

# **PRESENTER'S GUIDE**

## **"HEAT STRESS"**

**Part of the General Safety Series**

# **OUTLINE OF MAJOR PROGRAM POINTS**

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The following outline summarizes the major points of information presented in the program. The outline can be used to review the program before conducting a classroom session, as well as in preparing to lead a class discussion about the program.

- **Whether we're working outside under the hot sun, inside a busy factory, or bundled up against the cold, physical exertion can make us hot and sweaty.**
  - The hotter our workplace becomes, the hotter we can get.
- **This strain on our ability to keep cool is called heat stress.**
- **Our bodies are strong, flexible and capable of performing a variety of demanding tasks, but heat stress can interfere with its natural processes.**
  - When this happens, the results can be serious, even fatal.
- **It's not unusual for us to get hot and sweaty on the job. Sometimes it's because of:**
  - The weather.
  - The physical tasks we perform.
  - The nature of the facility we work in.
- **But being overheated is not only uncomfortable.**
  - It makes any job more difficult.
  - It can also affect our health.
- **Fortunately, our body has physical processes that kick in automatically to help us keep cool.**
  - For instance, the circulation of our blood can help to lower our body temperature.

- **As our temperature rises, the circulatory system directs more blood flow to the surface our skin.**
  - There the blood gives up the excess heat it has absorbed to the air.
  - Then it circulates back inside the body to pick up more heat.
  - As the process continues, heat is "pumped" out of our body.
  
- **When more cooling power is needed, our sweat glands go to work.**
  - They move heat out of the body in the form of warm water.
  - The evaporation of the sweat cools our skin off as well.
  
- **It's an effective system, but it does have a downside.**
  - Sweating depletes our body's supply of water and the vital minerals known as electrolytes.
  - Running low on these substances can cause our body to malfunction.
  
- **In extreme conditions, we can sweat out up to one quart of water and electrolytes an hour.**
  - This will make us thirsty, but we can't rely on our natural thirst alone to get us to drink enough to rehydrate ourselves.
  - We need to make a conscious effort to take in even more liquids.
  
- **You should try to drink five to seven ounces of liquid every fifteen or twenty minutes when you're sweating.**
  - "Sports" or "electrolyte" drinks can be a good option, because they're formulated to replace the minerals that you're sweating out as well.
  
- **Avoid drinks that contain alcohol or caffeine.**
  - They will only accelerate your water loss.

- **Some medicines can also cause water loss, or have other adverse effects when you're overheated.**
  - Ask your doctor about any medication that you take to find out if it could cause problems when you're working in hot conditions.
  
- **Watch what you eat in the heat as well.**
  - Hot meals raise your internal temperature.
  - Heavy foods require more blood to be used for digestion.
  - That blood could be helping to cool you off instead.
  - Stick to light, cool meals when you're working in the heat.
  
- **Whenever we work or play in the heat, our bodies' natural cooling processes work hard to prevent us from becoming overheated.**
  - The greater the heat, the harder those processes have to work to cool us off, and the more likely they are to get out of whack.
  
- **When these natural cooling defenses break down, we are in danger of developing heat-related illnesses such as:**
  - Heat syncope.
  - Heat cramps.
  - Heat exhaustion.
  - Heat stroke.
  
- **Sometimes when our system tries to cool itself off by directing more blood to the skin, the other parts of our body can get too little blood.**
  - This can cause a person to lose consciousness or faint, a condition called heat syncope.
  - Warning signs include dizziness and a rapid heartbeat.
  - Heat syncope often occurs in people who are new to working in high-heat conditions.
  - Serious injuries can result if the victim falls or loses control of a tool or vehicle when they faint.

- **When we sweat a lot and fail to replace the vital minerals or electrolytes that we're losing, we can develop another heat-related illness, known as heat cramps.**
  - Symptoms include painful cramping as well as involuntary jerking or spasming of the muscles, often in the calf, thigh and shoulder.
  
- **When our body runs low on both electrolytes and fluids, the result can be an illness called heat exhaustion.**
  - In addition to intense thirst, a person suffering from heat exhaustion may feel confused, dizzy, weak and uncoordinated.
  - They will also sweat profusely.
  
- **Heat stroke, on the other hand, occurs when the body's natural cooling mechanisms break down completely, and the victim becomes unable to sweat.**
  - Their skin will be flushed, very hot and dry.
  - Other symptoms of heat stroke include a throbbing headache, rapid heartbeat, nausea and vomiting.
  
- **Heat stroke causes a person's body temperature to rise uncontrollably, which is extremely dangerous.**
  - Heat stroke can cause damage to internal organs, including the brain, and can even be fatal.
  
- **When you're experiencing any type of heat stress, it's important to pay attention to what your body tells you.**
  
- **If you ignore the symptoms of one heat-related illness, such as heat cramps, it can quickly develop into another one such as heat exhaustion or heat stroke, which can be a lot more serious.**
  
- **Even when we do our best to protect ourselves from the heat, working in hot conditions can still knock us for a real loop.**
  - It's important to know how to treat heat-related illnesses, because they can be serious, even life-threatening.

- **Remember how the body reacts when we get overheated.**
  - Our system uses the sweating process to carry heat out of the body in the form of warm water.
  - Sweating constantly depletes our reserves of water and vital minerals (electrolytes).
  
- **If we don't make a point of replacing our fluids and electrolytes, the lack of them can cause us to develop heat-related illnesses such as heat cramps, heat exhaustion and heat stroke.**
  
- **When a coworker develops a heat-related illness on the job, you need to address the causes directly:**
  - Get the victim out of the heat and into a cool environment.
  - Have them sit or lie down and rest.
  - Cool them off by bathing their head, face and neck with cool water, or applying wet towels or sheets.
  - Give them cool water or an electrolyte beverage to drink.
  
- **If possible, bring the victim into a shady, air-conditioned area in the facility.**
  - Remove any outerwear they have on.
  - Loosen any tight garments.
  
- **If you think they may be experiencing heat stroke, call for emergency medical assistance immediately!**
  - It's also critical to lower their body temperature as soon as possible.
  
- **There are several ways you can speed up the cooling process, including:**
  - Applying cold compresses to their armpits and groin.
  - Wetting down their clothing.
  - Directing a fan on them.
  - Placing them in a cool bath.
  - And using ice or cold packs.
  
- **You should stay with the victim and continue to cool them down until the EMTs arrive.**

- **Even though we often can't control how hot our work environment is, there are things that we can do to handle the heat better by preparing for it ahead of time.**
  - This can enable you to work more comfortably.
  - It also helps you avoid the hazards of heat-related illnesses.
- **Whenever it is possible you should take a gradual approach to working in a high-heat environment.**
  - This gives your body time to get used to the temperature.
  - The average worker may need from 5 to 10 days to get fully acclimated, particularly in environments that are extremely hot.
- **People who are in good physical condition can generally get used to high heat conditions more quickly.**
  - They can also perform better in the heat, because their body and its muscles are lean and toned.
- **When a person is overweight or has a lot of fatty tissue, their body's cooling system has to work that much harder to keep their temperature down.**
- **Choosing the right work clothes can be important to staying cool as well.**
  - Loose, lightweight clothing made of cotton or cotton blends helps you get rid of excess heat by allowing the air to circulate freely around you, and wicking away much of your sweat.
- **The color of the clothing you wear makes a difference too, especially if you're working in the sun.**
  - Black or other dark colors actually absorb heat, so you should avoid wearing them.
  - Wear white and other light colors instead.
  - They help keep you cooler by reflecting the heat.
- **The same principle applies when you wear a light-colored hat to keep the hot sun off your head.**

- **Don't neglect the sunscreen.**
  - It not only prevents sunburn, it helps prevent the sunshine from heating up your skin as well.
- **Remember to wear sunglasses too!**
  - Keeping the sun off your face and out of your eyes both protects you and helps you to feel cooler.
- **If your work takes you into areas with intense levels of radiant heat, your employer may provide you with special protective clothing.**
  - One choice is to use reflective garments made of aluminized fabric.
  - Another option is ice vests, which are often used by fire-fighters and other workers who are exposed to very high heat.
- **Your supervisor can tell you what type of protective clothing is best for keeping you cool and safe on the job.**
- **If you're working indoors, temperatures can sometimes be reduced to safe levels through the use of cooling equipment.**
  - These solutions are called "engineering controls".
- **Some engineering controls, such as air conditioning and ventilation systems, can be built directly into a facility.**
  - Air conditioning can also be installed locally in windows, or as freestanding units.
- **Other engineering controls that can be built into a work environment include:**
  - Cooling systems that are attached directly to the machinery that gets hot.
  - Reflective barriers that contain radiant heat given off by equipment or work processes.
- **Portable fans, such as oscillating and box type fans, are also a popular and convenient way to keep cool.**

- **To control the heat, you have to make sure that the fan moves the air in the right direction.**
  - If you're working near a piece of equipment that produces heat, you should position the fan to blow the hot air away from your body.
  - If there's a source of cooler air nearby, use the fan to blow it toward you.
- **Depending on the time of year, you may be able to use a fan to:**
  - Blow cool air into your work area from outside.
  - Blow the hot air out.
- **Speaking of portable fans, it's important to remember that HVAC systems and other built-in engineering controls have to be carefully adjusted so that they cool a workplace effectively and efficiently.**
  - Using a fan in your own work area may interfere with the way the HVAC system is supposed to work.
  - Turning on a fan may help to cool you off, but at times it can actually make things hotter for others in the facility.
- **Be sure to talk to your supervisor about what you can and can't do to cool your work area.**

**\* \* \* SUMMARY \* \* \***

- **Too much heat can create a number of problems for our bodies.**
- **You need some time to get used to working in higher temperatures gradually.**
- **When it's hot, drink water and sports beverages regularly to replenish your fluids and electrolytes, and eat only light, cool meals during the work day.**
- **Dress in light-colored cotton or cotton-blend clothing.**

- **Use engineering controls to help you stay cool whenever possible.**
- **Know how to recognize heat-related illnesses and what to do if you or a coworker develops one.**
- **Now that you understand the hazards that heat can create, and know how to handle heat-related illnesses, you can help to make sure that you and your coworkers stay cool and healthy on the job... every day!**