

## Course Transcript

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# Heat Stress Recognition and Prevention

## Course Overview

Read the [Course Overview](#) .

## Heat Stress Recognition and Prevention

[1. Identifying Risk Factors](#)

[2. Recognizing and Treating Heat-related Illnesses](#)

[3. Taking Preventive Measures](#)

# Course Overview

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**Narrator:**

**Narrator:** Sometimes, working in high temperatures or near hot objects is unavoidable.

**Narrator:** These working conditions can quickly lead to heat stress and heat-related illnesses, which can be life-threatening and thus should be taken very seriously.

**Narrator:** In this course, you'll learn about how your body handles heat and the factors that lead to heat stress.

**Narrator:** You'll also learn about the signs and symptoms of heat-related illnesses and how to treat them.

**Narrator:** Finally, you'll learn about preventive measures to minimize heat stress.

# Identifying Risk Factors

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## Learning Objective

*After completing this topic, you should be able to*

- *recall the personal factors that may contribute to heat stress*

## 1. Identifying Risk Factors

### **Narrator:**

**Narrator:** Some job situations may cause your body temperature to increase for an extended period of time, or expose you to very high temperatures for a short period.

**Narrator:** Either way, there are potential health risks to working in these conditions.

**Narrator:** High temperatures and heat stress can push your body beyond its limits, causing illness and possibly even death, unless precautions are taken.

**Narrator:** To keep you safe, your body will try to rid itself of excess heat once your blood temperature exceeds 98.6 degrees Fahrenheit.

**Narrator:** Your body does this in two ways, by varying the rate and amount of blood circulating through your skin and by sweating.

**Narrator:** Once the temperature of your surroundings reaches the same temperature as your skin, sweating becomes the main way for your body to cool down and maintain a steady temperature.

**Narrator:** However, sweating won't cool your body down unless the moisture evaporates and is removed from your skin.

**Narrator:** Anyone can be at risk of heat-related illnesses no matter how young or fit.

**Narrator:** However, there are several factors that can affect your ability to handle heat stress, including your age, body fat and fitness, and heat sensitivity.

**Narrator:** Alcohol and caffeine intake, as well as taking prescription medicines also affect your ability to stay healthy in hot conditions.

**Narrator:** So pay close attention to your general health and any medical conditions you may have, as some of these conditions can cause heat illness or may be aggravated by heat.

**Narrator:** For example, skin disorders such as dermatitis, may limit your ability to sweat when aggravated by heat or moisture, while heart and lung diseases may negatively affect your ability to handle heat stress.

**Narrator:** Diabetes if not properly controlled can lead to dehydration, which can be further aggravated by excess heat.

**Narrator:** Diarrhea may also lead to dehydration.

**Narrator:** If you suffer from either of these conditions, you should make sure to drink enough water.

**Narrator:** Working in high temperatures can be extremely dangerous, especially if you're predisposed to heat illnesses.

**Narrator:** It's vital that you identify any personal factors that may lead to heat stress, so you can take the proper precautions.

**Narrator:** Now, let's pause here so you can answer a practice question.

### Question

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What factors may lead to heat stress?

**Options:**

1. Alcohol and caffeine
2. Heat sensitivity
3. Prescription medicine
4. Body fat and fitness
5. Medical conditions
6. Age

## 7. Appetite

### Answer

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Alcohol and caffeine consumption, heat sensitivity, prescription medication, body fat and fitness, medical conditions, and age are all factors that lead to heat stress. Appetite is not a factor leading to heat stress.

### Correct answer(s):

1. Alcohol and caffeine
2. Heat sensitivity
3. Prescription medicine
4. Body fat and fitness
5. Medical conditions
6. Age

Here, you can access a job aid to review Heat Tolerance.

### Supplement

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*Selecting the link title opens the resource in a new browser window.*

#### **Job aid**

[Heat Tolerance](#)

# Recognizing and Treating Heat-related Illnesses

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## Learning Objectives

*After completing this topic, you should be able to*

- *identify the signs and symptoms of heat-related illnesses*
- *identify first-aid treatments for heat-related illnesses*

## 1. Recognizing and Treating Heat-related Illnesses

**Narrator:**

**Narrator:** Heat-related illnesses can become very serious very quickly, so it's critical that you recognize the early signs of heat stress and take the appropriate steps to protect yourself from further harm.

**Narrator:** The most severe heat-related illness is heat stroke.

**Narrator:** This occurs when your body's attempts to regulate its temperature fail, and your body temperature rises to critical levels as a result.

**Narrator:** Heat stroke can be caused by a variety of factors and is difficult to predict.

**Narrator:** However, there are several signs and symptoms that may indicate heat stroke.

**Narrator:** They include confusion, irrational behavior, loss of consciousness, convulsions, and an abnormally high body temperature.

**Narrator:** There may also be a lack of sweating and hot dry skin.

**Narrator:** Heat stroke is a medical emergency. Request immediate professional medical treatment by calling 911, if you experience these signs or observe them on one of your co-workers.

**Narrator:** You should also be familiar with the appropriate first-aid treatment for heat stroke, so you can perform it on the job.

**Narrator:** First, place the victim in a shady area. Then remove the victim's outer clothing and apply cool, wet cloths or towels to the skin.

**Narrator:** You should also fan the victim, and if they're conscious, give them cool water to drink.

**Narrator:** If the victim refuses water, vomits, or loses consciousness, call 911 for an ambulance immediately.

**Narrator:** You should never send a person who is suspected to have heat stroke home or leave them unattended without the approval of a physician.

**Narrator:** Another milder heat-related illness is heat exhaustion.

**Narrator:** This can develop after several hours of exposure to high temperatures combined with inadequate fluid intake.

**Narrator:** Heat exhaustion is more likely to occur in older workers and individuals with high blood pressure.

**Narrator:** There are several signs and symptoms of heat exhaustion, including heavy sweating, paleness, muscle cramps, and headache.

**Narrator:** There may also be nausea or vomiting, dizziness, and weakness.

**Narrator:** One symptom commonly associated with heat exhaustion is fainting.

**Narrator:** This can be very dangerous, especially in situations where the victim is operating machinery or at risk of injury if they were to fall or collapse.

**Narrator:** While less serious than heat stroke, you still need to provide first-aid and seek emergency medical treatment by calling 911.

**Narrator:** First, remove the worker from the hot environment.

**Narrator:** After this, give the victim water, or an electrolyte replacement beverage such as a sports drink, if available and encourage the victim to rest before resuming work.

**Narrator:** Let's examine a few signs and symptoms of heat-related illnesses in more detail.

**Narrator:** Heat cramps are usually the first and least severe sign that your body is having problems handling the heat.

**Narrator:** Heat cramps typically occur when hard physical labor is performed in high temperatures.

**Narrator:** The painful spasms that characterize heat cramps are linked to an electrolyte imbalance caused by sweating profusely and having either too much or too little salt in your system.

**Narrator:** Because sweat is a salt-based fluid, excess salt can build up in your system if you don't replace the water you lose through sweating.

**Narrator:** You shouldn't rely on your thirst to tell you on when to drink water.

**Narrator:** Instead, you should drink water frequently, every 15 to 20 minutes when working in a hot environment.

**Narrator:** Heat cramps can be treated by having the victim stop all activity and sit in a cool place.

**Narrator:** He or she should drink cool water or an electrolyte replacement beverage, such as a sports drink, and not return to strenuous activity for a few hours after the cramps have ceased.

**Narrator:** If the individual returns to work too soon, they may suffer heat exhaustion or heat stroke.

**Narrator:** If heat cramps don't subside in one hour, seek medical attention and call 911.

**Narrator:** The most common problem caused by heat is heat rash, also known as prickly heat.

**Narrator:** It usually appears as red papules in areas where the person's clothing is restrictive and the skin is persistently covered in unevaporated sweat.

**Narrator:** As sweating increases, the papules will start to cause a prickling sensation and may become infected if left unattended.

**Narrator:** Since most heat rashes disappear once the person leaves the hot



area, the treatment for heat rash involves first moving the person to a cool and less humid environment.

**Narrator:** The affected area should be kept dry and dusting powder can be used to increase comfort.

**Narrator:** Ointments and creams should be avoided.

**Narrator:** Considering how serious heat related illnesses can be, you should ensure you're familiar with the signs and symptoms of these illnesses as well as the first-aid treatments for them.

**Narrator:** Now, take a moment to answer some practice questions.

### Question

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Match each description to the heat-related illness or symptom it relates to.

#### Options:

- A. Confusion, irrational behavior, loss of consciousness, convulsions, hot, dry skin, and abnormally high body temperature
- B. Heavy sweating, paleness, muscle cramps, headache, nausea or vomiting, dizziness, and weakness
- C. Painful, involuntary spasms
- D. Red papules with a prickly sensation

#### Targets:

- 1. Heat stroke
- 2. Heat rash
- 3. Heat cramps
- 4. Heat exhaustion

### Answer

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The signs and symptoms of heat stroke are confusion, irrational behavior, loss of consciousness, convulsions, hot, dry skin, and

abnormally high body temperature. The signs and symptoms of heat exhaustion are heavy sweating, paleness, muscle cramps, headache, nausea or vomiting, dizziness, and weakness. The signs and symptoms of heat cramps are painful, involuntary spasms. The signs and symptoms of heat rash are red papules with a prickly sensation.

**Correct answer(s):**

Target 1 = Option A

Target 2 = Option D

Target 3 = Option C

Target 4 = Option B

# Taking Preventive Measures

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## Learning Objective

*After completing this topic, you should be able to*

- *identify preventive measures to minimize heat stress*

## 1. Taking Preventive Measures

### **Narrator:**

**Narrator:** While knowing how to recognize and treat heat-related illnesses can potentially save lives, preventing them from occurring in the first place is even better.

**Narrator:** Fortunately, there are many preventive measures you can take to minimize heat stress and reduce the likelihood of developing a heat-related illness.

**Narrator:** Avoid any unnecessary or unusually stressful activities and ensure you get enough sleep.

**Narrator:** It's also important that you maintain good nutrition and avoid eating excessively heavy or hot foods.

**Narrator:** While working in hot environments, try to make the job easier or shorten its duration by taking frequent breaks as needed.

**Narrator:** Slow down the work pace and use an air-conditioned area for rest breaks when possible.

**Narrator:** Drink water regularly even if you aren't thirsty.

**Narrator:** Depending on the conditions, you may need to drink a quart of water every hour or more.

**Narrator:** Never work alone and use a buddy system, including use of a personal cell phone to connect with other city and rural carriers, supervisors, and managers.

**Narrator:** You and your co-workers should monitor each other for signs of heat stress and know what to do in case anyone shows any symptoms of heat-related illnesses.

**Narrator:** One exacerbating factor that could contribute to heat stress is that many jobs require employees to wear specific personal protective equipment or PPE on the job.

**Narrator:** PPE adds bulk and weight, which can have a significant effect on your ability to tolerate heat.

**Narrator:** In turn, this increases your chances of developing a heat-related illness.

**Narrator:** When selecting PPE, carefully weigh the preventive benefits against the potential risk of developing a heat-related illness.

**Narrator:** Once the appropriate PPE for the job has been selected, you need to think about the duration of the work and the rest periods you should take to be safe.

**Narrator:** This will be based on a few factors, namely the anticipated work rate, the temperature and other environmental factors, and the type of protective equipment required.

**Narrator:** You should also consider your own individual characteristics and fitness.

**Narrator:** Sometimes when no other preventive measures are practical, you may need to wear PPE specifically designed for hot environments.

**Narrator:** This consists of insulated or cooled clothing or clothing that allows good airflow for jobs with short-term exposure to heat, such as maintenance work in a warm area with little ventilation.

**Narrator:** If a job demands that you work near hot surfaces or with hot and bright objects, you may also need to wear reflective clothing and light-filtering eye protection.

**Narrator:** It's important that you wear any PPE assigned to you even in hot conditions, as PPE is designed to protect you from job hazards.

**Narrator:** However, if you find that your PPE is causing you discomfort or to overheat, you should discuss it with your health and safety representative.

**Narrator:** Finally, there are some personal measures you can take to protect yourself against heat stress.

**Narrator:** Try to wear lightweight, light-colored, and loose-fitting clothing when selecting your personal work attire.

**Narrator:** If you'll be working in direct sunlight, wear a hat.

**Narrator:** Apply sunscreen at least 30 minutes prior to working outdoors and re-apply it according to the manufacturer's instructions.

**Narrator:** Sunburn affects the body's ability to cool itself down and can cause dehydration both of which could lead to heat stress, not to mention pain and skin damage too.

**Narrator:** Following these preventive measures will allow you to work in hot environments safely while minimizing heat stress.

**Narrator:** Now, take a moment to answer some practice questions.

### Question

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What are some preventive measures you can take to minimize heat stress?

#### Options:

1. Avoiding unusual or unnecessary stressful activities
2. Getting enough sleep
3. Maintaining good nutrition
4. Avoiding eating excessively heavy or hot foods
5. Making the job easier and taking regular breaks
6. Waiting until you're thirsty before drinking water

## Answer

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There are several measures you can take to minimize heat stress. This includes avoiding unusual or unnecessary stressful activities, getting adequate sleep, maintaining good nutrition, avoiding eating excessively heavy or hot foods, making the job easier, shortening its duration, and taking many breaks. You should also drink water regularly, even if you aren't thirsty.

### Correct answer(s):

1. Avoiding unusual or unnecessary stressful activities
2. Getting enough sleep
3. Maintaining good nutrition
4. Avoiding eating excessively heavy or hot foods
5. Making the job easier and taking regular breaks

## Question

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Identify some preventive measures for minimizing heat stress.

### Options:

1. Drinking water every 15 to 20 minutes even when not thirsty
2. Slowing down the work pace
3. Recognizing the signs and symptoms of heat-related illnesses
4. Using air-conditioned areas for comfort breaks to cool down
5. Using a buddy system

## Answer

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There are several preventive measures you can take to minimize heat stress. This includes scheduling hot jobs for cooler times of the day, drinking water even when you aren't feeling thirsty, slowing down the work pace, recognizing the signs and symptoms of heat-related illnesses, using air-conditioned areas for rest breaks, and using a buddy

system. You should also allow 5 to 7 days of gradual heat exposure for your body to acclimatize to a hot environment.

**Correct answer(s):**

1. Drinking water every 15 to 20 minutes even when not thirsty
2. Slowing down the work pace
3. Recognizing the signs and symptoms of heat-related illnesses
4. Using air-conditioned areas for comfort breaks to cool down
5. Using a buddy system

Here, you can access job aids to review the HIPP Poster, the Heat Illness Prevention Program, and HIPP Recognition and Response.

Good work!

You have completed the course instruction.

You can now move on to the course test.

## Supplement

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*Selecting the link title opens the resource in a new browser window.*

### **Job Aid**

[HIPP Poster](#)

[Heat Illness Prevention Program](#)

[HIPP Recognition and Response](#)