

FILL IN THE BLANK

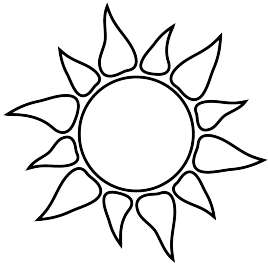
Choose the best word or phrase from the list below to complete the sentences and learn more about heat-related illness.

7 to 14
alcohol
headache
indoors
thirsty

absence
construction industry
hot area
shade
water

acclimatization plan
heat stroke
hyponatremia
sweating

1. An _____ should be implemented at all workplaces where workers are exposed to heat.
2. Gradually increase work time in hot environments over a period of _____ days.
3. Heat acclimatization increases _____ and therefore workers will have an increased need for _____.
4. In 2010 the largest number of workers died from heat-related illnesses in the _____.
5. _____ may occur from drinking large quantities of water accompanied by significant loss of sodium from sweating.
6. Drinking _____ during work in the heat reduces heat tolerance and increases the risk of heat-related illnesses.
7. _____ is a medical emergency, and you should call 911.
8. _____ from work in the heat for a week or more results in a significant loss in heat acclimatization.
9. It is possible to suffer from heat-related illnesses _____.
10. To reduce your risk of heat exhaustion, rest in the _____ frequently when working outdoors in the sun.
11. A person suffering from dehydration usually is _____ and often has a _____.
12. If your coworker is suffering from heat exhaustion remove him or her from the _____.



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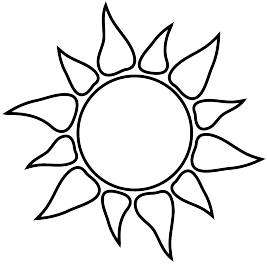
ANSWER KEY

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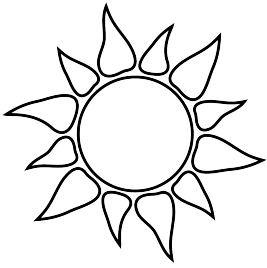
1. An **acclimatization plan** should be implemented at all workplaces where workers are exposed to heat.
2. Gradually increase work time in hot environments over a period of **7 to 14** days.
3. Heat acclimatization increases **sweating** and therefore workers will have an increased need for **water**.
4. In 2010 the largest number of workers died from heat-related illnesses in the **construction industry**.
5. **Hyponatremia** may occur from drinking large quantities of water accompanied by significant loss of sodium from sweating.
6. Drinking **alcohol** during work in the heat reduces heat tolerance and increases the risk of heat-related illnesses.
7. **Heat stroke** is a medical emergency, and you should call 911.
8. **Absence** from work in the heat for a week or more results in a significant loss in heat acclimatization.
9. It is possible to suffer from heat-related illnesses **indoors**.
10. To reduce your risk of heat exhaustion, rest in the **shade** frequently when working outdoors in the sun.
11. A person suffering from dehydration usually is **thirsty** and often has a **headache**.
12. If your coworker is suffering from heat exhaustion remove him or her from the **hot area**.



TRUE OR FALSE

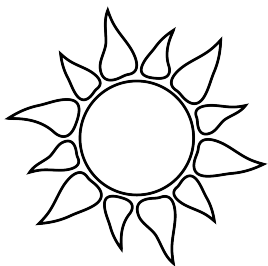
Check your knowledge. Are these phrases true or false?
Circle the correct answer. T for True and F for False.

1. T F Dehydration and lack of acclimatization can lead to heat syncope or fainting.
2. T F Workers who are obese are more susceptible to heat-related illnesses.
3. T F Heat-related illnesses never occur in indoor work environments.
4. T F Heat stroke is always a medical emergency.
5. T F You can cool a person's body quickly by immersing them up to the neck in cold water, placing them in a cold shower, or covering as much of their body as possible with cold, wet towels.
6. T F New workers who are not acclimatized to the heat should work the same outdoor schedule for the first few days as acclimatized workers.
7. T F Workers should be trained on how to prevent, recognize and treat heat-related illness.
8. T F Coffee and beer are the best fluids to drink to stay hydrated while working in extreme heat.
9. T F Older workers are more at risk for heat-related illnesses.
10. T F Gradually increase time working in hot areas over a period of 7 to 14 days to become acclimatized to the heat.
11. T F An indoor work environment can become a heat hazard if air conditioning is unavailable or ventilation is insufficient.
12. T F Hyponatremia is never a problem if you eat a good breakfast before working in extreme heat.
13. T F High humidity increases the risk of heat-related illnesses because it reduces the cooling of the body from the evaporation of sweat.
14. T F A buddy system can help prevent heat-related illnesses. Workers are not working alone, and they are monitoring each other for early signs and symptoms of heat intolerance.



TRUE OR FALSE ANSWER KEY

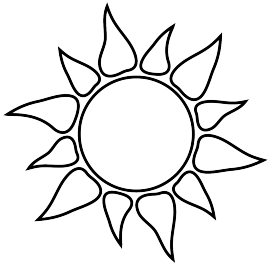
1. **True** Dehydration and lack of acclimatization can lead to heat syncope or fainting.
2. **True** Workers who are obese are more susceptible to heat-related illnesses.
3. **False** Heat-related illnesses never occur in indoor work environments.
4. **True** Heat stroke is always a medical emergency.
5. **True** You can cool a person's body quickly by immersing them up to the neck in cold water, placing them in a cold shower, or covering as much of their body as possible with cold, wet towels.
6. **False** New workers who are not acclimatized to the heat should work the same outdoor schedule for the first few days as acclimatized workers.
7. **True** Workers should be trained on how to prevent, recognize and treat heat-related illness.
8. **False** Coffee and beer are the best fluids to drink to stay hydrated while working in extreme heat.
9. **True** Older workers are more at risk for heat-related illnesses.
10. **True** Gradually increase time working in hot areas over a period of 7 to 14 days to become acclimatized to the heat.
11. **True** An indoor work environment can become a heat hazard if air conditioning is unavailable or ventilation is insufficient.
12. **False** Hyponatremia is never a problem if you eat a good breakfast before working in extreme heat.
13. **True** High humidity increases the risk of heat-related illnesses because it reduces the cooling of the body from the evaporation of sweat.
14. **True** A buddy system can help prevent heat-related illnesses. Workers are not working alone, and they are monitoring each other for early signs and symptoms of heat intolerance.



WORD MATCH

Match the phrases on the left with their description on the right.

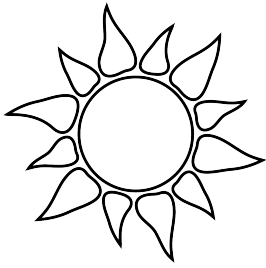
- | | |
|------------------------------|--|
| _____ 1. Heat stroke | A. Low sodium concentrations in the blood caused by drinking too much water and losing too much salt through sweating |
| _____ 2. Shade structure | B. Occurs when the water lost from sweating is not completely replaced |
| _____ 3. Adequate cool water | C. A medical emergency with a dramatic rise in body temperature that can be fatal |
| _____ 4. Hyponatremia | D. Drinking water less than 59°F provided in individual not communal drinking cups |
| _____ 5. Acclimatization | E. Minerals found in your blood, urine and sweat that are vital to keeping your body functioning as it should and include sodium, potassium, calcium and magnesium |
| _____ 6. Heat exhaustion | F. When workers are monitoring each other for early signs and symptoms of heat-related illnesses |
| _____ 7. Dehydration | G. Something to rest under when working outside in the sun |
| _____ 8. Hat with wide brim | H. Enhancing your heat tolerance over a period of time |
| _____ 9. Buddy system | I. How your body cools itself |
| _____ 10. Heat syncope | J. A heat-related illness which may include heavy sweating and pale, cool and clammy skin |
| _____ 11. Sweating | K. Worn to keep direct sun off your head and help prevent heat-related illnesses |
| _____ 12. Electrolytes | L. Fainting often caused by dehydration and lack of acclimatization |



WORD MATCH

ANSWER KEY

- | | |
|---------------------------------|--|
| <u>C</u> 1. Heat stroke | A. Low sodium concentrations in the blood caused by drinking too much water and losing too much salt through sweating |
| <u>G</u> 2. Shade structure | B. Occurs when the water lost from sweating is not completely replaced |
| <u>D</u> 3. Adequate cool water | C. A medical emergency with a dramatic rise in body temperature that can be fatal |
| <u>A</u> 4. Hyponatremia | D. Drinking water less than 59°F provided in individual not communal drinking cups |
| <u>H</u> 5. Acclimatization | E. Minerals found in your blood, urine and sweat that are vital to keeping your body functioning as it should and include sodium, potassium, calcium and magnesium |
| <u>J</u> 6. Heat exhaustion | F. When workers are monitoring each other for early signs and symptoms of heat-related illnesses |
| <u>B</u> 7. Dehydration | G. Something to rest under when working outside in the sun |
| <u>K</u> 8. Hat with wide brim | H. Enhancing your heat tolerance over a period of time |
| <u>F</u> 9. Buddy system | I. How your body cools itself |
| <u>L</u> 10. Heat syncope | J. A heat-related illness which may include heavy sweating and pale, cool and clammy skin |
| <u>I</u> 11. Sweating | K. Worn to keep direct sun off your head and help prevent heat-related illnesses |
| <u>E</u> 12. Electrolytes | L. Fainting often caused by dehydration and lack of acclimatization |

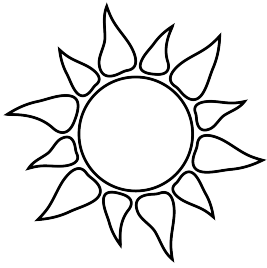


CASE STUDIES

Dehydration, Hyponatremia, Heat Cramps, Heat exhaustion or Heat Stroke

Read each of the case studies and discuss: 1) if you believe the worker is experiencing dehydration, hyponatremia, heat cramps, heat exhaustion or heat stroke and why, and 2) what first aid measures you would take if any.

1. You and your coworker have been working outside on a construction site for several hours. It's one of the first really hot days of the year. You notice that your coworker is really sweating a lot and looks a little pale. When you ask him how he is feeling, he tells you that he feels a little dizzy and nauseous.
2. Your coworker has just returned from a two-week vacation in a cooler climate. She told you that she was worried about coming back to work in the heat, so she drank as much water as she could last night and again this morning. At break she drank some more water and didn't eat anything. She now seems a little sluggish and says she feels tired and maybe a little nauseous. You've been working outside for over four hours.
3. You've been outside almost all afternoon on a hot day installing a new irrigation system. You notice that you've developed a headache and are thirsty.
4. Three of you have been installing a new roof on a house on a hot day. You started early, but it is taking longer than you expected to finish the installation. It's now late afternoon and you aren't finished. You sent one of your coworkers to the truck for more supplies, but he hasn't come back yet. You go to look for him and find him sitting in the driveway in the sun. He's seems confused, has a very red face and is sweating profusely. When you ask him what happened, he doesn't really respond.
5. You work in a foundry as a furnace operator. It's always really hot, but today the ventilation system isn't working well making it even hotter. Even the break room is hot. You see you coworker stumble a little and notice that he is sweating profusely. You ask him what's going on, and he tells you that he feels really hot and has a headache and is going to sit in the break room for a few minutes.
6. You and your coworker are installing pavers on a very hot day. All of a sudden, your coworker grabs her calf and says she just got a horrible cramp.
7. You have a new coworker who doesn't seem to be very physically fit. He also hasn't had much recent experience working outside on very hot and humid days. At the morning break he seemed a little irritable, so you were glad that you didn't have to work with him. Now it's late in the day, and all of a sudden you hear someone yell that the new coworker has just collapsed. You go over there, and see that he isn't responding to anyone and has a very red, dry face.



CASE STUDIES DISCUSSION

1. You and your coworker have been working outside on a construction site for several hours. It's one of the first really hot days of the year. You notice that your coworker is really sweating a lot and looks a little pale. When you ask him how he is feeling, he tells you that he feels a little dizzy and nauseous.

Discussion: *Your coworker is showing signs and symptoms of **heat exhaustion**. It's the first hot day, so he may not be acclimatized to the heat yet, and you've been working outside for several hours. If medical care isn't available at your work site, call 911. Remove your coworker from the hot area by going into the shade or indoors to a cool environment. Remove any unnecessary clothing including shoes and socks. Place cold compresses on his head, face and neck. Have him sip cool water or a cool sports drink. Stay with him until medical care arrives.*

2. Your coworker has just returned from a two-week vacation in a cooler climate. She told you that she was worried about coming back to work in the heat, so she drank as much water as she could last night and again this morning. At break she drank some more water and didn't eat anything. She now seems a little sluggish and says she feels tired and maybe a little nauseous. You've been working outside in the heat for over four hours.

Discussion: *Your coworker was correct about worrying about her heat tolerance after a vacation in a cooler climate, but her actions may have caused **hyponatremia**. She drank large quantities of water without eating and may have diluted her electrolytes. In addition, she is showing signs and symptoms of hyponatremia. Have her sit in the shade or go inside to a cool environment. If she's able to without throwing up, have her eat salty snacks, soup or bouillon. Unfortunately, the signs and symptoms of hyponatremia are similar to heat-related illnesses. If her condition doesn't improve or worsens, call 911.*

3. You've been outside almost all afternoon on a hot day installing a new irrigation system. You notice that you've developed a headache and are thirsty.

Discussion: *You are probably **dehydrated**. You might also think back to how frequently you urinated that day and what color your urine was. Decreased urine output and dark yellow urine are signs of dehydration. Go rest in the shade or a cool indoor environment until you feel better. Drink water or a sports drink to help you rehydrate. If your condition doesn't improve, seek medical care.*

4. Three of you have been installing a new roof on a house on a hot day. You started early, but it is taking longer than you expected to finish the installation. It's now late afternoon and you aren't finished. You sent one of your coworkers to the truck for more supplies, but he hasn't come back yet. You go to look for him and find him sitting in the driveway in the sun. He's seems confused, has a very red face and is sweating profusely. When you ask him what happened, he doesn't really respond.

This material was produced under grant number SH05051SH8 from the Occupational Safety and Health Administration, U.S. Department of Labor. It does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.

Discussion: Your coworker is showing signs and symptoms of **heat stroke**. In the past we thought that if someone was sweating it was heat exhaustion and not heat stroke, but we now know that heat stroke victims can be sweating profusely. He has a red face, is confused and has an altered mental status (not responding), all signs and symptoms of heat stroke. This is a medical emergency. Call 911. Move him to the shade or a cool environment, and remove his outer clothing. Cool him as quickly as possible with cold water, an ice bath and/or cold compresses on his head, neck, armpits or groin. Circulate the air around him. Stay with him until medical care arrives.

5. You work in a foundry as a furnace operator. It's always really hot, but today the ventilation system isn't working well making it even hotter. Even the break room is hot. You see your coworker stumble a little and notice that he is sweating profusely. You ask him what's going on, and he tells you that he feels really hot and has a headache and is going to sit in the break room for a few minutes.

Discussion: Your coworker is showing signs and symptoms of **heat exhaustion**. Heat-related illnesses can occur indoors. You work in a hot environment, and today there is limited air movement because the ventilation system isn't working well. Resting in the break room probably won't help him much, since it is also a hot environment. If medical care isn't available at your work site, call 911. Remove your coworker from the hot area by going to a cool environment. Remove any unnecessary clothing including shoes and socks. Place cold compresses on his head, face and neck. Have him sip cool water or a cool sports drink. Stay with him until medical care arrives.

6. You and your coworker are installing pavers on a very hot day. All of a sudden, your coworker grabs her calf and says she just got a horrible cramp.

Discussion: Your coworker is probably having a **heat cramp**. Have her rest in a cool environment and drink water or better yet a sports drink. She can gently stretch the muscle. She should not return to strenuous physical activity until the cramp goes away. Remember that heat cramps can be a sign of heat exhaustion.

7. You have a new coworker who doesn't seem to be very physically fit. He also hasn't had much recent experience working outside on very hot and humid days. At the morning break he seemed a little irritable, so you were glad that you didn't have to work with him. Now it's late in the day, and all of a sudden you hear someone yell that the new coworker has just collapsed. You go over there, and see that he isn't responding to anyone and has a very red, dry face.

Discussion: Your coworker is showing signs and symptoms of **heat stroke**. He has a red, dry face, and isn't responding to anyone. His irritability at the morning break may have been a symptom of heat exhaustion. This is a medical emergency. Call 911. Move him to the shade or a cool environment, and remove his outer clothing. Cool him as quickly as possible with cold water, an ice bath and/or cold compresses on his head, neck, armpits or groin. Circulate the air around him. Stay with him until medical care arrives.