

# Basic emergency resuscitation/SŠ (nurse)

**Cardiopulmonary resuscitation (CPR)** is indicated for loss of consciousness when normal breathing is not present.

## Basic emergency resuscitation procedure

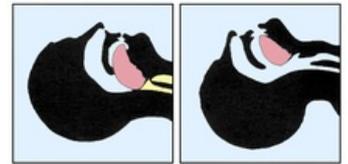
1. Remember your own safety!
2. Assess the situation, quality of consciousness (addressing, shaking); in case of polytrauma this bleeding condition.
3. Call for help from the neighborhood, the person in question calls 155 immediately.
4. Open the airway by tilting the head.
5. Check for breathing (hear, see, feel), detect possible gasping, must not last more than 10 seconds
6. Call EMS (155, 112).
7. Is AED in range? If YES, use it.
8. 30 chest compressions, frequency 100-120 per minute, depth 5-6 cm.
9. 2 breaths – move the jaw forward, plug the nose (in the case of a feeling of the possibility of transmission of an infectious disease or inefficient breathing, we prefer compressions).

## General

- Chest massage is preferred over artificial respiration when contagion is assumed during artificial respiration.
- We emphasize starting CPR as quickly as possible with as little interruption as possible and using an AED.

## A - airway → patency of airways

- This step involves clearing the airway.
  - Manual examination of the oral cavity.
  - Head tilt.



Blocked airway due to tongue - head tilt relief

When suffocating a conscious patient, we use the following procedure:

1. Prompt to cough.
2. 5× punch between the shoulder blades (Gordon punch).
3. Heimlich palpation in adults.
4. In case of loss of consciousness, we start CPR.

## B - breathing → breathing

- Securing the airway should not delay cardiac massage.
- The volume we inhale into an adult is approx. 500 ml of air (7-9 ml/kg), we use our own normal breath.



Heimlich maneuver

## C - circulation → circulation

1. We kneel from the side next to the affected person, who is placed on a firm mat (ideally the ground).
2. Place the joined hands on the center of the chest - between the breasts. The upper limbs must be bent at the elbows!
3. We compress the chest approx. 5-6 cm deep.
  - Frequency of compressions is 100-120 compressions per minute.
  - Compression:relaxation = 1:1.

<mediaplayer> <https://www.youtube.com/watch?v=hZqwjYPQPbM&feature=youtu.be> </mediaplayer>

- With an effective heart massage, we are able to ensure 30% of the minute cardiac output.



Position of hands during CPR

## Stop CPR

- When breathing and pulse are restored.
- Based on the doctor's decision.
- Transfer of the affected person to the rescue service.
- Exhaustion of the savior's physical strength.
- Reason not to start:
  - Certain signs of death.
  - Real risk of endangering the rescuer.

- Terminal phase of the disease.

## AED - Automated External Defibrillator

Use:

1. Remember your own safety!
2. Assess the situation, the quality of consciousness (addressing, shaking); in the case of polytrauma, the condition bleeding.
3. Call for help from the neighborhood.
4. Open the airway by tilting the head.
5. Check breathing (hear, see, feel), it must not last more than 10 seconds.
6. Call EMS (155, 112).
7. Is the AED in range? If YES, use it.
8. Turn on the defibrillator.
9. Place the electrodes on the chest and let the device perform the analysis.
10. If SHOCK RECOMMENDED sounds (the device analyzes EKG):
  - Check if anyone is touching.
  - Press the Shock button, followed by delivery of 1-3 shocks.
  - 2 minutes of CPR 30:2 follows without circulation control.
  - The device analyzes the time, after 2 minutes it proceeds to the next ECG analysis and possibly recommends another shock.
  - The procedure continues to repeat until the ECG changes or emergency services arrive and proceed to ALS.
- If SHOCK NOT RECOMMENDED is heard, we continue CPR 30:2 for 2 minutes, then repeat the rhythm analysis; we keep repeating the cycle until the RZS arrives or until consciousness is restored.
- Possibility of a virtual trainer at <http://www.sntplus.cz/products/defibrillator.php>

 For more information see *Defibrillation*.

<mediaplayer><https://www.youtube.com/watch?v=cwG64FYV9Sg&feature=youtu.be></mediaplayer>

## Procedure for basic emergency resuscitation in children

We distinguish children up to 1 year and from 1 year to puberty.

1. Remember your own safety!
2. Assess the situation, quality of consciousness (addressing, shaking); in case of polytrauma this bleeding condition.
3. Call for help from the neighborhood.
4. Open the airway by tilting the head.
5. Check breathing (hear, see, feel), it must not last more than 10 seconds.
6. Start CPR 5 breaths.
7. CPR for 1 minute, 30:2, two rescuers or one experienced medical professional trained in children's CPR 15:2, newborns 3:1 compress the chest by 1/3 of the height (up to 5 cm).
8. Call EMS (155, 112).
9. Is AED in range? If YES, use it. The use of children's electrodes, if any, anteroposterior bonding of the electrodes, the keys to reducing the shock energy to 4 J/kg (50-75 J in children 1-8 years).
10. 30 chest compressions, frequency 100 per minute. We perform compression with one hand or two fingers in the middle of the chest.
11. 2 breaths, plug the nose (small children breathe through the nose and mouth at the same time).
  - **The most common cause of circulatory arrest in children** is suffocation, so we take into account the number of breaths before compression.
  - It is advantageous to use capnometry.
  - After resumption of circulation, ventilation with 100% oxygen is not desirable, SaO<sub>2</sub> must be maintained between 94-98%.

## Summary of Resuscitation Differences

	Compression ratio: breaths	Initiate CPR
Adults	30:2	30 compressions
Children from 1 year to the onset of puberty	30:2 ( <i>note</i> )	5 breaths
Newborns	3:1	5 breaths

*Note:* Two rescuers or one experienced paramedic trained in pediatric CPR use a ratio of 15:2 (for children from 1 year to puberty).

# Links

## Related Articles

- Advanced emergency resuscitation/SŠ (nurse)
- FIRST AID KIT
- Basic CPR

## References

- NOLAN, Jerry P. European Resuscitation Council Guidelines for Resuscitation 2010 Section 1. Executive summary. *Resuscitation* [online]. 2010, y. 81, vol. -, p. 1219-1276, Available from <[http://resuscitation-guidelines.articleinmotion.com/article/S0300-9572\(10\)00447-8/pdf/european-resuscitation-council-guidelines-for-resuscitation-2010-section-1-executive-summary](http://resuscitation-guidelines.articleinmotion.com/article/S0300-9572(10)00447-8/pdf/european-resuscitation-council-guidelines-for-resuscitation-2010-section-1-executive-summary)>. ISSN 0300-9572.
- BYDŽOVSKÝ, Jan. *Akutní stavy v kontextu*. 1. edition. Triton, 2008. ISBN 978-80-7254-815-6.

## Externí odkazy

- Společnost urgentní medicíny a medicíny katastrof (<https://www.urgmed.cz:443/>)
- Česká resuscitační rada (<http://www.resuscitace.cz>)
- Záchranná služba: nezávislý web o záchranné službě (<https://www.zachrannaslužba.cz:443/>)