BLEEDING AND SHOCK

Katarina Zadrazilova FN Brno, October 2011

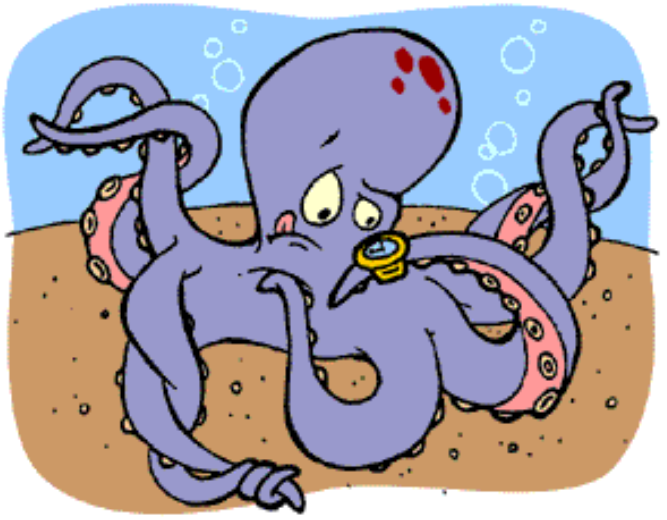
Overview

- Monitoring vital sings
- Bleeding
  - Types of wounds
  - Severe bleeeding and management
- Shock
  - Types and management

Monitoring vital signs

- Level of response
- Breathing
- Pulse

- Temperature



Level of response

- **A – Alert** – opening eyes, respond to question
- **V** – Respond to **voice**, answers question, obeys command
- **P** – respond to **pain**, opens eyes or moves if pinched
- **U – Unresponsive** to any stimulus

Breathing

- **Rate** – breaths/minute
- **Depth** – deep or shalow ?
- **Ease** – easy, difficult or painfull
- **Noise** – quiet, noise – what type ?

What is adult´s normal breathing ?

Recognition of airway obstruction

Partial obstruction

• Stridor	obstruction above larynx
• Wheeze	lower airway
• Gurgling	semisolid/liquid FB
• Snoring	soft palate/epiglotis
• Crowing	laryngeal spasm

Pulse

- **Rate** number of beats per minute
- **Strenght** strong or weak
- **Rhytm** regular or irregular

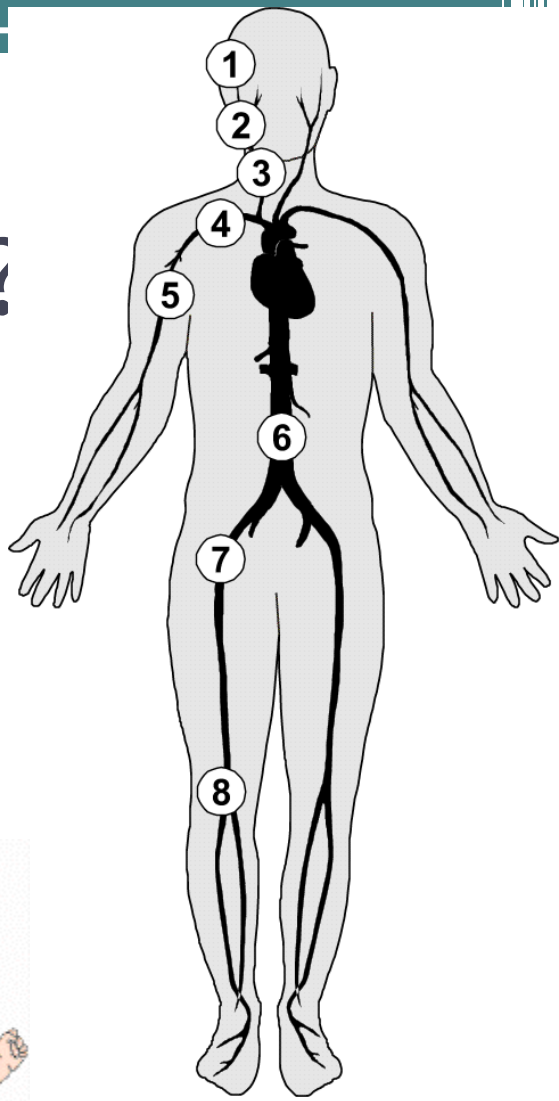
What is adult´s normal pulse ?

Where to check for pulse ?

Carotid artery

Radial artery

Brachial artery



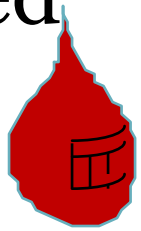
Temperature

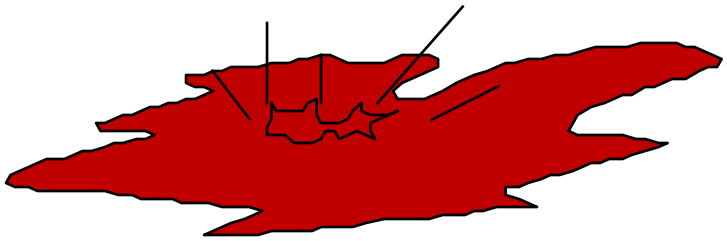
- Normal body temperature 36 – 37°C
- > 37°C and < 38°C fever
- > 38°C pyrexia
- < 35°C hypothermia

BLEEDING

BLEEDING

- Arterial
- Venous
- Capillary
- Mixed



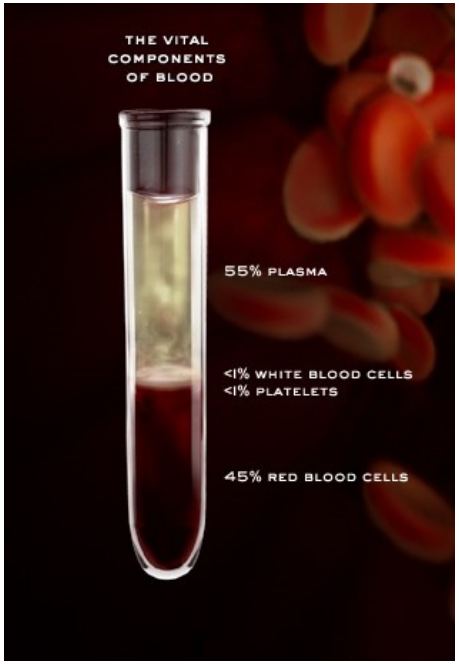


BLEEDING

External	Internal
Trauma	Spontaneous

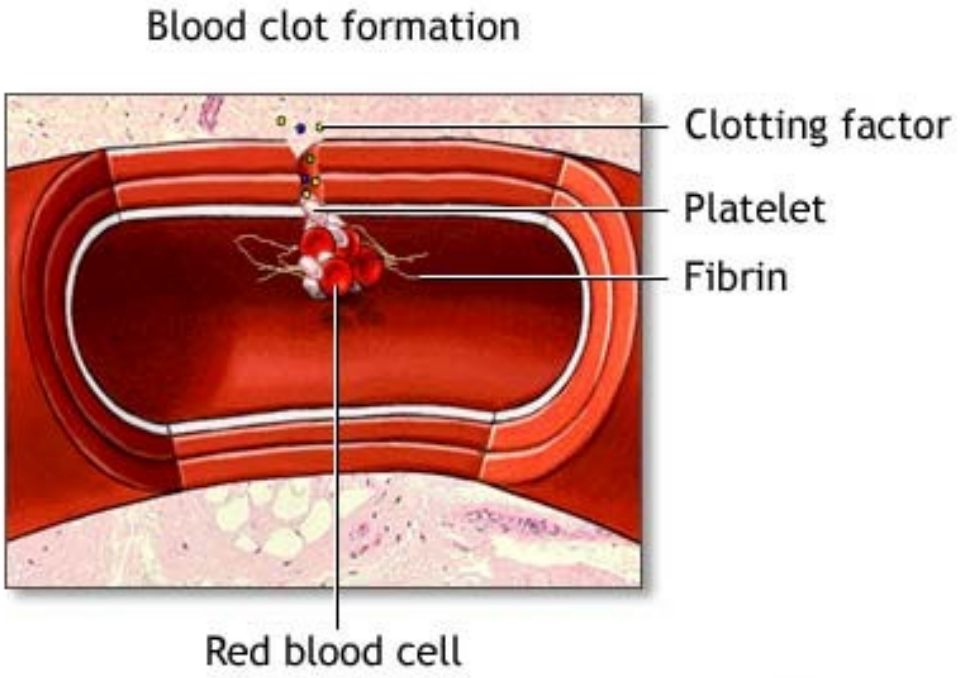
BLEEDING

- Adults are 60% fluid by weight
- Only 13% of this fluid is located in bloodstream
- Acute loss of 40% of the blood volume can be fatal
- Blood:
  - 60% plasma fraction
  - 40% erythrocyte volume



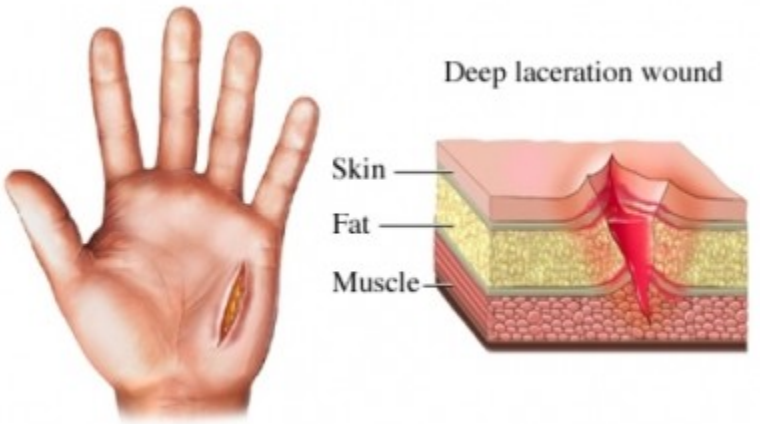
Clotting

- Platelet activation
- Release of chemicals
- Fibrin formation



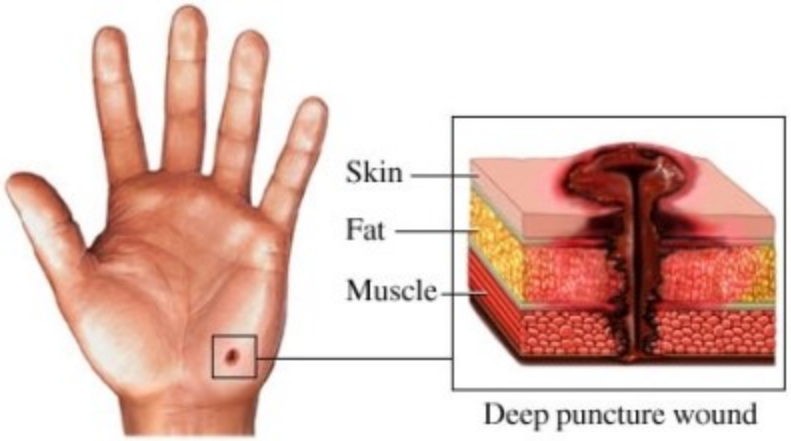
Types of wounds

- Laceration
- Abration
- Contution



Types of wounds

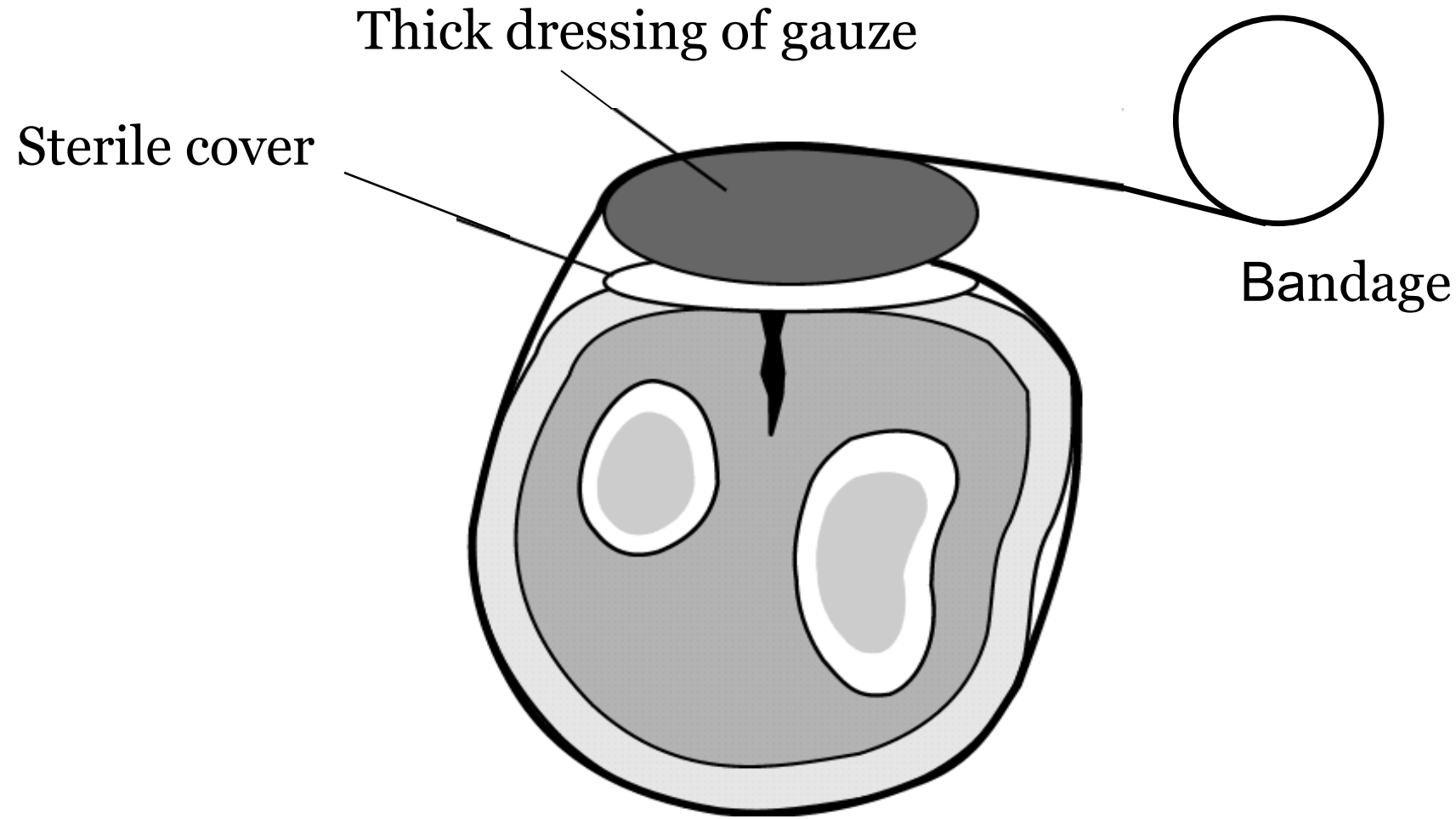
- Puncture wound
- Stab wound
- Gunshot wound



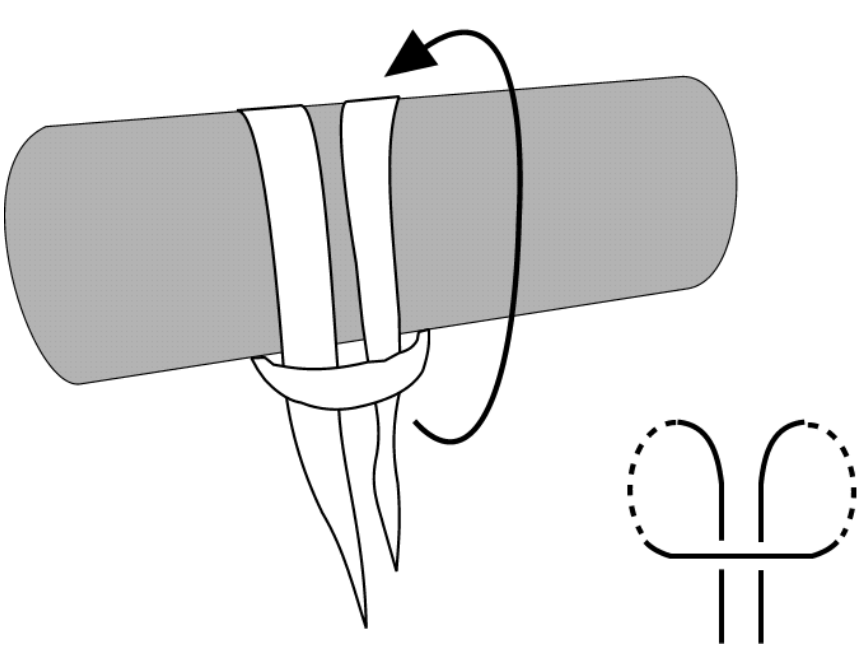
Severe bleeding – first aid

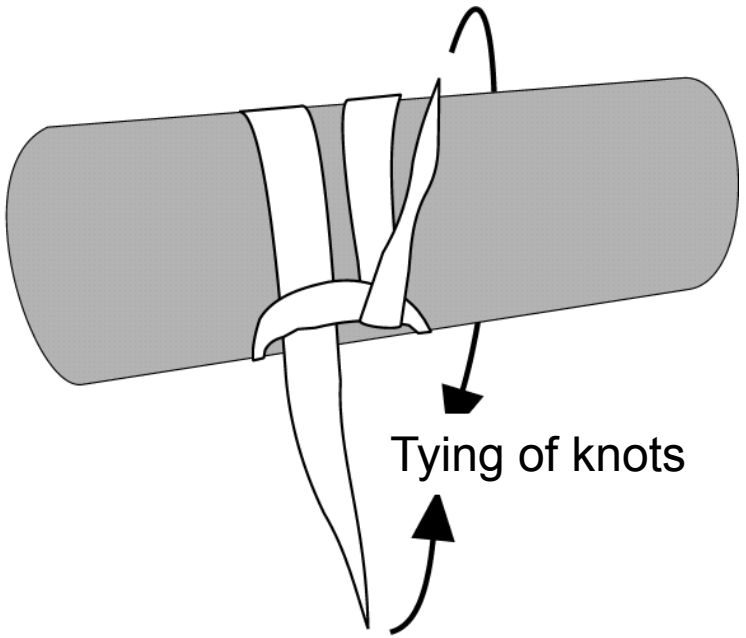
- Often arterial
- Apply direct pressure over wound
- Raise and support injurt arm
- Prevent and minimize effects of shock

Arterial bleed – pressure dressing



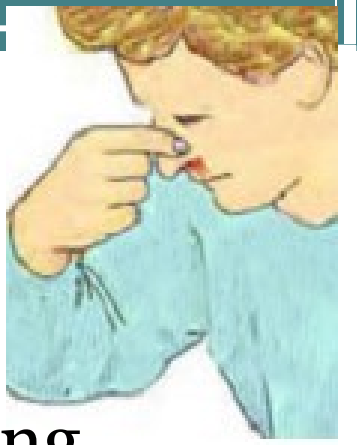
Severe bleeding - amputation





Application of tourniquet

Nosebleed



- Rupture of blood vessels (sneezing, picking, blowing the nose)
- High blood pressure, clotting abnormality
- Till head forward – allow the blood to drain
- Breath through mouth
- Pinch the soft part of the nose, keep pinching (10 min)
- After 10 min. release the pressure

Thin, watery blood – leakage of fluid around brain !

Bleeding from the ear

- Connected with trauma
- Half sitting position
- Head tilted to the injured side – allow blood to drain away, do not plug the ear
- Sterile dressing or a clean pad in place on the ear
- Send to hospital

Thin, watery blood – leakage of fluid around brain !

Bleeding from the mouth

- Cuts the tongue, lips
- Dental extraction
- Blood may be inhaled into the lungs!
- Sitting position, head forward
- Allow blood to drain from the mouth
- Place a gauze pad over the wound, hold the pad and press on the wound for 10 min.

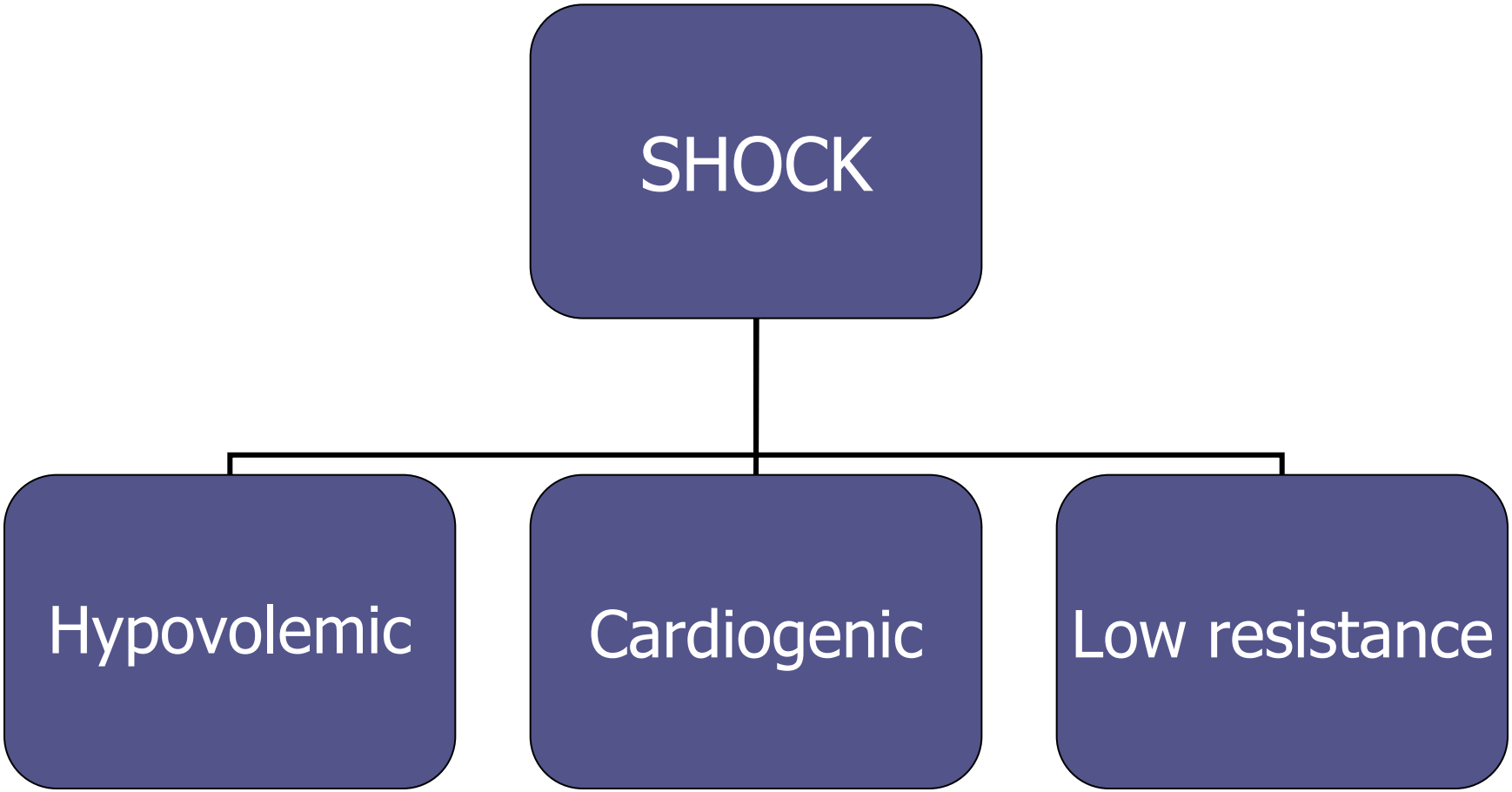
Eye wound

- Potentially serious
- Pain and spasm of the eyelid
- Visible leakage of blood or clear fluid

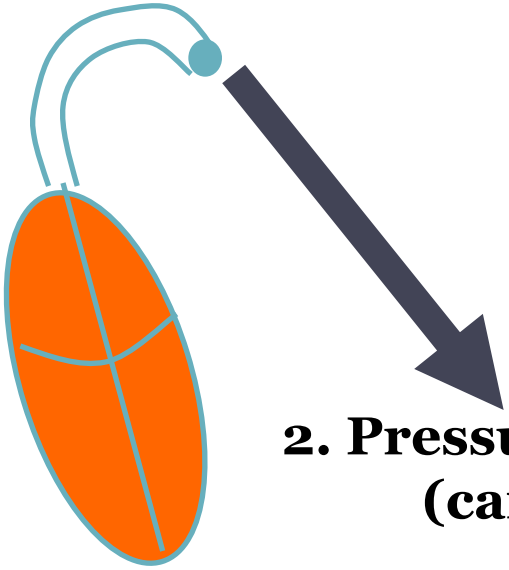
- First aid
  - Sterile cover
  - Keep both eyes still
  - Send to hospital

SHOCK

Tissue perfusion inadequate for the metabolic needs of the patient

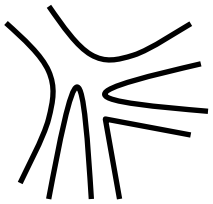

SHOCK
Hypovolemic
Cardiogenic
Low resistance

Basic Physiology



2. Pressure drives blood flow (cardiac output)….

1. Pump generates blood pressure



3. Through a tight network of vessels providing a resistance

Hypovolemic shock

- Severe bleeding – **hemorrhagic shock**
- Loss of other body fluids
  - **Burns** – loss of plasma through the burned skin surface
  - **Dehydration** – loss of water and electrolytes due to diarrhea, vomiting
  - **Ileus -** Blockage in the intestine

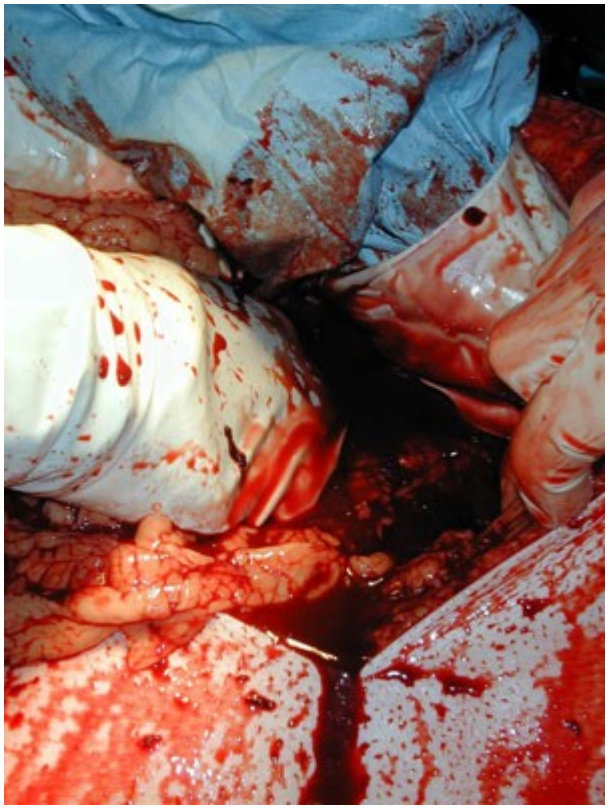
Hemorrhagic shock

Internal bleeding

Bleeding from body openings (orifices)

- **Mouth**: bleeding in the lungs (bright red, cough up blood)
  : bleeding within digestive system (vomited blood red or dark brown)
- **Ear, Nose**: injury to the inner ear, rupture blood vessels in the nostril (fresh, bright red)
  : leakage of fluid from around brain (watery blood)

Hemorrhagic shock



Bleeding from body openings

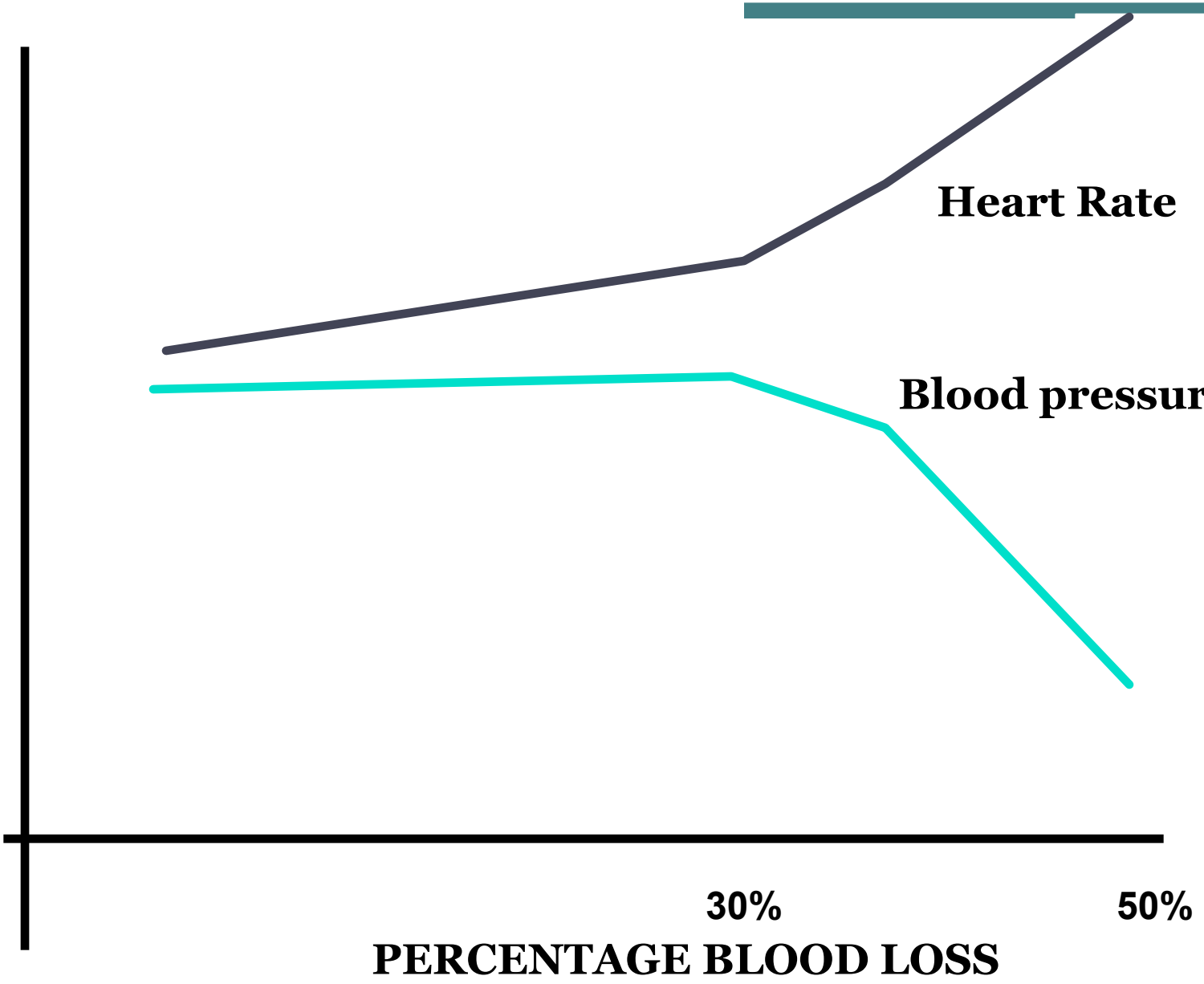
- **Anus:** hemorrhoids
  (fresh, bright red),
  disease or injury to the intestine
  (black – melena)
- **Urethra:** bleeding from the bladder,
  kidneys or urethra
- **Vagina:** pregnancy or recent childbirth, injury

Traumatic shock

- Bleeding combined with exudation into tissue, toxic effect of fragments of damaged tissue

Hypovolemic shock

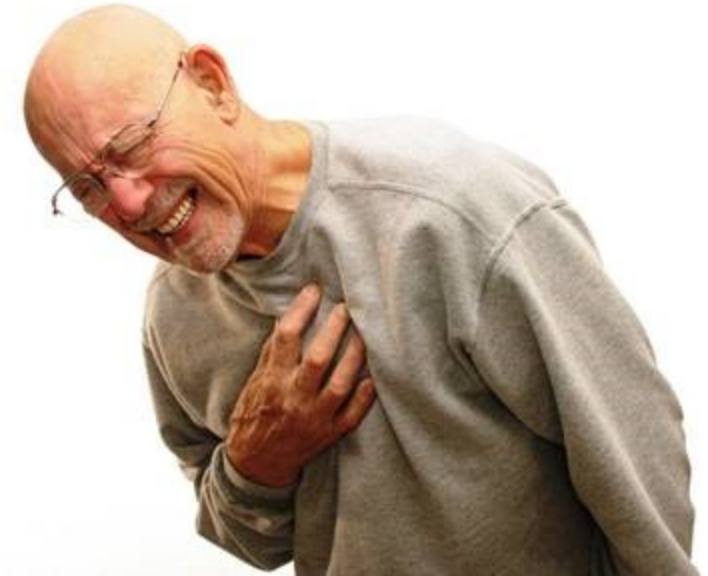
- **Mild**
  - Loss of 10-20 % of the circulatory volume (500-1000 ml)
- **Moderate**
  - Loss of 20-40 % of blood volume (1000 – 2000 ml)
- **Severe**
  - Loss of more than 40 % of the circulation volume (> 2000 ml)


Heart Rate
Blood pressure
30%
50%
PERCENTAGE BLOOD LOSS

Cardiogenic shock

- Caused by primary failure of the heart
  adequate blood volume but the heart is unable to pump the blood

- Severe heart disease
- Heart attack (IM)



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- Level of response
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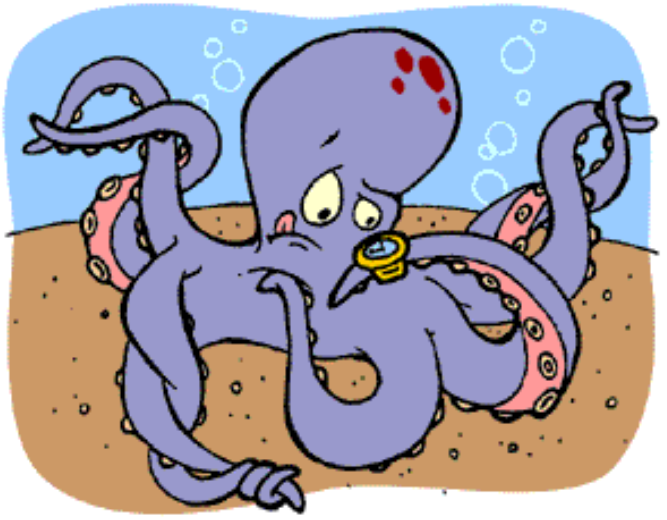
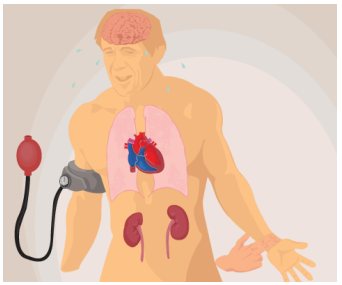


Shock – recognised clinically



- Pale, cold, clummy, sweating
- Breathing heavily
- Fast jerky /sharp pulse, BP may be low
- Nauseated, confused, yawning
- Concentrated or no urine

→ **Loss of consciousness (coma)**

Management of shock

no excitement

Management of shock

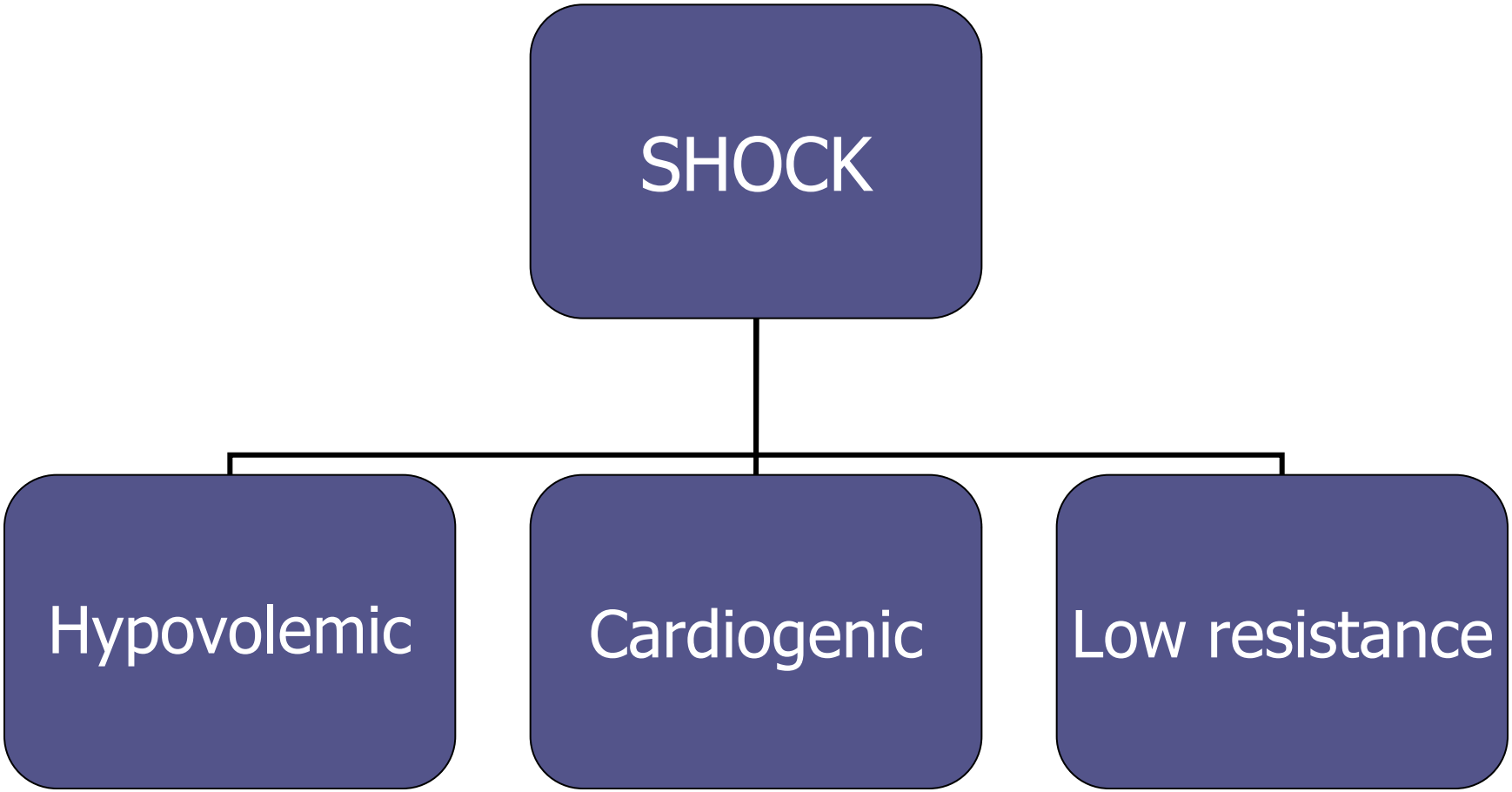
- Silence – **no excitement**: do not leave the victim
- Position: lay the victim down on a blanket
- **Raise and support legs** to improve the blood supply to the vital organs (autotransfusion position)
- Loosen tight clothing at the neck, chest – to reduce constriction

Management of shock

- Warmth – use a blanket, not hot/water bottle or other direct source of heat
- **Do not let the victim eat, drink, smoke**
- Fluids i.v. (moisten lips with a little water)
- **Pain relief**
- Transport
- Monitor vital functions

Treatment of hemorrhagic shock

- Control of bleeding
- Fluid and blood replacement
- Vasopresors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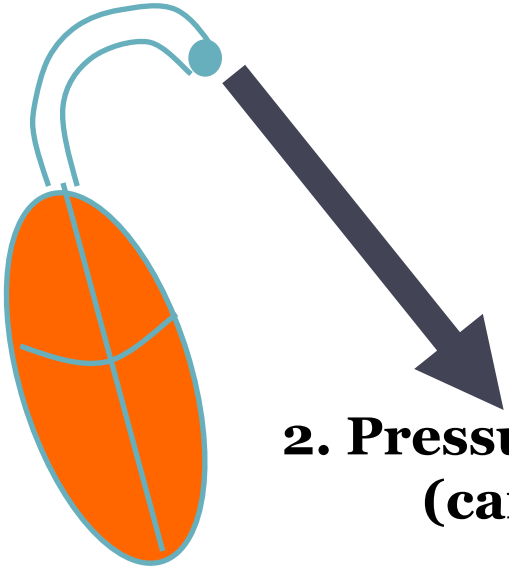

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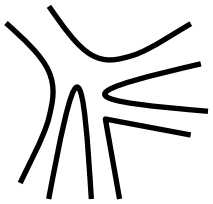
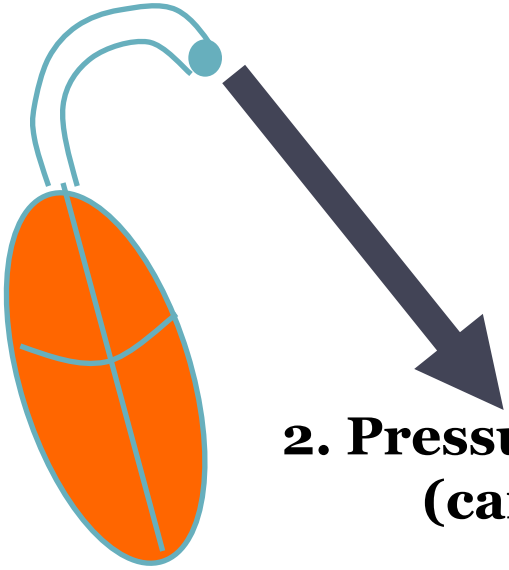


3. Through a tight network of vessels providing a resistance

Basic Physiology



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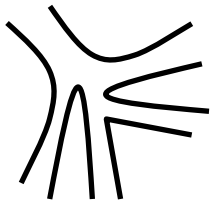


3. Through a tight network of vessels providing a resistance

- **Septic** – caused by bacterial toxins leading to leaking capilaries and dilated vessels - vasodilatation

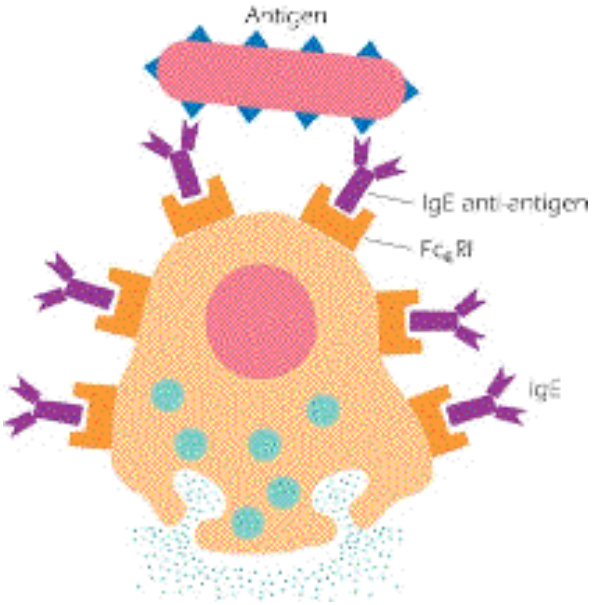
- **Neurogenic** – loss of vessel tone, spinal cord injury

Anaphylactic shock

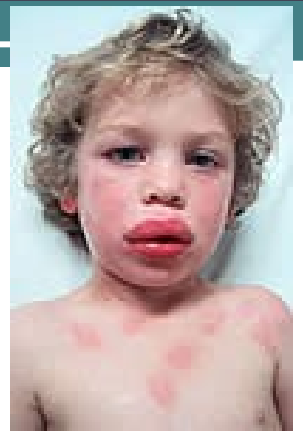
- Severe allergic reaction
- Contact with trigger factor
- Develop within seconds or minutes
- Triggers: skin or airborne contact with particular material
  the injection of drug
  the sting of insect
  food (shrimps, peanuts)

Anaphylactic shock

- Allergen may trigger an immune response that sensities the body to subsequent exposure
- Release of chemicals(inflmmatory mediators)
- Increased leakage of capillaries
- Reduced vascular smooth muscle tone
- Constriction of air passages (bronchoconstriction)



Anaphylacticshock – recognised clinically



- Rash
- Watery eyes
- Skin – flushed or pale
- Swelling of tongue, throat
- Wheezing - bronchocontriction
- GI tract : nausea, vomiting, abdo pain
- Fast jerky pulse
- Low blood pressure

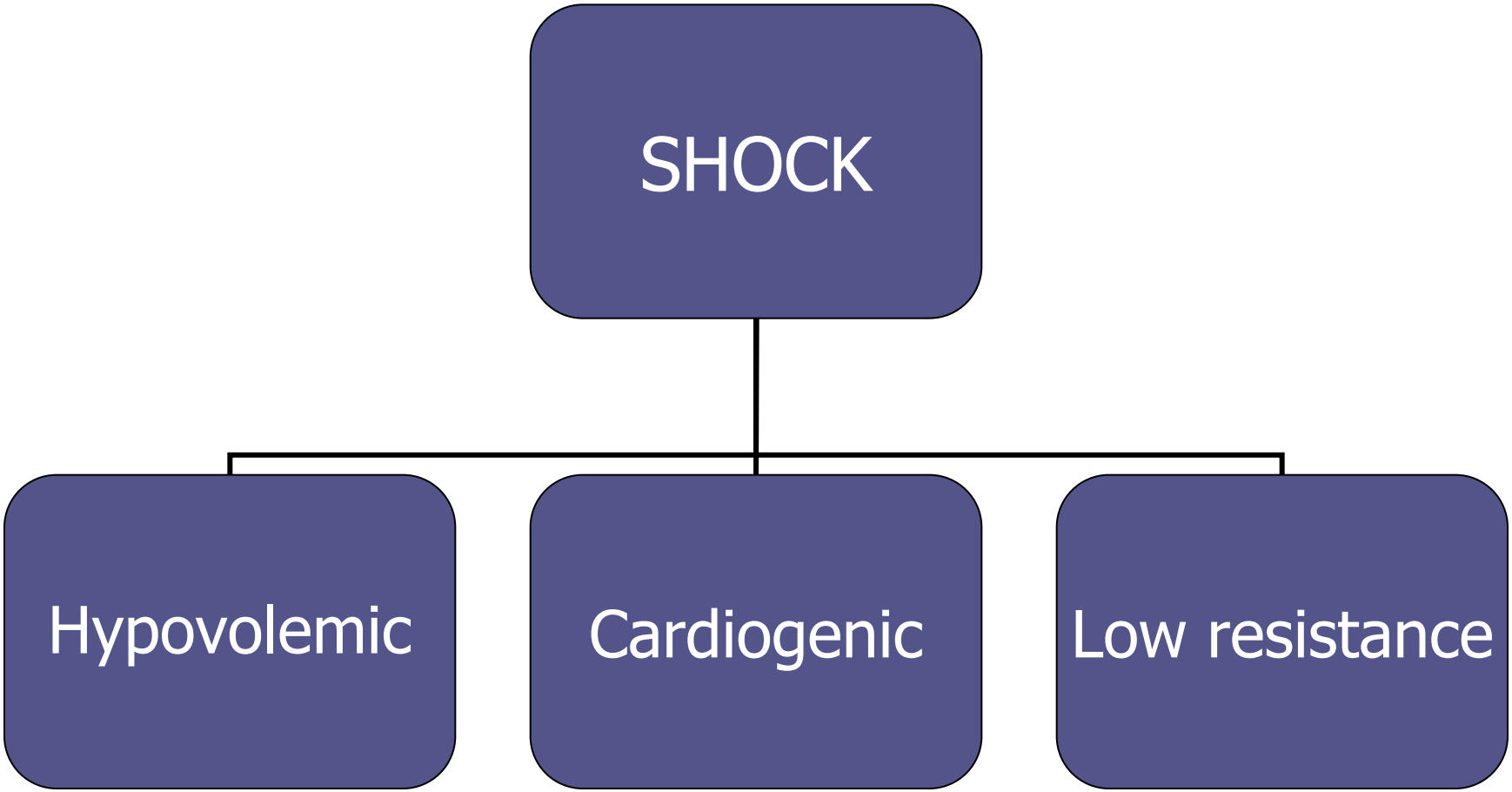
Anaphylactic shock - treatment

Adrenalin (auto-injector)

- Or **0,5 mg i.m.**

- Oxygen
- Iv fluids
- Antihistaminics
- Steroids

Effects of adrenaline
•Reverses vasodilation
•Reduces swelling
•Improves heart work
•Supressess chemicals release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SUMMARY

- Severe bleeding – pressure and elevate, watch for sighs of shock

- Shock – recognise, treat obvious causes
- Hypovolemic shock – fluids, blood
- Anaphylactic shock - adrenaline

Questions ?