

## FIRST AID TRAINING




**„WE TEACH HOW TO COPE WITH THE  
EMERGENCY.“**

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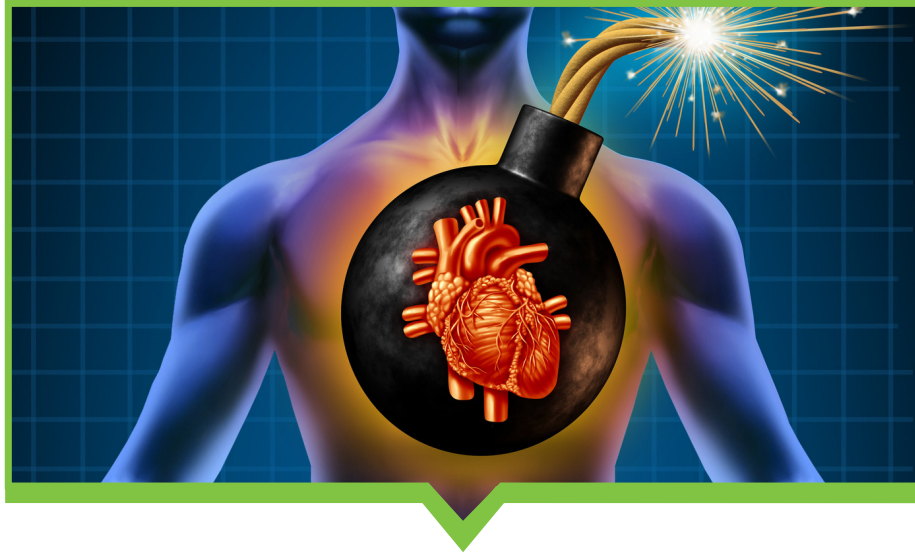
Every year in Switzerland more than 10.000 people die because of the sudden cardiac death. In Germany, there are even more, i.e., 150.000 people. In order to substantially reduce the number of these deaths, the rescue chain must function. It includes rapid emergency diagnostics and alarming, the fast CPR (cardiopulmonary resuscitation), the rapid AED (automated external defibrillator) prescription and the extended help provided by professional staff.

At the same time, on October 15, 2015, the American Heart Association (AHA) and the ERC (European Resuscitation Council) published new guidelines for cardiopulmonary resuscitation. These guidelines replace the previous ones dated by 2010. The aim is to take new knowledge into consideration and simplify their mediation in order to improve the survival potential of the patients.



The measures initiated in the first few minutes after the circulatory arrest substantially increase the survival chances of the patient. These measures must be taken by accidentally present people, who, in most of the cases, are not healthcare professionals. decisive in defibrillation is its earliest possible usage because the lack of oxygen in the brain caused by ventricular fibrillation can lead to massive neurological deficits in a short time. Therefore, more and more AED's are also placed in the public places. The successful usage of an AED should be combined with the correct implementation of the cardiopulmonary resuscitation. The AED is only a supplement and it can't save person's life by itself. However, it must be mentioned that the survival rate of the patient is reduced by 10% per minute in case of the ventricular fibrillation. Therefore, the non-professional defibrillators should be used as early as possible. The new, highly simplified guidelines for the first aider are intended to motivate people to initiate the first survival measures.





# HEART ATTACK

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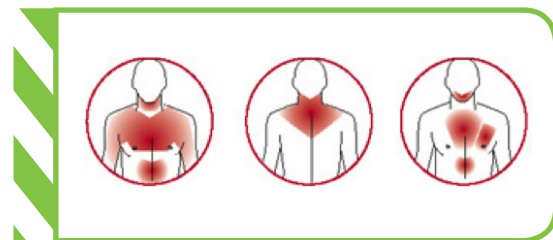
A heart attack is an acute and life-threatening situation. Because of the disturbance of the blood supply, the heart muscle is no longer supplied with the oxygen that leads to the death of cells in this part of the heart muscle.

## Risk factors for the heart attack

- + High blood pressure
- + Stress
- + High level of cholesterol
- + Old age
- + Pancreatic diabetes
- + Masculine
- + Smoking
- + inherited predisposition
- + Physical inactivity
- + Overweight

## Symptoms

- + Acute chest pain
- + Possibly, pain radiation in the upper abdomen, left arm, lower jaw or back
- + Fear of death
- + Nausea
- + Respiratory distress

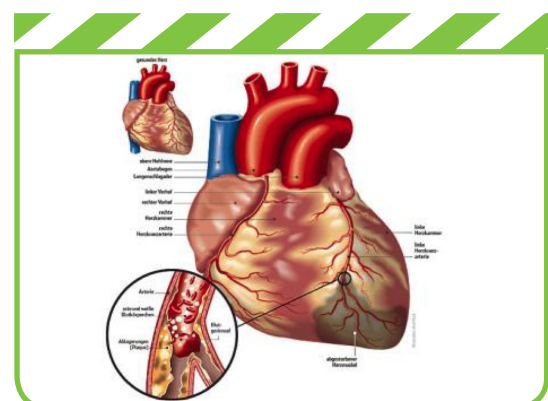


Overview of the pain centers



## The basic measures include

- + Quick recognition
- + **Rapid alarming (144)**
- + Calm the patient
- + Place the patient in the way that the upper body is placed angle wise 30°
- + Ask if he or she has Nitro capsules or Nitrospray at the moment. If so, then put a capsule or a myocardial spray in the mouth (professional personal only)
- + Take all possible measures against weather and do not leave the patient alone



Myokard



# HEART ATTACK

Risk factors that cause the heart attack

- + High blood Pressure
- + Stress
- + High level of cholesterol
- + Old age
- + Pancreatic diabetes

- + Masculine
- + Smoking
- + Inherited predisposition
- + Physical inactivity
- + Overweight



High blood Pressure



High Level of Cholesterol



Diabetes



Smoking



Physical inactivity



Overweight



Stress



Old age



# STROKE

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Stroke (Apoplexy) is a sudden interruption of brain blood circulation. Consequently, the nerve cells in the affected area are damaged or die off. A stroke can be caused by thrombus, embolism or bleeding.

## Stroke Symptoms



- + Paralysis of the facial Muscles
- + Speech disorder



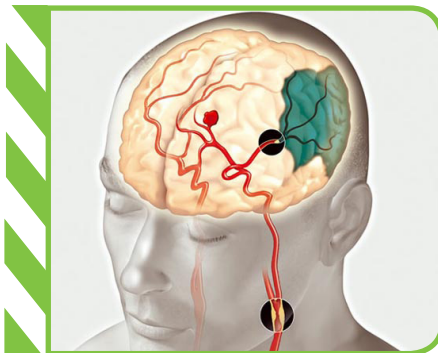
- + Hemiparalysis
- + Sensation disorders



- + Dizziness
- + Defect of Vision



- + Headache
- + Difficulty in swallowing
- + Nausea / Vomiting



Types of the Stroke



## The Basic Measures Include

- + Quick recognition
- + **Rapid alarming (144)**
- + Calm the patient
- + Lie in a horizontal position until a relevant carotid stenosis can be excluded
- + Unconscious patient who can breathe should be in a stable lateral position
- + Use CRP/AED for unconscious patient who can not breathe

### NOTE!

FOR THE OPTIMAL MEDICAL CARE THE PATIENT SHOULD BE TAKEN TO THE HOSPITAL WITHIN THE FIRST 4.5 HOURS AFTER SYMPTOMS BEGINNING



# STROKE

## Risk factors that cause the stroke

- + High blood pressure
- + Stress
- + High level of cholesterol
- + Old age
- + Pancreatic diabetes
- + Masculine
- + Smoking
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- + Physical inactivity
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High blood Pressure



High level of cholesterol



Diabetes



Smoking



Physical inactivity



Overweight

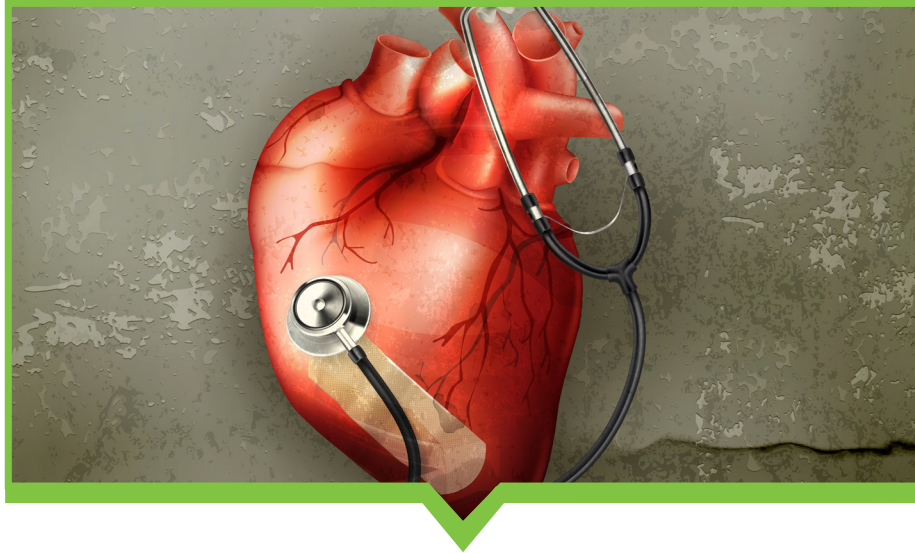


Stress



Old age





# CARDIOVASCULAR INSUFFICIENCY

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Cardiovascular insufficiency is the failure of the cardiac system. The term clinical death is often used as a synonym. This condition is potentially reversible and can be treated by the initiation of cardiopulmonary resuscitation (CRP). The CPR can provide a help only for a short time, i.e., for a few minutes.



Survival chances:

Timely medical intervention, alarming, timely CPR, defibrillation, monitoring, temperature-management

## Disease-related causes

- |   |  |
|---|--|
| 1 Heart attack                                  | 1 Oxygen deficiency                                  |
| 2 Stroke  | 2 Thrombosis of the respiratory tract e.g. ingestion |
| 3 Hematogenic shock (e.g., by great blood loss) | 3 Pulmonary embolism                                 |
| 4 Severe cardiac arrhythmia                     | 4 Asthma   |



### Signs of the cardiovascular insufficiency

- + Unconsciousness
- + No breathing

### Basic measures

- + Quick recognition
- + Quickly implementation of the survival chain

# CARDIOVASCULAR INSUFFICIENCY

Causes related to the cardiovascular insufficiency

- + Traffic accidents
- + Loss of limbs, e.g. amputation
- + Poisoning

- + Drowning
- + Trauma caused by electricity
- + Grill accident, e.g. explosion
- + etc.



Faint



Traffic accident



Drowning



Plane crash



Accident at work



Suicide



Electricity accidents



etc.

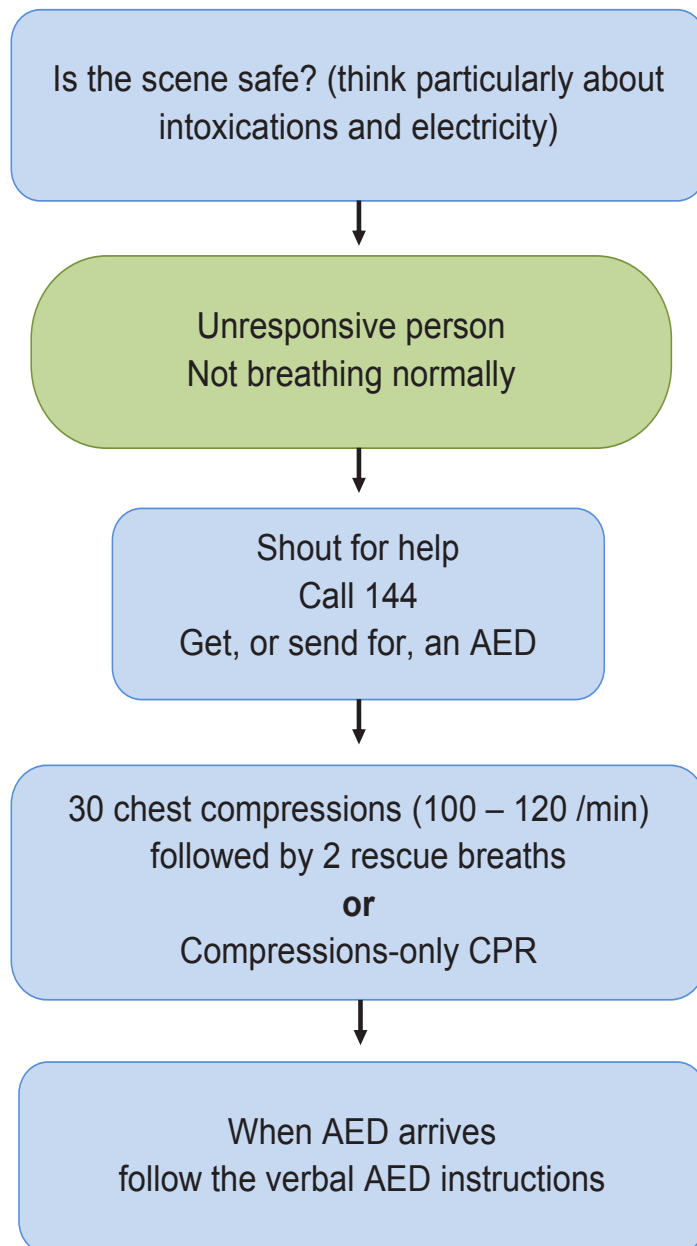


# BLS + AED

## ERWACHSENE & SÄUGLINGE (AB 1 MONAT)



### Reanimations-Richtlinien 2015 Swiss Resuscitation Council (SRC) nach ILCOR Empfehlungen



**For chest compressions, think about:**

- **5–6 cm depth**; 1/3<sup>rd</sup> depth of chest (children)
- **Minimal** interruptions
- Delivering **in the center** of the chest
- Complete **release** between compressions

**For breaths, think about:**

- Achieving a **visible** chest rise







# AED

## AUTOMATED EXTERNAL DEFIBRILLATOR

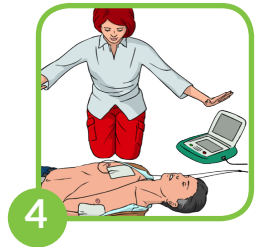
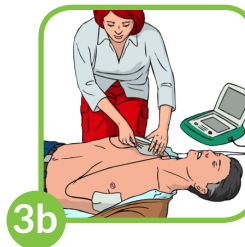
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There is a so-called ventricular fibrillation at the beginning of 85 percent of all sudden heart deaths. A defibrillator can interrupt this electrically circling excitation in the heart by simultaneous stimulation of at least 70 percent of all heart muscle cells. A large number of cells are simultaneously depolarized. As a result, these cells are no longer infecting for a relatively long time. The circular wave is almost cut off the path and the heart is again in a state in which the natural cardiac conducting system can provide the stimulation of the heart

## Procedures

1. Try to get an AED-device as soon as possible
2. As soon as you turn on the device, follow the instructions of the device carefully
3. Attach the electrodes
4. Rhythm analysis, do not touch the affected person
5. Shock is recommended  
**I'm gone, you're gone, all gone!!!**
6. Shock is provided  
- Follow the instructions of the device
7. Shock is not recommended  
- Follow the instructions of the device

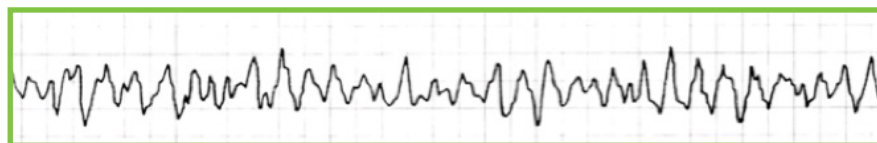


## Locations of the Automated External Defibrillator

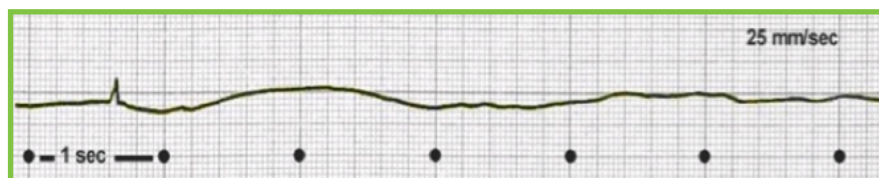
- 1 Airports
- 2 Railway stations
- 3 Swimming pools
- 4 Hotels
- 5 Fitness centers
- 6 etc



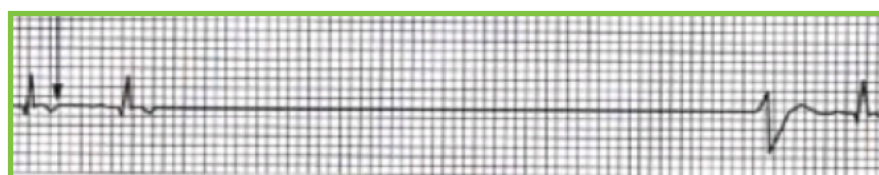
## EKG FIGURES



VENTRICULAR FIBRILLATION



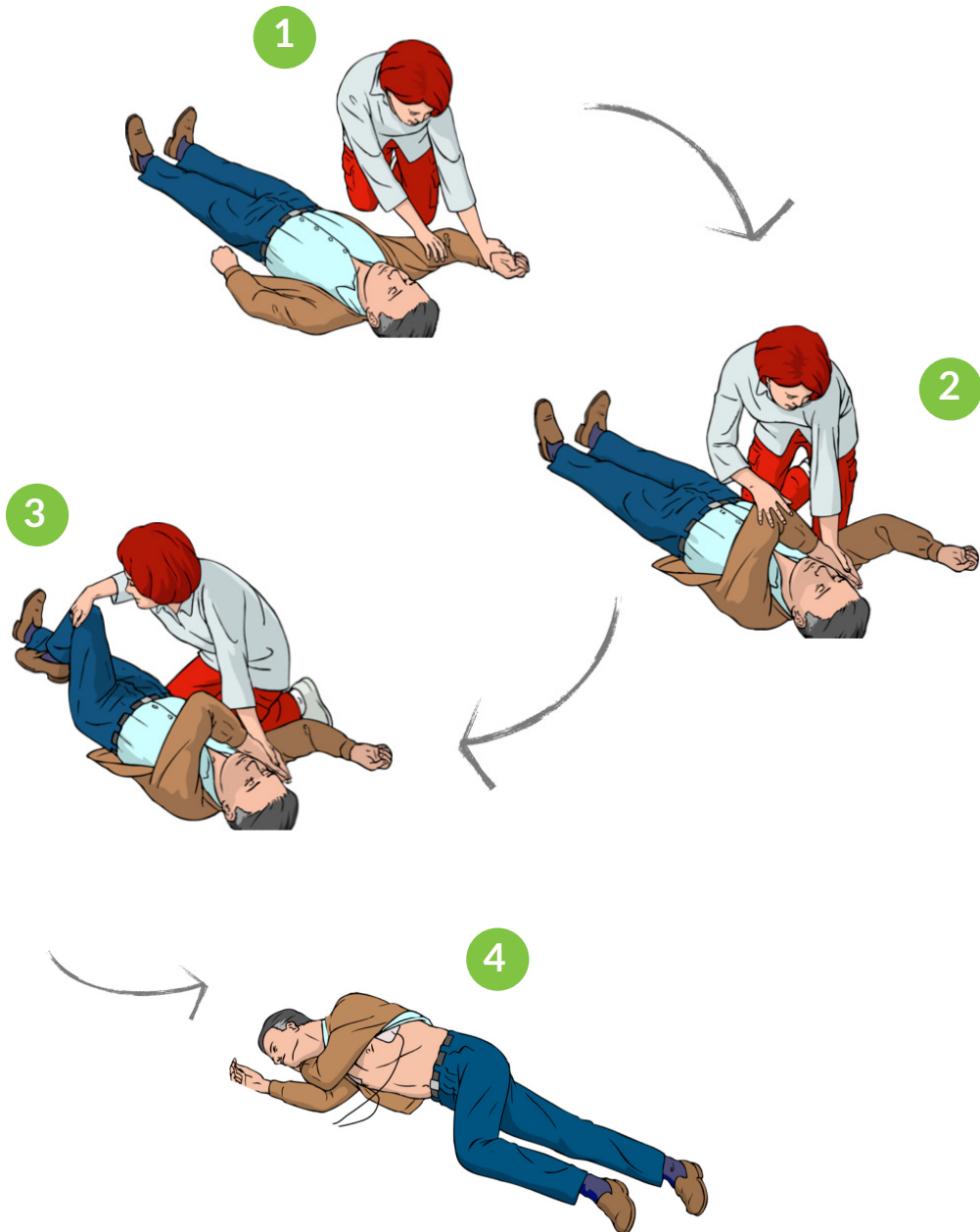
ASYSTOLIA



ELECTROMECHANICAL DECOUPLING

# STABLE POSITION

In the process





# THE ABC OF CHILDREN'S RESUSCITATION—

The current guidelines of the American Heart Association



Serious emergencies are not so common in children's medicine. Nevertheless, or precisely because of this, they represent a great challenge for us.

Case example: It can happen to all of us: at home, in the street, in the children's canteen or even in the shopping center. Suddenly a turmoil can appear with excited voices including the mother's cry: „She does not breathe, she does not breathe, help me, she is dying“!!!

A six-year-old child with obvious signs of the asphyxia is in the mother's arms and, you can hear her gasping breath. „We need the rescue service immediately“, she called for help. At this moment you can notice how long 10 minutes can last. Rescue service needs this time to come to you.

There are different methods in children's resuscitation; one of them is PALS (Pediatric Advanced Life Support) of the American Heart Association that serves as a basis for us.

In 2015 the American Heart Association published the revised guidelines and algorithms. The importance of high-quality cardiopulmonary resuscitation is particularly emphasized.

Since in most of the cases for children an oxygen deficiency is the most common cause of the cardiovascular insufficiency, first two respiratory instances should be taken into account. If this measure is not successful, chest compression must be initiated, followed by ventilation. For children, the ratio is 30:2 the same as for adults if the reanimation is initiated by one person. The exclusion from this rule can be only for newborns, where the compression-ventilation ratio 3:1 is still recommended. The compressions frequency is at least 100-120 per minute. The compressions depth is approximately 4 cm for infants and 5 cm for children. There is complete relief of the chest after each compression.



1

## Nose position (Figure 1):

In case of infants and children with a large nape, it results in an additional flexion of the cervical spine and therefore, at most, in the obstruction of the respiratory tract. By placing the thorax, a neutral position can be reached.



2

## Head Tilt Chin Lift (Figure 2 & 2a):

Lift the chin slightly with one hand, slightly tilt the forehead with the other hand backwards. Attention: Do not do that in case of possible injury of the cervical spine or trauma patients.



2a

## Head Tilt Chin Lift (Figure 2 & 2a):

See description above.

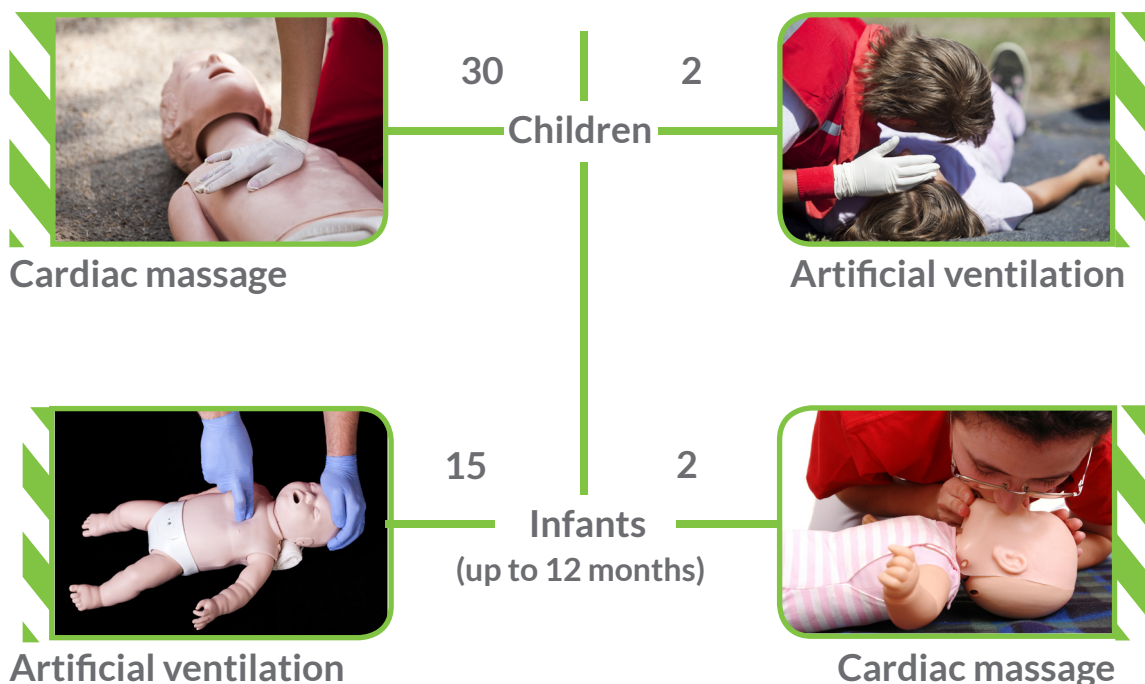


3

## Jaw thrust maneuver (Figure3):

Lift the lower jaaw with two or three fingers leaving the cervical spine in the neutral position..

## Cardiopulmonary resuscitation in the ratio Cardio-pulmonary -resuscitation (CPR)



### NOTE IN INFANTS!

FIRST 5X ARTIFICIAL VENTILATION AND THEN 30 CARIAC MASSAGE  
COMPRESSION RATE 100-120 /MIN  
COMPRESSION DEPTH 1/3 FROM THE BREASTBONE

### NOTE IN CHILDREN!

FIRST 30 CARDIAC MASSAGE AND THEN 2 X ARTIFCAL VENTILATION



## FOREIGN BODY ASPIRATION

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Blocking by some rounded mass of food or pharmaceutical preparation means that the respiratory tract is occupied by foreign body and the breathing air can not longer circulate. It means that neither breathing nor exhalation is possible. It can become a life-threatening situation in a short time.

## Causes of the aspiration

- + Dental prostheses or their parts
- + Toys e.g. Lego building blocks
- + Foodstuffs e.g. Peanuts, pieces of meat etc.
- + etc.

## Symptoms

- + Possible ingestion can be seen
- + Sudden coughing with respiratory distress
- + Irritation of the throat often associated with gag reflex
- + Cyanosis (blue discoloration of the lips)



## The basic measures include

- + Keep calm
- + During normal swallowing, drinking or eating, the body helps itself:
  - by strong coughing, the foreign body is transported by pressure from the larynx.
- + In the case of aspiration, in which the foreign body can not be transported in the above-mentioned ways, further measures must be taken.
- + Small children:
  - Hold the legs (head down)
  - So that the foreign body can be detached and coughed by light beat on the back
- + Older children and adults:
  - The upper body is in a downward position (e.g., over a chair) to achieve a similar effect
- + If these measures do not help and the affected person has a strong air shortage or blue face colour, the rescue service should be alerted.



Lying position



Sitting position