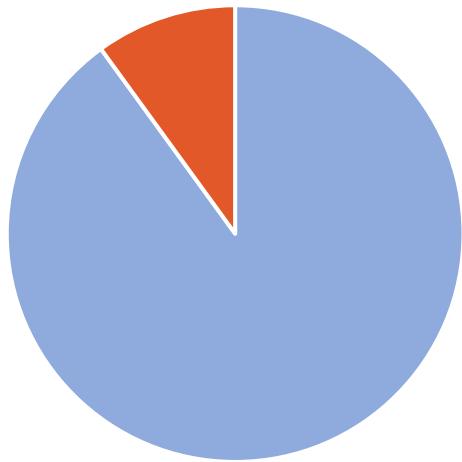


Cal/OSHA inspector may ask you to explain the factors considered when deciding where to place water.



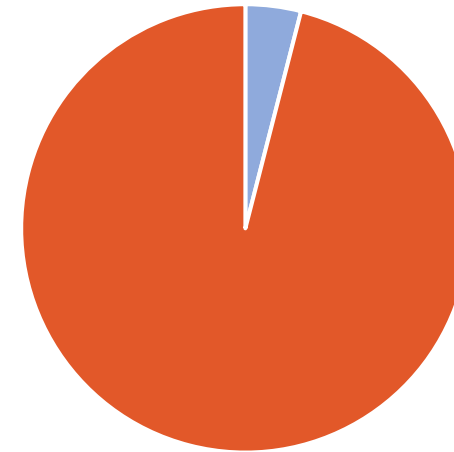
Why Encourage Workers to Drink Water?

90% of Worksites Have Water Onsite



■ Have Water ■ No Water Onsite

But 96% of Workers Suffering Heat Illness are Dehydrated



■ Hydrated ■ Dehydrated

Research shows most employees show up to work already dehydrated



Encourage Frequent Drinking of Water

- Reminders of the importance of drinking water frequently throughout the day, especially in high heat.
- Make access as easy as possible e.g. multiple locations.
- Make the water station inviting by using ice and shade.
- Special emphasis for piece-rate workers who may be less willing to take breaks.
- Watered down Gatorade (1 part to 3 parts water) can replace electrolytes but must always provide pure water.

Remind workers: Don't wait
until you are thirsty!



Access to Shade

- Deployed when 80°F and above.
- Available upon request at any temperature.
- For 100% of workers seeking shade.
- Cannot be such to discourage use.
- Must be of sufficient quantity, quality, and accessible.



Shade Placement

Shade must be as close as practicable, usually within a 2.5 minute walk.

But not more than 1/4-mile or a 5 minute walk away, whichever is shorter.



Cal/OSHA inspector may ask you to explain the factors considered when deciding where to place shade structures.

What if it is too windy to put up shade structures?

- Consider other options to secure shade safely.
- If not possible, document conditions.



Quality & Quantity of Shade

- Must ensure enough shade for all employees taking breaks at any one time.
- Must be able to sit comfortably and fully in the shade without touching each other.
- May rotate rest/recovery and meal breaks among employees.
- Shade blockage is sufficient when objects do not cast a shadow in the shaded area.



Is This Shade?



Shade must be...

- A) Always available when a worker asks.
- B) Provided by a pop up tent/canopy or mobile station.
- C) Deployed when 80°F or above.

D) A & C

E) All of the above.



Preventative Cool-Down Rest

Must allow **and encourage** workers to take preventive recovery breaks, 5-minute minimum.

- Preventative = BEFORE symptoms appear.
- Consider piece-rate workers who may be less willing to take breaks.



Preventative Cool-Down Rest

Must **monitor** workers during cool-down rest and **ask if they are experiencing any symptoms of heat illness.**

If any signs/symptoms are observed or reported, **must continuously observe the worker and not order them back to work until signs/symptoms have abated.**



Rest & Water = Improved Production

2016 Researchers gave sugar cane workers 3L water backpacks and implemented frequent rest breaks in shade.

- Water intake increased by 25%.
- Reports of heat stress symptoms decreased.
- Workers increased production by 40%.



The greatest barrier to implementing more rest breaks was mayodromos/supervisors.



Indoor Heat



- When temperature or heat index is **87°F** or higher, record whichever is greater.
 - **82°F** in high-radiant-heat areas or when clothing restricts heat removal.
- Cool-down areas: 82°F or less, blocked from direct sunlight & shielded from high-radiant heat sources.

Exemption: incidental exposure 82°F - 95°F <15 min in any 60-min period.



Indoor Environmental Controls

1) Engineering controls

- Ventilation
- Cooling fans or air conditioning
- Reflective shields to block or reduce radiant heat
- Insulating or isolating heat sources from workers
- Cooled seats or benches
- Evaporative coolers

2) Administrative controls

- Modify work schedules
- Reduce work intensity or speed
- Mandatory rest breaks (duration should increase as heat stress rises)
- Rotate job functions to help minimize exertion and heat exposure
- Modify work clothing



Measuring the Heat Index

Air temperature + relative humidity

Use a heat index monitor that measures both temperature and relative humidity and utilizes National Weather Service heat index equations to determine the heat index.

Calculate the heat index by measuring the indoor temperature with a thermometer and relative humidity with a hygrometer, then use the chart found in Appendix A.



	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
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	90	91
82	79	79	80	80	80	80	81	81	82	83	84	84	85	86	88	89	90	91	93	95
83	79	80	80	81	81	81	82	82	83	84	85	86	87	88	90	91	93	95	97	99
84	80	81	81	81	82	82	83	83	84	85	86	88	89	90	92	94	96	98	100	103
85	81	81	82	82	82	83	84	84	85	86	88	89	91	93	95	97	99	102	104	107
86	81	82	83	83	83	84	85	85	87	88	89	91	93	95	97	100	102	105	108	112
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88	83	84	84	85	85	86	87	88	89	91	93	95	98	100	103	106	110	113	117	121
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97	90	91	93	94	95	97	100	103	106	110	114	119	125	130	136	143	150			
98	91	92	94	95	97	99	102	105	109	113	117	123	128	134	141	148				
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100	93	94	96	97	100	102	106	109	114	118	124	129	136	143	150	158				
101	93	95	97	99	101	104	108	112	116	121	127	133	140	147	155					
102	94	96	98	100	103	106	110	114	119	124	130	137	144	152	160					
103	95	97	99	101	104	108	112	116	122	127	134	141	148	157	165					
104	96	98	100	103	106	110	114	119	124	131	137	145	153	161						
105	97	99	102	104	108	112	116	121	127	134	141	149	157	166						

High Heat Procedures



If a worker experiences:

Headache or nausea
Weakness or dizziness
Heavy sweating or hot, dry skin
Elevated body temperature
Thirst
Decreased urine output

Take these actions:

- » Give cool water to drink
- » Remove unnecessary clothing
- » Move to a cooler area
- » Cool with water, ice, or a fan
- » Do not leave alone
- » Seek medical care (if needed)



High Heat Procedures (95°F and above)

- **Pre-shift meetings** to remind workers of hydration and rest breaks.
- **Effective communication** so employees can contact a supervisor when necessary.
- Additional **cool-down rest**: +10 minutes for each 2 hours of work at 95°F and over.
- **Encourage** employees to drink plenty of water.
- **Observe employees for signs/symptoms** of heat illness.
 - Supervisor; Buddy System; Other?
- Enhanced emergency response plan.



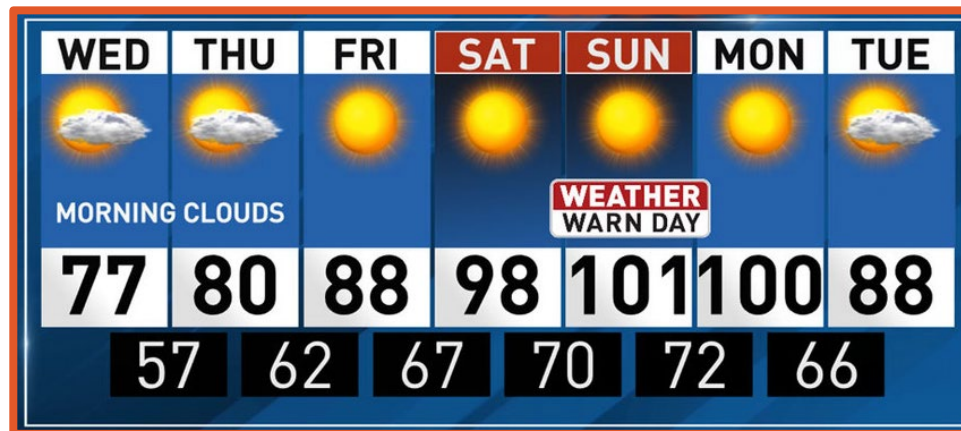
Hours	Normal Breaks	Meal Periods	Breaks at High Temperatures*
Less than 3.5	None	None	10-minutes
3.5-less than 5	10-minutes	None	Two (10-minutes)
5-less than 6	10-minutes	30-minutes (unless mutually renounced)	Three (10-minutes)
6-less than 8	Two (10-minutes)	30-minutes	Four (10-minutes)
8-less than 10	Two (10-minutes)	30-minutes	Five (10-minutes)
10-less than 12	Three (10-minutes)	Two (30-minutes) (unless mutually renounced AND the first meal was taken)	Six (10-minutes)
12-less than 14	Three (10-minutes)	Two (30-minutes)	Seven (10-minutes)

*May provide preventative breaks concurrently with any other meal or rest period if the timing coincides.



Monitor Weather Forecast

- Monitor predicted weather in advance to know when the temperature is likely to exceed 80°F or 95°F.
- Monitor at worksite to know the temperature.
- If the prediction on the previous day is for the temperature to exceed 85°F, shade must be up as of the beginning of the shift and present throughout.



Emergency Response Procedures

Signs of a medical emergency!



- Abnormal thinking or behavior
- Slurred speech
- Seizures
- Loss of consciousness

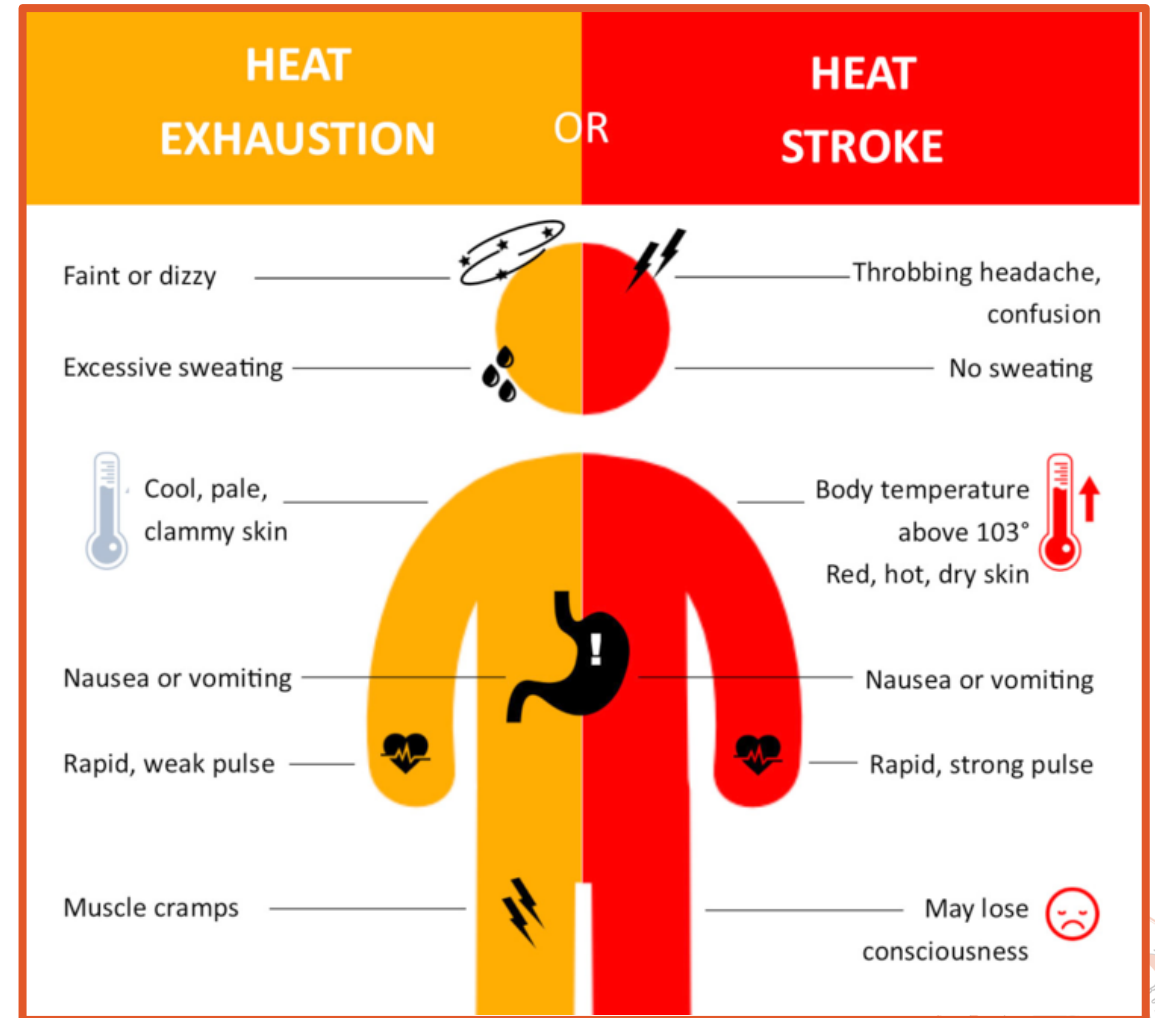
Take these actions

- 1** >> CALL 911 IMMEDIATELY
- 2** >> COOL THE WORKER RIGHT AWAY WITH WATER OR ICE
- 3** >> STAY WITH THE WORKER UNTIL HELP ARRIVES



Signs & Symptoms

- Fatigue or weakness
- Heavy sweating
- Cool, clammy skin
- Cramps or muscle spasms
- Headache or dizziness
- Nausea or vomiting
- Confusion or altered mental state
- Poor coordination

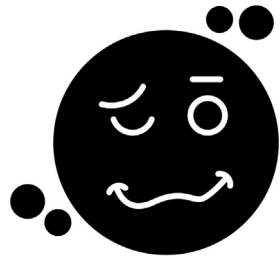


Identifying Signs or Symptoms

Symptoms of heat illness can make it difficult for the victim themselves to recognize.

Heat illness is often reported by coworkers- encourage workers to watch out for each other.

Victims of heat illness might appear drunk or inebriated



Stubbornness (refusing to drink water or take a break) can be a symptom





Heat Rash

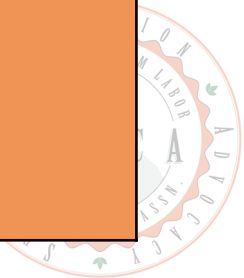
- | | |
|---|--|
| <ul style="list-style-type: none">•Red spots or clear blisters, usually on neck, chest, groin, or inside of elbows. | <ul style="list-style-type: none">•Rest in shade.•Drink water.•Keep rash area dry. |
|---|--|

Heat Cramps

- | | |
|--|--|
| <ul style="list-style-type: none">•Muscle cramps or spasms in arms, legs, stomach, or elsewhere.•Often presents after work has ended. | <ul style="list-style-type: none">•Rest in shade.•Drink water at regular intervals.•If cramps do not improve within 1 hour seek medical attention. |
|--|--|

Heat Syncope (Fainting)

- | | |
|--|---|
| <ul style="list-style-type: none">•Dizziness, light-headedness, or fainting.•Often after standing/rising suddenly after sitting, bending over, or lying down. | <ul style="list-style-type: none">•Rest in shade.•Drink water.•Sit or lay down. |
|--|---|





Heat Exhaustion

- | | |
|--|---|
| <ul style="list-style-type: none">• Headache, dizziness.• Extreme weakness, fatigue.• Nausea, vomiting.• Breathing fast and shallow.• Heavy sweating.• Skin is pale, cool, moist, and clammy.• Decreased urine output. | <ul style="list-style-type: none">• Rest in shade.• Loosen/remove tight clothing or PPE.• Drink water (small amounts).• Cool skin with water, fans, or ice bath.• Place cold wet cloth on head, neck, armpits, and groin. |
|--|---|

Heat Stroke

**MEDICAL
EMERGENCY**

- | | |
|---|--|
| <ul style="list-style-type: none">• Confusion, slurred speech.• No sweating.• Skin is hot, dry, and redish.• Muscle twitches or seizures.• Pulse is rapid and weak.• Elevated body temperature (103°F+). | <ul style="list-style-type: none">• Rest in shade.• Loosen/remove tight clothing or PPE.• Drink water (small amounts).• Cool skin with water, fans, or ice bath.• Place cold wet cloths on the head, neck, armpits, and groin. |
|---|--|

Employees must know the Signs & Symptoms

Take action when early warning signs appear:

- Thirst
- Headache
- Muscle cramps
- Unusual fatigue
- Behavioral changes

**NEVER leave
someone with ANY
symptoms alone!**



Onset of severe symptoms can be rapid.
Not all experience every symptom,
some might 'skip' early stages.



How serious of a medical condition is...

Heat Exhaustion?



Heat Cramps?



Heat Stroke?



Emergency Response Procedures

- Observe employees for signs/symptoms of heat illness.
 - Close supervision of new employees.
- **Designated person** to ensure emergency procedures are followed.
- **Effective communication** so employees can contact a supervisor when necessary.
- Take **immediate action** to any signs or reports of symptoms.
 - Response depends on severity.
 - Know how to summon emergency services.
- **DOCUMENT**

Do NOT send a worker home without offering medical services.



First Aid Procedures

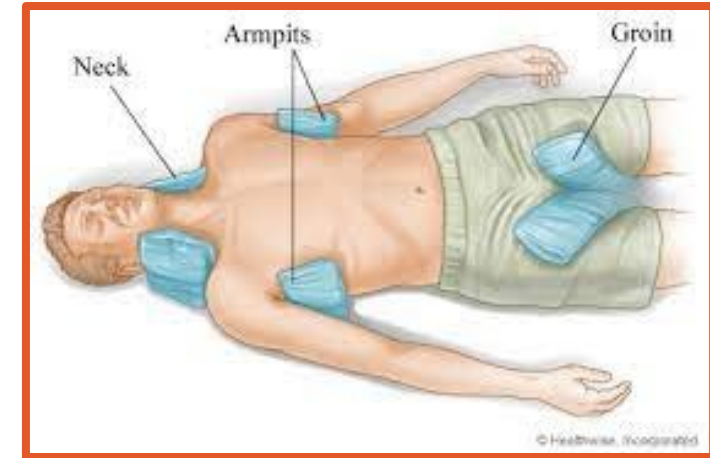
- Move affected worker to the shade or a cool place.
- Cool & Hydrate:
 - If conscious, have worker drink water slowly in small amounts.
 - Can drink electrolyte solutions (1 part gatorade to 3 parts water).
 - Loosen or remove heavy clothing, PPE, shoes, socks.
- Rest & **STAY WITH THE WORKER.**
- Call 911 if symptoms are severe, worsening, or not improving.



Emergency Cooling

While waiting for emergency services...

- Apply wet cloth/ice packs to neck, under arms, and groin area.
-large blood vessels are close to the surface.
- Immerse victim up to neck in cool water
Hold worker to ensure no risk of drowning.



Contacting Emergency Services

Who can call emergency services?

- Designated person?
- Other supervisors?
- Any worker?



“We're sorry; we are unable to complete your call as dialed.”

What is your location?

What if no address?



Practice Emergency Response & First Aid Scenarios



Refusal of Medical Attention

Declination of Medical Treatment

Today's Date/ **Fecha de hoy:** _____

Employee /**Empleado:** _____

Social Security/ **Seguro Social:** _____

Department/ **Departamento:** _____

Date of Injury/**Fecha de lastimadura:** _____ Time/**Hora:** _____

Describe injury and part of body effected/**Describe la lesión y la parte del cuerpo afectada:**

NOTIFICACION DE LASTIMADURA Y REHUSAR CUIDADO MEDICO:

A mi _____ me ha dado mi patrón, la oportunidad de recibir atención médica para la lastimadura supracirada. En este momento, no creo necesitar atención médica. Sin embargo, si llego a necesitar tal atención me reportare inmediatamente a la oficina de la compañía. Entiendo que esta es mi obligación bajo el código laboral 4600 de California.

El que yo firme esta declaración es solo en reconocimiento que se me ha dado la oportunidad de ser examinado y de recibir tratamiento y no estoy renunciando a mis derechos bajo las leyes de compensación de trabajadores. Además, reconozco que he recibido la forma DWC-1 las cual protege mis derechos.



OSHA Inspection Detail: Heat Related Deaths

1:24 p.m. on August 21, 2020 - An employee was cleaning, picking up trash. A coworker observed that the employee did not appear to be well and told the employee to take a break, drink water, and go to the breakroom to inform the supervisor.

The employee informed the supervisor that it was too hot and he was leaving early. The employee collapsed after arriving home and died.

5 Minutes in Groups

- What went wrong?
- What could the supervisor have done prevent the death.



Environmental Risk Factors

- Temperature
- Humidity
- Wind/Breeze (or lack of)
- Work hours
- Work load
- Pay system (hourly vs. piece rate)
- PPE or face coverings (e.g. wildfire smoke)



Personal Risk Factors

- Age
- Weight
- Fitness & Acclimatization
- Medical conditions (e.g. diabetes)
- Medications
- Beverages (sugar, caffeine, etc.)
- Alcohol
- Other drugs
- Clothing



Appropriate Clothing

Clothing can help protect against the sun and allow the body to cool, helping to prevent heat illness.

DO wear clothes that are:

- Lightweight
- Breathable fabric
e.g cotton, linen, rayon, wool
- Light colors
- Loose fitting
 - * Consider safety
- Long sleeves
- Wide brimmed hats

DO NOT wear clothes that are:

- Heavy or excessive layers
- Nylon, acrylic, polyester
- Black or dark colors
Absorb heat
- Tight or restrictive



Acclimatization

- Acclimatization typically peaks 2-14 days of regular work for at least two hours per day in the heat.
- Take extra precautions until acclimated such as:
 - Modify work schedule (shorter shifts, avoid high heat hours, etc.)
 - Closely observe employees that are...
 - ❑ Newly hired.
 - ❑ Newly assigned to high heat tasks.
 - ❑ Working during a heat wave.
 - ❑ Just beginning the warm season.
 - ❑ Working at 80°F + 10°F greater than the 5 days prior.



Obligations for Employees

- Take care of themselves – hydrate & rest.
- Follow the company's policy.
- Know the signs & symptoms of heat illness.
- Report any signs they experience, or see in coworkers, including any unusual behavior.

Employees have the right to water and rest breaks

Retaliation is prohibited!!



Obligations for Supervisors/Mayordomos

- Take care of themselves – hydrate & rest.
- Ensure there is water and shade; encourage workers to drink & rest.
- Follow the company policies.
- Take all symptoms seriously.
- Do not retaliate against workers, or threaten to.
- Be prepared to respond to emergencies (know first aid, how to contact emergency services, and how to transport a worker if needed).
- Report any first aid/illness to HR or the office.

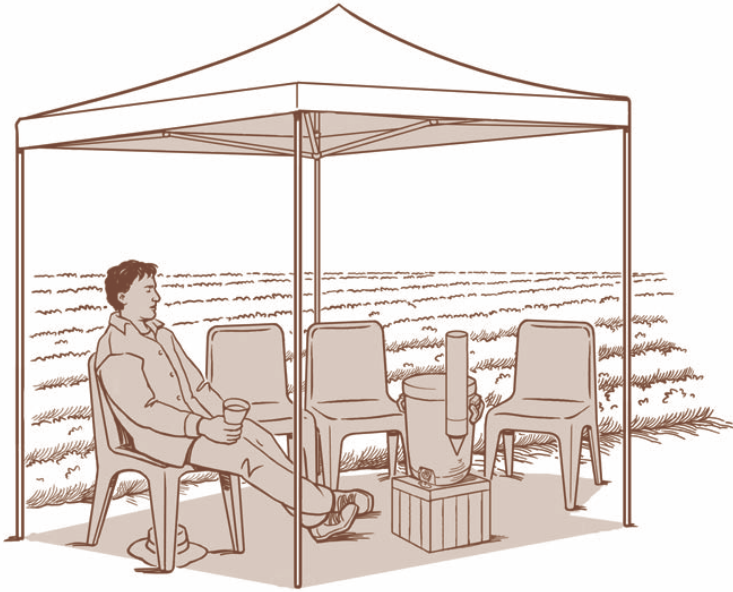


Heat Illness Prevention is Ongoing

- Ensure that all employees understand the policy and procedures.
- Ensure that water and shade are **easily accessible**.
- **Remind and encourage** workers to take breaks and drink water.
 - Emphasize for piece-rate workers (less willing to take breaks).
- Be a good example.
- Frequent reminders (e.g. tailgates)
- Ensure employees know the procedure to express concerns.



Best Solution is Prevention



- ✓ Drink plenty of water.
- ✓ Take rest breaks in the shade.
- ✓ Wear the right kinds of clothes.
- ✓ Be careful in heat waves and with new workers.
- ✓ Remind workers to watch out for each other.
- ✓ Remind workers of reporting procedures.



Questions?

