

SHOCK, BLEEDING

- First Aid -

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(updated by TK 2018)

KARIM FN MOTOL

SHOCK

- 1. What is shock?
 - 2. What leads to shock?
 - 3. How does the shock look like?
 - 4. First aid – how to treat shock?
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What is shock?

„Generalised failure of perfusion of metabolic active parts of circulation“

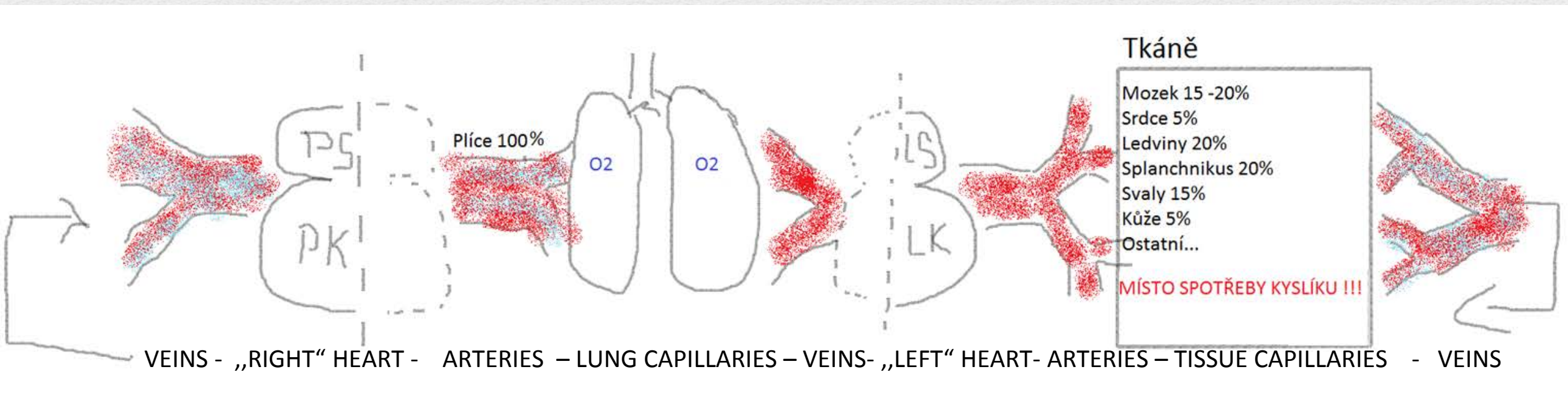
Easier => generalised failure of organ perfusion 😊

Even easier => failure of blood circulation

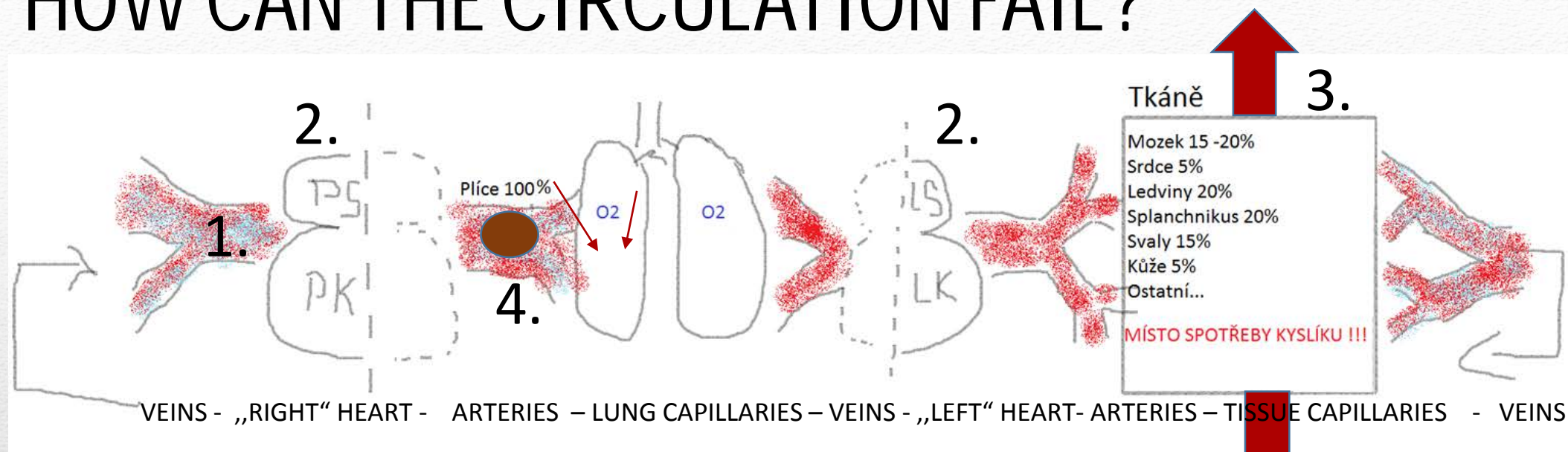
=> Blood circulation *doesn't bring the tissues (organs) enough oxygen* -> tissues suffer from *lack of oxygen/energy* and that leads to their *failure -> death*

HOW DOES THE BLOOD CIRCULATION LOOK LIKE?

- Tissues need **O₂** for making energy
- **O₂** is transported by blood – it is obtained in the lungs and consumed in tissues → **blood** needs to circulate -> **HEART + VESSELS**



HOW CAN THE CIRCULATION FAIL?



1. HYPOVOLEMIC SHOCK

- Haemorrhagic – loss of blood
- Nonhaemorrhagic – loss of body fluids (burns, dehydration)

2. CARIOGENIC SHOCK

3. DISTRIBUTIVE SHOCK

- Sepsis (severe infection)
- Anafylaxis (severe allergy)
- Neurogenic (spine cord damage)
- Toxic

4. OBSTRUCTIVE SHOCK: pulmonary embolism, cardiac tamponade, tension pneumothorax

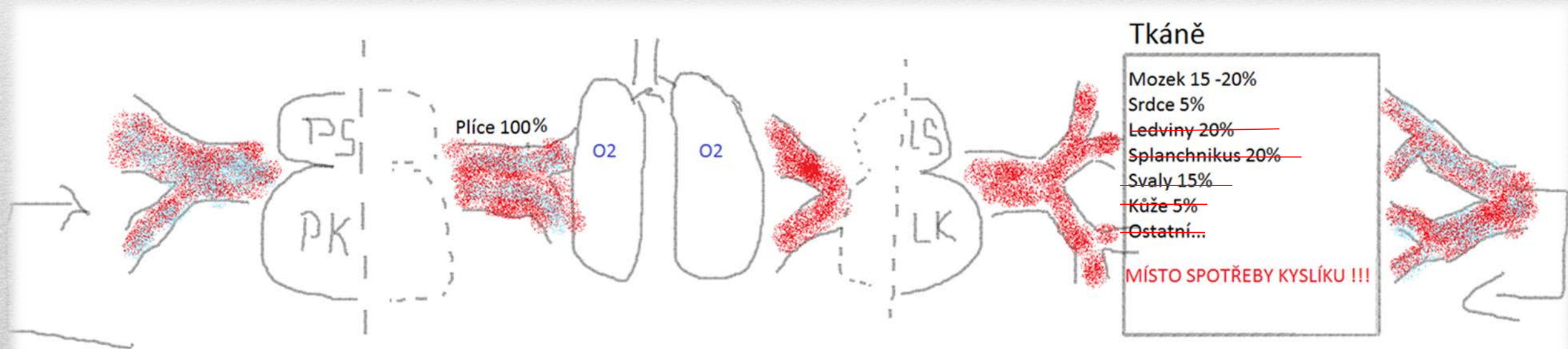
- **Failure of organ perfusion leads to:**

- Organ failure
- Stress reaction of organism

⇒ Neurogenic and endocrine reaction => **centralisation of circulation**

⇒ Reducing blood flow in organs to **maintain good perfusion of brain and heart**

⇒ If the **shock continues**= the organ damage becomes irreversible → multiorgan failure (MOF) → unconsciousness → stop breathing → cardiac arrest → **DEATH**



HOW DOES THE SHOCK LOOK LIKE?

- ***Manifestation of shock (the symptoms) result from:***
 - CAUSES OF SHOCK
 - ORGAN FAILURE
 - COMPENSATION MECHANISMS = CENTRALISATION OF CIRCULATION
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- **Brain:** nauzea, anxiety, aggression, restlessness, thirst, dizziness, degrees of unconsciousness – somnolency to coma
- **Skin:** cold, pale, cyanotic (blue), cold sweat
- **Breathing:** dyspnea, shallow and fast breathing, then slow breathing, danger → CAVE obstruction
- **Circulation:** weak and fast pulse, low blood pressure, prolonged capillary return
- **Digestion:** decreased or ceased bowel movement!
- **Kidneys:** decreased urinary production
- **Another:** coagulopathy, symptoms typical for specific kind of shock (enlarged neck vessels, rash, oedemas ...)



SHAKING



SWEATING



ANXIOUS



DIZZINESS



FAST HEARTBEAT IMPAIRED VISION



**WEAKNESS,
FATIGUE**



HEADACHE

Hypovolemic shock

- **Haemorrhagic**

- Internal/ External Bleeding

- **Nonhaemorrhagic**

- Severe dehydration
- Burns



Cardiogenic shock

- ***Severe heart failure = the heart fails as a pump***
 - Myocardial infarction
 - Inflammation
 - Valve disorders
 - Cardiomyopathies
 - Rhythm disorders
 - Too slow
 - Too fast

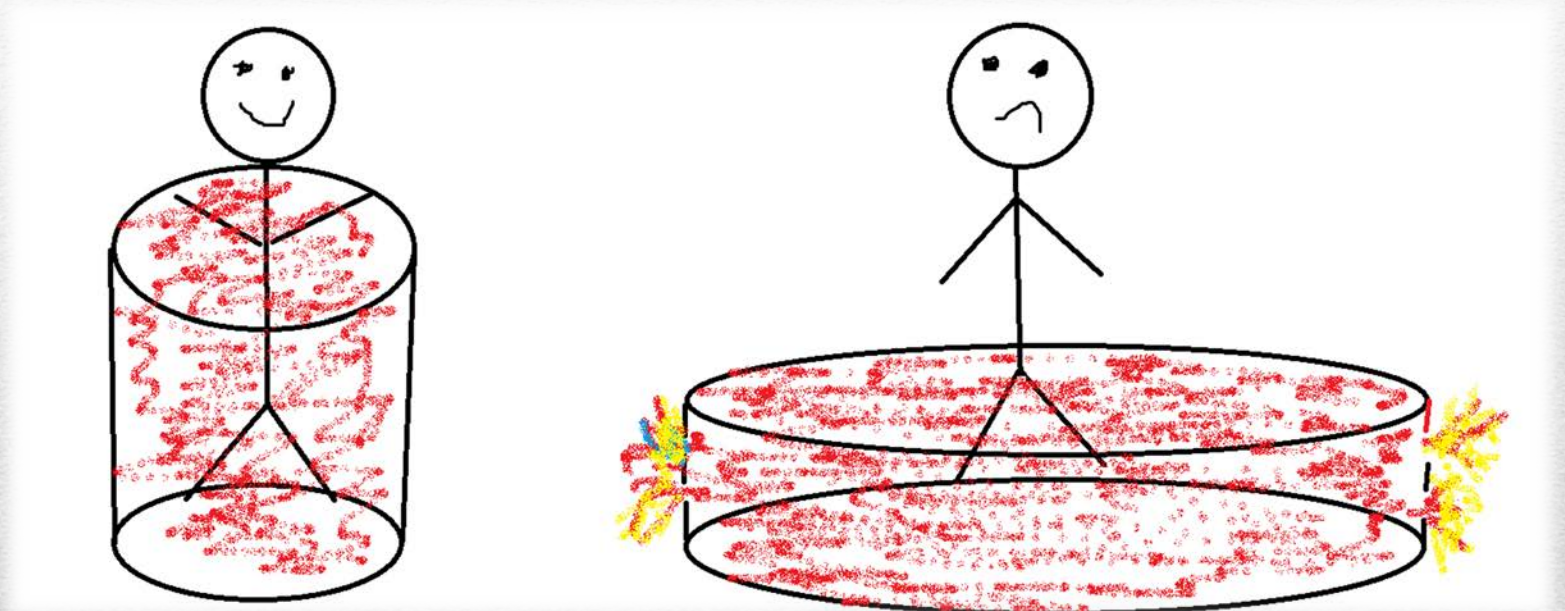
Aspirin administration for chest pain

In the pre-hospital environment, administer 150–300 mg **chewable aspirin** early to adults with chest pain due to suspected myocardial infarction (ACS/AMI). There is a relatively low risk of complications particularly anaphylaxis and serious bleeding. Do not administer aspirin to adults with chest pain of unclear aetiology.

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Distributive shock

- Group of shocks – *sepsis (severe inflammation)*, *anaphylaxis (severe allergic reaction)*, *toxic shock*
- **Microcirculation** disorder
- Imbalance between **vessel capacity** and **blood volume**



Vessels increase their capacity but blood volume doesn't change.

Vessels increase their permeability and fluids leak out of the vessels – oedemas

Anafylactic shock

- **Most severe allergic reaction**

- Mediator = Histamin

- **Symptoms:**

- SWELLING!!! + bronchospasm

- **CAVE: danger of airways obstruction!**

- Itching, rash (urtica)

- Redness of the skin

- Others symptoms common to shock

- **Treatment:**

- EPINEPHRINE- **EPIPEN**

- ev. Anti-astmatic drugs -inhalators



Septic shock

- **Sepsis** => *systemic inflammatory reaction to the infection agents* (bacteria, viruses, fungi) in the bloodstream
- Fast recognition!!!!
- **Fever and blood spots? Call emergency!**

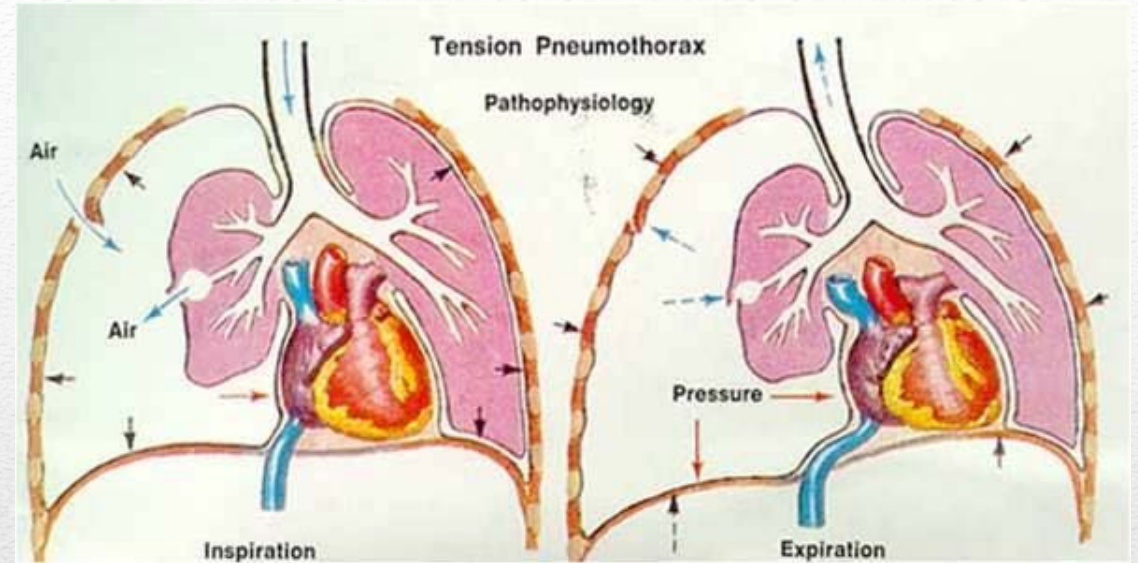


Obstructive shock

- Pulmonary embolism
- Cardiac tamponade
- Tension pneumothorax

- Clinical signs:

- *Dilatated neck veins!*
- Symptoms of low cardiac output...



FIRST AID – HOW TO TREAT SHOCK?

- Shock *cannot be treated in the conditions of first aid*
- The **knowledge of causes and symptoms** is very important
- It's important to slow down the shock
- **ASAP hospital care**

In general:

a) SLOW DOWN THE CAUSE

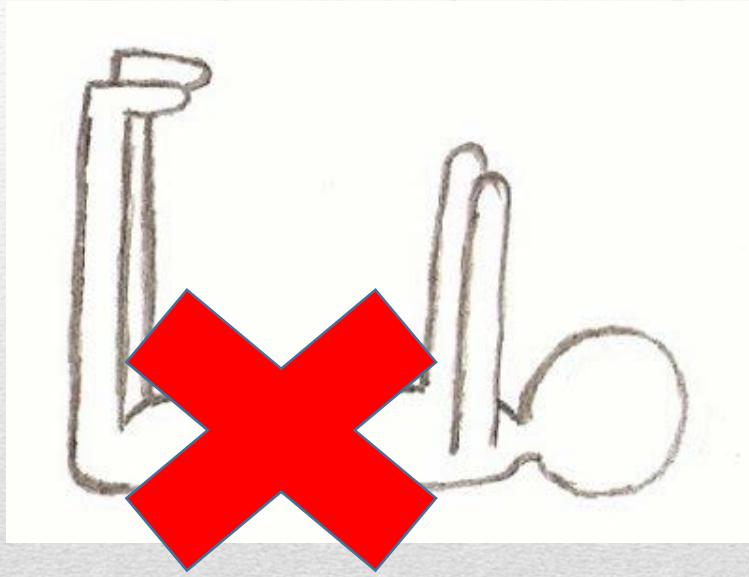
b) SLOW DOWN THE CONSEQUENCES

=> Airways – Breathing - Circulation

HOW TO DO THE FIRST AID?

- A) Call emergency
 - B) Examine the patient - ABC / CABC
 - B) Cause?
 - **Hypovolemia?**- stop the bleeding, don't give anything orally!!!!
 - **Anafylaxis?** If you have epinehrine – use it!
Epipen i.m. or 0,5 mg i.m. every 5 minutes if the symptoms continue, possible use of antiasthmatics inhalation drugs
 - **Tension PNTX?**- possibility of drainage?
 - **Other kinds of shock are nontreatable without professional help!**
 - C) Symptomatic therapy -
 - **Airways** – secure airways – head tilt /Esmarch maneuver, if the swelling is present - possibility of coniotomy (consider pros & cons, possible trauma to the airways)
 - **Breathing**- not breathing?- **start CPR!!!**
 - **Circulation** – stop the bleeding, horizontal or stabilized position, prevent loss of heat, immobilize the fractures
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Antishock position?



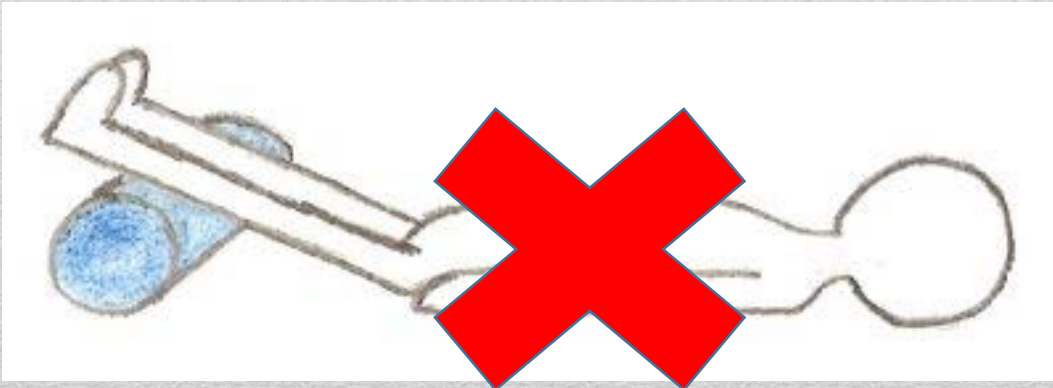
Positioning of a breathing but unresponsive victim

Position individuals who are unresponsive but breathing normally into a lateral, side-lying recovery position as opposed to leaving them supine (lying on back). In certain situations such as resuscitation related agonal respirations or trauma, it may not be appropriate to move the individual into a recovery position.

Optimal position for a shock victim

Place individuals with shock into the supine (lying on back) position.

Where there is no evidence of trauma use passive leg raising to provide a further transient (<7 min) improvement in vital signs; the clinical significance of this transient improvement is uncertain.



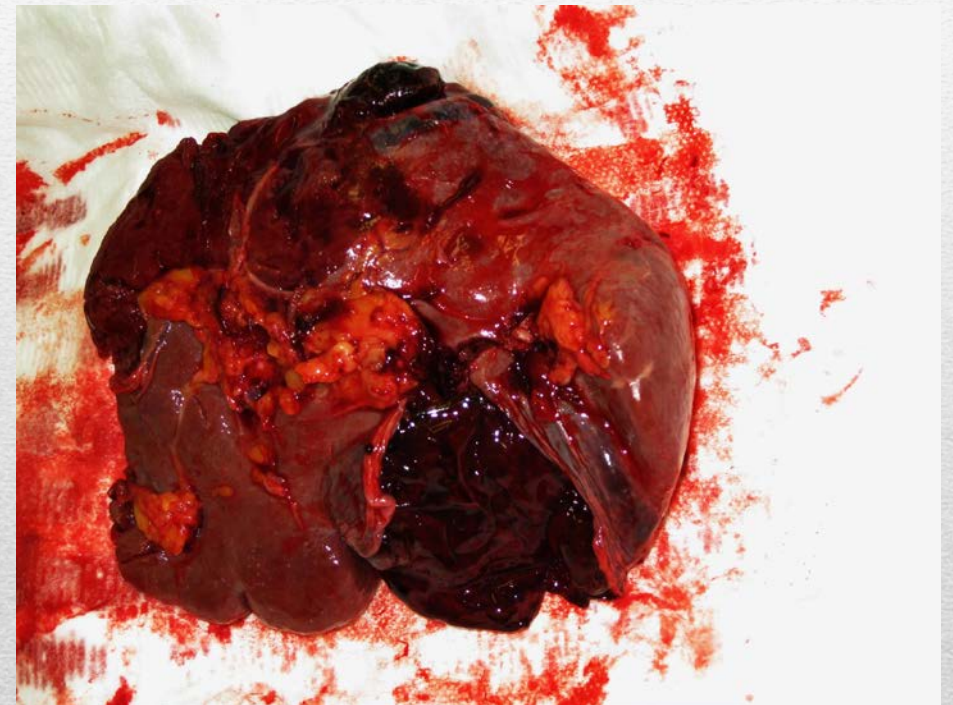
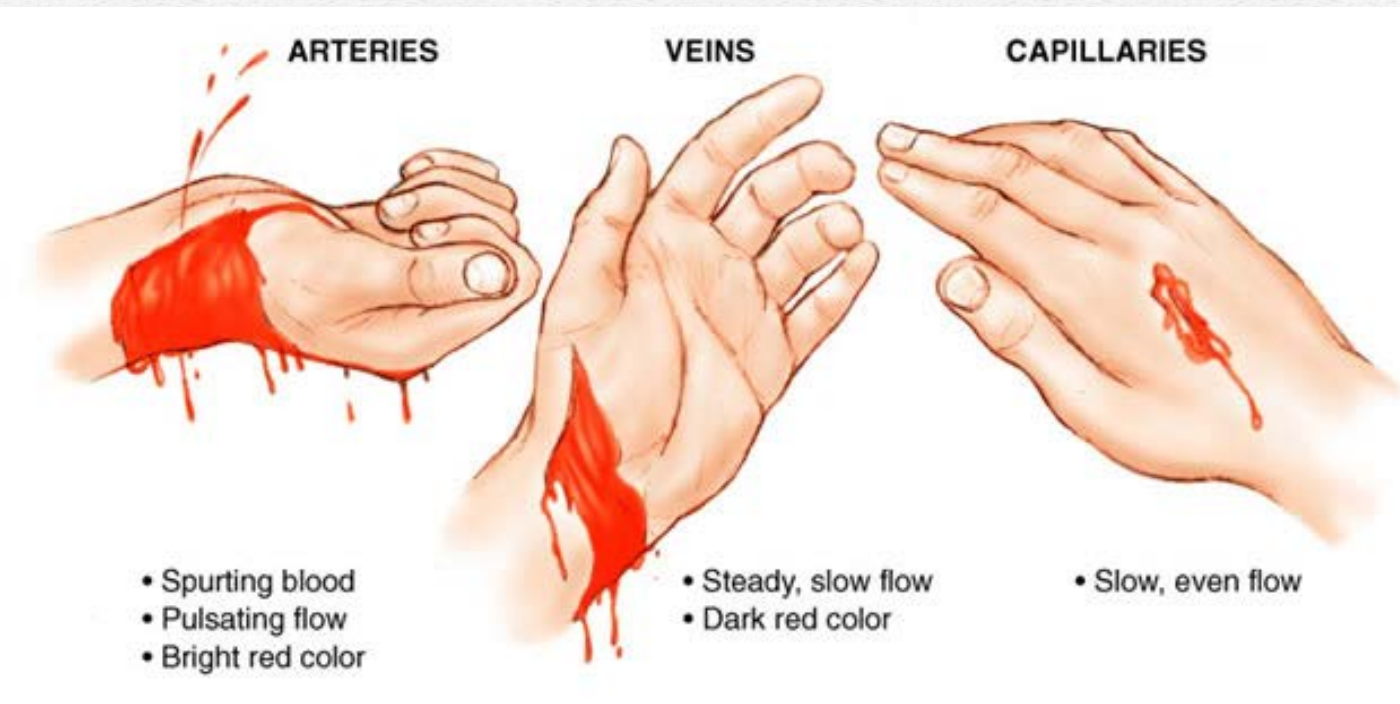
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BLEEDING

- **Type of blood vessel:**

- **Localization**

- A) External
- B) Internal !!!



Amount of blood loss

- 10-15 % small blood loss (500 – 700ml) – not dangerous for adults
- 15-30 % medium blood loss (700 – 1500 ml) - it leads to centralisation of circulation, increased activation of compensative mechanism, symptoms of shock will appear
- **>30% of total blood volume - severe blood loss (>>1500ml)**, developed shock symptoms

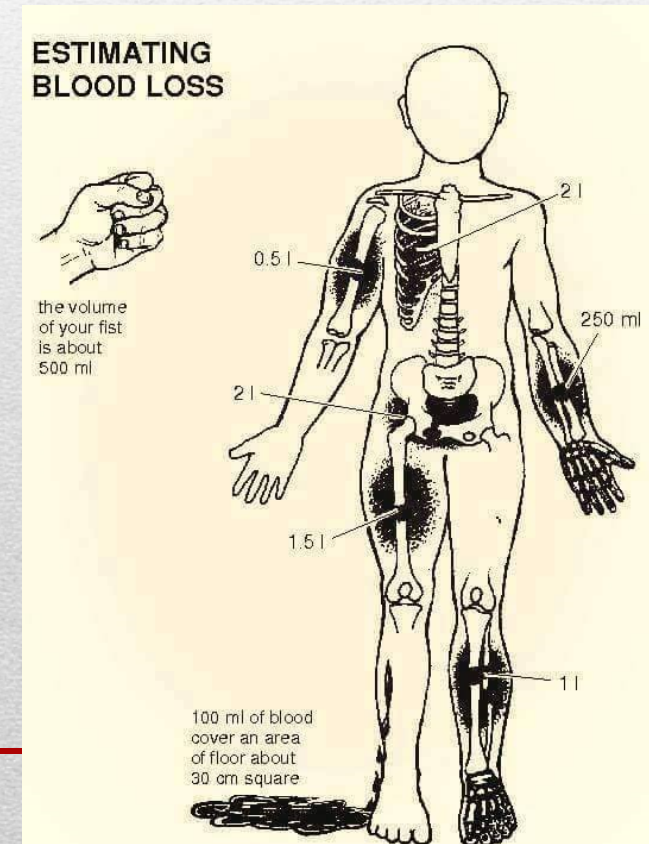
ATTENTION:

!!! Body cavities can contain all blood!!!!

-> **humans can bleed out without shedding a single drop of blood !!!**

Importance of knowledge of shock symptoms and causes!!

Always think of the mechanism of the injury!



How to stop the bleeding

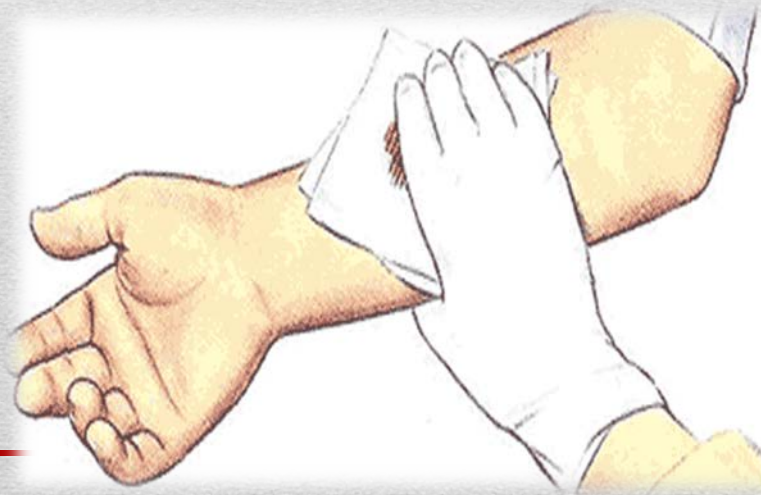
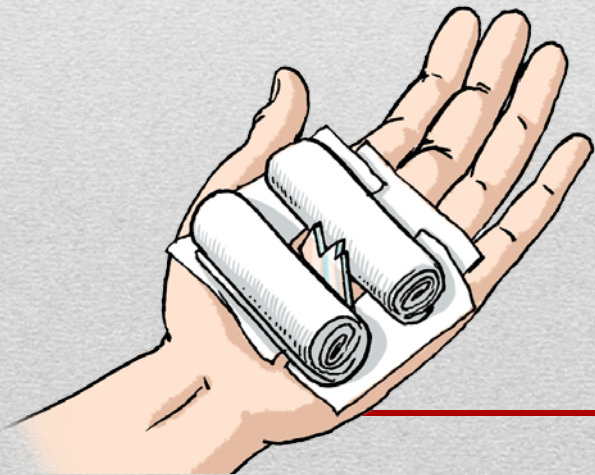
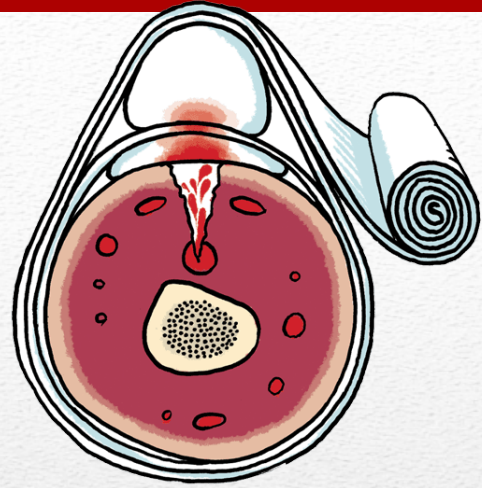
- **A) Direct pressure and pressure dressing**

- if the pressure dressing is leaking, add another layer
- do not take of the old one!

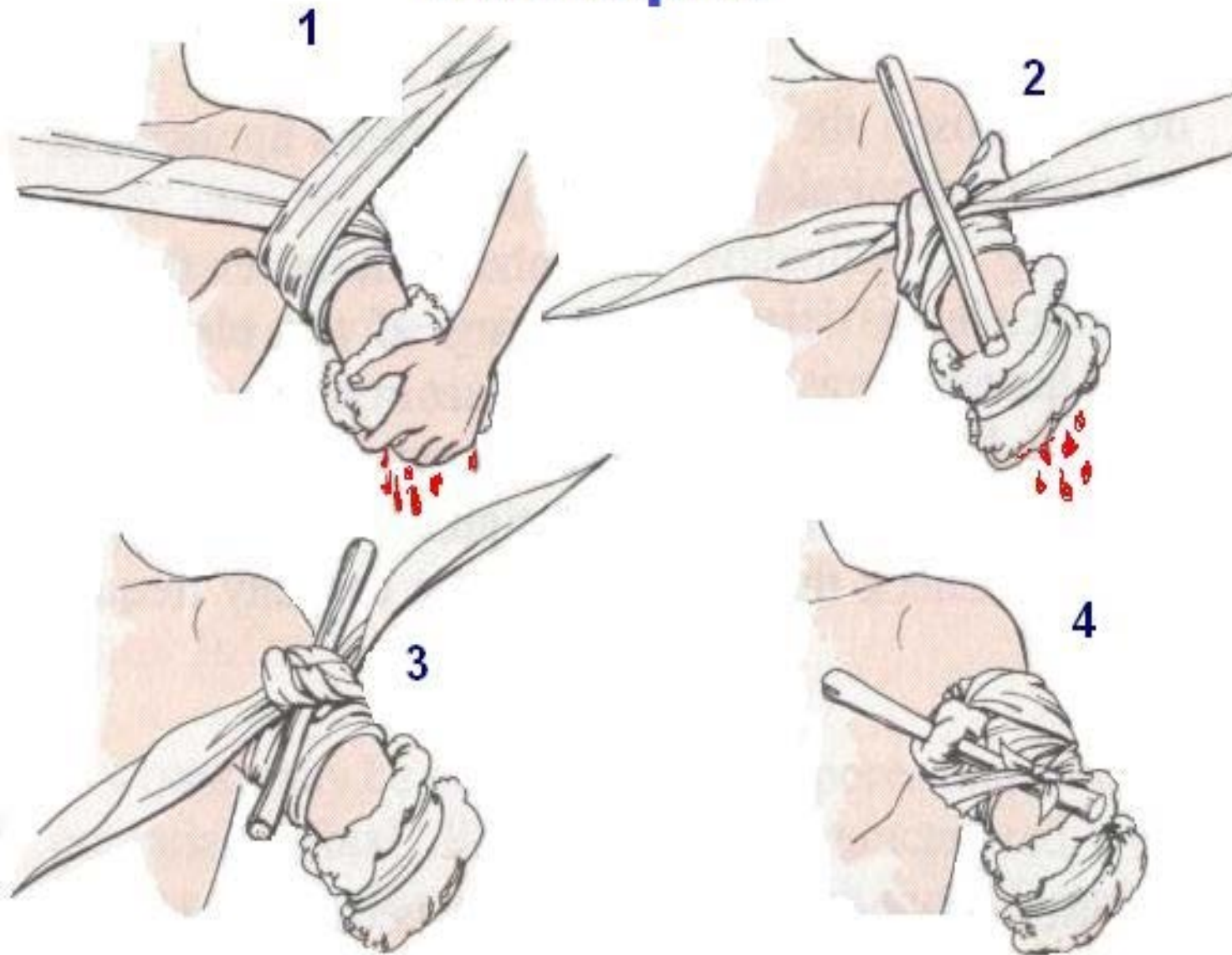
- **B) Tourniquet**

- last chance how to stop severe bleeding, use **only if there is no other option!!!**
- write down the time, every 30 minutes release the pressure

- **C) Don't pull out foreign body**



Tourniquet



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Control of bleeding

- Apply **direct pressure**, with or without a dressing, to **control external bleeding where possible. Do not try to control major external bleeding by the use of proximal pressure points or elevation of an extremity.** However it may be beneficial to apply localised cold therapy, with or without pressure, for minor or closed extremity bleeding
 - Use a **haemostatic dressing when direct pressure cannot control severe external bleeding or the wound is in a position where direct pressure is not possible.** Training is required to ensure the safe and effective application of these dressings
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Repetition? 😊

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- 2. What leads to shock?
- 3. How does the shock look like?
- 4. How to do the first aid?

Thank you for your attention (:
