STAY COOL!

PREVENTION OF HEAT RELATED ILLNESS

Instructor Guidebook:
Stay Cool!

Invest in Your Health
Educate. Prevent. Protect.

This Train the Trainer course is designed for teachers, Extension staff, 4H and FFA leaders and others who work with young adults.

In 2014, 253,000 young workers between the ages of 16-23 were employed in agriculture. In production agriculture, it is common to work in a hot environment and/ or in direct sunlight. Every year, thousands of workers become sick from exposure to heat, and some even die. Heat-related illnesses, while potentially deadly, are easily preventable.

This program will present an overview of the types of heat related illnesses; warning signs of life threatening exposure, learn immediate care procedures and access educational resources including information on employer responsibilities and worker's rights.

Instructor Guidebook Includes:

- On-Demand Webinar Link
- Presentation File Link
- AgriSafe Case Study Worksheet
- Additional Resources for instruction

AgriSafe® Network
Protecting the People Who Feed the World

CHS®

Who is at Risk?

Agriculture presents a unique set of exposures and risks to people of all ages – from very young children to older adults. People at greatest risk for heat-related illness include infants and children up to 4 years old; people 65 years of age and older; people who are overweight or have existing medical conditions, such as diabetes and heart disease. However, even young and healthy individuals can die from heat if they participate in strenuous physical activities during hot weather.

Heat Related Illness (HRI) – Heat-related illness occurs when the body's temperature gets too high. Body temperature can be affected by the temperature of the air and by level of physical activity. Our bodies create a tremendous amount of heat. Normally, they're cooled through sweating and by heat radiating through the skin. In very hot weather, high humidity, and other conditions, this natural cooling system may begin to fail, letting heat in the body build to dangerous levels. The can cause heat illness, such as heat cramps, heat exhaustion, or heatstroke.

Classroom Activity #1 Webinar Recording: Stay Cool!

Intended Webinar Audience:

This Webinar course is designed for young adults aged 16-23 years of age who work in agriculture.

Length: 30 minutes

Objectives

Program Objectives:

At the conclusion of the program, young adults will be able to:

- Understand symptoms related to various types of heat related illnesses
- Recognize warning signs, and immediate care procedures
- Prevent onset of heat related illness

Meet the Presenter

Knesha was born in the Arkansas Delta where farming of soybean and cotton are primary crops. She has over twelve years of public health experience in maternal child health, health disparities, and health education. She is passionate about serving vulnerable populations and ensuring health access and equity. Knesha obtained her Bachelor of Science in Biological Sciences (2002) with a minor in Chemistry and a Master's of Public Health (2006) with an emphasis in Health Promotion from Northern Illinois University.

In June 2016, she obtained a certificate in Agricultural Medicine which focused on rural occupational health and environmental health and safety. Knesha is a member of the American Public Health Association's and the Louisiana Public Health Association where she serves in leadership.

Knesha Rose-Davison, MPH
Health Communications Director
AgriSafe Network

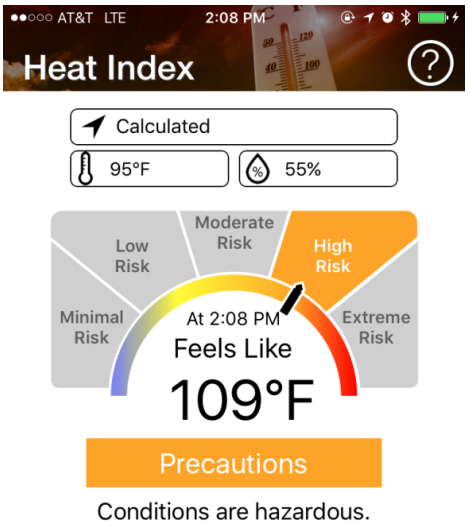
Click Here to Play Classroom Webinar

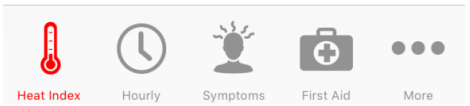
Classroom Activity #2

OSHA-NIOSH HEAT SAFETY TOOL APP

The App allows workers and supervisors to calculate the **heat index** for their worksite, and, based on the heat index, displays a **risk level** to outdoor workers. With a simple "click," you can get reminders about the **protective measures** that should be taken to protect workers from heat-related illness:

1. reminders about drinking enough fluids
2. scheduling rest breaks
3. planning for and knowing what to do in an emergency
4. adjusting work operations
5. gradually building up the workload for new workers
6. training on heat illness signs and symptoms
7. monitoring each other for signs and symptoms of heat-related illness





Tool developed by U.S. Department of Labor (DOL), Occupational Safety and Health Administration (OSHA) and the Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH). Compatible with Android and iPhone, available in English and Spanish.

Classroom Activity #3

Case Study A

Divide students in groups of 4-5 depending on class size. In each group designate one person to take notes and one person to record the group's responses to the following set of questions. Alternatively, this activity can be led as a class discussion.

Remember, heat-related illness occurs when the body's temperature gets too high. Body temperature can be affected by the temperature of the air and by level of physical activity, this may overcome your body's ability to cool itself. When heat in the body builds to dangerous levels, this can cause heat illness.

Scenario #1

Jaime had to clean out the horse barns for the summer. She had all the right tools on hand, thick gloves; shoes with rubber sole and a respirator. She started her work early in the morning and finished just before noon. The temperature was 90°F with a heat index of 98°F. Later she noticed inflammation, redness, and blister-like lesions on her neck, chest, back and stomach.

What is happening Jaime's body?

Answer: Red, blotchy rash with clusters of small pimples or blisters. May cover large area of the body and impede body's ability to regulate temperature

What are the heat related signs?

Answer: Red, blotchy skin in areas that have extended contact with damp or tight clothing. Small pimples or blister in folds of skin or belt area. Could be prickly or intensely itchy.

What should Jaime do?

Answer: Remove constrictive clothing; Keep area dry; Treat with corn powder or calming lotion; See doctor if symptoms persist more than a few days

What heat illness or condition do you think Jaime has and why?

Answer: Heat Rash (provide rationale for why you think its heat rash. Something like "heat rash is characterized by ...."

Classroom Activity #3

Case Study B

Divide students in groups of 4-5 depending on class size. In each group designate one person to take notes and one person to record the group's responses to the following set of questions. Alternatively, this activity can be led as a class discussion.

Remember, heat-related illness occurs when the body's temperature gets too high. Body temperature can be affected by the temperature of the air and by level of physical activity, this may overcome your body's ability to cool itself. When heat in the body builds to dangerous levels, this can cause heat illness.

Scenario #2

Calvin has to cut grass during the summer months while his Dad is harvesting cotton. In July and August the temperature is in the low 90s Fahrenheit and can occasionally reach the triple digits, high humidity makes it feel even warmer. Calvin, had a late start at 11:00 am and began his task without breakfast or liquids. He is thirsty, his mouth is dry; and he is sweating a lot but just wants to finish cutting the grass. He has a headache, and is starting to feel spasms in his arms and legs.

What is happening Calvin's body?

Answer: Sweating, Headache, involuntary spasms, fluid imbalance

What are the heat related signs?

Answer: Spasms, in the arms and legs or abdomen; headache

What should Calvin do?

Answer: Stop the activity (cutting grass) Rest in a cool shaded area, drink water, clear juice or electrolyte containing beverage

What heat illness or condition do you think Calvin has and why?

Answer: Dehydration, Heat Cramps (provide rationale for why you think its heat cramps. Something like "heat cramps are characterized by ...."

Classroom Activity #3

Case Study C

Divide students in groups of 4-5 depending on class size. In each group designate one person to take notes and one person to record the group's responses to the following set of questions. Alternatively, this activity can be led as a class discussion.

Remember, heat-related illness occurs when the body's temperature gets too high. Body temperature can be affected by the temperature of the air and by level of physical activity, this may overcome your body's ability to cool itself. When heat in the body builds to dangerous levels, this can cause heat illness.

Scenario #3

A group of young workers are detasseling corn on a 300 acre field. The temperature reached 94 degrees, but the index reached the triple digits. Detasseling corn is removing the immature pollen-producing bodies, the tassel, from the tops of corn plants and placing them on the ground, as a form of pollination control. Lisa and Devin are working using the buddy system. Lisa noticed that Devin seems unstable (wobbly) on his feet when he stood to return to the field.

What is happening in Devin's body?

The blood is pooling in the skin or in lower parts of body. The blood is not reaching the brain at an adequate level.

What are the signs?

Dizziness. Light headed Sensation. Fainting.

What should Lisa help Devin do?

Move to a cool, shaded area. Cool the skin. Lie down. Drink water, clear juice, or electrolyte containing sports drink.

What heat illness or condition do you think Devin has and why?

Heat Syncope, Fainting. (provide rationale for why you think its heat syncope. Something like "heat syncope is characterized by ...."

Classroom Activity #3

Case Study D

Divide students in groups of 4-5 depending on class size. In each group designate one person to take notes and one person to record the group's responses to the following set of questions. Alternatively, this activity can be led as a class discussion.

Remember, heat-related illness occurs when the body's temperature gets too high. Body temperature can be affected by the temperature of the air and by level of physical activity, this may overcome your body's ability to cool itself. When heat in the body builds to dangerous levels, this can cause heat illness.

Scenario #4

Hot environments present serious hazards to employee safety and health. Heat stress, the combination of heat, humidity and physical labor, can lead to serious illness and even death. An employee complaint was made regarding heat stress in an agriculture setting. The complaint alleged that employees were working in 95-degree temperatures, they felt dehydrated, the temperature may have affected an employee's breathing, and an employee was sent to the emergency room for heat exhaustion.

What is happening in the employee's body?

Long exposure to extreme heat or too much activity under a hot sun causes excessive perspiration, which can lead to heat exhaustion.

What are the signs?

Symptoms include headache and a feeling of weakness and dizziness accompanied by nausea and vomiting, there may also be cramps. In heat exhaustion there is excessive perspiration.

What treatment should be offered for heat exhaustion?

Go to a clinic or ER, for medical evaluation and treatment; if medical care is unavailable, call 9-1-1; Move the person to a cool environment (i.e. a well-ventilated or shaded area). Remove or loosen their clothing. Increase the consumption of fluids. (Do not force an unconscious person to drink.) Do not leave person alone. Do not return to work that day and until approved by a medical professional.

Classroom Activity #3

Case Study E

Divide students in groups of 4-5 depending on class size. In each group designate one person to take notes and one person to record the group's responses to the following set of questions. Alternatively, this activity can be led as a class discussion.

Remember, heat-related illness occurs when the body's temperature gets too high. Body temperature can be affected by the temperature of the air and by level of physical activity, this may overcome your body's ability to cool itself. When heat in the body builds to dangerous levels, this can cause heat illness.

Scenario #5

A 44-year-old male worker died of heat stroke while working on a North Carolina farm. The man had been working in the fields for about a week. On August 1st, the heat index was between 100°F and 110°F. Around 3 p.m., the worker complained to the crew leader that he was feeling ill. He drank some water and was driven to the employee housing and left alone. He was found unconscious 45 minutes later. Emergency personnel took the worker to the hospital, where he was pronounced dead. His core body temperature was 108 °F. (CDC/NIOSH Heat Stress First Aid)

What is happening to the body during heat stroke?

LIFE THREATENING MEDICAL EMERGENCY. Central nervous system failure. Ability to sweat is lost. Body temperatures rise rapidly.

What are the signs?

In heat stroke, there is an absence of perspiration; an extremely high body temperature; hot, dry skin; confusion; and loss of consciousness and/or convulsions. An extremely high body temperature can cause death. Nausea and vomiting. You may feel sick to your stomach or vomit. Flushed skin. Your skin may turn red as your body temperature increases. Rapid breathing. Your breathing may become rapid and shallow.

What is the proper first aid response to heat stroke or heat exhaustion?

Proper first aid for someone with suspected heat exhaustion or heat stroke involves COOLING the body as quickly as possible—not simply drinking water. For heat stroke or if the person is unconscious: Reduce the body's temperature as rapidly as possible via a cool water or sponge bath; fan the body surface. Call 911. Do not leave the person alone until he or she receives medical attention.

Classroom Activity #4

Heat Illness JEOPARDY! - Pacific Northwest Agricultural Safety and Health Center

Heat Stress Causes	Risk Factors	Heat Illnesses	Treatment	Prevention
1pt	1 pt	1 pt	1pt	1 pt
2 pt	2 pt	2pt	2pt	2 pt
3 pt	3 pt	3 pt	3 pt	3 pt
4 pt	4 pt	4pt	4 pt	4pt
5pt	5 pt	5 pt	5 pt	5 pt

Fun and interactive way to engage studies on all aspects of heat illness. This game was developed by the Pacific Northwest Agricultural Health and Safety Center. Available in English and Spanish. Additional tools and resources available from PNASH by clicking here.

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Suggested Test Questions

1. Why is heat related illness important in agriculture?

a. Workers extensive exposure to direct sunlight

b. Workers exposure to high humidity

c. Workers span the age spectrum

d. Risks encompasses many types of people, most NOTABLY children and young adults and the elderly

e. All of the above

Answer: (E) All of the above. Agriculture workers are at high risk, due to the nature of working long hours in higher temperatures or non – shaded areas, exposure to high humidity, and the age spectrum of workers. Children, young adults, elderly and people with certain medical conditions are more prone to heat stress.

2. Heat related illnesses are NOT preventable, and over 600 people per year die from exposure to extreme heat.

a. True

b. False

Answer: (B) False. Heat Related illness are easily preventable and each year over 600 people die from exposure to extreme heat.

3. Acclimatization is defined as:

a. A long-term rise in the average temperature of the Earth's climate system, an aspect of climate change shown by temperature measurements and by multiple effects of the warming.

b. The process by which radiation from a planet's atmosphere warms the planet's surface to a temperature above what it would be without its atmosphere.

c. A physical change that allows the body to build tolerance to working in the heat. It occurs by gradually increasing workloads and exposure and taking frequent breaks for water and rest in the shade.

d. A quantity representing the amount of water vapor in the atmosphere or in a gas.

Answer: (C) A physical change that allows the body to build tolerance to working in the heat. It occurs by gradually increasing workloads and exposure and taking frequent breaks for water and rest in the shade.

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Suggested Test Questions -continued

4. Heat Stress is an umbrella term used to describe a condition or process that can raise one's core body temperature. On the spectrum of heat related illnesses, which is the most severe?

a. Heat Rash

b. Heat Cramps

c. Heat Syncope (Fainting)

d. Heat Exhaustion

e. Heat Stroke

Answer: (E) Heat Stroke, it occurs when the body becomes unable to control its temperature. Body temperature rises rapidly, the sweating mechanism fails, and the body cannot cool down.

5. What should I do to prevent heat related illness while working or doing activities in extreme heat?

Check all that apply

a. Drink water every 15 minutes, even if you are not thirsty.

b. Rest in the shade to cool down

c. Wear a hat and light colored clothing.

d. Keep a watchful eye over fellow workers.

e. "Easy does it" on your first day of work in the heat. Your body MUST get used to it.

f. All of the above

Answer: (F) All of the Above.

Find more information

Resources

AgriSafe Invest in Your Health - Summary of Invest in Your Health resources.

Heat Related Illnesses Resource – AgriSafe Fact Sheet

Water.Rest.Shade: The work can't get done without them Occupational Safety and Health Administration

Warning Signs and Symptoms of Heat- Related Illness Centers for Disease Control and Prevention

Heat Illness Prevention: Training Materials for Educators – Pacific Northwest Agricultural Safety and Health Center

Support provided by CHS