First Aid

Manual

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First aid basics

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Possible causes of emergencies

First aid basics

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Organization & Security

Legislation

Every citizen is legally obligated to provide first aid within reasonable bounds. The cornerstone of emergency assistance is placing an emergency call, which is deemed reasonable in all situations.

Failure to provide emergency assistance

Individuals who, reasonably expected to do so, fail to assist a person they have injured or someone whose life is in immediate danger, or obstruct others from providing emergency aid, may face punishment. This could involve a custodial sentence of up to three years or a monetary fine, as stipulated in the relevant legal statute.

Criminal Code - Art. 128

Rescue chain

Take a look at the four links in the rescue chain:

Emergency aid by lay people **Professional help**

Organization & Safety

Patient assessment & Treatment measures

Emergency Services

Hospital

Traffic light scheme

Reacting impulsively in an emergency can pose risks. Therefore, it's advisable to initially follow the traffic light scheme. This approach allows you to address the situation calmly and methodically, reducing risks and preventing errors.

Look

Overview of the situation! What has happened?
Who is involved? Who is affected?
How many people are injured?
Are there any other people who can provide help?

Think

Rule out any dangers that could pose a threat to helpers, those affected or anyone else!

Act

Self-protection. Secure the accident site.
Turn off any running machines. Provide emergency assistance!
Distribute tasks: Who will place the phone call?
Who will get the defibrillator?
Who will resuscitates? etc.

Self-protection

Ensuring personal safety takes precedence, even in emergency situations. Prioritizing self-protection prevents the responder from encountering potentially hazardous situations. Only when individuals are uninjured can they effectively offer assistance.

Therefore, the initial step always involves assessing potential hazards for the patients and others nearby, including risks such as fire, electricity, gas, infection, contagious diseases, and traffic hazards.

Patient assessment

First aid scheme

Look

Think

Act

First Key Question

Is the patient responsive?

First Patient Condition

Responsive

Treatment Options

Depending on the situation

- Tend to patient and try to calm him/her down
- Stop the bleeding and treat wounds
- Appropriately position the patient and ensure stabilization of injured body parts
- Initiate transport to a hospital or a primary care physician
- Request emergency medical services if required

Second Key Question

Is the patient still breathing normally?

Second Patient Condition

Unresponsive with normal breathing

Treatment Options

1. **Recovery Position**
2. **Request Emergency Medical Services**
3. **Provide Ongoing Assessments and Care**

Third Patient Condition

Unresponsive with no or abnormal breathing

Treatment Options

1. **Request Emergency Medical Services**
2. **Chest Compressions & Ventilations**
3. **If AED is available: Defibrillation**

Check for alertness

The first question we ask ourselves is:

Is the patient alert and responsive?

Consciousness encompasses the human capacity to orient oneself spatially and temporally, to respond objectively to inquiries (such as "Who are you?" and "What day is it today?"), to react to various stimuli (such as pain, cold, and heat), to execute coordinated movement sequences, and to perceive the surrounding environment through the senses.

Recognizing unconsciousness

- The person does not respond to loud talking or shaking of the shoulders.
- Alertness is limited, the person cannot be woken up.
- Muscles are relaxed.
- Unconsciousness may occur with or without breathing.

Causes of a disturbance of consciousness

Causes of a disturbance of consciousness vary, but regardless of the underlying reason, unconsciousness should always be treated as a medical emergency. Factors leading to unconsciousness range from temporary interruptions in blood flow to the brain to severe illnesses and injuries, with unconsciousness serving as a potential indicator of an underlying physical health issue.

Risks associated with unconsciousness

Recognizing unconsciousness is crucial for those providing first aid, as it poses immediate risks to the affected individual. While unconscious, there is a heightened risk of suffocation due to the absence of natural protective reflexes such as coughing or swallowing. This absence of reflexes can lead to the accumulation of bodily fluids such as blood or vomit in the respiratory tract. Furthermore, unconsciousness typically involves a loss of muscle tone, potentially causing the tongue to obstruct the airway when the individual is lying on their back, further compromising their ability to breathe.

Breathing check

The second thing we ask ourselves is:

Is the person breathing normally?

"3 weeks without food, 3 days without water and 3 minutes without oxygen" is a popular saying to emphasize the importance of breathing. If breathing stops, we must act immediately, as there is an acute life threat.

If we find an unconscious person, we must therefore carry out a breathing check as a second step. To do this, the unconscious person's head must first be carefully hyperextended and the mouth opened slightly. This way we can then observe whether the chest rises and falls. For our own protection, we should refrain from touching the person's mouth. If breathing is normal, a regular movement (up and down) is visible in the chest. In the case of abnormal, so-called agonal breathing, the person's mouth opens and closes as if the person were "gasping for air" like a fish on land. However, the chest does not rise and fall. Breathing can be used to determine whether the circulation system is in tact.

Conducting a breathing check

Hyperextend the head: Clear airways by tilting the head backwards and slightly opening the mouth.

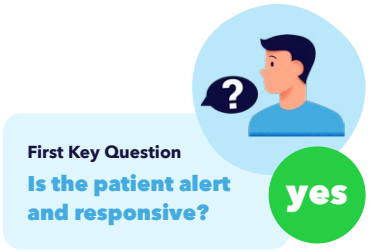
Observation of the chest movement: Breathing is checked by observing the chest movement. Assess for breathing for a maximum of 10 seconds. If no chest rise and fall can be detected, we assume that the person is no longer breathing adequately.

The three patient conditions

Based on the assessment explained above, three states general patient conditions can be defined:

1. Responsive and alert

In many emergency situations, the patient will be responsive. What needs to be done next has to be individually assessed. We intuitively do many things right. It is important to always communicate openly and clearly and to find out what the needs of the patient are.

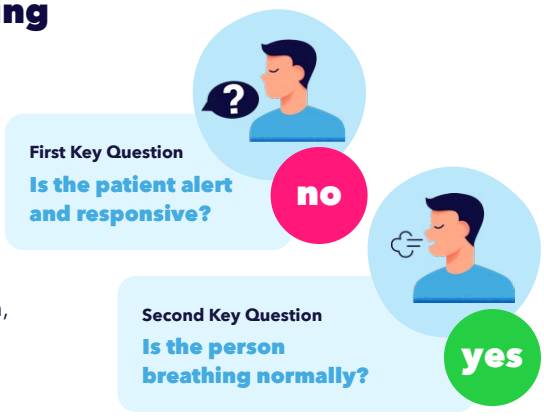


Treatment measures:
Acting appropriately to the situation

- Assist and reassure the patient
- Remove the person from the danger zone
- Wound care
- Stop the bleed
- Immobilization of injured body part
- Transport to the hospital or to a medical facility
- Place an emergency call
- etc.

2. Unresponsive, with normal breathing

If a person is unresponsive but breathing normally, they must be placed in the recovery position. This position and the associated positioning of the head ensures that the airway is not blocked. This way, we can minimize the risk of suffocation. It is important that the head and mouth always are the lowest point of the body so that fluids can flow out. For this reason, never place a pillow or anything else under the head. Before the person is placed in the recovery position, any glasses or any other objects that could act as points (ex: a wallet in their pocket) should be removed.



Treatment measures:

- Remove the person from the danger zone
- Place them in the recovery position
- Place an emergency call

3. Unresponsive with absent or abnormal breathing

If the person affected is unconscious and their breathing is absent or abnormal, we must assume that they have suffered a cardiopulmonary arrest. Cardiopulmonary arrest is the inadequate supply of oxygen to the vital organs due to a lack of blood circulation. It is a sudden, severe disruption of the cardiovascular system and is considered an acute and fatal emergency. Circulatory arrest can occur without any prior signs or symptoms. However, it is often preceded by a heart attack or cardiac arrhythmias. However, there are also many other reasons why cardiopulmonary arrests can occur. Regardless of the cause, the person affected must receive help as quickly as possible. The brain cells begin to die after just a few minutes of insufficient blood circulation. An untreated cardiopulmonary arrest is always fatal.

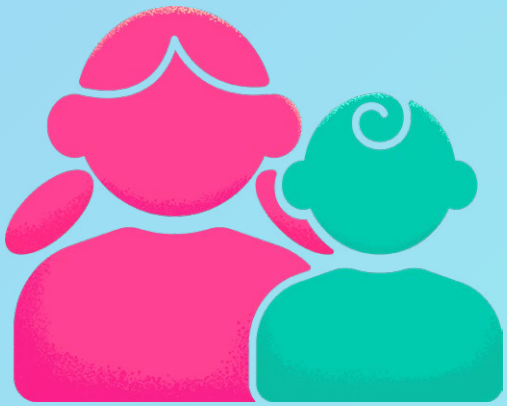
Signs and symptoms:

- The person suddenly loses consciousness and cannot be awakened
- No reaction to loud talking and shaking
- No normal breathing detectable
- Loss of muscle tone

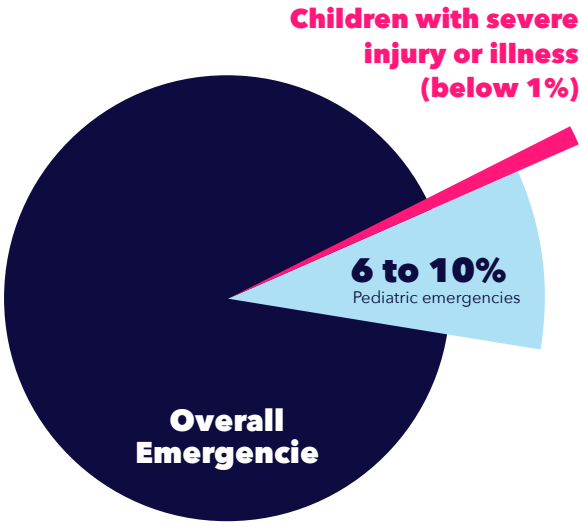
Treatment measures:

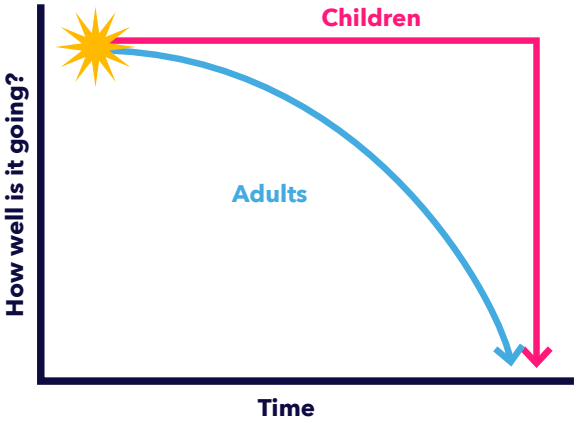
- Place an emergency call
- Chest compressions & ventilation
- Defibrillation

Pediatric emergencies



Compensation in children





When a child faces a medical emergency, their body tries to adapt to the situation by increasing their heart rate, breathing faster, and narrowing blood vessels to maintain vital functions like oxygen delivery to organs. These compensatory mechanisms can make it seem like everything is under control, even when the child is actually quite sick. However, the challenge lies in the fact that children's bodies work differently from adults'. They have higher energy needs and less reserve capacity, so they can burn through their compensatory efforts faster.

Another tricky aspect is that children might not express their discomfort or symptoms clearly. They may not complain of chest pain or shortness of breath like adults do, and younger children, especially, might not have the words to describe how they feel. This can make it hard for caregivers to recognize the seriousness of the situation until it reaches a critical stage.

Moreover, children can go from appearing stable to rapidly deteriorating without much warning. This sudden change, known as decompensation, can catch caregivers off guard. That's why close monitoring is crucial. Keeping a watchful eye on the child's behavior, looking out for subtle changes like increased fussiness, lethargy, or difficulty breathing, can help catch problems early and prevent them from becoming emergencies.

In essence, while children's bodies try hard to compensate for medical emergencies, their unique physiology and limited ability to communicate symptoms make it challenging for caregivers to gauge the severity of the situation until it's potentially too late. This underscores the importance of vigilance, quick thinking, and seeking medical help promptly when caring for sick or injured children.

Kids

Correct behavior as a teachers or caregivers

Before an emergency occurs

Teachers should always consider a few things before an emergency occurs so that they can react correctly once it happens. The three most important questions are Does the child have allergies? Does the child have any pre-existing conditions? Who is their emergency contact and how can I contact them? This information should be available to every teacher at all times!

In the case of children with pre-existing conditions, it is essential to clarify what to do in an emergency. Parents or guardians should communicate this ahead of time. If certain medications have to be administered in an emergency, the child's parents or guardians must instruct the teachers in detail on how to do this. (The cantonal regulations for the administration of medication by teachers may vary. In case of doubt, clarify internally in the school what the legal guidelines are).

In case of an emergency

In order to act correctly in an emergency, the teacher should first be able to assess whether the child is suffering from a critical condition. In principle, the method of assessing what patient condition the patient is in works for children as well as it does for adults. It should be used in this case.

First Key Question
Is the child alert and responsive?

Second Key Question
Is the child breathing normally?

Kids

Recognize child emergencies

In responsive children, various hurdles can make assessment more difficult. Often, they lack sufficient language skills to clearly express their discomfort or pain. Additionally, they typically do not have a well-developed body awareness, which makes it hard for them to pinpoint the exact location of pain. A lack of knowledge frequently causes children to misjudge the severity of their injuries – minor wounds may be overly dramatized, while serious issues can be underestimated. Furthermore, a lack of body control makes it difficult for them to remain calm in stressful situations. Crying or similar reactions can further complicate the assessment.

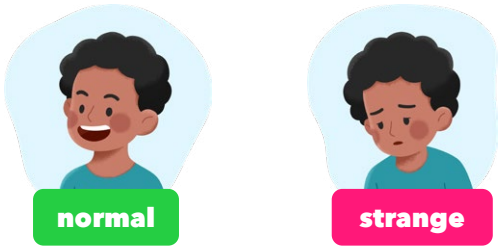
Normal or «strange»?

Three simple observations:

When assessing pediatric emergencies, three simple observations can help: appearance, breathing, and skin condition. The goal is merely to determine whether something appears normal or «strange». These simple yet effective assessments provide initial guidance, even when children cannot clearly communicate their symptoms.

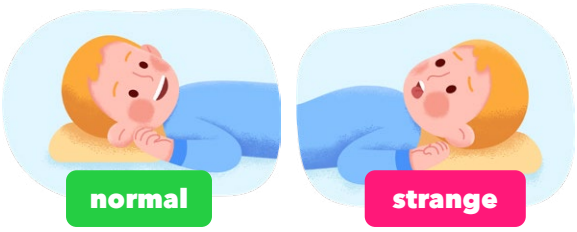
Appearance

Assess whether the child is acting how it "normally" does. Does it enjoy playing? Does it interact with its environment? Does it seem lethargic? Does it have normal muscle tone? Is it crying? If yes: is it crying the way it normally does? Is it crying more forcefully than normal?



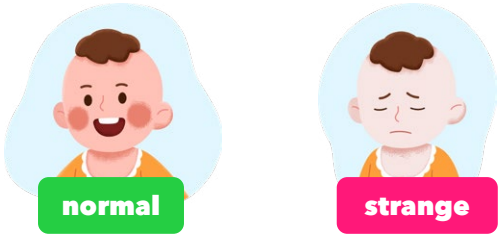
Breathing

Most medical issues in children originate from breathing problems. Does the child have difficulty breathing? Does the breathing seem labored? Do the nostrils, chest muscles or abdomen move unusually forcefully when breathing? Are there any unusual noises when breathing (moaning, wheezing, gasping, etc.)?



Skin

The best way to assess a child's circulatory system is by assessing its skin. Is the skin color normal? Is the child pale or bluish? Does it have a normal body temperature? Does it appear sweaty or dehydrated?



Pediatric emergencies

A child is considered in critical condition if:

- It is unresponsive
- It is not breathing normally
- One of the assessment points of the pediatric assessment triangle is abnormal
- It is bleeding heavily
- It is in severe pain

In the case of a critically ill/injured child, teachers are obliged to call the emergency services immediately! Under no circumstances should time be wasted on further discussions with parents or school management.

For non-critical conditions such as minor injuries, minor pain, nausea / vomiting, etc., we as Sanio cannot provide any general instructions. In this case, the internal directives of the school management or agreements with parents must be followed.

Placing emergency calls

Emergency numbers

Emergency medical services

Police

Fire department

Rega

Tox Info Suisse

European emergency services

If you can't remember the right number, don't panic, the emergency numbers are connected. You can get help from any one of them!

Reporting scheme

Before placing the emergency call take a deep breath and try to stay calm. If help is requested from the ambulance, the police or the fire department, they will ask the following questions:

Where?

Where is the location of the emergency?

Who?

Phone number and name of the person calling

What?

What kind of emergency is it?

When?

When did the emergency occur?

How many?

Number of patients and their respective conditions

Further information?

Any potential dangers on scene

Should treatment measures be required immediately, the call taker will continue to guide and support the person calling until the rescue service arrives. If you are unsure whether the emergency services need to be called, simply call. The people on the phone are professionals and will be happy to help.

Communi-cation

How do I talk to sick or injured patients?

Emergencies are always a high intensity situation for everyone involved. They are associated with pressure and fear. The person in distress feels like they are no longer in control of the situation and fears for their health or even for their life. They are in a traumatic situation surrounded by people who may even be strangers. In order to reduce some of their anxieties here, the first person to help should pay attention to a few important factors when communicating with the patient:

Stay calm

What sounds easiest is often the hardest part. As a helping person, you are torn out of your comfort zone from one moment to the next and are initially completely overwhelmed. In order to overcome the initial "chaos phase", it is essential to try and calm yourself down. For example, one way to do this, is to pause briefly and take five deep breaths. This helps to clear your head. Another option is the so-called "10 for 10" principle. Here, the person helping first consciously takes a "break" of 10 seconds to plan the next 10 minutes. This provides structure and helps the helper calm down. Both methods can be repeated at any point if necessary.

Introduce yourself and address the person by name

It is much easier for us to establish a connection with a person if we know their name. When first making contact, the person providing help should therefore always introduce themselves and ask the patient for their name as well. The person should then always be addressed by their name in order to establish a personal connection. At times it may be more appropriate to use the patients last name, especially for older people.

Put yourself at eye level with the patient

As a helping person you should try to get on eye level with the person in distress. If the person is sitting or lying down, you should therefore kneel down. This conveys a sense of security for the patient.

Explain what you are doing and why you are doing it

Since a person in distress has to give up a lot of control, it is all the more important to inform them exactly what is happening. Before you carry out an action, you should therefore always explain exactly what you are doing and why you are doing it. This gives the person a sense of control over the situation.

How do I speak with children?

An emergency situation can be particularly stressful for children because, unlike adults, they usually have very little previous experience in dealing with situations like this. They are thus perceived all the more intensely. Being aware of this can help you to better understand the sometimes irrational behavior presented by affected children.

Other factors that can make it difficult to provide emergency care to children depend on their age and include

- **Language competence:** Stress and pain cannot be verbalized properly.
- **Bodily awareness:** Without differentiated bodily awareness, pain is often generalized or projected into the abdomen.
- **Knowledge deficit:** Children tend to misinterpret the severity of injuries. While critical conditions can be underestimated, they can perceive minor injuries such as bleeding wounds as extremely dangerous.
- **Mindset:** Unfamiliar situations are sometimes associated with very irrational, even scary explanations (for example: "An emergency happened because I wasn't being nice"). Young children in particular tend to blame themselves due to their "egocentric way of thinking". Additionally, they are not yet able to properly understand the intentions of the people who first come to help them, especially if they are strangers. On top of that, first aid treatments often make no sense to them and appear scary.
- **Control over their body:** It is difficult to remain calm and not move in emergency situations.

Behavior

Emergency situations involving children can be particularly challenging. As the first person to help, it is therefore all the more important to remain calm. This helps so that no additional panic or stress is transferred to the affected child.

It is also important to pay attention to the following things when communicating with children:

Initial contact

The first person to help should approach the affected child as calmly and gently as possible. In order to ensure that the child is not overwhelmed, only one person should initially make contact. If this person is a stranger to the child, they should kneel down to the child, introduce themselves and ask for the child's name. When doing so, make sure to use calm gestures, a kind facial expressions and a soft voice. Tell the child that they will not be left alone.

Bodily contact

The first person to help can try to calm the affected child through gentle physical contact. This may include gently stroking their head. However, it is essential to pay attention to the child's body language and their reception of this!

Speech

Childish language should be avoided when communicating with pediatric patients. Instead, the aim should be to take the child seriously. Ask the child to point to the painful areas and avoid suggestive questions such as: "Does your leg hurt?". Make sure to praise the child's positive behavior. The first person to help should be the one to tell the child exactly what will happen next. Explain that you will help them, that the emergency services will arrive in a few minutes and that the parents will be informed. Every step in providing emergency assistance should also explained.

Distraction

Sometimes it can help to ask the child to count backwards or to talk about an experience they had recently had. This automatically calms them down a little. Stuffed animals can also have a positive effect on affected children. However, when trying to distract the child, it is crucial to ensure that the child continues to feel like they are taken seriously.

Not all children are very active in emergency situations. Some children behave very solemnly. They may allow treatment procedures to occur without hesitation. On the surface, they can therefore give the impression of being very "brave". However, this is often a coverup. This kind of behavior can also arise from extreme anxiety, meaning that appearingly "calm" children need particular attention. Children who have "psychologically collapsed" and no longer show any resistance to care, generally have a particularly high risk of traumatization. If children are noticeably quiet in an extreme situation, special care should therefore be taken.

How do I talk to people with disabilities?

While the treatment measures for people with disabilities is generally no different than the ones for people without disabilities, communication in emergency situations with these people can present several barriers. However, these are very individual. The reason for this is that the types and severity of disabilities vary greatly. Particularly, communication in emergency situations can provide difficult with people with intellectual disabilities or those who have limited communication skills. Here, too, there are huge differences in the extent of the impairment, from a slight delay in communication to major communication difficulties.

Emergency plan

Gerade wegen der breiten Spannweite ist es wichtig, dass jede Institution ein zielgruppenspezifisches, individuelles Notkonzept führt und Mitarbeitende dementsprechend schult. So kann individuell auf die bestehenden Risikofaktoren und Formen der Beeinträchtigungen, wie auch auf die Infrastruktur eingegangen werden. Zu diesem Notkonzept gehören auch Präventionsmassnahmen, damit Notfälle verhindert oder reduziert werden können.
Every institution should have a target group-specific and individualized emergency concept. They should also train their employees according to these plans. This way, the existing risk factors and forms of impairment can be addressed individually. This emergency plan should also include preventive measures to reduce emergencies.

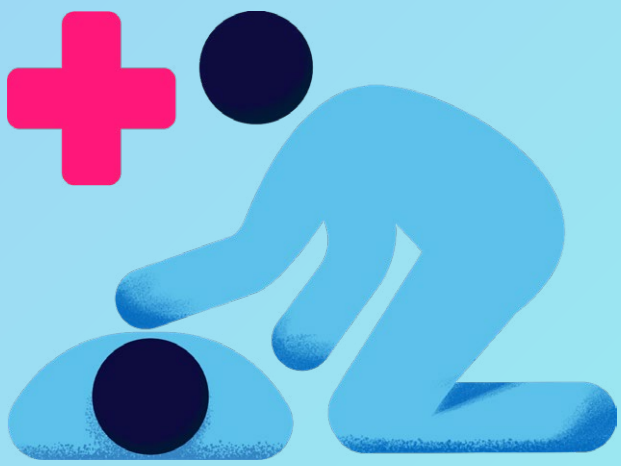
General communication tips

A Change of perspective is always a good step towards gaining a better understanding of a situation. It is normal for an emergency situation to be associated with anxiety. The person providing emergency assistance should be aware that these can be even more frightening for a person with a disability. A hectic pace, noise and panic should be avoided at all costs.

If communication with spoken language is only limitedly possible, body language is all the more important. This includes body posture, gestures with hands and arms, the movements of the corners of the mouth and the expression in ones eyes.
This non-verbal communication can be used by both the helper or the patient. Particularly the face of the person with an impairment can reveal a lot about their emotional state and physical condition.

For better communication, there are additional aids such as photos, symbol cards, communication boards or voice output devices.

Emergency measures



Forearmgrip

In life-threatening situations, a person must be rescued from a danger zone immediately. The forearm grip can be used to rescue people from a vehicle and get them out of the danger zone.

We rescue a person if: the person is in immediate danger, such as fire, imminent explosion, drowning or collapsing structures. Or if further first aid cannot be continued at the scene of the accident.

Position the patient upright: Stand behind the affected person so that you can reach them comfortably and position your hands on the back of their neck.

Support: Lift the affected person and stabilize the upper body using your knees.

Grip their forearm: Now reach under the armpits of the affected person and grab their forearm. Their arms should be bent at a 90-degree angle in front of their chest. Make sure that all your fingers, including your thumbs, are pointing forwards.

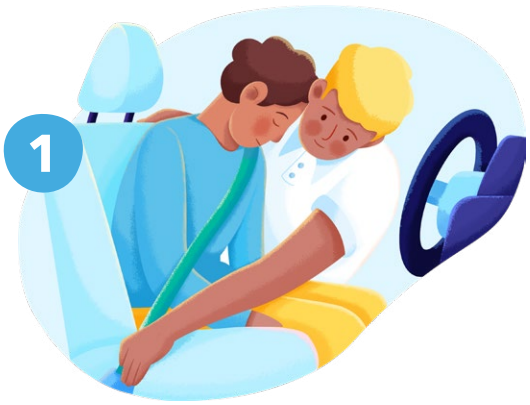
Rescue: Carefully remove the unconscious person from the danger zone by walking backwards. Place the person on their back once you reach a safe place.

Emergency measures

Rescue from a car

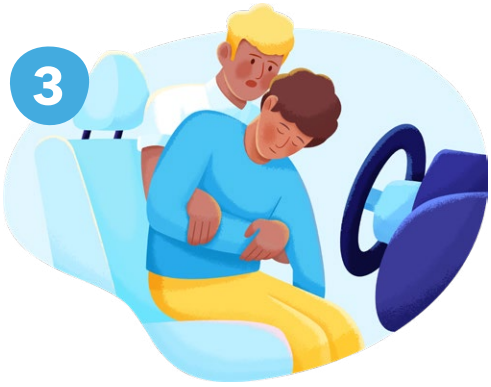
We rescue people from a car in two cases:

- The vehicle is on fire or smoke is forming around the vehicle. Remove people from the danger zone as quickly as possible, ensuring that you are protecting yourself.
- The affected person is unconscious and at risk of suffocation. They must be removed from the vehicle immediately and placed in the recovery position.



Remove their seat belt: Caution: When unfastening the seat belt, do not place your head between the person and the steering wheel. There is a risk of the airbag deploying. Place the individual's feet away from the accelerator pedal and in the direction of the car door.

Grab the hips and bend the upper body forward: Grab the seated person by the hips and try to turn the person towards the side. Do this by carefully lifting their head and then the shoulder. This will cause the upper body to lean forwards slightly, away from the driver's seat.



Grab the forearm: Reach under the unconscious person's armpits and grab the forearm (which is closer to the center of the car). The forearm should be bent at a 90-degree angle in front of the person's chest. Make sure that all your fingers, including your thumb, are pointing forwards.

Rescue: Carry the unconscious person out of the car on your thighs. Carefully walk backwards out of the danger zone. Place the person on their back once you reach a safe place.

Recovery position

The recovery position ensures that the airways are kept clear and that vomit, blood etc. can flow out of the patient's mouth. The affected person's mouth becomes the lowest point of the body, effectively preventing the affected person from suffocating.

As soon as a person is in the recovery position, an emergency call must be made immediately. Unconscious persons require treatment by medical professionals. The person should also not be left alone. Breathing should be checked regularly until the emergency services arrive.

Position the arms: The unconscious person should be lying flat on their back. Extend their arms with the palms facing upwards.

Bend the legs: Grasp the affected person's thigh, bend their knee and stand the leg up.

Pull the person towards you: Pull the affected person towards you and place the foot of the leg that is now on top in the bend of the other knee. After turning them, the thigh of their leg should be at a right angle to their hip.

Extend the head: Clear the airways: Carefully tilt the head backwards so that the neck is slightly hyperextended. Open the mouth slightly. Make sure that the head is the lowest point.

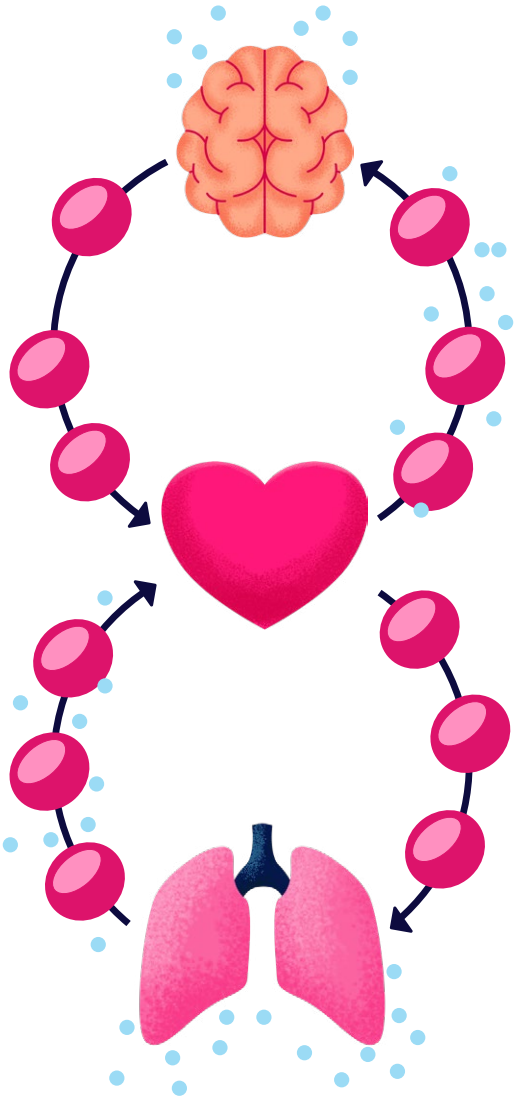
Resuscitation

Resuscitation is the treatment measure for a person suffering from a cardiopulmonary arrest. In this case, the affected person is neither conscious nor breathing normally. During resuscitation, chest compressions, ventilations and other measures to support the circulatory system (e.g. the use of a defibrillator) are carried out.

Goal of Resuscitation:

Temporary Artificial Circulation

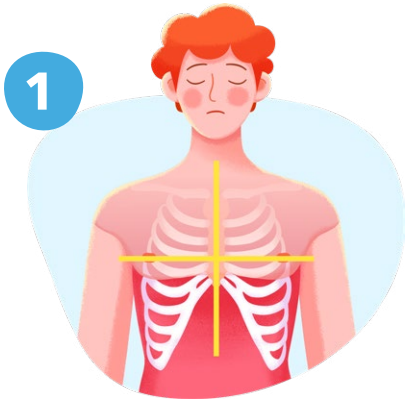
The goal of resuscitation is to create a temporary, artificial circulation that allows oxygen to circulate through the heart, brain, and lungs. This ensures that these vital organs are supplied with oxygen until the natural circulation can be restored.



Chest compressions

If the affected person is neither conscious nor breathing normally, an emergency call must be placed immediately. It is essential to communicate that the person is experiencing a cardiopulmonary arrest. It is recommended to perform chest compressions on the patients bare chest so that no resistance is met and so that a defibrillator can be used immediately.

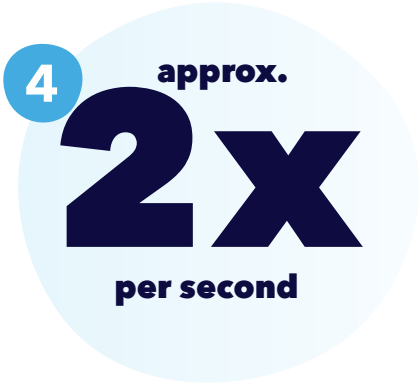
When performing chest compressions, rib fractures are generally to be expected. However, this is no reason to stop the procedure. The chest compressions are continued without interruption. Any injuries will be examined later by a doctor.



Pressure point: Lay the affected person flat on a hard surface, bend over them and meet the pressure point with the palm of your hands. It is located in the middle of the chest, approximately at the level of the nipples or in the lower half of the sternum.

Hand positioning: Clasp your hands so that one is placed one on top of the other. Your arms should be stretched out and the shoulders positioned vertically above the pressure point.

Chest compressions: With the palms of your hands placed on top of eachother, press firmly on the sternum. Compression depth: five to six centimeters, or 1/3 of the chest width. Make sure to allow for full chest recoil after each compression.

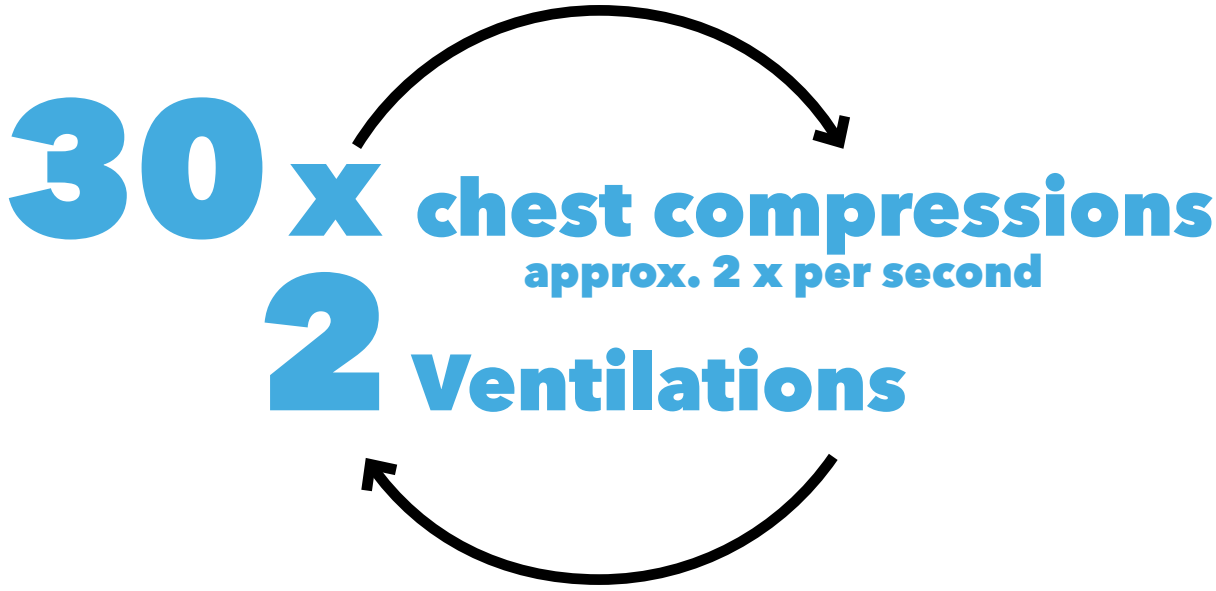


Rhythm: in order to ensure that the compressions mimic the real work of the heart it is important that we press fast enough. The rhythm is approximately two times per second.

Ventilation

Tilt the head backwards: After 30 chest compressions, clear the airway by tilting the patients head backwards and opening their mouth slightly.

Ventilation: Perform two ventilations, lasting one second each. The chest should rise and fall after each breath. You can ventilate through the nose or the mouth, making sure to hold the other closed with your hand. Do not ventilate with too much air or pressure, otherwise the stomach may fill with air.



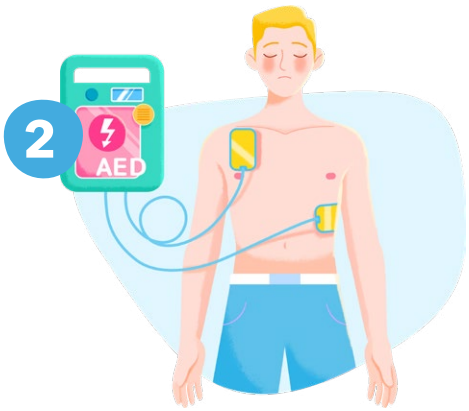
If possible, a pocket mask or a respirator shield should be used in order to ensure self-protection during ventilations. If several assisting persons are available, it is advisable to change the resuscitating person after two minutes or five cycles of 30:2. If a defibrillator is nearby, it should also be used.

If it is unsafe or unreasonable, you are generally not obliged to perform ventilations. In this case, continuous chest compressions should be performed twice per second until the emergency services arrive or the person is breathing on their own again.

Defibrillation

An automated external defibrillator (AED) is a shock device that can be used in the event of a cardiac arrest. Some heart arrhythmias can be brought back into a regular rhythm using electrical impulses. If a defibrillator is nearby, another person should go retrieve it while the chest compressions are being performed. However, it is important, never to interrupt the chest compressions to go and get and AED.. A defibrillator can generally be used without any prior knowledge. Nevertheless, it is worth familiarizing yourself with such a shock device.

Starting the device: The device will explain the exact resuscitation procedure right from the start. It does this with pictograms and guided voice controls. If you are already performing chest compressions, you should not be distracted by this and should continue to perform your resuscitation while the device explains these initial steps.



Installation: The adhesive electrodes must now be attached to the upper right and middle left side of the exposed upper body. Even when the device is connected, it is important that chest compressions are continued.

Shock delivery: The device then carries out a rhythm analysis. Depending on its findings, it decides whether a shock should be delivered or not. Before pressing the shock button, you should ensure that no one is touching the patient.

Chest compressions: The analysis and shock delivery could be repeated several times. Every two minutes an automatic rhythm analysis will be prompted. In between this it is important to resume normal chest compressions. Do not remove the electrodes for this. In case the device does not recommend a shock delivery, resume compressions as normal.

The chest compressions and defibrillation procedures should be continued as long as it takes until the emergency medical services arrive, or until the patient is showing signs of life again.

Kids

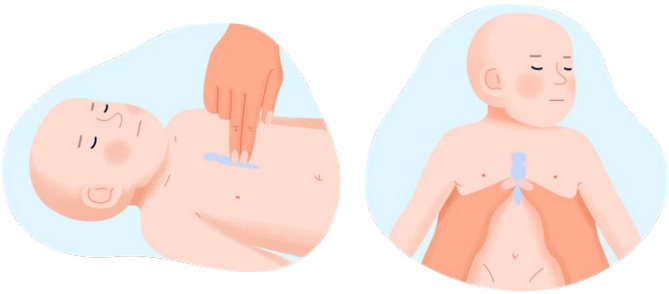
Resuscitation in Children
Prioritize Ventilation

The procedure for children aged 8 and over is the same as for adults. However, for children younger than 8 there are some slight adaptations to the resuscitation

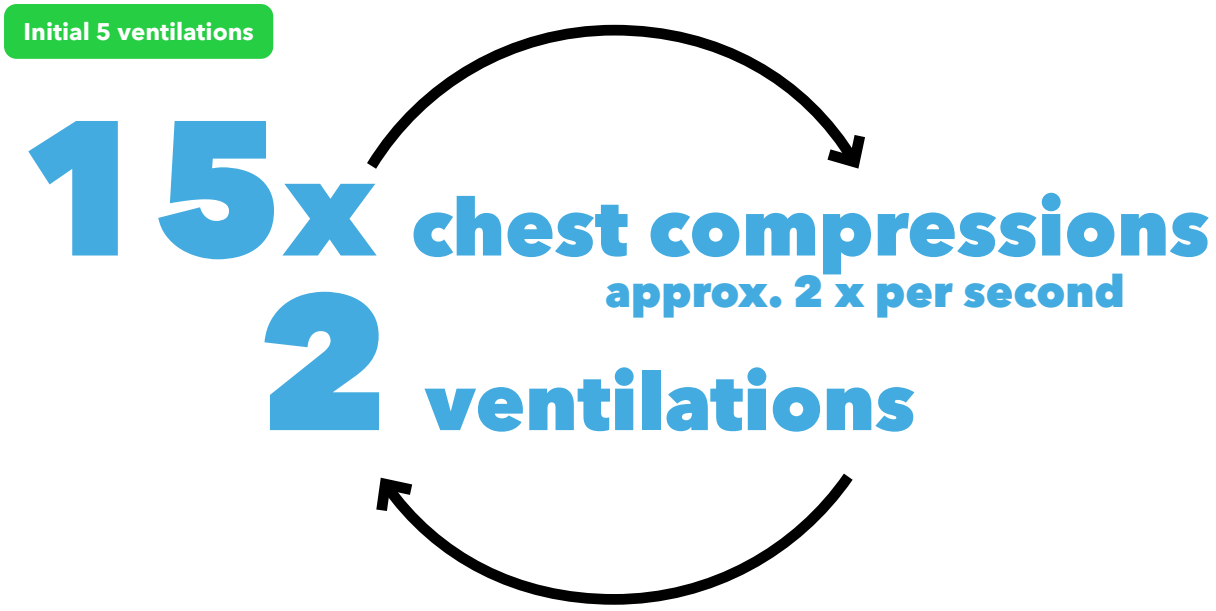
- Initially give five ventilations
- In babies and small children, ventilations are given simultaneously through the mouth and nose. In infants, ensure that the head is in a neutral position and not tilted backwards too far. In older children, the head needs to be tilted back even further than in adults (hyperextend the neck).
- Breathe evenly into the child's mouth or into the infant's mouth and nose for about one second until you see visible chest rise.
- Perform up to five attempts at effective ventilation. If these are unsuccessful, switch to chest compressions.
- If there is only one person on site with a cell phone, they should place the emergency call immediately after the initial ventilations. By activating the loudspeaker function on the cell phone they can then immediately resume their resuscitation.
- The ratio of chest compressions to ventilations in children is 15:2
- Chest compressions should never be deeper than the 6 cm limit for adults, i.e. about a third of the chest

Chest Compressions for a Baby

Only two fingers are used for chest compressions on babies



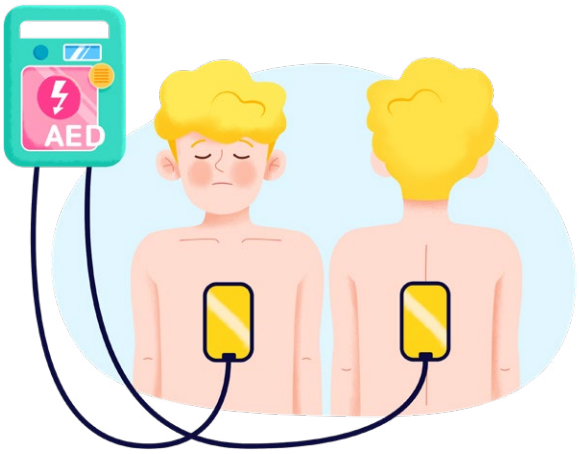
Achtung! Bei Kindern können auch verschluckte Gegenstände der Grund für eine fehlende Atmung sein. Den Mund- und Rachenraum kontrollieren. **Niemals!** Ein bewusstloses/nicht atmendes Kind, besonders nicht ein Baby, schütteln. Es könnte dadurch verletzt werden.



Kids

Defibrillation in Children

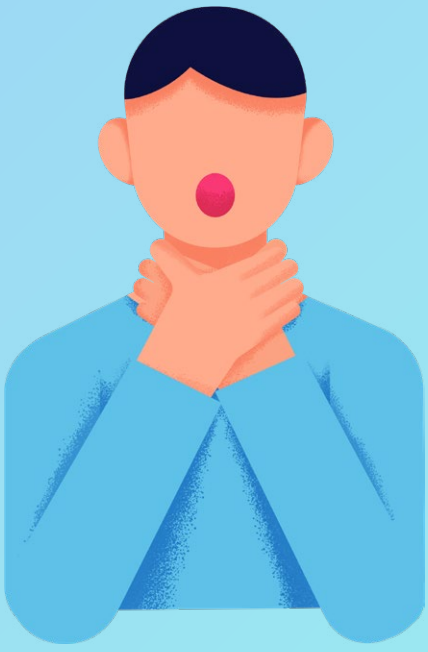
Standard defibrillators are suitable for children aged eight years and older. For children between one and eight years old, pediatric pads and a special pediatric device mode should be used if available. If this is not possible, standard settings are applied. The adhesive pads are placed in the center of the chest and between the shoulder blades.



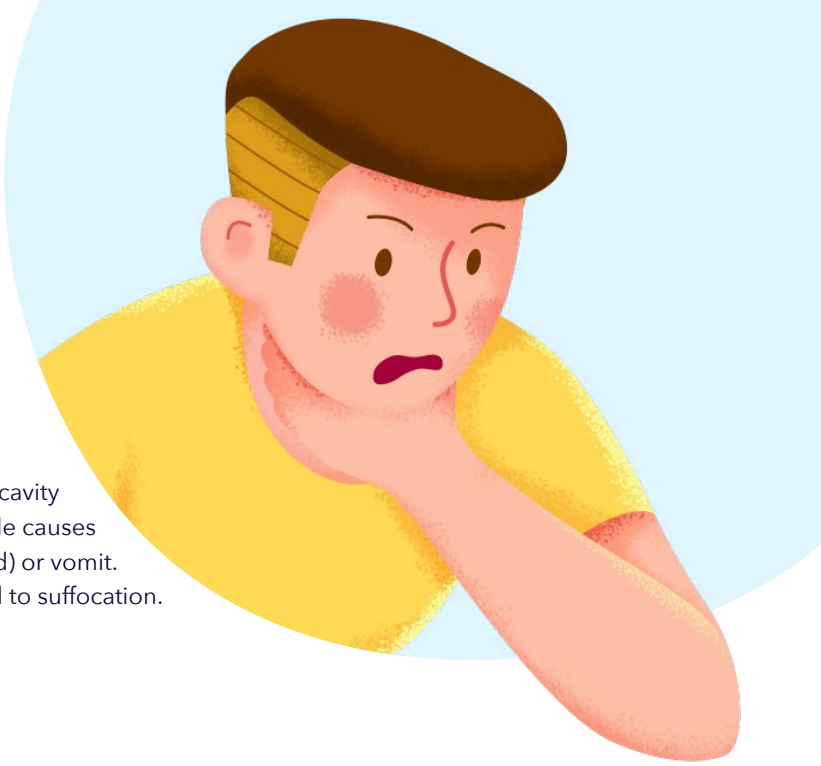
Possible emergency situations

- Breathing problems
- Circulatory diseases
- Neurologic diseases
- Trauma
- Other emergencies

Breathing problems



Choking



Definition

Airway obstruction is a condition in which the airway cavity is partially or completely mechanically closed. Possible causes include aspiration of foreign bodies, fluids (e.g. blood) or vomit. Without immediate treatment, this condition can lead to suffocation.

Signs and symptoms

- Coughing
- Severe difficulty breathing
- Clutching of the neck and struggling to breathe
- Inability to speak
- Hoarseness
- Blue discoloration of the skin

Treatment measures

If a foreign body is visible in the mouth or throat, you can try to remove it carefully with your finger. Caution: Never search the throat for an object that is not visible to try and remove it. The object could be pushed further back this way

Place an emergency call: Ask the affected person to continue coughing as hard as they can. If the object cannot be coughed up, an emergency call must be placed immediately.

Back blows: First, lean the upper body of the affected person forward. Give five blows right between the shoulder blades. Use a flat hand. If this measure has no effect and the person is in danger of suffocating, perform the Heimlich maneuver.

3 Heimlich-Maneuver

The Heimlich maneuver, also known as upper abdominal thrusts, is a life-saving emergency measure used in the event of imminent asphyxiation due to obstruction of the airway by a foreign body (e.g. due to swallowing an object). By compressing the abdominal cavity, an attempt is made to expel the foreign body from the trachea or upper airways using the resulting excess pressure in the lungs. As a preliminary measure, an attempt should be made to dislodge the foreign body by applying strong blows between the shoulder blades. This is because there is a risk of rupture of the diaphragm or damage to other organs when doing the Heimlich maneuver. For this reason, the Heimlich maneuver is only used if there is a clearly life threatening situation (i.e. if the airway is completely blocked); if a person can still cough or speak, the Heilich maneuver should not be used.

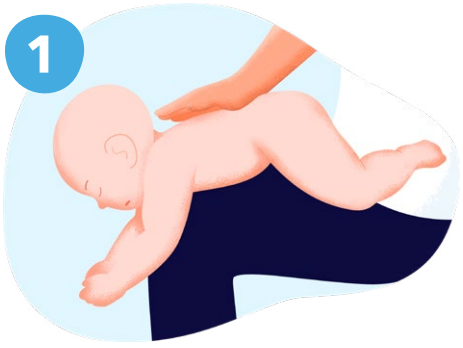
Execution

To execute it, stand behind the choking individual, wrap your arms around their waist, and make a fist with one hand, placing it slightly above their navel and below the ribcage. Grasp your fist with your other hand and thrust inward and upward forcefully, repeating this five times. After each time, check whether the foreign body has come loose. If the foreign body is not removed through heimlich maneuvers alone, continue by alternating between five back blows and five upper abdominal thrusts. For pregnant women, the fist should be positioned below the breasts.

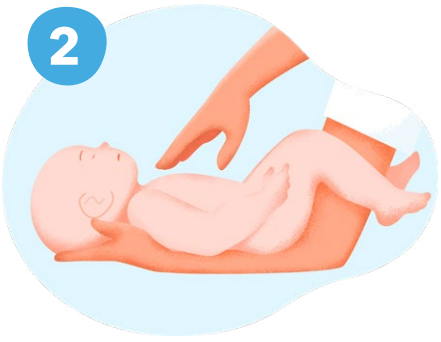
Careful, if the affected person loses consciousness and is no longer breathing normally: place the them in the supine position and start resuscitation.

Treatment measure for children

Aspiration of foreign bodies is one of the most common causes of death in children. However, the Heimlich maneuver must not be used on children under the age of one. They requires a different treatment guideline:



Position children and infants on your lap or forearm in a head-down and prone position. Stabilize the head and try to mobilize the foreign body with titrated blows to the back between the shoulder blades.



Follow this up with five chest thrusts which should also be performed in a head-down but supine position. These are similar to chest compressions, only more jolting. Do this until effective coughing occurs and the foreign body is removed.

Allergic Reactions

Definition

An allergic reaction occurs when the immune system mistakenly identifies a harmless substance, such as food, pollen, or medication, as harmful. This triggers the release of histamines and other chemicals, leading to symptoms such as hives, swelling, difficulty breathing, or in severe cases, anaphylaxis.

Such a reaction is very unpleasant for the person affected. The severity of the reaction can vary. The symptoms can be limited to a small area of the body, which is usually harmless. In extreme cases, however, there may be a strong reaction throughout the body, sometimes accompanied by swelling of the airways and a drop in blood pressure. Such a reaction can be acutely life- threatening due to the obstruction of the airways and reduced blood flow to the brain. This is known as anaphylaxis.

Different symptoms present for varying allergy severities and depending on the time since the exposure to the allergen.

Signs and symptoms

The signs of an allergic reaction are varied and depend on the triggering stimulus:

- Metallic taste on the tongue
- Itching on palms of hands/soles of feet
- Reddening of the skin, rash (usually presented as hives)
- Tingling in the mouth
- Feeling hot/skin flushing
- Swollen lips/eyes/face
- Shortness of breath

In extreme cases, serious signs and symptoms such as a decrease in blood pressure, unconsciousness, difficulty breathing, and cardiopulmonary arrest can present themselves.

Treatment measures

- The first thing to do, if possible, is to eliminate the triggering stimuli.
- As always, it is important to remain calm.
- If the person has emergency medications with them, these should be administered.
- If emergency medication is used, medical care should always be sought out afterwards.
- If the patient is having difficulties breathing, they should be placed in a position with their upper body elevated.
- If swelling occurs, a cloth with ice can be placed on the affected area.
- If the swelling is in the throat or pharynx, sucking ice cubes or ice cream can counteract the swelling.
- If necessary, place an emergency call.

People with a known severe allergic reaction should always carry an emergency kit with medication. It is also advisable to inform people in your everyday environment (family, friends, workplace, school, etc.) about the risks of an allergy and instruct them on how to behave in an emergency situation (e.g. correct use of an EpiPen following an insect bite).

An "EpiPen" is an emergency syringe filled with adrenaline. This medication can help during an anaphylactic reaction. It supports the circulation and counteracts the swelling in the throat area. "Epi" is short for epinephrine, which is a synonym for adrenaline. The EpiPen should be administered into the outer thigh.

Form a fist around the autoinjector, then remove the blue cap.

Place the orange end on the outer center of the thigh.

Push hard until the needle enters and hold still for 10 seconds.

Good to know: An allergy and an intolerance are not the same thing. An allergic reaction is an overreaction of the immune system. Even the smallest amounts of the substance are enough to trigger a reaction.
In the case of an intolerance, the body lacks the necessary enzymes to break down a substance. The more of this substance you consume, the worse the reaction gets. Lactose, fructose or gluten intolerance are common.

Asthma

Definition

During an acute asthma attack, individuals will experience a sudden shortness of breath and/or coughing. They also experience an acute feeling of tightness in their chest. An asthma attack is an acute worsening of the underlying disease asthma (bronchial asthma), a chronic disease of the lungs. The triggers for such an attack are varied. They include: physical exertion, cold air, air pollutants, tobacco smoke or certain medications.

Treatment measures

In the event of an asthma attack, first aid should be administered as quickly as possible, to ensure the continuous oxygen delivery to the patient.

- **Calm them down:** Anxiety can increase shortness of breath. It is therefore important to comfort the person in order to calm them down
  Correct positioning: certain positioning makes breathing easier, for example:
  - The leaning sit (while sitting, rest your hands or forearms on your knees, lean your upper body slightly forward)
  - The horse riding sit (Sit on a chair as if you were sitting in a saddle and place your arms on the backrest)
  - Goalkeeper position (stand with your legs apart, bend your knees slightly, bend your upper body forwards, rest your hands on your knees)
  - respond to the needs of the affected person.
- **Breathing techniques:** Asthmatics have often learned certain breathing techniques in order to be able to breathe more effectively when they are short of breath. For example, when exhaling they will place their lips loosely together so that the air escapes with a slight noise. By doing this, the affected person should exhale more slowly and for a longer period of time. In an emergency, the affected person can be persuaded to use the breathing techniques that they have learned.
- **Medication:** If necessary, help the affected person to use their emergency medication (e.g. inhalation spray).
- **Place an emergency call:** In the event of a severe asthma attack (no longer able to speak normally, shallow breathing, blue discoloration of lips and fingernails, etc.), an emergency call should be placed as soon as possible.

Many asthmatics are well prepared for an asthma attack thanks to extensive training they have gotten. Their healthcare providers should have discussed with them how they should react in an emergency (staying calm, measuring peak flow values, using on-demand and emergency medication - even possibly adjusting the dose, using breathing techniques, etc.). In an emergency, it helps to even just support the affected person while they implement their personal emergency plan.

Croup (Krupp Syndrome)

Definition

Croup, or Krupp syndrome, is primarily caused by viral infections, most commonly by the parainfluenza virus. These viruses lead to inflammation and swelling of the upper airway, including the larynx and trachea, resulting in the characteristic symptoms of croup such as a barking cough and stridor. While viruses are the primary cause, other factors such as allergies or irritants can exacerbate symptoms in some cases.

Signs and symptoms

dry and barking cough that occurs in fits
Other symptoms such as: shortness of breath, hoarseness, fever, runny nose and general malaise
The symptoms typically occur in the fall and winter months and in children between the ages of three months and five years old. Boys are slightly more frequently affected than girls. Children usually wake up at night with a paroxysmal, barking cough and hoarseness. Most children experience a croupy cough once or twice in their lives. Occasionally, croup can occur in children more frequently or even beyond the typical age range. These are often children who are prone to asthma. Croup rarely occurs in adults.

Treatment measures

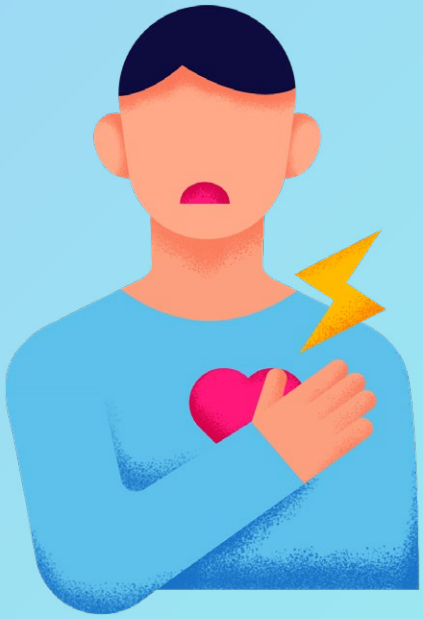
- Calm action by the helping person is the most crucial component. Children mirror adults and calming the child will automatically relax them.
- Take the child outside into the cold air. This has a decongestant effect on the airways.
- Of course, make sure that they child is dressed warmly.
- Alternatively, standing next to an open fridge or freezer can also help.
- With their first croup attack, the child should be examined by a pediatrician to rule out any other possible respiratory diseases
- If a child is known to have croup syndrome, they will usually get over it quickly; if hoarseness/coughing is the only symptom present, no further treatment measures need to be taken

Alert emergency medical services if:

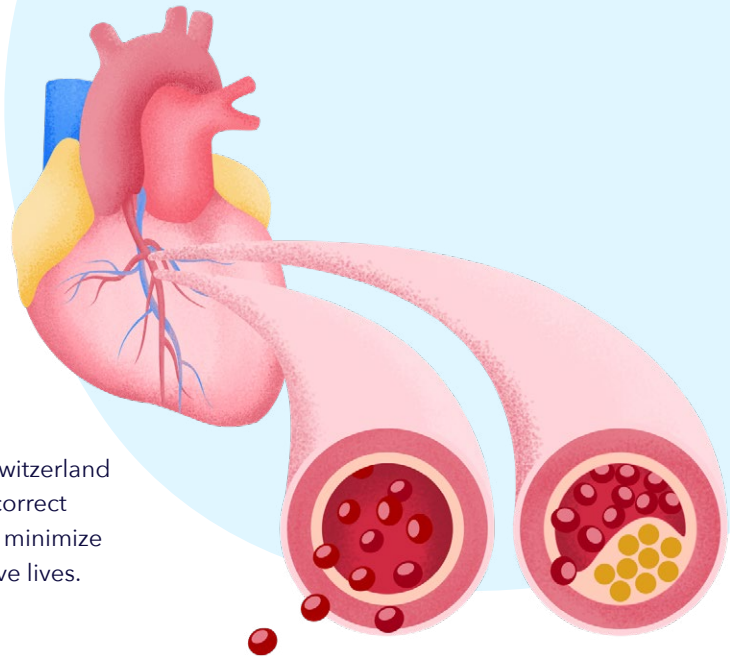
- If the symptoms are not limited to coughing / hoarseness and the child develops difficulty breathing
- Bluish discoloration of the lips / fingers
- If the child becomes drowsy
- If you feel overwhelmed and are unsure how to proceed

Note: The treatment measure of generating warm, humid air in the bathroom is outdated and is no longer recommended. Some children deteriorate this way.

Circulatory diseases



Heartattack

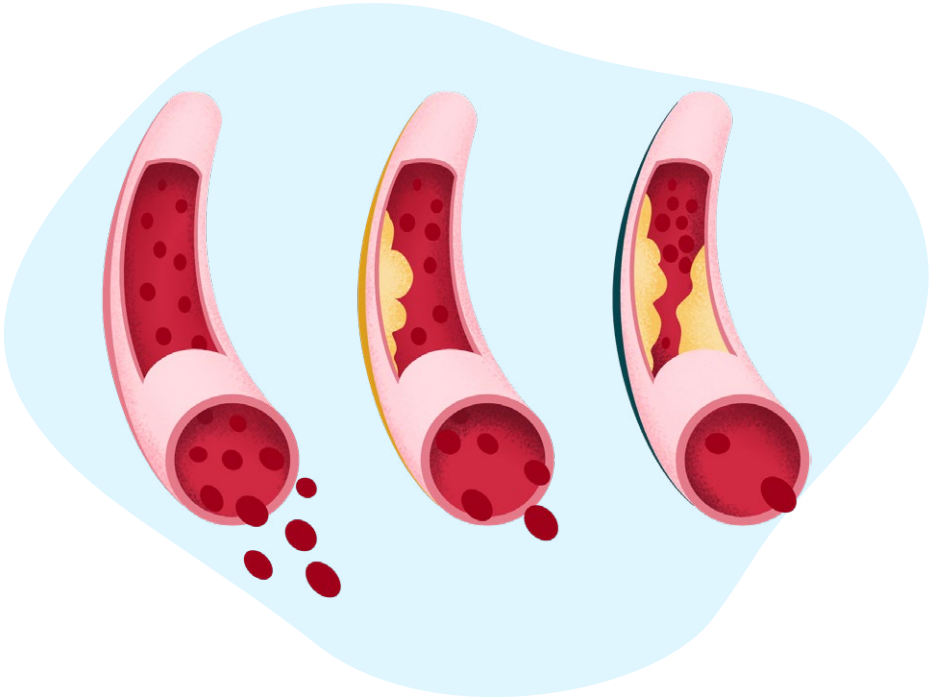


Heart attacks are the number one cause of death in Switzerland and worldwide. Rapid recognition and ensuring the correct treatment measures in the event of a heart attack can minimize consequential damage to the heart and ultimately save lives.

Definition

The small vessels on the heart muscle are called coronary vessels, They supply the heart with blood and therefore with oxygen. As in all blood vessels, deposits, known as arteriosclerosis, can form in these vessels over the years as well. These calcifications considerably reduce the diameter of the blood vessels. If blood cells join together and form a clot, this clot could migrate into this vessel and cause a complete blockage of it. This is known as a heart attack.

The parts of the heart muscle that are no longer being supplied with blood now will start to die. As a result, the heart loses its beating power and therefore its pumping capacity. How a heart attack manifests itself varies greatly. It can occur almost asymptomatically or it can lead to acute cardiopulmonary arrest. It is important that the symptoms of a heart attack are not ignored and that medical care is sought out or called for immediately. The chances of survival are greater and permanent damage to the heart is less likely the sooner emergency medical treatment is performed.



Signs and symptoms

- Severe pressure and tightness in the chest.
- A constricting or burning pain in the chest
- Shortness of breath
- Fear of death
- Radiating pain in the shoulder, arm, neck, jaw or upper abdomen
- Accompanying symptoms such as cold sweat, pallor, sallow complexion
- Nausea, feeling of weakness
- the pain is independent of body movements or breathing

Risk factors

- Old age: vascular calcification occurs more frequently in old age, as the vessels have been exposed to the risk factors for longer.
- Obestity: high blood lipid levels lead to more deposits in the blood vessels.
- Smoking
- Lack of exercise
- Male gender: statistically, men experience heart attacks more frequently than women.
- High blood pressure
- Diabetes
- Stress

These are just reference points to aid in assessing the situation. As the individual administering first aid, you are not professionally trained and should refrain from making a diagnosis. In cases of heart attack symptoms, an emergency call should be made immediately. The emergency call center staff are equipped to assess emergencies, provide step-by-step guidance, and coordinate necessary assistance.

Treatment measures

Immediately call emergency services to report a suspected heart attack.
If the person is conscious, position them ideally with their upper body slightly elevated.
Consider the patient's needs and attend to them accordingly.
Loosen tight clothing, improve air supply (such as by opening a window), and provide reassurance.
Stay with the person and do not leave them alone.

Follow the Basic Life Support (BLS) protocol routinely in the absence of consciousness.

- If the individual is unconscious but breathing normally, position them in the recovery position and regularly monitor their breathing.
- If circulatory arrest occurs, immediately begin life-saving interventions such as cardiac massage, resuscitation, or defibrillation.

Syncope

Definition

Fainting is the sudden loss of consciousness and muscle tone with rapid, spontaneous, and complete recovery within a few seconds. It is also known as syncope and is the best-known form of impaired consciousness. The most common cause is a simple dysregulation of the circulatory system, which leads to a brief reduction in blood flow to the brain. The brain reacts very sensitively if it receives too little oxygen and loses consciousness within seconds. The cause is often completely harmless, but this reaction of the body can also be due to a serious illness, which is why fainting should be clarified by a medical specialist if necessary. Although often confused, fainting is not a form of unconsciousness but is part of a disturbance of consciousness due to its brevity. Unconsciousness is only considered to have occurred after one minute. People who have fainted wake up spontaneously or can be woken up by speaking loudly and shaking. It is therefore all the more important to carry out the consciousness check properly. The sudden onset of fainting can also lead to falls and serious injuries. Fainting should therefore never be underestimated. If a fall caused by fainting results in severe head injuries (craniocerebral trauma), this can also lead to unconsciousness.

Causes

- Low blood pressure
- Overreaction of the nervous system due to being startle, seeing blood, heat, cold, moments of great stress.
- Getting up too quickly from a lying or sitting position
- High abdominal pressure (sneezing, pushing on the toilet, etc.)
- Diabetes
- Cardiac arrhythmias
- Medications

Treatment measures

- Place the affected person on their back and elevate their legs. In most cases, the brain quickly regains consciousness on its own as blood supply to the brain improves when lying down.
- After awakening, comfort the affected person.
- If consciousness is not regained promptly or if there are repeated spouts of unconsciousness within a short time frame, seek medical attention immediately.
- If you experience fainting, call emergency services immediately.
- If a heart attack is suspected as the cause of fainting, elevate the upper body of the affected person while they are lying down.

If unconsciousness resumes, follow standard procedures according to Basic Life Support (BLS).

- If the person is unconscious and breathing normally, position them in the recovery position and monitor their breathing regularly.
- In the event of circulatory arrest, immediately begin life-saving measures such as resuscitation or defibrillation.

Help yourself

Fainting doesn't always occur suddenly; individuals often experience warning signs such as nausea, feeling overheated, weak knees, or a sinking sensation in the stomach. If you sense that fainting is imminent, it's advisable to lie down and elevate your legs. This not only reduces the risk of injury from a fall but can also help prevent fainting altogether by stabilizing the cardiovascular system.

Heatstroke

Definition

During a heatstroke, the body's thermoregulatory mechanisms become overwhelmed, leading to an inability to maintain a normal body temperature after prolonged exposure to extreme heat. This results in a cascade of physiological dysfunction as the body overheats and struggles to maintain its usual functions. Interestingly, in regions like ours, heat exhaustion is more prevalent and is frequently misidentified as heat stroke colloquially. Heat exhaustion arises primarily from dehydration during exertion in high temperatures rather than solely from elevated ambient temperatures. The loss of fluids and electrolytes, particularly salt, contributes to the impairment of vital bodily functions, highlighting the importance of hydration and electrolyte balance in preventing heat-related illnesses.

Signs and symptoms

- Thirst/sweating
- Nausea/vomiting
- Headaches
- Dizziness
- Changes of consciousness or seizures
- During a heatstroke, the body's temperature rises above 40°C, indicating a severe heat-related condition where the body's ability to regulate temperature is compromised. Conversely, in heat exhaustion, the body temperature typically remains within normal to slightly elevated ranges.

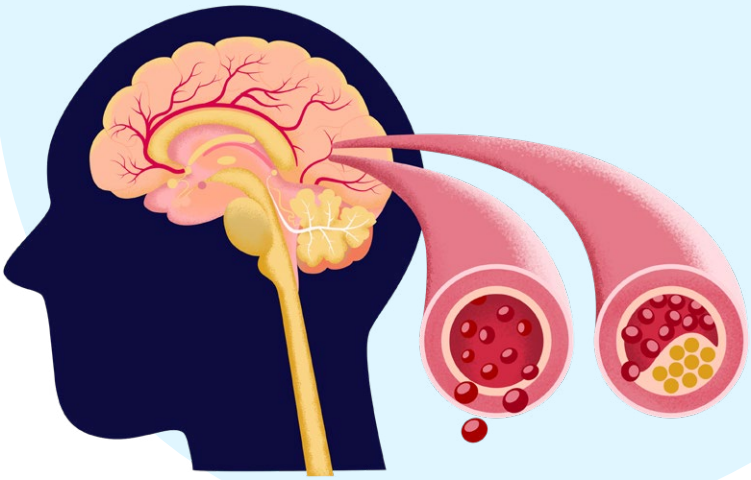
Treatment measures

In addition to stabilizing vital functions, first aid emphasizes cooling and hydration measures.

- Follow the Basic Life Support (BLS) protocol.
- Transfer the individual to a cool, shaded area and use damp cloths or similar methods to cool them down.
- If the person is fully conscious, offer water or preferably isotonic fluids to drink.
- If the person is not fully conscious, refrain from administering liquids to prevent the risk of choking.

Neurologic diseases

Stroke

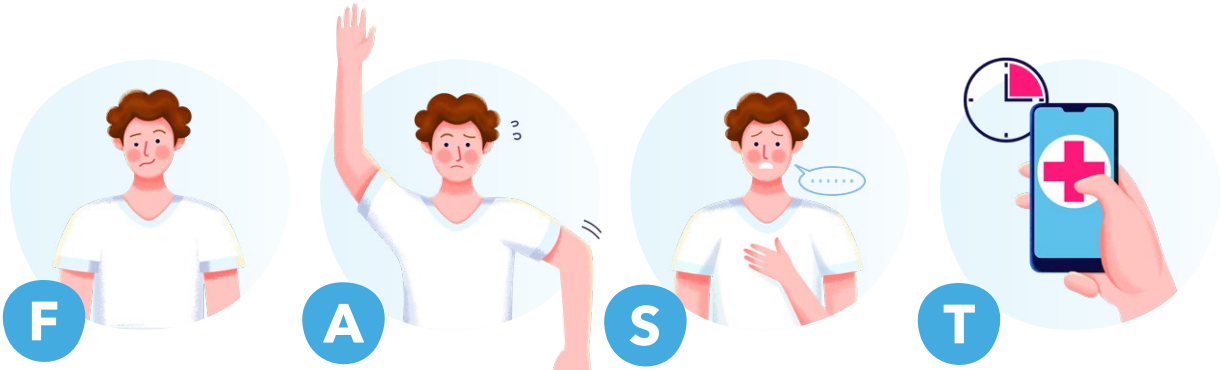


Definition

A stroke is an abrupt disruption of blood flow in the brain, leading to inadequate oxygen supply to nerve cells, causing cell death. Typically, this circulatory disturbance occurs due to a blocked blood vessel, although in some instances, a stroke can also result from compression or rupture of a blood vessel.

Signs and symptoms

The right hemisphere of the brain governs the muscles on the left side of the body, while the left hemisphere controls those on the right side. Consequently, a vascular occlusion in the left hemisphere can primarily affect the muscles on the right side of the body, leading to unilateral symptoms characteristic of a stroke. Hemiparesis, or one-sided muscle weakness, is a common hallmark of stroke. The acute manifestations of a stroke vary depending on the affected brain region and its severity. Remembering the signs of a stroke through the acronym **FAST** (Facial drooping, Arm weakness, Speech difficulties, Time to call emergency services) is crucial for prompt recognition and immediate action, emphasizing the urgency of seeking medical assistance upon detecting stroke symptoms



Face:
Is there facial dropping noticeable? Drooping eyelids or drooping corners of the mouth are most distinguishable

Arm:
Direct the individual to raise their arms. If they are unable to do so at all or can only manage to do so slightly on one side, this could indicate a potential issue or limitation with muscle strength or motor function on that side of the body.

Speech:
If the person exhibits slurred speech or experiences difficulty communicating effectively, this could indicate impairment in their ability to express themselves clearly.

Time:
Time is of the essence! Place an emergency call immediately to ensure swift transport to medical care for the individual in need.

Treatment measures

For a person experiencing a stroke, immediate transfer to a hospital with stroke expertise is vital.
Promptly make an emergency call, reporting a suspected stroke.

- Position the individual with their upper body flat on their back on a firm surface or the floor, optionally slightly elevating the upper body.
- Do not leave the person unattended.
- Offer reassurance and indicate that help is on its way.

In cases of unconsciousness, adhere to Basic Life Support (BLS) protocols:

- If the individual is unconscious but breathing normally, place them in the recovery position and monitor their breathing regularly.
- In the event of circulatory arrest, promptly initiate life-saving measures such as resuscitation or defibrillation.

Risk factors

Risk factors for stroke mirror those of a heart attack, often stemming from vascular calcification, particularly advanced age and high blood pressure.

Seizures/epilepsy

Definition

Epilepsy manifests as transient functional disruptions of the brain, characterized by epileptic seizures—instances where brain neurons fire impulses synchronously and uncontrollably.

Seizure severity varies, ranging from minor muscle twitches to brief loss of consciousness to full-body convulsions and unconsciousness.

Triggers for seizures include physical exertion, sleep deprivation, strobe lights, certain medications, drugs, or symptoms related to other illnesses like fever, though seizures can also occur spontaneously.

Treatment measures

Certain individuals may have a premonition or "aura" indicating the onset of a seizure and carry preventive medication with them. Offering understanding and support is crucial in such situations. Finding a safe, sheltered environment together can aid in mitigating the seizure's occurrence.

- Maintain a calm nature
- Protect the head from injury
- Refrain from restraining the individual
- Remove potential hazards
- Record the seizure's duration
- A seizure typically lasts for less than two minutes. Afterward, an effort should be made to communicate with the affected person. If they remain unconscious, it's important to place them in the recovery position. Regular monitoring of their consciousness and breathing is essential.
- If a seizure persists for longer than 2 minutes, it is imperative to call the emergency number (144) immediately for prompt medical assistance.
- Upon recovery, confusion and disorientation are common for the patient, requiring a calm and reassuring approach from helpers.
- If a seizure occurs without a known underlying illness, or if consciousness is not regained after a prolonged period, it's essential to make an emergency call (144) immediately for medical intervention.
- An emergency call (144) is warranted if seizures occur repeatedly.

If you are acquainted with someone who has epilepsy, it's advisable to clarify the emergency protocol beforehand. This includes ensuring awareness of emergency contact numbers, knowledge of their medication regimen, and other relevant details. Typically, hospitalization is not required for individuals with known epilepsy following a simple seizure. However, if you are unsure about the nature of a seizure or the individual's medical history, it's always prudent to err on the side of caution and promptly contact emergency services.

Febrile seizures

Definition

A febrile seizure is a convulsive episode that occurs in children during the course of a feverish infection. Typically, children between the age of six months and five years are affected. During a febrile seizure, children experience jerking movements throughout their body, muscle contractions, and their body becomes unnaturally stiff and extended. In the majority of cases, this is referred to as a simple febrile seizure, which lasts only a few minutes. It is accompanied by loss of consciousness, bluish discoloration around the lips (cyanosis), muscle tension, relaxation, or muscle twitching. As frightening as this event may seem, the child typically recovers rapidly from it. In rare instances, the seizure may last longer than 15 minutes or additional abnormalities may occur. In such cases, it is termed a complex febrile seizure.

Signs and symptoms

- Fever (body temperature above 38.5 degrees Celsius)
- Muscle twitching
- Eyes rolled to the back of the head
- Sudden loss of consciousness
- Pale or blue discolored skin

Treatment measures

Especially if it is the first febrile seizure, an emergency call should definitely be placed.

It is useful to recall the following information:

- How long did the seizure last?
- Did the jerking movements occur in all arms and legs as well as in the face?
- Did the jerking movements occur equally on both sides?

How to act:

- Stay with the child and remain calm.
- Note the time and measure the duration of the seizure.
- Loosen the child's clothing to ensure they can breathe freely.
- Do not give the child any drinks or food or attempt to insert objects into their mouth.
- Refrain from shaking the child.
- Avoid attempting to stop the seizures.

Diabetes Mellitus

Definition

Diabetes mellitus exists in two main forms: congenital (type 1) and acquired with age (type 2). In both forms, the primary issue is a disrupted sugar metabolism. Ordinarily, the sugar we consume with food enters the bloodstream and then the body's cells, where it is converted into energy. Blood sugar, which is the sugar dissolved in the blood, typically remains within a specific range in healthy individuals. However, in people with diabetes, blood sugar levels can become problematic, either rising too high or dropping too low, depending on the circumstances.

Signs and symptoms

Caution: Symptoms only offer an indication of the blood sugar level. Certainty can only be obtained through a blood glucose test using an appropriate device.

Hypoglycemia (low sugar levels)

- Restlessness
- Nausea
- Feeling hungry
- Dizziness
- Changes of conciousness

Hyperglycemia (high sugar levels)

- Thirst
- Nausea
- Frequent urination
- Deep and shallow breathing
- Dizziness
- Changes of consciousness

Treatment measures

Low sugar levels

- Assist the person with blood glucose monitoring.
- If the person is conscious, offer sweet drinks or glucose.
- If unconscious, follow Basic Life Support (BLS) protocols; do not administer liquids (risk of choking!).

High sugar levels

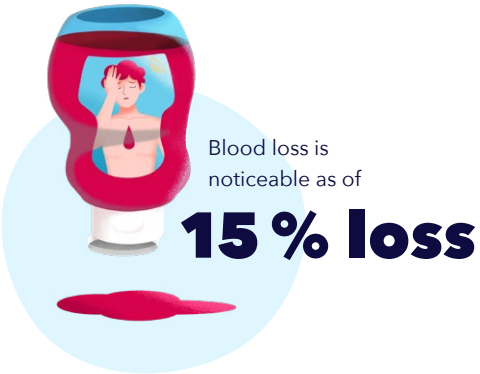
- Support the person with blood glucose monitoring.
- Support the person with insulin administration.
- Caution: As an untrained individual, never administer insulin independently without precise instructions. Improper use can be life-threatening!

Trauma

Blutungen

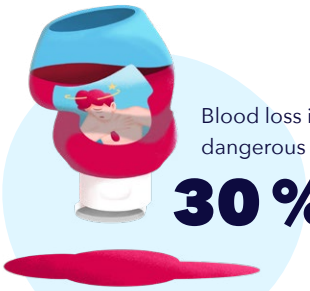
Definition

An adult human has 4.5 to 6 liters of blood. This consists of cellular components, including platelets, as well as red and white blood cells. The liquid portion is protein-rich and is called blood plasma. The role of red blood cells is oxygen transport, while white blood cells are involved in immune defense. Platelets form a kind of network to stop bleeding and close wounds. Blood plasma acts as a transporter for the other components, as it is 90 percent water and constitutes the liquid part of blood. The functions performed by our blood are vital to life. In the event of significant blood loss, the oxygen supply to vital organs may be compromised. The body can relatively easily compensate for blood loss of up to approximately one liter. Between one and two liters, it becomes more critical. Those affected may experience anxiety, increased breathing, and elevated pulse. Any blood loss exceeding two liters is acutely life-threatening. If not immediately addressed and bleeding not stopped, organ oxygenation cannot be ensured. This leads to what is known as hemorrhagic shock, which, if untreated, can be fatal.



Blood loss is noticeable as of

15 % loss



Blood loss is dangerous as of

30 % loss

Treatment measures

To prevent a life-threatening condition, severe bleeding must be stopped immediately.

- First, lay the affected person down. This minimizes the risk of injury in case of potential loss of consciousness and helps stabilize circulation. Apply pressure to the wound. If you are alone with the injured person, they may be able to apply pressure themselves until you have organized bandaging materials.
- Raise the injured body part to reduce blood pressure there. Initiate an emergency call.
- Organize a first aid kit and ideally put on disposable gloves for your own protection. If a first aid kit is not available, clothing items can also be used for bandaging.
- If objects are lodged in the wound (such as glass shards), do not remove them. Apply a pressure bandage.

Pressure bandage

First, completely cover the wound with a compress.

Wrap the gauze bandage a few times around the wound, ensuring that the compress remains in place.

Place a highly absorbent pressure pad directly over the wound.

Secure the pressure pad with tension using the remaining bandage and fix the ends of the bandage securely.

Minimize movement and elevate the injured body part. If bleeding has not yet stopped, apply a second pressure bandage. Initiate an emergency call.

Fractures (Broken Bones)

Definition

Although bones are among the hardest and most resilient tissues in our body, they can break into two or more fragments under direct or indirect external force. Bone fractures (fractures) can be divided into closed and open fractures, which are most frequently caused by accidents or falls. Pre-existing conditions such as osteoporosis or prolonged overloading can promote the occurrence of fractures. Typical signs of a fracture include pain, misalignment, swelling, or restricted movement, and may also include wounds or bleeding. However, the symptoms of fractures are not always obvious. Fatigue fractures, in particular, are often initially mistaken for sprains or bruises. In these cases, an X-ray or ultrasound examination provides certainty. Fractures can be accompanied by severe internal or external bleeding, particularly in the hip and thigh area, which can be acutely life-threatening if left untreated.

Treatment measures

- Although not always, broken bones very often cause severe pain and can appear worrying, especially in the case of open fractures. It is therefore all the more important to remain calm while providing emergency aid and to communicate this to the person affected, especially children.
- Lay the affected person flat on the floor.
- Stabilize and immobilize the affected area by placing a blanket or a piece of clothing underneath. It is best to elevate the affected part of the body to minimize swelling.
- Closed fractures can be carefully cooled, for example with a cloth wrapped around a freezer bag.
- Cover open fractures with a sterile wound dressing.
- Make an emergency call and stay with the affected person until the emergency services arrive.

Special things to consider with fractures in children

As children's bones are still much more elastic, they generally break less quickly than those of adults. However, children tend to be exposed to fracture risk situations more frequently, which increases their susceptibility to fractures. Bone fractures in children usually heal more quickly than in adults. The periosteum is still thicker and better supplied with blood, and as growth is not yet complete, there are more cells that are willing to divide. In some cases, a fracture can impair the growth of the affected bone, which is why early diagnosis and appropriate treatment are crucial.

Spinal cord injuries

Definition

A spinal trauma refers to an injury to the spine caused by mechanical force, which can affect all structures depending on severity and duration. If the spinal cord is affected, paralysis may occur. The location and permanence of this paralysis depend on the position and severity of the injury.
Spinal injuries often occur as combination injuries. In Switzerland, approximately 200 individuals suffer from spinal cord injuries each year, with about two-thirds being men and over one-third of the affected individuals under 25 years old. Any accident involving significant twisting, bending, or compression can result in spinal cord and spine injuries. Approximately one-third of the causes of accidents are attributable to traffic and sports accidents, and about one-quarter to falls.

Signs and symptoms

Statistically, most of the people affected by spinal cord injury are responsive (98 percent, source: SPC Nottwil).

- Pain in the back
- Numbness in arms or legs
- Impaired sensation in the form of tingling in the extremities.
- Incontinence
- Also, the lying position as well as the nature of the accident can provide clues to a possible back injury. Impact to the head followed by compression of the cervical spine is one of the most common causes of spinal trauma.

Treatment measures

If there is suspicion of a back injury, the emergency services must be called immediately.

- Do not move the person if they are responsive.
- Do not leave the affected individual alone.
- Reassure and signal that help is on the way.

If consciousness is absent, act according to BLS protocols.

- If the person is unconscious but breathing normally, place them in the recovery position and regularly check their breathing.
- In the event of cardiac arrest, initiate immediate life-saving measures (resuscitation/defibrillation).

Headinjuries

Definition

Head injuries can range from minor wounds to life-threatening situations (traumatic brain injury). A traumatic brain injury is an injury to the skull bone caused by external force, which also results in damage to the brain. The brain is protected by the skull bone and surrounded by meninges, blood vessels, and cerebrospinal fluid, which serve to cushion and nourish the brain tissue. When these structures are damaged, a spectrum of symptoms can occur. The severity and associated consequences of this injury are highly individual. The spectrum ranges from headaches to life-threatening brain damage. It is difficult for a layperson to assess what type of head injury has occurred. When in doubt, always seek medical evaluation. It is generally recommended to seek medical treatment after a traumatic event. Affected individuals typically sustain skull-brain injuries through accidents in traffic, sports, or work. In infants and young children, skull-brain injuries can also result from vigorous shaking.

Craniocerebral trauma

Division into three categories:

Grade 1 (concussion)
- No detectable brain damage
- Unconsciousness for a few seconds to minutes
- Confusion
- Nausea/Vomiting
- Headaches
- Visual disturbances

Grade 2 (brain contusion)
- Brain damage
- Unconsciousness > 15 minutes
- Symptoms similar to Grade 1 but stronger and longer-lasting
- Risk of long-term consequences

Grade 3 (brain compression)
- Brain damage with increased intracranial pressure
- Unconsciousness for days to weeks
- Breathing or circulation problems
- High risk of long-term consequences

Treatment measures

In case of suspected traumatic brain injury, never take any risks! Medical attention should be sought immediately or emergency services should be called in any case.

- Raise the upper body of the affected person and keep them warm (for example, with a rescue blanket).
- If vomiting occurs, consider turning the affected person to the side.
- If possible, cover any external head injuries with a sterile dressing.
- The affected person should not eat or drink anything.

In case of unconsciousness, act according to BLS protocol.

- If the person is unconscious but breathing normally, place them in the recovery position and check their breathing regularly. Individuals with traumatic brain injury are at increased risk of vomiting. It is crucial that the person's mouth is positioned as the lowest point of the body so that vomit can drain away and not enter the airways. Exercise special caution when turning them to the side, ideally performing neck stabilization.
- In the event of cardiopulmonary arrest, initiate life-saving measures immediately (CPR/defibrillation).

Augenverletzungen

Definition

Eye injuries can roughly be divided into three categories: blunt injuries (punches, champagne corks, ...), foreign body injuries (chips, glass shards, ...), and injuries caused by external influences such as heat, pepper spray, or chemicals. In any case, an eye injury can potentially lead to blindness in the worst-case scenario.

Signs and symptoms

- Pain
- Redness of the eyes
- Tearing
- Vision disturbances / Loss of vision

Treatment measures

- For blunt injuries: cool the area, avoiding pressure on the eye.
- For foreign body injuries: rinse gently, do not mechanically remove; if the object cannot be flushed out, leave it.
- For injuries caused by heat, pepper spray, or chemicals: generously rinse with water.

In any case, seek medical attention. If independent transport is not possible: call emergency services (144).

Burns and scalds

Definition

Burns and scalds are injuries to the skin and underlying tissues caused by excessive heat exposure. They occur when the body or body parts come into contact with intense heat. Even a temperature as low as 44 degrees Celsius is sufficient to destroy tissue. Prolonged exposure to heat can cause damage to the skin even at lower temperatures.

Causes

Common causes of burns include contact with flames or fire, explosions, hot materials, electricity, or friction. Sunburn is also considered a mild burn from a medical standpoint.

Signs and Classification

The severity of skin damage depends on both the temperature and the duration of contact. Depending on the extent of this damage, the severity of the burn is classified into four different degrees: degrees 1 to 4. These can be determined based on the symptoms of the burn pattern.

First degree:

Superficial Burn

- Reddened skin
- Pain
- No blistering

Second degree:

Epidermis and dermis affected

- Reddened skin
- Swelling
- Blistering
- Severe pain

Third degree:

Severe skin damage

- Loss of sensation
- Hair loss
- Possible signs of shock

Fourth degree:

Muscles, bones, and joints affected

- Skin charred and blackened

Treatment measures

The treatment of a burn or scald depends on its severity. Minor burns can be self-treated by cooling. However, if blistering occurs and the affected person experiences severe pain, seeking medical attention is unavoidable. Burns and scalds from the 2nd degree onwards should be treated by medical professionals.

Behavior with minor burns:

- Minor burns and scalds can be self-treated. To do this, cool the affected area until the pain subsides (up to a maximum of 20 minutes), and then let it heal in the open air. Minor burns without blisters do not require a plaster or bandage.
- Important: The water should not be too cold, but simply cool (about 20°C). Ice water is not suitable for treating burns!

Behavior with severe burns:

- Remove the affected person from the source of heat.
- Immediately call emergency services for severe burns.
- Cool the burn with cool water (for a maximum of 20 minutes).
- Prevent hypothermia at all costs.
- Keep calm and reassure the affected person.
- If possible, remove clothing from the affected body parts. Leave embedded materials in the skin. If possible, remove rings, belts, watches, and shoes, as these may become difficult to remove later due to swelling.
- Cover the affected person to keep them warm.
- Stay with the affected person until emergency services arrive.

Dental emergencies

Definition

Dental accidents happen at home, during leisure activities, or while playing sports. Young people are particularly affected: Approximately 50 percent of all children and adolescents in Europe experience a dental accident before the age of 16. When dental accidents are correctly recognized and treated, even severely injured teeth can often be preserved. If this fails, a dental accident in childhood can cause high follow-up costs. When a tooth breaks off, is severely loosened, displaced, or knocked out due to an external event (such as a fall or blow), it is referred to as a dental accident.

Treatment measures

In the event of a dental accident, thoughtful action is crucial: Permanent teeth can often be saved with the right approach!

- Stay calm and act thoughtfully.
- If there is severe bleeding, bite on gauze or a cloth handkerchief and apply ice externally.
- Seek immediate dental care from a dental specialist or dental clinic.

In the event of a dental accident, the first step should be to try to reach your private dental specialist. If the emergency occurs outside regular practice hours, another dental specialist is always available in each region of Switzerland. The respective cantonal emergency numbers are available on the website of the Swiss Dental Association (SSO).

- **Tooth loose or displaced:** Leave the teeth in their position. Immediately seek dental care from a dental specialist or dental clinic.
- **Tooth broken:** Preserve the broken piece of tooth in water. Immediately seek dental care from a dental specialist or dental clinic.
- **Tooth knocked out:** Place the knocked-out tooth in a tooth rescue box, available at pharmacies or dental practices. If unavailable, place the tooth in cold milk or wrap it in plastic wrap. Immediately seek dental care from a dental specialist or dental clinic! Important: Do not clean the knocked-out tooth or touch the root, keep it moist!
- **Baby teeth:** Injuries to baby teeth can cause permanent damage to still developing permanent teeth, as the vulnerable tooth germs are located under or behind the baby teeth. Therefore, even in the case of injured or displaced baby teeth, seek dental care from a dental specialist or dental clinic as soon as possible.

How are dental accidents treated?
The dental specialist examines the affected teeth and assesses (for example, with an X-ray and a cold test) the extent of the injury to the tooth, root, or nerve. Broken tooth fragments are reattached as much as possible. Loose, displaced, or knocked-in teeth are repositioned and fixed in place with a splint. Knocked-out teeth are reinserted.

What are the chances of success for dental accident treatment?
The sooner a dental specialist is consulted, the greater the chances of success. Time is crucial: knocked-out teeth remain viable for at least 24 hours when stored in a tooth rescue box, but only for a short time in cold milk. Loose or displaced teeth should be splinted as soon as possible after the accident.

Electricity accidents

Definition

Electrical accidents can have very different effects depending on the voltage and current strength. In low voltage situations (such as sockets, car batteries, etc.), heart rhythm disturbances are the main concern. In high voltage situations (such as power lines), there are severe external and internal burns. As a layperson, it is difficult to assess accidents involving electricity. Personal safety should always be the top priority!

- Signs and symptoms
- Heart palpitations
- Restlessness
- Pain
- Shortness of breath
- Impaired consciousness
- Burns

Treatment measures

- In any case, prioritize self-protection, as there may be a danger to helpers, focus solely on securing the accident site and alerting emergency services!
- Follow BLS procedures.
- Even without immediately noticeable effects, seek medical attention after an electric shock, as there could be unnoticed heart rhythm disturbances.

Other emergencies

Poisonings

Definition

Poisoning is a harm to the body caused by contact with or ingestion of a harmful agent or toxic substance. It manifests through disrupted bodily functions such as severe nausea and can, depending on the dosage and the individual's physical condition, lead to a life-threatening state. In the case of acute poisoning, prompt medical attention is necessary.

Causes

Toxins can be ingested, inhaled, absorbed through the skin, or injected, either accidentally or intentionally (such as in suicide attempts or deliberate acts of interference).

- Alcohol poisoning, with a blood alcohol level of five per mil, is generally fatal.
- Drug overdose, for example, from heroin.
- Medication poisoning, for example, from an overdose of sleeping pills or date rape drugs.
- Food poisoning, for example, from spoiled fish or mushrooms.
- Plant poisoning, for example, from ingesting picked berries.
- Gas poisoning, for example, from carbon monoxide.
- Chemical poisoning, for example, from acid or laundry detergent.
- Heavy metal poisoning, for example, from prolonged exposure to mercury.

Signs and symptoms

The symptoms of poisoning vary depending on factors such as the type and amount (dose) of the toxic substance involved, as well as the physical condition of the affected individual.

Common symptoms of poisoning include:

- Nausea, vomiting, diarrhea
- Headaches, dizziness
- Hallucinations, confusion
- Severe abdominal pain
- Seizures
- Rapid or slow pulse
- Profuse sweating
- Pallor, skin redness, feeling of heat
- Shock
- Breathing problems up to respiratory arrest
- Rash, blistering (in case of contact poisoning)
- Vision disturbances, eye inflammation (in case of eye contact with poison)

The symptoms of poisoning usually occur shortly after contact with the toxic substance, but in some cases, they may also appear with a delay.

Treatment measures

The treatment of poisoning, like its symptoms, depends on the type of toxic substance involved.
Comfort the affected person.

- If symptoms occur, immediately call emergency services.
- If no symptoms are present but there is suspicion of poisoning, call the toxicology information center (emergency number 145). The staff can advise on what to do.
- Preserve any potential sources of poisoning (such as food) for identification.
- If vomiting occurs, continue to reassure the affected person and provide support, such as using pillows to prop up their head.

If consciousness is absent, follow standard Basic Life Support (BLS) procedures.

- In the case of unconsciousness with normal breathing, place the affected person in the recovery position and regularly check their breathing. It's crucial that the person's mouth is positioned as the lowest point of the body to allow any potential vomit to drain away from the airways.
- In the event of a cardiac arrest, initiate life-saving emergency measures (CPR/defibrillation).

Important: Never induce vomiting in the affected person! Vomit and the toxic substances it contains can enter the airway or flow back into the esophagus. Additionally, do not administer any fluids to the affected person without specific instructions from the toxicological information center. In the case of gas poisoning, immediately remove the affected person from the danger zone to fresh air, while ensuring personal safety. If the poisoning is due to chemicals (such as acid), thoroughly rinse the affected skin areas or contacted eyes with cold, clean water.

Poisoning in Children

Poisonings are among the most common emergencies in infants and children up to about 4 years of age. They are curious about exploring the world, wandering around the kitchen, rooms, or garden, and putting everything they find into their mouths out of curiosity. Unlike adults, children cannot properly perceive most dangers yet. The most common poisonings in children are caused by medications, cleaning agents, and poisonous plants. The symptoms are usually similar to those in adults.

Stay Calm

Despite the frequency of poisonings in children, fortunately, they are rarely fatal or life-threatening. It is crucial to reassure the child, refrain from taking hasty actions, and rely entirely on the knowledge of professionals. Poisonings can be prevented through caution, attention, and prevention. Keep hazardous substances such as cleaning agents or alcohol out of reach of children. It is advisable to educate children early on about potential hazards in an age-appropriate manner.

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