



NationalCPRFoundation™

Standard – CPR / AED / First-Aid Certification Course

In this CPR & First-Aid Certification Course you'll learn how to perform CPR, how to use an AED and how to properly apply First-Aid.





Introduction

The leading cause of death in the US according to the Center for Disease Control (CDC.gov) is Cardiovascular disease. It is important to keep in mind, that applying Cardiopulmonary Resuscitation (CPR) and First-Aid can occur in many ways. If a person has drowned, had a heart attack, had a stroke, went into cardiac arrest or is choking—proper training could mean the difference between life and death of a patient. If the patient isn't breathing, is unconscious or has no pulse CPR should be applied immediately. Always remember, proper CPR begins with chest compressions.

It's important to note: that death is most likely to occur after **10 minutes** of loss of oxygen to the brain. From **6 to 10 minutes** brain damage is expected. From **4 to 6 minutes** brain damage is very possible and from **0 to 4 minutes** brain damage is virtually non-existent.

Understanding CPR

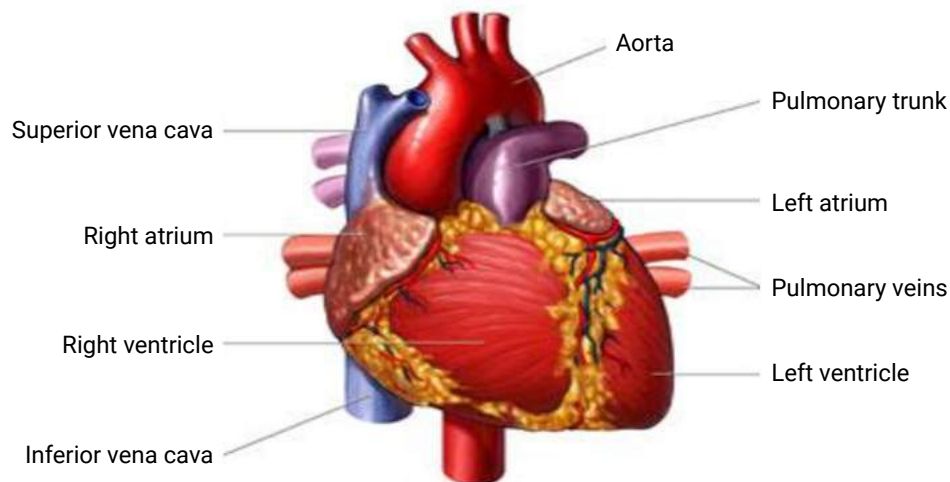
When the heart stops beating blood stops flowing throughout the body. **Cardiopulmonary Resuscitation (CPR)** is when a person performs chest compressions and breathing into a patient who has no pulse or who isn't breathing. Chest compressions combined with breathing into the patient will carry the now oxygenated blood throughout the body and into the brain. CPR acts like an artificial heart moving the blood rich in oxygen to the brain.

The patient's survival rate increases as he/she receives CPR, an **Automated External Defibrillator (AED)**, and if **Emergency Medical Services (EMS)** arrives within 10 minutes.

Recommendation

Untrained rescuers should provide Compression-only CPR since it's easy for an operator (dispatcher) to provide and guide instructions over the telephone. **Remember, it is a priority to activate the Emergency Response System immediately and to provide chest compressions.**

Human Heart





The Good Samaritan

The Good Samaritan Law protects individuals who assist those who are injured, ill, or in peril. As long as someone is acting voluntary and without expectation of reimbursement or compensation while performing such aid on-site, they will have legal protection. When performing CPR, every second counts, so unless unique circumstances apply, don't hesitate to call 911 and perform CPR immediately.

Before attempting CPR on someone in need of assistance

There are several things you must do. Make sure you and the patient aren't in any danger. If possible, resolve the risk or move the patient out of harm's way. If unable to do so for whatever reason, immediately call 911.

Check the patient to determine if they are conscious or not. Do not check for a pulse because time is of the essence and finding a pulse can take too long. Call out to the patient asking, "Are you okay?" Repeat if necessary. If the patient doesn't respond, immediately call 911 and then perform CPR—initiating Circulation, Airway and Breathing tasks (the C-A-B's). Also, if possible, have someone nearby call 911 and begin CPR, immediately.

It's important to note: American Heart Association (AHA) guidelines recommend in-confident performers should, at least, perform chest compressions upon the patient. Studies show chest compressions can be as effective as the combination of CPR.





CPR – Cardiopulmonary Resuscitation

C is for Circulation – Compressions

Chest Compressions - Circulate the blood within the patient. It's important to place your hands correctly upon the patient's chest when performing compressions.

To do so, find the point where the patient's ribs meet (just below both halves) and interlock your fingers with both hands. Make sure you're kneeling beside the patient's shoulders (Do Not Lean on Patient). Once in position, lock your elbows and use your body's weight to compress 2 inches upon the patient's chest. Make sure to let the patient's chest rise after each compression. Compressions on an infant are pressed just below the nipples.

Infant CPR - 2 Rescuers: One Rescuer should use two hands holding the infant facing up while positioning the fingers in the middle of the infant's chest as the other rescuer uses a one-way valve—placing it over the infant's mouth and nose. One rescuer will perform compressions while the other uses the rescue valve. You can also apply a ratio of 15:2 compressions to breathing.

Chest Compression Tempo: perform CPR while matching the tempo of the song, "Staying Alive" while making sure to push hard and fast.

Chest Compression Fraction: is the total percentage of resuscitation time when performed by the rescuer(s) during cardiac arrest. Whether intended or unintended interruptions (such as real-world delays) occur Chest Compression Fraction aims to minimize pauses in chest compressions. **Chest Compression Fraction Goal:** target of at least 60%.

Remember, until help arrives, administer CPR. Perform 100-120 compressions per minute.

A is for Airway. Clear the Airway

Check for any obstructions, such as tongue, foreign objects, vomit, swelling or food blocking the patient's throat or windpipe (finger-swipe, if necessary).

Make sure the patient is on a solid surface (on the backside). Next, kneel next to the patient's neck and shoulders. Open the patient's airway by tilting the head back with the palm of one hand while gently lifting the chin with your other hand. For no more than 10 seconds, check for life: listen for any sounds, put your cheek next to the patient's mouth to feel any breaths while also looking for any motion. Rescuers can check steps simultaneously. If the patient is assumed lifeless begin Mouth-to-Mouth procedure.

Perform Chest Compressions on patient's who are obese or pregnant.

B is for Breathing. Mouth-to-Mouth

Rescue Breathing - perform mouth-to-mouth; however, it can also be performed mouth-to-nose, mouth-to-mask, and mouth-to-stoma, but in rare cases.

Breathing tasks: While still performing the Airway technique pinch the patient's nose shut. With a complete seal over the patient's mouth, with your mouth, breathe into the patient until you see the chest inflate. If the chest does not rise, repeat the Airway technique. When performing the breathing technique make sure to give two breaths for 1 second each.

Once the breathing technique is applied, you will continue the C-A-B's.





CPR – Cardiopulmonary Resuscitation

CPR for Infants (Age Less Than 1 Year, Excluding Newborns)

- Witnessed Collapse: call 911 or have someone call
- Un-Witnessed Collapse: perform CPR (for 2 minutes), call 911 or have someone call
- Chest compressions - 100-120/min
- Perform CPR - Circulate, Airway, Breathing (C-A-B's)
- Compressions at about 1½ inches (4 cm) - 1/3 AP diameter of chest
- 30:2 compressions over breaths (seal infant's mouth and nose) - 2 Rescuers 15:2
- 2 Rescuers: 2 thumbs compression
- Use AED as soon as it's available

CPR - Components for Infants (Age Less Than 1 Year, Excluding Newborns) Scene safety

1. Check the environment - making sure it's safe for rescuers and victims

Recognition of cardiac arrest

1. Check responsiveness
2. No breathing or only gasping - ie., no normal breathing
3. Within 10 seconds - no positive pulse
 - A. (You can check for a pulse and breathing simultaneously in less than 10 seconds)

Activation of emergency response system

- **Witnessed collapse** 1. Leave the victim, if you're alone without a mobile phone, and activate the emergency response system while retrieving an AED before performing CPR
- **Unwitnessed collapse** 1. Give 2 minutes of CPR 2. Activate the emergency response system, get an AED and return to the victim 3. Resume CPR; use the AED as soon as it is available

Compression- ventilation ratio *without advanced airway*

- **1 rescuer** 30:2
- **2 or more rescuers** 15:2

Compression- ventilation ratio *with advanced airway*

- Chest compressions - 100-120/min
- Give 1 breath every 6 seconds (10 breaths/min)





CPR – Cardiopulmonary Resuscitation

Compression rate

- 100-120/min

Compression depth

- At least 1/3 AP diameter of chest
- About 1½ inches (4 cm)

Hand placement

- **1 rescuer** Just below the nipple line - 2 fingers in center of chest
- **2 or more rescuers** 2 thumb-encircling hands in the center of the chest, just below the nipple line Just below the nipple line - encircling hands (2 thumbs) in center of chest

Chest recoil

- Make sure not to lean on the chest of the victim - Allow a full recoil after each chest compression

Minimizing interruptions

- Compression interruptions - limit to less than 10 seconds

CPR for Children (Age 1 Year to Puberty)

- Witnessed Collapse: call 911 or have someone call
- Un-Witnessed Collapse: perform CPR (for 2 minutes), call 911 or have someone call
- Chest compressions - 100-120/min
- Perform CPR - Circulate, Airway, Breathing (C-A-B's)
- Compressions at about 2 inches (5 cm) - 1/3 AP diameter of chest
- 30:2 compressions over breaths - 2 Rescuers 15:2
- 2 Rescuers: Perform tasks simultaneously
- Use AED as soon as it's available

CPR - Components for Infants (Age Less Than 1 Year, Excluding Newborns) Scene safety

1. Check the environment - making sure it's safe for rescuers and victims





CPR – Cardiopulmonary Resuscitation

Recognition of cardiac arrest

1. Check responsiveness
2. No breathing or only gasping - ie., no normal breathing
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- **Witnessed collapse** 1. Leave the victim, if you're alone without a mobile phone, and activate the emergency response system while retrieving an AED before performing CPR
- **Unwitnessed collapse** 1. Give 2 minutes of CPR 2. Activate the emergency response system, get an AED and return to the victim 3. Resume CPR; use the AED as soon as it is available

Compression- ventilation ratio without advanced airway

- **1 rescuer** 30:2
- **2 or more rescuers** 15:2

Compression- ventilation ratio with advanced airway

- Chest compressions - 100-120/min
- Give 1 breath every 6 seconds (10 breaths/min)

Compression rate

- 100-120/min

Compression depth

- At least 1/3 AP diameter of chest
- About 1½ inches (4 cm)

Hand placement

- **1 rescuer** Just below the nipple line - 2 fingers in center of chest
- **2 or more rescuers** 2 thumb-encircling hands in the center of the chest, just below the nipple line Just below the nipple line - encircling hands (2 thumbs) in center of chest

Chest recoil

- Make sure not to lean on the chest of the victim - Allow a full recoil after each chest compression





CPR – Cardiopulmonary Resuscitation

Minimizing interruptions

- Compression interruptions - limit to less than 10 seconds

CPR for Adults & Adolescents

- Check for life
- Before performing CPR call 911 or have someone else call
- Chest compressions - 100-120/min
- 2 Rescuers: Perform tasks simultaneously
- Perform CPR – Circulate, Airway, Breathing (C-A-B's)
- Compressions at about 2 inches (5 cm)
- 1 or 2 rescuers - 30:2 compressions over breaths
- Use AED as soon as it's available

CPR - Components for Adults & Adolescents Scene safety

1. Check the environment - making sure it's safe for rescuers and victims

Recognition of cardiac arrest

1. Check responsiveness
2. No breathing or only gasping - ie., no normal breathing
3. Within 10 seconds - no positive pulse
 - A. (You can check for a pulse and breathing simultaneously in less than 10 seconds)

Activation of emergency response system

- If you do not have a mobile phone – leave the victim and activate the emergency response system while retrieving an AED before performing CPR.
- Have someone activate the emergency response system. Perform CPR immediately and use the AED as it becomes available.

Compression- ventilation ratio without advanced airway

- **1 or 2 rescuers** - 30:2

Compression- ventilation ratio with advanced airway

- Chest compressions - 100-120/min
- Give 1 breath every 6 seconds (10 breaths/min)





CPR – Cardiopulmonary Resuscitation

Compression rate

- 100-120/min

Compression depth

- At least 2 inches (5 cm)

Hand placement

- 2 hands on the breastbone (sternum) on the lower half

Chest recoil

- Make sure not to lean on the chest of the victim - Allow a full recoil after each chest compression

Minimizing interruptions

- Compression interruptions - limit to less than 10 seconds

Rescuers should never

- Compress slower than 100/min or faster than 120/min
- Compress in-depth less than 2 inches (5 cm) or more than 2.4 (6 cm)
- Lean on victim's chest during compressions
- Allow interruption during compressions more than 10 seconds
- Provide excessive ventilation during breathing task, i.e., excessive breathing with force or too many breaths

When to stop CPR

- When you're too exhausted to continue
- Broken ribs, lung collapses, etc.
- If an Automated External Defibrillator (AED) is accessible
- If Emergency Medical Services (EMS) arrives





Automated External Defibrillator (AED)

Automated External Defibrillator (AED) Guidelines

When should an AED be used?

CPR is a very important action for saving a patient's life. However, an AED is crucial towards regaining the natural rhythm of the heartbeat as well as restarting the patient's heart. After performing CPR and if the patient is still non-responsive an AED should be implemented. If the AED does not bring the patient back to consciousness CPR should be re-administered. It's crucial to call 911 or any Emergency Medical Service (EMS) before performing CPR or applying an AED.

How to use an AED

Turn on the AED – Usually, there will be an On button but in some cases, there might be a lever. Make sure to remove all clothing from the arms, chest and abdomen whether male or female. Attach pads to bare skin on the chest. Make sure to use the appropriate system for children or adults. Place the left pad under the left armpit to the left of the nipple. Place the right pad under the collarbone on the right side of the chest. Make sure to put the pads at least one inch away from any implanted devices.

For Infants

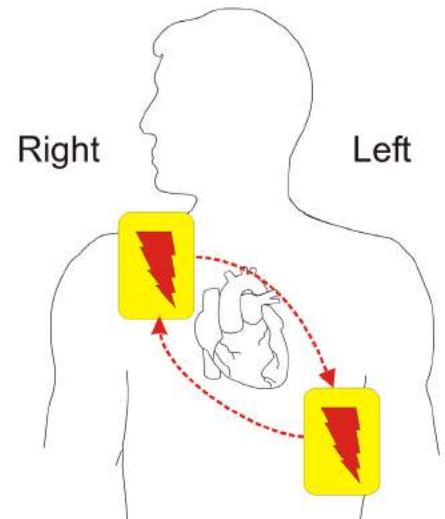
If the pads are able to touch make sure to place one pad directly on the back of the infant.

Next, connect the wiring

Analyze the patient's heart rhythm. Make sure you DO NOT touch the patient during the defibrillator process. If the AED does not begin analyzing automatically, make sure to press the analyze button. Push the shock button if and when advised. Clean the patient and area of any debris such as metal, significant amounts of water, etc., before using an AED.

Newer AED's only shock once; however, some models do shock up to 3 times. If the patient is shocked but doesn't regain a pulse immediately, perform CPR for 2 minutes.

Note: Before using an AED, physical training is recommended.





First-Aid

Welcome to Our First-Aid Course

From cuts to burns to fractures and nosebleeds many accidents take place every day. **Understanding First-Aid procedures** will not only better equip you in the case of an emergency but could perhaps mean the difference between life and death of a patient. In this course, we'll examine basic First-Aid procedures and at the end of the course, you'll be tested on your knowledge.

Items you'll need in a medical kit:

1. Gauze pads (at least 4 x 4 inches).
2. Two large gauze pads (at least 8 x 10 inches).
3. Box adhesive bandages (band-aids).
4. One package gauze roller bandage at least 2 inches wide.
5. Two triangular bandages.
6. Wound cleaning agent such as sealed moistened towelettes.
7. Scissors.
8. At least one blanket.
9. Tweezers.
10. Adhesive tape.
11. Latex gloves.
12. Resuscitation equipment such as resuscitation bag, airway, or pocket mask.
13. Two elastic wraps.
14. Splint.
15. Directions for requesting emergency assistance.



Remember the Goal: Recognize when help is needed and how to get it. Learn how and when to access the Emergency Medical Services (EMS) system, i.e., 911, activate the emergency response plan, and to contact the **Poison Control Center** (1-800-222-1222).

The faster you retrieve advanced care for the patient the higher the survival rates. If you're alone and in harm's way, then provide basic care before leaving (if possible) and activate EMS.





Types of Wounds

Open Chest Wounds may be left open. Dress the wound (with a sterile pad, wrap, etc.) and apply direct pressure to stop the bleeding. Extreme care is required so the dressing doesn't become saturated with blood, which can inadvertently become occlusive. Dress appropriately and modify the procedure when it is needed.

On victim's with Open Chest Wounds a higher value is placed on the avoidance of providing dressings. The life-threatening risk is to cause tension pneumothorax inadvertently when compared with other risks associated with an Open Chest Wound.

Dressing Open Chest Wounds: First, activate the Emergency Response System. Check to see if there's more than one open wound (for more than one wound determine if dressing will be applied). Remember, the dressing should only be applied if there is rapid blood loss. Remove clothing (leave stuck clothing). Cut dressing but make sure it's larger than the wound. Seal the wound to prevent the loss of blood (apply pressure if needed). Never remove objects from the wound.

Punctured Wounds can be severe. It's very dangerous if the wound gets infected. If the wound has excessive bleeding, make sure to call 911. Remember, if the patient falls unconscious or is non-responsive without a pulse make sure to call 911 and perform CPR.

Treatment:

1. Stop the bleeding.
2. Apply thorough pressure (seek EMS attention if bleeding is excessive).
3. Clean the wound thoroughly with water and soap (stay clear of the injury itself).
4. Apply an ointment such as Neosporin.
5. Provide a pain reliever such as Advil.
6. (Re) wrap the wound to keep the wound from infection.
7. Seek medical attention at the nearest hospital if the injury worsens.
8. Have the patient get a Tetanus or Tetanus Booster shot.

Amputations. There are several steps to follow when treating amputations.

Treatment:

1. Always practice universal precautions.
2. Call 911 immediately.
3. If the patient isn't breathing, perform CPR.
4. Apply direct pressure. Make sure to raise the injured area. Use a tourniquet or tight bandage, if needed.
5. If possible clean the amputated part and make sure to keep it with the patient.
6. Wrap the part in a cloth and put it in a plastic sealed bag inside of ice water.
7. If the amputated part is below the heart, make sure to raise the legs 12 inches above the heart.
8. Watch for any signs of shock.





Types of Wounds

Cuts & Scrapes. There are several basic steps to follow when aiding Cuts & Scrapes.

Treatment:

1. Stop the bleeding.
2. Apply thorough pressure (seek EMS attention if bleeding is excessive or cut is deeper than 1/4 inch).
3. Thoroughly clean the cut/scrape with water and soap (stay clear of the injury itself).
4. Apply an ointment such as Neosporin.
5. Provide a pain reliever such as Advil.
6. (Re) wrap the injury to keep it from infection.
7. Seek medical attention at the nearest hospital if the injury worsens.
8. Have the patient get a Tetanus or Tetanus Booster shot.

Keeping the wound clean is crucial. Make sure the patient gets tetanus or booster shot.





The Human Heart

Cardiopulmonary Arrest (Cardiac Arrest) is the ineffective contractions of the heart causing a cessation of blood circulation throughout the body. The end of circulated blood will result in the patient falling unconscious due to a lack of oxygen. If Cardiac Arrest patients are left untreated brain damage and even death, is very likely. An immediate response is crucial in saving the life of a Cardiac Arrest patient. It's critical to perform CPR immediately.

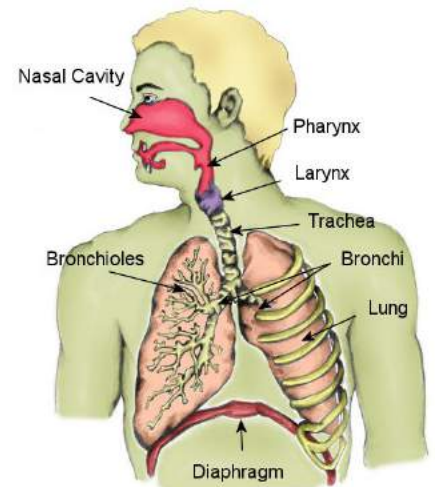
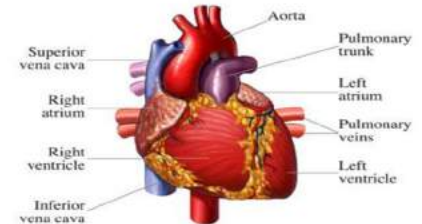
A **Heart Attack** is when the heart isn't receiving oxygenated blood. When a patient isn't receiving oxygenated blood, the heart begins to die. The patient might undergo pain in the center of the chest, sweating, nausea, dizziness, and faintness. Also, pain throughout the body in areas such as neck, shoulders, jaw, teeth and arms.

Treatment: check universal precautions, call 911 immediately or rush the patient to the nearest hospital, have the patient chew aspirin (unless allergic or told otherwise). If the patient is unconscious or unresponsive, perform CPR.

Chest Pain – For patients with Chest Pain the provider may encourage the patient to chew one adult or 2 low-does aspirins (if signs suggest the patient has myocardial infarction and if the patient doesn't have allergies to aspirin). If the provider is unsure or uncomfortable with such administration of aspirin, then the patient can be referred to EMS.

Respiratory Arrest is the cessation of oxygen throughout the body. Failure of the lungs to deliver oxygen can result in death if untreated. A lack of oxygen to the brain will cause a loss of consciousness, and immediate treatment is essential for the chances of survival. Artificial ventilation treatment is the necessary act for saving respiratory arrest patients. Make sure to call 911 immediately and then, perform CPR.

Human Heart





Fractures, Bruises, Avulsions, Sprains & Strains

A **Fracture** can be very severe. It's important to understand Fractures and understand what to do according to the severity of the injury. If there are any signs of a concussion, broken bones in the neck, head or back, deformed joints, no pulse, heavy bleeding, any abnormalities of the broken bone such as a piercing of the skin, irregularly fixed, call 911 immediately and perform CPR, if required.

Treatment: Make sure to stop the bleeding by applying pressure to the Fracture and wrapping it if necessary. Apply a splint to the Fractured area. If the patient isn't moving, do not try and move the patient yourself. If needed, apply a cold cloth or ice to the fracture.

Remember: if the patient appears to be light-headed or on the verge of fainting lift the legs slightly higher than the victim's heart to raise the blood pressure.



Dental Avulsion – For lack of skill and required training to re-implant an avulsed tooth it may be beneficial to store the tooth in solution. Storing the tooth in solution prolongs the viability of dental cells. Such solution, which has shown efficacy: Hank's Balanced Salt Solution. Cell viability: 30-120 minutes.

Bruises are broken blood vessels that leak under the skin—dark spots caused by a blow, fall, etc.

Treatment: Make sure to elevate the injured area which will alleviate the pain. Also, apply an ice pack or cold cloth. If needed, have the patient take a pain reliever such as Tylenol to reduce the pain and swelling. If the Bruise appeared on the head or if the bruise lasts longer than two weeks consider taking the patient to the hospital.

Sprains & Strains differ in where the injury takes place on the body. Sprains occur in any ligaments, such as ankles, wrists, etc. Strains result from a torn muscle or tendon. Strains can arise in the back (hamstring) or thigh, etc.

Treatment: Rest the Sprained/Strained area in a sling, crutch or flint. Make sure to place ice over the area to prevent swelling and limit the application to 20 minutes unless the patient is irritated - limit 10 minutes. Make sure to apply a bandage to the joint or limb or use a brace, if possible. Make sure to raise the patient's Sprained/Strained part 12 inches above the heart.





Types of Burns

Burns vary on the degree of which layer the burn reaches. Remember, there are **three standard categories**— 1st-degree, 2nd-degree, and 3rd-degree.

1st-degree Burns have persistent pain, are red, and usually are accompanied by swelling.

Treatment:

1. Keep the burn cool (wrap the burn with a cold cloth or soak the wound in a bath).
2. Apply ointment such as Aloe Vera.
3. Wrap the wound with gauze (keep from infection). Replace, once a day.
4. Administer a pain reliever such as Advil.

2nd-degree Burns refer to the burn breaching the 1st layer of skin and reaching the 2nd. Usually, there will be blisters accompanied by severe pain and swelling.

Treatment: if the burn is larger than 3 inches, seek medical attention at your nearest hospital. If the burn is smaller than 3 inches, treat it as you would a 1st-degree burn.

3rd-degree Burns are the worst of all. These burns will be charred and can be deeper than the 3rd layer of the skin. Medical attention is much needed, and you should call 911 immediately. 3rd-degree burn patients usually won't feel much pain due to the charring of nerve-endings.

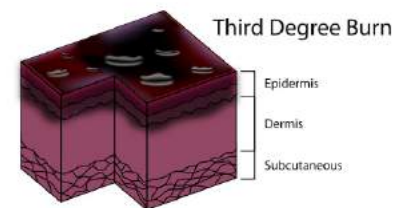
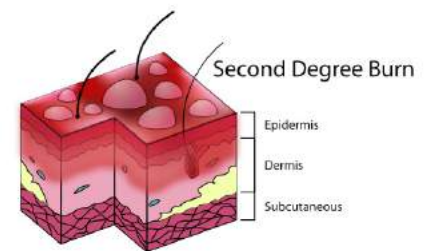
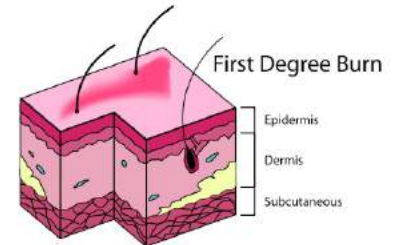
Treatment:

1. Call 911 or rush the patient to the nearest hospital.
2. Perform CPR, if needed.
3. Do not remove the patient's clothing.
4. Raise the burn injury above the patient's heart (increase blood pressure).
5. Cover the injuries in a cold, moist cloth (material).

Remember, never add anything frozen to cool of a burn. Placing ice on the injury can cause tissue ischemia. Cool burns with clean cold water for at least 10 minutes. If water isn't available than a clean, cool compress can be used as a substitute.

If needed (when evaluated by the provider), activate EMS immediately if:

1. Blistering or broken skin.
2. Difficulty breathing.
3. Face, neck, hands, or genitals.
4. A larger surface area, such as trunk or extremities.
5. Or, other causes of concern.





Types of Burns

Electroshock's can cause no harm, mild harm or severe harm.

Treatment:

1. Call 911 if the patient underwent any serious injuries.
2. Perform CPR, if needed.
3. Turn off the power source.
4. Make sure the patient is free of all electrical currents before touching the patient.
5. Move patient away from the power supply (use non-conductive materials if possible).
6. If needed, raise the patient's legs above his/her heart to increase blood pressure.





Poisoning

Many **Bites & Stings** have mild reactions; however, some bites and stings can have serious consequences, if untreated. Most stings aren't fatal, but few insects do carry life-threatening viruses and diseases, such as West Nile Virus, Zika Virus or Lyme Disease. If severe reactions (anaphylaxis) are present, these are some symptoms you should look for: lowered blood pressure, abdominal pain, difficulty breathing, swelling, redness, vomiting, and nausea.

Mild reactions: Use universal precautions, remove the stinger, apply a cold pack, give the patient a pain reliever, and use ointment, such as Benadryl, or any antihistamine, if necessary. Mild allergic reactions are diarrhea, swelling, cramps, nausea, and vomiting.

Severe reactions: Difficulty breathing, swelling (lips, throat, etc.), nausea, vomiting, hives, rapid heartbeat and faintness and dizziness.

Treatment: Administer an auto-injection into the patient (in the butt or thigh and massage injection for faster response). Perform CPR, if needed. Have the patient lay on his/her side to prevent choking, if necessary.

A **Drug Overdose** is a dose larger than the recommended assumption. Many reactions can occur, such as sleepiness or unconsciousness, excitement with a rapid heartbeat, hallucinations, impaired judgment and decision-making skills. Symptoms: death, unconsciousness, convulsions, delusional behavior, abnormal pupil size, difficulty breathing, nausea, non-reactive pupils, vomiting, sweating, numbness and violently aggressive behavior.

Treatment: Check universal precautions. Check if there's a pulse, if not, perform CPR. Keep the patient calm and reassured of his/her safety. Check for any shock symptoms. For seizures and convulsions apply first-aid. Monitor vital signs. Make sure to document any and all drugs taken and keep the container and label.

If a **Poisoning** is suspected, make sure to call the **National Capital Poison Center** at 1-800-222-1222. Signs of Poisoning: vomiting, difficulty breathing, sleepiness, confusion, burns (redness) around the mouth, chemical odors out from the mouth and burns on clothing or skin. For poison-ingestion do not administer anything by mouth unless advised to do so by the PCC or EMS personnel.

Treatment: Make sure to take the patient outside for fresh air. Have the patient flush out his/her mouth. Make sure to read the label of the chemicals that were induced and read the instructions for poisoning. Flush the patient's eyes and have the skin cleansed. If the patient isn't breathing, perform CPR. Make sure to provide EMS personnel with the label if the patient needs medical attention. https://www.nationalcprfoundation.com/wp-content/uploads/2013/12/Fotolia_52663021_XS.jpg





Hemorrhages & Hypoglycemia

A **Hemorrhage** is a loss of blood. There are four classes of Hemorrhages.

1. Loss of 15% blood volume. No change in vital signs.
2. Loss of 15-30% blood volume. Blood transfusion isn't usually necessary, but may need Saline solution (salt water). Rapid heart beat.
3. Loss of 30-40% blood volume. Blood transfusions are necessary. Drop in blood pressure with rapid heart beat.
4. Loss of 40% blood volume. Resuscitation is necessary for death prevention.

Treatment: Check for universal precautions. Perform CPR, if necessary. Wrap hemorrhage, if possible. Call 911 or bring the patient to the nearest hospital.



Blood Transfusion

Nosebleeds are very common. Whether it's a hot day or a minor fall nosebleeds are not a serious medical problem.

Treatment: If the nosebleed results from a more serious injury such as a broken nose or a head injury, make sure to call 911. If the patient falls unconscious or is non-responsive without a pulse, perform CPR. If the nosebleed occurs to be a serious injury make sure to apply pressure for roughly ten minutes—make sure to have the patient breathe through his/her mouth. After applying pressure, make sure to clear the patient's nose cavity. If the patient is congested, thoroughly wash the cavity or use a decongestant after the patient has tried blowing his/her nose.

If the patient undergoes many nosebleeds, it can be a more serious injury than it appears so have the patient call his/her doctor to set-up and appointment.



Hypoglycemia is a syndrome which results from low blood sugar.

Symptoms: Anxiety, fatigue, heart palpitations, hunger, irritability, pale skin, shakiness, sweating, and tingling sensation around the mouth (may vary from person-to-person).

As it worsens - symptoms worsen, abnormal behavior, blurred vision, confusion state of mind, seizures, unable to perform routine tasks and unconsciousness.

Treatment: For symptomatic hypoglycemia provide a rapid clinical relief with oral glucose tablets. If glucose tablets aren't available, provide other foods and liquids containing sugars such as fructose, sucrose, and oligonucleotides. Such foods can effectively reverse mild symptomatic hypoglycemia.





Choking, Hypothermia & Dehydration

Choking is caused when an object is blocking the throat or windpipe. Adults often choke by large pieces of food, however, children often swallow small toys or other objects.

Remember, the universal sign for choking is mimicking choking yourself. Make sure to ask the patient if he/she is choking because, many times, the person is merely coughing. If the patient is unconscious make sure to call 911.

Infants 12 months or younger: rest the patient on your forearm (face-down), while also resting your forearm, on your thigh. Perform 5 thumps with the heel of your hand upon the infants back. If the patient is still choking turn the infant over, face-up, and with 2 fingers upon the breastplate perform 5 chest compressions. Repeat the process until the object is dislodged.

Children and Adults: when performing the Heimlich maneuver make sure to stand behind the person. Lean the person slightly forward and wrap your arms around his/her waist. Next, press hard with a closed fist into the abdomen than grab your fist with your other hand. Perform 5 quick thrusts. If the object still hasn't cleared the patient's throat/windpipe, repeat the cycle.

Unconscious Person: when performing the Heimlich maneuver on an unconscious person lay the patient on his/her back. Make sure to clear the patient's airway, if needed, finger swipe the patient's mouth to pick out any foreign objects. If you can't see or can't take the object out of the patient's mouth, make sure to perform CPR. Chest compressions will most likely clear the patient's airway.

If you're still unable to clear the patient's airway and/or if the patient still isn't showing signs of life, make sure to call 911 and continue performing chest compressions.

Hypothermia is when the body temperature is below 95 F. Hypothermia occurs when the body loses heat faster than the body can produce energy. Hypothermia often occurs when the body is immersed in cold water. If the patient is left untreated the nervous system will not be able to work properly which will result in organ damage and possibly death.

Treatment: Make sure to remove the patient's wet clothing and replace it with something warm and dry. Make sure to perform rescue breaths if the patient is unconscious. If rescue breaths aren't accessible make sure to perform chest compressions. If possible, give the patient a warm beverage and a warm, dry compress (hot water in a bag to hold or cover the patient with). **Do NOT** apply direct heat.

Exertional Dehydration – usually dehydration occurs with vigorous exercise in hot and humid environments. Dehydration occurs when you lose fluids more than you take in. If loss fluids aren't replaced dehydration will occur.

Treatment: Have patient orally re-hydrate with carbohydrate-electrolyte (CE) drinks. Ingestion of fluids: 5-8% will facilitate hydration. Other drinks: coconut water and 2% milk. Alternatively, if drink aren't available then potable water may be used.

Severe Dehydration Treatment: If the patient is severely dehydrated or is in a life-threatening situation activate the EMS. EMS will be able to provide an Intravenous hydration that consists of essential nutrients.





Types of Injuries

There are several kinds of **Eye Injuries**, such as a Black Eye, a Foreign Object caught in the eye and a Chemical Splash in the eye.

Black Eye: is caused by broken blood vessels (or, bleeding beneath the skin) around the eye. Hyphema is when there is bleeding inside the eye (blood in the front chamber of the eye or the cornea).

Treatment: make sure to apply a cold pack or ice pack to reduce the swelling of the patient's injured eye. If blood is visible, in the eye, seek medical attention at the nearest hospital. If the patient has any vision problems or any blood leakage from the eye, seek medical attention immediately.

Foreign Objects: in the eye can be very severe, and proper aid is necessary.

Treatment: make sure your hands are clean. Make sure to pull the lower lid down while having the patient look up and vice versa in the opposite direction. Clean the patient's eye with saline solution or water. Make sure to call 911 or take the patient to the nearest hospital if you're unable to remove the object if it's embedded, if there are any abnormalities, or if there's persistent pain.

Chemical Splash: can cause extreme pain, mild pain, and no pain.

Treatment: make sure to have the patient run his/her eyes under lukewarm water for at least 20 minutes. Remove contact lenses, if needed. Call 911 or bring the patient to the nearest hospital if experiencing persistent pain. Make sure to have the patient take the bottle or the label with the name of the chemical to the hospital (for medical determinations).

Concussions are severe. Make sure to call 911 if the patient has:

1. Vomited more than once
2. Unequal pupils
3. Having/had a seizure
4. Unable to balance
5. Slurred speech
6. Neck and/or spinal pain
7. Very drowsy
8. Has Weakness on one side of the body

Evaluate the patient who suffered a head injury by checking for concussion symptoms and change in consciousness. This test should occur as soon as possible.

Treatment: make sure to have the patient stop the activity. Allow the patient to rest. To prevent swelling and worsening of injury apply ice wrapped in a washcloth. Treat pain with over-the-counter acetaminophen (Tylenol), aspirin or ibuprofen (Advil, Motrin). Note: it may make bruising worse. Monitor Symptoms and if any symptom is on the list above make sure to call 911 or EMS immediately. Perform CPR if needed.





Types of Injuries

Head Injuries usually result in minor bruises or bumps; however, some head injuries can be very severe and even fatal.

Call 911 immediately if:

1. The patient has had a seizure
2. Slurs while speaking
3. Patient's pupils are unequal in size
4. Inabilities in the usage of body parts or motor skills
5. Loss of balance (make sure to tell the patient to sit down)
6. Confusion
7. Discoloration in the face
8. A severe headache
9. Severe bleeding from the head, nose, ears or face

Do Not attempt to remove any articles off of the patient and unless necessary, do not move the patient. Cover the wound if blood is immense; however, do not apply any pressure for any head injuries (lightly cover the wound). Call 911 and perform CPR if the patient is without a pulse and unconscious or non-responsive.

Spinal Injuries are very dangerous. If any suspicion, whatsoever, of a spinal injury, do not move the patient. If the patient has had a head injury, back pain, has any numbness or lacks control of limbs, bladder or bowels—suspect a spinal injury.

Treatment: call 911. Make sure to keep the patient from moving. Perform CPR, if needed. If there isn't a pulse, make sure to perform chest compressions. Do not remove any items from the patient. If the patient is vomiting or is bleeding from the mouth or nose, turn the patient on his/her side only if there are two responders—making sure to move the patient following each responders movement.

It's not recommended to use a cervical collar. There is no real evidence of a benefit for cervical collars. Have the patient remain as still as possible until EMS arrives.





Shocks, Seizures & Strokes

A **Shock** can occur for many reasons. Some reasons are poisoning, burns, blood loss, heat stroke, trauma and any other serious medical accident. When a patient is Shocked, it can lead to a loss of oxygenated blood to vital organs which, if untreated, can lead to organ damage or possibly death. Signs of Shock: cold and clammy skin, unconsciousness or poor responsiveness, dilated pupils and nausea.

Treatment: If the patient is unconscious call 911 immediately then perform CPR—if the patient is a child or infant perform CPR for 2 minutes and then call 911. Make sure to lay the patient down with his/her feet 12 inches above the heart. Check for C-A-B's. You may need to put the patient on his/her side to prevent choking. Make sure to check for other injuries.

When a **Seizure** occurs, these are signs to look for: dizziness or faintness, uncontrolled bowel movement, breathing difficulties, unconsciousness or unresponsiveness, arching of the back, clenching of things—such as teeth. If a patient is ever unconscious or unresponsive, make sure to perform CPR and to call 911. Some causes of Seizures are head injuries, fevers, brain damage, poisoning, cessation of oxygen to the brain and diabetes.

Treatment: check universal precautions, remove any life-threatening objects, loosen clothing, and make sure to call 911 and respond with appropriate orders. Make sure NOT to restrain the patient unless the patient is going to be hurt or is going to hurt someone.

A **Stroke** occurs when there is a ruptured/blocked blood vessel in the brain. The brain begins deteriorating when it has a cessation of oxygen. If the patient falls unconscious or is unresponsive, call 911 and perform CPR immediately. It is recommended for first-aid providers to use a stroke assessment system. A System such as Cincinnati Prehospital Stroke Scale (CPSS) is a simple tool when assessing a stroke patient. **CPSS Stroke Scale:**

Facial Droop

To check: ask patient to smile

Normal: patient's cheeks move equally on both sides

Abnormal: patient's face moves unequally on both sides

Arm Drift:

To check: have patient raise arms at shoulder length for 10 seconds

Normal: both arms equally move together (another condition might occur: pronator drift)

Abnormal: arms fail to respond equally

Speech

To check: ask patient a question

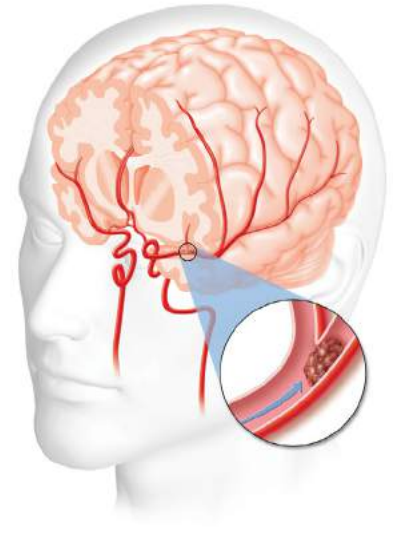
Normal: patient does not slur and answers correctly

Abnormal: patient is mute, using abnormal words and/or slurring

If 1 out of the three examinations occurs there is a 72% probability of a stroke.

Risk factors: high blood pressure, heart disease, diabetes, smoking and having had a prior stroke.

Congratulations! You've just finished the Course. You can now take the Exam.





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