

There are alternative solutions that are more effective for temporary storage of a displaced tooth than saliva:

- Hank's Balanced Salt Solution
- Egg white
- Coconut water
- Whole milk

Get the person to a dentist as quickly as possible, within an hour. The faster you act, the better the chance of saving the tooth.

Splinter

Splinters are small, sharp pieces of foreign material that become embedded in the skin. They need to be removed to keep a wound from becoming inflamed or infected.

Most splinters can be easily treated. If there is a protruding end, use tweezers to grab the splinter and pull it out in the direction it entered. Following use, tweezers should be washed thoroughly with soap and water.

If a splinter is deeply embedded or you have only been able to remove a piece of it, seek professional medical care.

Irritated Eyes

Small foreign objects on the surface of an eye will cause irritation and discomfort.

Encourage the person not to rub the affected eye. Have the person blink several times to see if the eyelid or tearing can remove the object naturally. If not, flush the eye with tap water or saline eyewash solution. Flush outward from the nose side of the eye.

If pain continues or the person feels like something is still in the eye, cover the eye lightly with a gauze pad and seek professional medical care. If the person has been exposed to flying metal fragments (hammering, grinding, etc.), do not attempt removal. Seek professional medical care immediately.



Knowledge Check

When a tooth has been knocked out, what is the most critical factor in being able to successfully reimplant the tooth?

Sudden Illness

Medical conditions and illnesses can suddenly trigger an unexpected medical emergency. In general, suspect a serious illness when, without warning, a person suddenly appears weak, ill, or in severe pain.

In many cases, the human body displays warning signs to alert us to serious illness. The most common warning signs of serious illness include the following:

- Altered mental status
- Breathing difficulty or shortness of breath
- Pain, severe pressure, or discomfort in the chest

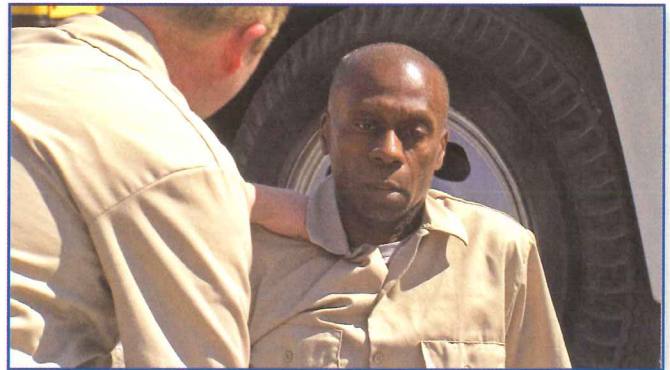


Altered Mental Status

Caused by a number of medical conditions, as well as the use of alcohol, medications, or drugs, an altered mental status is a significant or unusual change in a person's personality, behavior, or consciousness. It is an indication of a change in brain function.

Regardless of the cause, an altered mental status is a warning sign of a serious problem and is considered a medical emergency.

- Activate EMS.
- Position the person for comfort.
- Calm and reassure the person as best you can.
- If responsiveness becomes severely diminished, consider placing in a recovery position to protect the airway.
- Reassess regularly until another provider or EMS personnel take over. The condition could deteriorate quickly and require additional care.



Fainting

Fainting is a momentary loss of consciousness caused by an unexpected drop in blood pressure and blood flow to the brain. Anxiety, fear, pain, stress, standing in place too long, or rapid movements in position, such as standing up quickly from a seated or lying position, can all result in someone feeling faint or fainting. A medication or underlying medical condition might also contribute to the cause.

If someone complains of suddenly feeling warm, light-headed, or that his or her vision is narrowing, follow these guidelines:

- Quickly lay the person flat on his or her back on the ground.
- You can elevate the feet about 6 to 12 inches, which allows blood from the legs to move back into the body.
- Do not elevate the feet if it causes pain or you suspect a person may be injured.



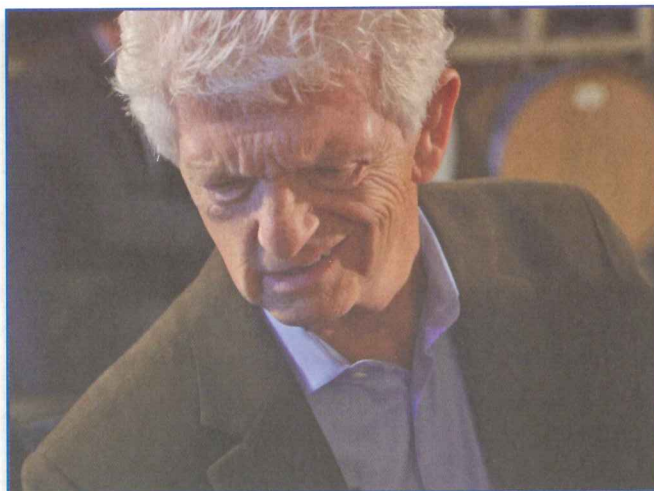
This is a temporary condition that should pass quickly and allow the person to get back to normal activities.

Stroke

A stroke, or brain attack, occurs when the blood supply to a portion of the brain is suddenly interrupted. This most commonly occurs when a blood clot obstructs a blood vessel in the brain. A stroke can also occur when a weak spot in a blood vessel wall, known as an aneurysm, bursts open and bleeds into surrounding brain tissue.

Signs of a stroke can vary depending on where the damage is located. The signs tend to show up suddenly:

- Numbness or weakness of the face, arm, or leg, especially on one side of the body
- Confusion
- A change in the ability to speak or be understood
- Changes in sight and balance
- A severe, sudden headache



Medications are available at hospitals that can limit the severity of a stroke. The earlier they can be given the better.

Early bystander recognition, along with rapid transport to a hospital, is critical for limiting damage, or even for survival.

A simple stroke assessment, such as FAST, helps decrease the time it takes to suspect a stroke, activate EMS, and get a person treated in a hospital.

- **Face droop:** Ask the person to smile. Look to see if the smile is uneven.
- **Arm drift:** Ask the person to raise both arms. Look to see if one drifts back down.
- **Speech difficulty:** Ask the person to speak a simple sentence. Listen for slurring or difficulty.
- **Time to activate EMS:** If the person has trouble with any of these tasks, activate EMS immediately. Report the time the person was last seen normal to EMS personnel.

Overall, do not give anything to eat or drink. Be prepared for the possibility of sudden cardiac arrest, and the need for CPR and the use of an AED.

A person experiencing a stroke can become frustrated at being unable to move or communicate clearly. The person may appear confused but still be aware of what is happening.

Stay close. Calm, comfort, and reassure the person until another provider or EMS personnel take over.

Hypoglycemia

Diabetes is a disease in which the body cannot effectively use sugar for energy. Hypoglycemia, or low blood sugar, is a diabetic condition that can rapidly develop and become life threatening. Early recognition and treatment by a first aid provider can prevent the condition from worsening.

Suspect hypoglycemia with anyone who begins to act oddly or becomes confused. The person may be trembling or shaking, and his or her skin may be pale, cool, and sweaty.

If the person is unable to communicate clearly, look for a medical alert bracelet or necklace which may help identify the underlying condition. You can also check with others about the person's medical history or medications he or she may be taking.

If someone is unresponsive, unable to follow simple commands, or has difficulty swallowing, follow these guidelines:

- Quickly activate EMS.
- Do not give anything to eat or drink.
- Provide any required supportive care.



If the person is responsive and can swallow without difficulty, follow these guidelines:

- Provide about 15 to 20 grams of oral glucose tablets to chew, if they are available.
- If glucose tablets are not available, use something with dietary sugar instead, such as orange juice, candy, fruit leather, or whole milk. Things that use artificial sweeteners will not help.

It is important to note that insulin is not considered an emergency medication. It is never appropriate to administer insulin to a diabetic person in an emergency setting.

Calm, comfort, and reassure the person. If the person responds to the sugar, his or her mental status will gradually improve.

If there is no response to sugar within 10 to 15 minutes or the condition worsens, activate EMS, and provide additional glucose or sugar. Reassess regularly until another provider or EMS personnel take over.

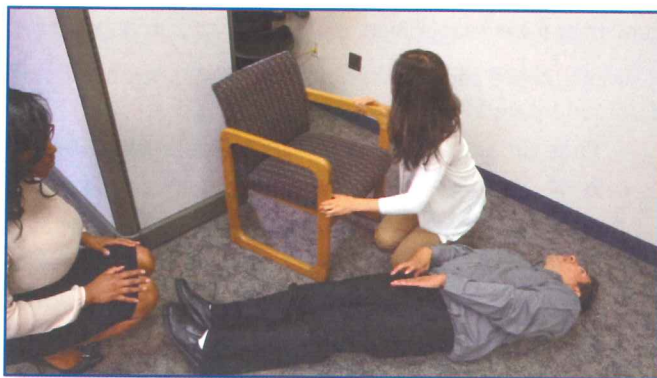


Seizure

Generalized seizures are triggered by excessive electrical activity within the brain. The result is uncontrolled muscle convulsions throughout the body. Typically, seizures happen without warning. Jerking movements of the body occur and breathing may seem absent. The person can lose control of his or her bowel or bladder, and may vomit.

While there are many things that can cause a seizure to occur, the care provided is always the same:

- Protect the person from injury during the seizure.
- Move objects away that he or she may bump into. Protect the person's head from injury as a priority.
- Do not restrain the person. Allow the seizure to take its course.
- If possible, roll the person onto his or her side to allow saliva to drain from his or her mouth.
- Do not put anything in the person's mouth, including your finger. There is no danger of the tongue being swallowed.



Activate EMS if the person does or experiences any of the following:

- Is injured or vomits during the seizure
- Has no history of seizure
- Has multiple seizures or continues to seize for more than 5 minutes

Most seizures last only a short time and stop without any special treatment. Once stopped, place the person in the recovery position to protect the airway. If responsiveness and breathing are absent after a seizure stops, begin CPR and use an AED, if available.

Normally, once a seizure stops, responsiveness improves slowly over time. Provide continual reassurance as the person improves. Provide privacy to minimize embarrassment. It is best to not allow the person to perform actions, such as driving or operating machinery, that could pose a risk for additional injury. Continue to monitor until EMS personnel take over care or the person returns to normal.



Knowledge Check

Often with an altered mental status, a person may develop a severely diminished level of responsiveness. What can you do to help that person to protect and maintain an open airway?

Breathing Difficulty, Shortness of Breath



Breathing difficulty or shortness of breath is a medical emergency. It is generally caused by an underlying medical illness such as asthma, allergic reaction, heart failure, or lung disease.

At rest, normal breathing is regular and effortless. You may first suspect difficulty when there is a noticeable increase in the effort to breathe and the rate at which breaths are occurring. Coughing, wheezing, or other unusual breathing sounds may occur.

A bluish purple tissue color, especially in the lips or fingers, indicates a developing lack of oxygen and is a serious warning sign.

- Do not wait to see if condition will improve. Activate EMS without delay.
- If an AED is available, have someone get it.
- Allow the person to find the most comfortable position in which to breathe.
- Loosen any tight clothing.
- Breathing difficulty can quickly become life threatening. Be prepared to provide CPR and use an AED if breathing stops.
- Reassess regularly until another provider or EMS takes over.

Asthma and Inhalers

Asthma is a medical condition in which certain things can trigger a physical reaction in the lungs and make it difficult for a person to breathe.

Quick-relief medications, delivered with an inhaler device, work fast to help control asthma symptoms. If the person has a prescribed inhaler assist him or her in using it. Activate EMS immediately if the symptoms seem serious, gets worse, or if there is no response to the medication within 5 minutes.

Severe Allergic Reaction

A severe allergic reaction, known as anaphylaxis, is an extreme response of the body's immune system to something it is sensitive to. There are common things that can initiate a severe reaction:

- Bee stings
- Peanuts
- Latex
- Penicillin

When anaphylaxis occurs, the airway can become constricted due to swelling of the throat, making it difficult to breathe. Wheezing may be heard. Other symptoms may include the following:

- Swelling of the lips, eyelids, and face
- Itchy raised lumps, or hives, on the face and chest
- Nausea and abdominal cramping

A severe allergic reaction can develop rapidly. In general, the faster the reaction occurs, the more severe it is. Without treatment, death can occur within a few minutes.⁴

When assisting someone during an allergic reaction, follow these guidelines:

- Allow the person to find the most comfortable position in which to breathe.
- A person with a history of allergic reactions may carry a prescribed epinephrine auto-injector. Epinephrine can quickly reverse the effects of the reaction and may be life-saving.
- Auto-injectors use a spring-loaded needle to rapidly administer a measured, single dose of epinephrine. They are easy to use with minimal training. If the person has an auto-injector, assist him in self-administering it.
- Activate EMS. If you are able, do it while the auto-injector is being used.
- If the person has not responded to an initial dose of epinephrine and EMS is still at least 5 to 10 minutes away, a second dose may be given.
- Reassess regularly until another provider or EMS personnel take over.



Assisting with Medication

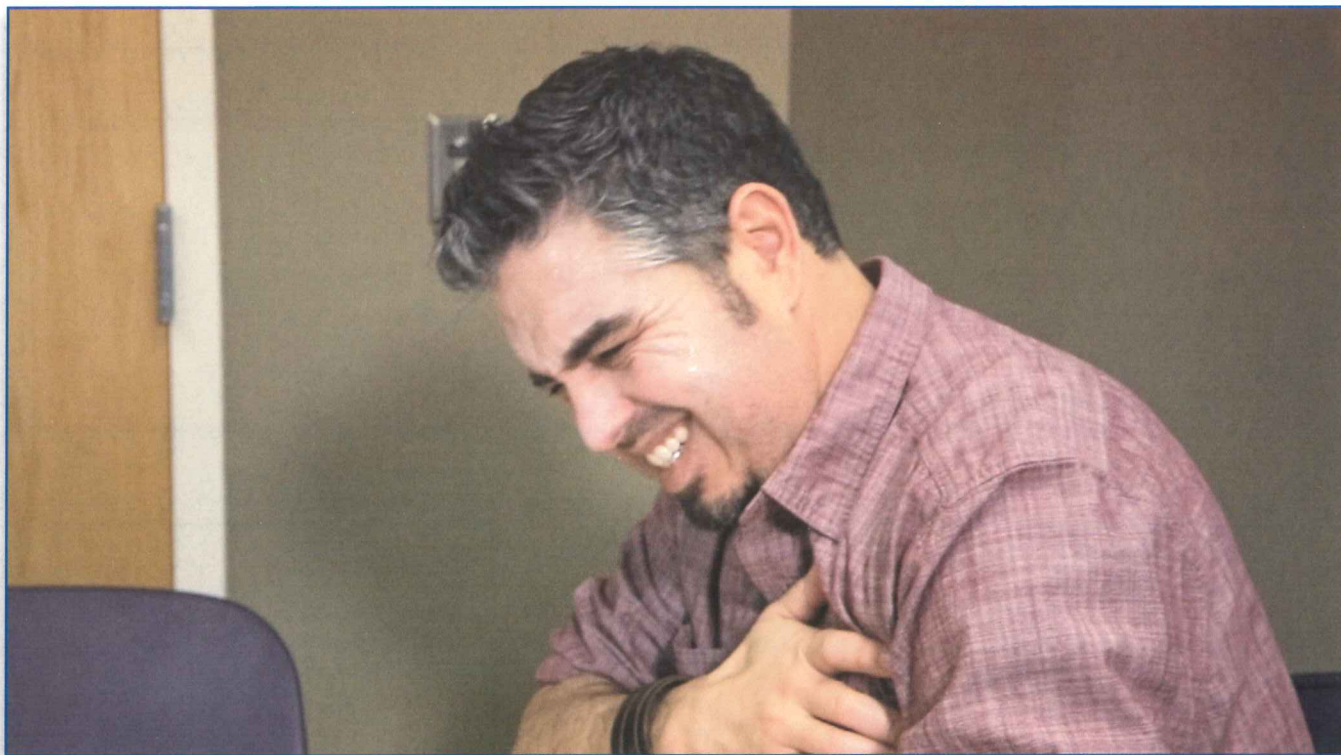
State laws and regulations may prescribe specific practices, rules, and standards for administering prescribed medication to another person. Be aware of the regulations in your local area.



Knowledge Check

You have responded as a first aid provider to a coworker who is having difficulty breathing. You suspect an underlying medical condition is the cause and the person does not have his prescribed inhaler. While waiting for EMS to arrive, you see his condition has gotten much worse. He looks exhausted. What is your greatest concern at this point and how have you prepared to deal with it?

Pain, Severe Pressure, or Discomfort in the Chest



Acute coronary syndrome (ACS) occurs when there is reduced blood flow to the tissues of the heart. Often described as a heart attack, ACS is a serious condition that can result in significant damage to the heart.

Someone with ACS will generally experience pain, pressure, or discomfort in the chest, although women often do not experience chest pain and may describe indigestion, weakness, or fatigue. Shortness of breath, nausea, and lightheadedness can also occur. The person may experience pain in the arms or back. The person's skin may become pale, cool, and sweaty.

A person who has had previous heart problems is at risk for reoccurrence. Ask the person or any bystanders about prior problems, or medications being taken.

If you suspect a heart-related problem, do not try to transport the person to a hospital yourself. Activate EMS immediately, even if the person does not want you to. While waiting for EMS to arrive, follow these guidelines:

- If an AED is available, have someone get it so that it's nearby if needed.
- Allow the person to find the most comfortable position in which to breathe.
- Loosen tight clothing.
- Calm, comfort, and reassure the person.
- A person who is having a heart attack may deny it. This is a common occurrence in this situation. Accept it, but never let this alter your approach to care.
- The early administration of aspirin can be life-saving for a person having a heart attack. Encourage the person to chew and swallow 1 adult (325 mg), or 2 to 4 low-dose (81 mg) "baby" aspirin.
- Do not encourage aspirin use if the person has an allergy to aspirin, evidence of a stroke, a recent bleeding problem, the pain does not appear to be related to the heart, or if you are uncertain or uncomfortable with giving the aspirin.
- Someone with a heart condition may carry a prescribed medication known as nitroglycerin. If so, assist the person in the self-administration of it.



Whenever a heart attack is suspected, be prepared for the possibility of sudden cardiac arrest, and the need for CPR and the use of an AED. Continue to reassure the person until another provider or EMS personnel take over.

Heart Disease

Heart disease, resulting in heart attacks and strokes, is the leading cause of death in the U.S., attributing to about 1 in every 4 deaths. This affects women and men almost evenly. A healthy lifestyle can lower the risk of heart disease:

- Eat a healthy diet
- Maintain a healthy weight
- Get enough physical activity
- Don't smoke or use other forms of tobacco
- Limit alcohol use
- Manage your medical conditions:
 - Check your cholesterol
 - Control high blood pressure
 - Monitor your diabetes

<http://www.cdc.gov/heartdisease/facts.htm>



Knowledge Check

True or false? A person who is having a heart attack may deny it.

Poisoning



Any substance that can enter the body and create a harmful reaction in the body can be described as a poison.

Ingested Poisoning

By far, poisoning most often occurs by ingestion. Children under 6 years account for over half of all poisonings. Most poisoning deaths are accidental, but some deaths are intentional.

Common ingested poisons include the following:

- Prescribed medications
- Personal care products
- Household cleaning products

The effects of ingested poisons are wide ranging and often resemble those of common illnesses. These are symptoms that may occur:

- Abdominal pain or cramping
- Nausea
- Vomiting
- Altered mental status



Often, the ingestion is described by the person. Open and empty containers, unusual smells, and odd staining on clothes, skin, or lips may be present.

If you suspect a person has ingested something poisonous, act quickly. Activate EMS if the person is displaying any serious signs or symptoms.

In the United States, calling the national Poison Help line at 1-800-222-1222 automatically transfers you to a regional poison control center. Poison control centers can quickly provide information regarding the immediate treatment to exposure to any substance.⁵

You can help EMS providers and the poison control center by clearly identifying the substance and providing details about the incident. Save any vomit, bottles, or containers for EMS. While waiting for help to arrive, follow these guidelines:

- Do not administer anything by mouth for any poison ingestion unless advised to do so by a poison control center or EMS personnel.
- Keep the person still.
- Calm, comfort, and reassure.
- Reassess the person regularly until another first aid provider or EMS personnel take over.



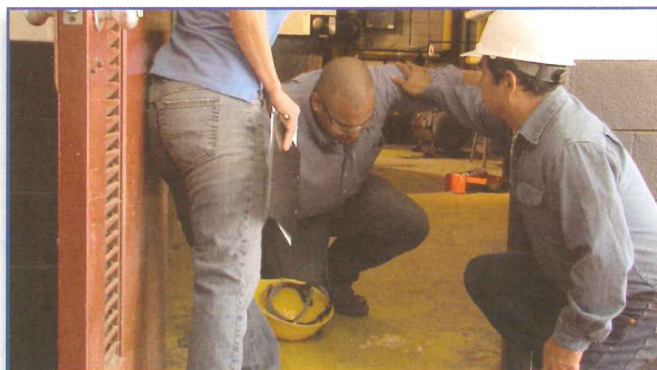
Inhaled Poisoning

Inhaled poisoning occurs when a harmful substance is breathed in. Common inhaled poisons include carbon monoxide, natural gas, solvent fumes, and chemical vapors.

Symptoms of inhaled poisoning may include the following:

- Headache
- Nausea
- Dizziness
- Difficulty breathing
- Altered mental status

Some poisons, such as natural gas, have a telltale odor. Other poisons, such as carbon monoxide, do not. Suspect inhaled poisoning whenever someone is working in an enclosed space and he or she is feeling ill.



Make sure it is safe for you to help, and then follow these guidelines when assisting someone who is suffering from inhaled poisoning:

- If you can do so without risk to yourself, immediately move the person to fresh air.
- Help the person to find a comfortable position.
- Activate EMS if the person is displaying any serious signs or symptoms.
- Call the national Poison Help line at 1-800-222-1222 for additional directions on care. Help identify the substance and provide details about the incident.
- Reassess regularly until another first aid provider or EMS personnel take over.

Poisonous Plants

Direct skin contact with plants such as poison oak, poison sumac, and poison ivy can cause problematic skin reactions. Usually occurring within hours or days of exposure, these reactions result in itchy, red skin rashes with open sores.

If you have been exposed, you may be able to prevent a reaction by washing the affected area with soap and water as soon as possible to remove the oily plant resin. Carefully handle and wash any clothes or tools that may have been exposed.

If a minor reaction occurs, commercial relief products are available to ease symptoms. Seek medical attention if the reaction seems serious.

Alcohol, Drugs, and Medications

The use, or overuse, of alcohol, drugs, or medications can result in serious life-threatening problems. A diminished mental status can result in the loss of an airway. Breathing can become depressed and stop. Vomiting can occur.

In quantity, these things can become toxic or poisonous and result in internal damage to body organs and functions. Treat as with any other suspected ingested poisoning. Call the Poison Help line at 1-800-222-1222 for treatment recommendations.



Knowledge Check

In the United States, calling the national Poison Help line automatically transfers you to a regional poison control center. Poison control centers can quickly provide information regarding the immediate treatment to exposure of any substance. What is the number to call?

Severe Abdominal Pain

Severe abdominal pain may be a warning sign of serious illness, especially if it appears suddenly or is a new experience for the person. There are many important organs in the abdomen. A wide variety of problems could occur and result in intense pain. Without a professional medical assessment, it is impossible to accurately determine what the underlying cause is.



Early suspicion and rapid transport to a hospital may help to prevent the development of a life-threatening condition. The abdomen may be rigid or tender to the touch. The person may become nauseated and vomit. If a person's symptoms seem severe, or you are not sure, follow these guidelines:

- Activate EMS without delay.
- A person complaining of severe abdominal pain will typically try to find a position of comfort, often with the knees raised, to relieve the pain. Help the person to maintain this position.
- Provide calming reassurance until EMS personnel take over.

Internal bleeding related to a pregnancy is one cause of abdominal pain. Light, irregular discharge of blood through the vagina, or spotting, is normal in a pregnancy. However, significant bleeding, especially late in the pregnancy, is a serious medical emergency. Severe abdominal cramping and pain can occur. Her skin may become cool, sweaty, and pale in color. She may be weak and lightheaded.

If a pregnant woman is experiencing symptoms like these, do the following:

- Activate EMS immediately.
- When lying face up, the baby puts pressure on the main vein that returns blood to the heart. Lay the mother on her left side to improve blood flow to both the mother and baby.
- Have her place a sanitary pad over the vaginal opening. Do not insert anything inside the vagina.
- Treat for shock. Help maintain a normal body temperature.
- Do not give anything to eat or drink.
- Calm, comfort, and reassure her.
- Reassess regularly until EMS personnel take over.



Knowledge Check

You respond as a trained first aid provider to a sales clerk in the store where you work. You find the 25-year-old woman curled up on a couch in the break room, complaining of a severe stabbing pain in her abdomen. As you provide care, what considerations should you take about positioning her to help relieve the pain?

Heat Emergencies



Heat-related problems occur when a body's normal temperature-reducing mechanisms get overwhelmed and become inefficient or stop working. This is especially true during vigorous physical activity.⁶

Heat Exhaustion

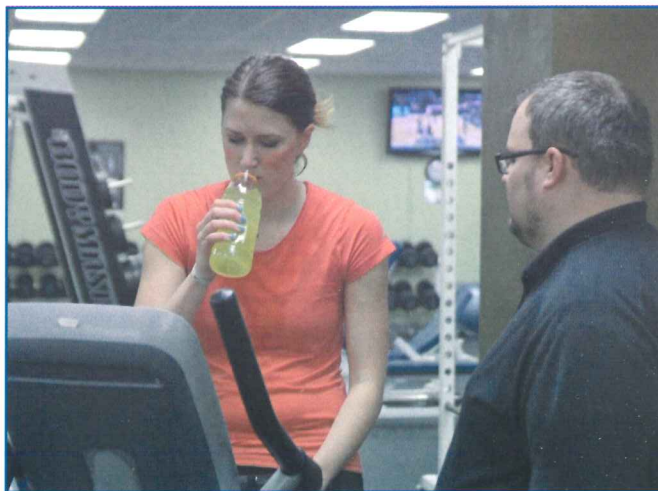
When a person is exposed to warm, humid temperatures, his or her internal body temperature begins to rise. Normally, the body reacts by sweating, which evaporates and pulls heat out and away from the body.

Simply rehydrating someone suspected of being dehydrated due to physical exertion and sweating could prevent serious heat-related problems from developing. Drinking a carbohydrate-electrolyte drink, such as a sports drink, works well to do this. Use water if a sports drink is not available. Coconut water and 2% milk have also shown to promote rehydration after exertion. Lemon tea-based drinks and Chinese tea with caffeine have a comparable rehydration effect to water.

Heat exhaustion can occur as a combined result of a rising internal temperature and dehydration.

Signs of heat exhaustion include the following:

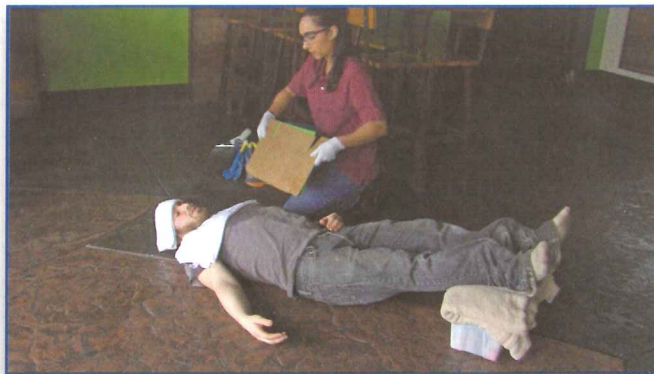
- Heavy sweating
- Pale, cool, sweaty skin
- Nausea and vomiting
- Headache
- Dizziness
- Feeling weak



Although it may not appear serious, treat heat exhaustion quickly. Without early recognition and treatment, it could progress to heat stroke, a life-threatening condition.

- Have the person stop any activity and move him or her to a cooler place.
- Loosen or remove excess clothing.

- Have the person lie down. If the person is uninjured, consider raising his or her legs 6 to 12 inches. Do not elevate the legs if it causes pain or the person is injured.
- Spray water on or apply cool, wet cloths to the head and torso. Use a fan to increase the cooling effect.
- If the person is able to follow simple commands and swallow without trouble, encourage the person to drink fluids, preferably a carbohydrate-electrolyte sports drink. Use water if a sports drink is not available. Do not give anything to drink if the person is confused or he or she has difficulty swallowing.



In most cases, the person's condition will gradually get better. If the person does not improve or seems to get worse, activate EMS.

Heat Cramps

Heat cramps are uncontrollable muscle spasms that can affect the calves, arms, abdominal muscles, and back. They can occur suddenly and be very painful.

Stretching and direct pressure to the cramping muscle may help. Delay further activity until the cramping has been resolved.

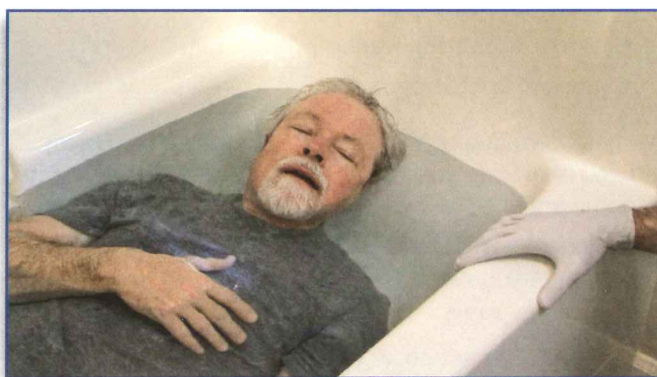
Heat Stroke

Heat stroke is a condition in which body temperature rises because the body's normal cooling systems are overwhelmed, or simply shut down as a result of extended exposure to a hot environment. It is a serious medical emergency and can quickly cause permanent damage to the brain.

- The person will be very warm, even hot to the touch.
- Heavy sweating could be present, but in many cases the skin can be red and completely dry.
- Typically, the person will be confused and could have trouble communicating.
- The person may become unresponsive and could experience a seizure.

Activate EMS immediately. The most important action a first aid provider can take is to begin immediate cooling with the resources available:

- When possible, the best method for cooling is to immerse the person up to the chin in cold water.
- If immersion is not possible, spray or pour cold water on the person, and fan him or her to increase cooling effect.
- Apply cold packs to the neck, groin, and armpits.
- Cover the person with a cold, wet sheet, and use a fan to enhance cooling.
- Provide continuous cooling until EMS personnel take over care.



With early recognition and effective cooling, most people suffering from heat stroke will survive.



Knowledge Check

You are volunteering as a first aid provider at your city's annual 10K run. Most runners have finished but a few are still trickling in. You see in the distance a runner being helped to walk, when he suddenly falls to his knees. You grab your first aid bag and run out to see if you can help. Your primary assessment shows he is very confused. His skin is sweaty, but surprisingly hot to your touch. What should you do for him?

Cold Emergencies



A cold or cool, wet environment can result in a lowering of internal body temperature. Hypothermia and frostbite are the most dangerous cold-related conditions.

Hypothermia

Hypothermia, a generalized cooling of the body, occurs when the internal core body temperature has decreased to 95°F or less. It can be a life-threatening condition.

Look for early signs of hypothermia, such as the following:

- Pale, cold skin
- Uncontrollable shivering
- Loss of coordination

As hypothermia progresses, shivering may stop. Breathing and heart rate slow down. Body processes can become impaired and may fail.

- Remove wet clothing and cover person with something warm and dry.
- Activate EMS.
- Cardiac arrest could occur. Get an AED if one is accessible.
- To care for the person, move him or her to a warmer place. Move the person slowly and without rapid movements.
- Cover the head and neck to retain body heat.

If you are far from professional medical care, begin actively rewarming the person. Place him or her near a heat source. Put containers of warm, but not hot, water in contact with the person's skin.

It is best to recognize and treat hypothermia early. The chance for survival decreases as the condition progresses.

