Department of Anesthesia Techniques
Title of the lec2: CPR
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Cardiopulmonary Resuscitation (CPR)
Practical Applied physiology

Cardiopulmonary Resuscitation (CPR)

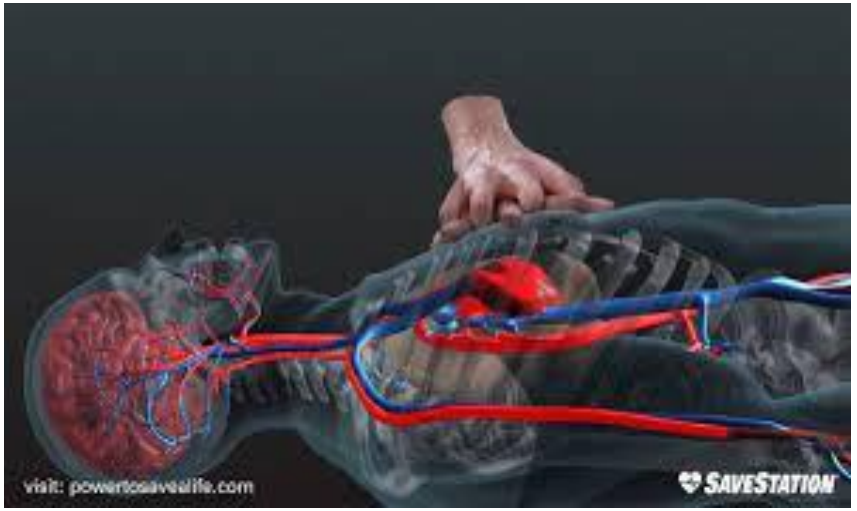
- **CPR** is an emergency medical procedure for a victim of cardiac arrest or respiratory arrest or both (Heart stops beat and breathing stops). It can involve chest compression or electrical shocks along with rescue breathing.

Introduction

- Respiratory Arrest – breathing stops
- Cardiac Arrest – the heart has stopped
- Clinical Death – means the heart and breathing have stopped.
- Brain Death – Occurs 4-6 minutes after clinical death when the cells of the brain begin to die.
- Biological death- all systems cease to function. Organ systems have shut down and are no longer working

Aim of CPR

- The aim of CPR is to “artificially” push oxygen containing blood to the brain and other vital organs when the heart and lungs fail to do this vital job,) till the heart and lungs regain their normal function, or the victim is shifted to the hospital).



1- Artificial respiration

- Artificial respiration is a lifesaving method used to restore breathing to a person whose breathing has stopped. If breathing has stopped, the victim will soon become unconscious.
- There will be no chest movement, and the skin will be pale or slightly bluish color. When breathing stops there is no oxygenation of the blood and irreversible brain damage or death may occur in as little as three to six minutes.

1- Artificial respiration

- There are certain conditions in which breathing stop while the heart is still beating like:

1- near drowning.

2- CO or other gas poisoning.

3- electrical shock and anesthetic accident.

CPR Steps: DRS ABC

D: Check for danger
R: Check for response
S: Send for help

After checking for danger, check for a response

Send for help

A: Check airways
B: Check breathing
C: CPR
D: Defibrillator

Check airways and breathing

Start CPR, with 30 chest compressions followed by two mouth-to-mouth breaths

Continue CPR until a defibrillator becomes available or paramedics arrive

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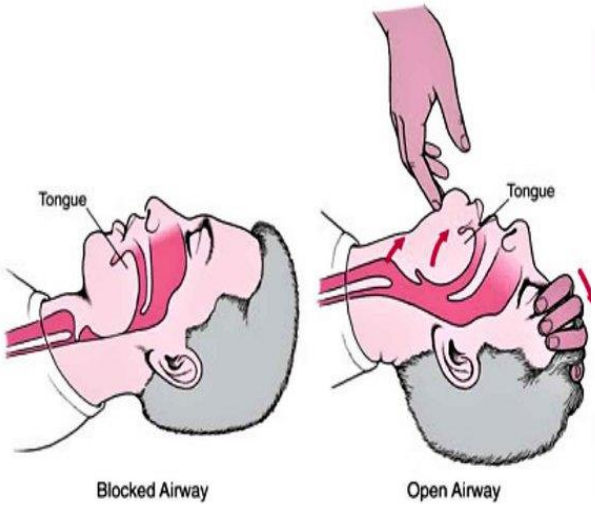
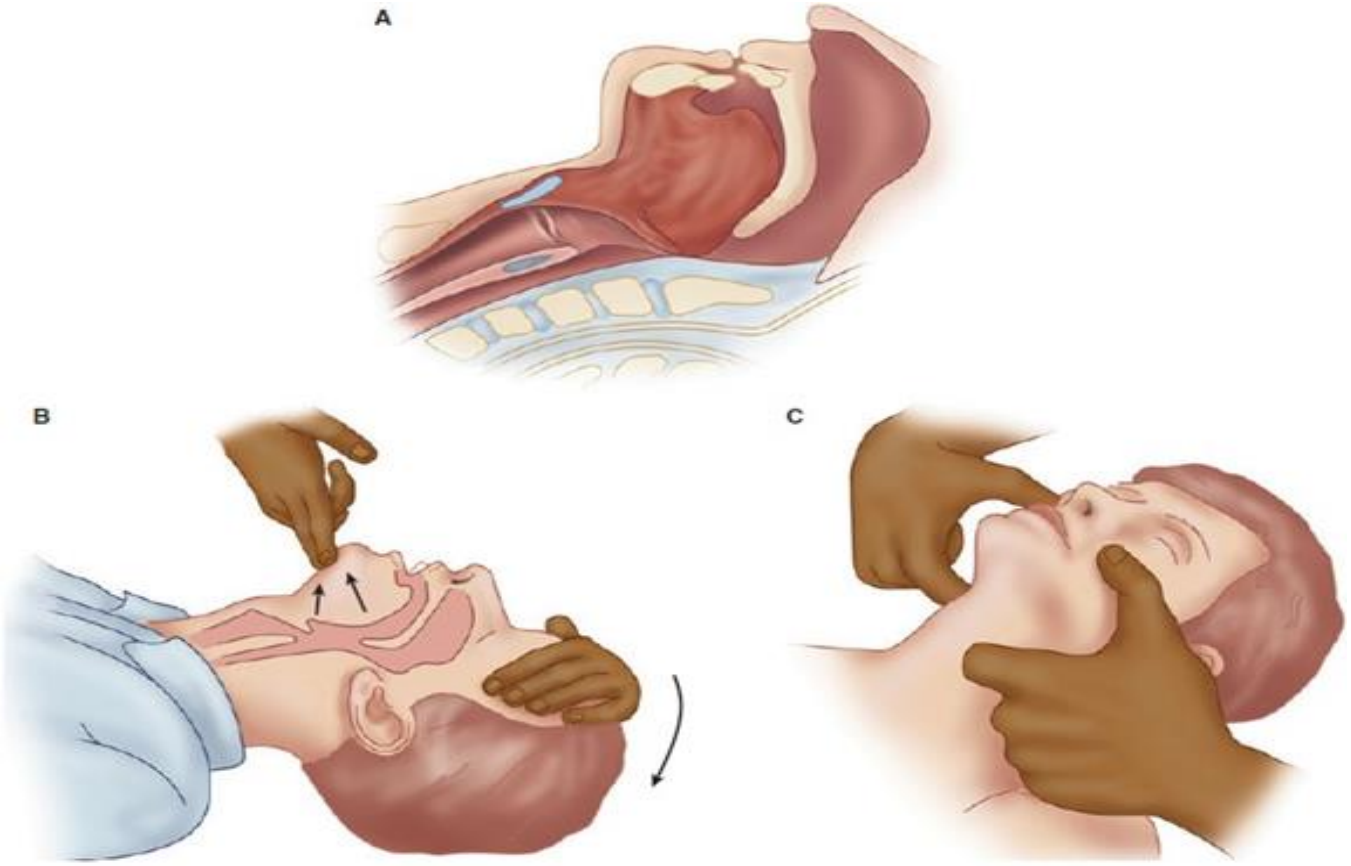
Mouth-to-Mouth Respiration

1- The victim is placed in the supine position on firm ground and open any tight clothing like necktie and veil.

2- Clear air way (Remove any mucus, food, saliva, or any foreign material (e.g. grass, dentures, etc.) from the mouth and nose with your fingers wrapped in a handkerchief).

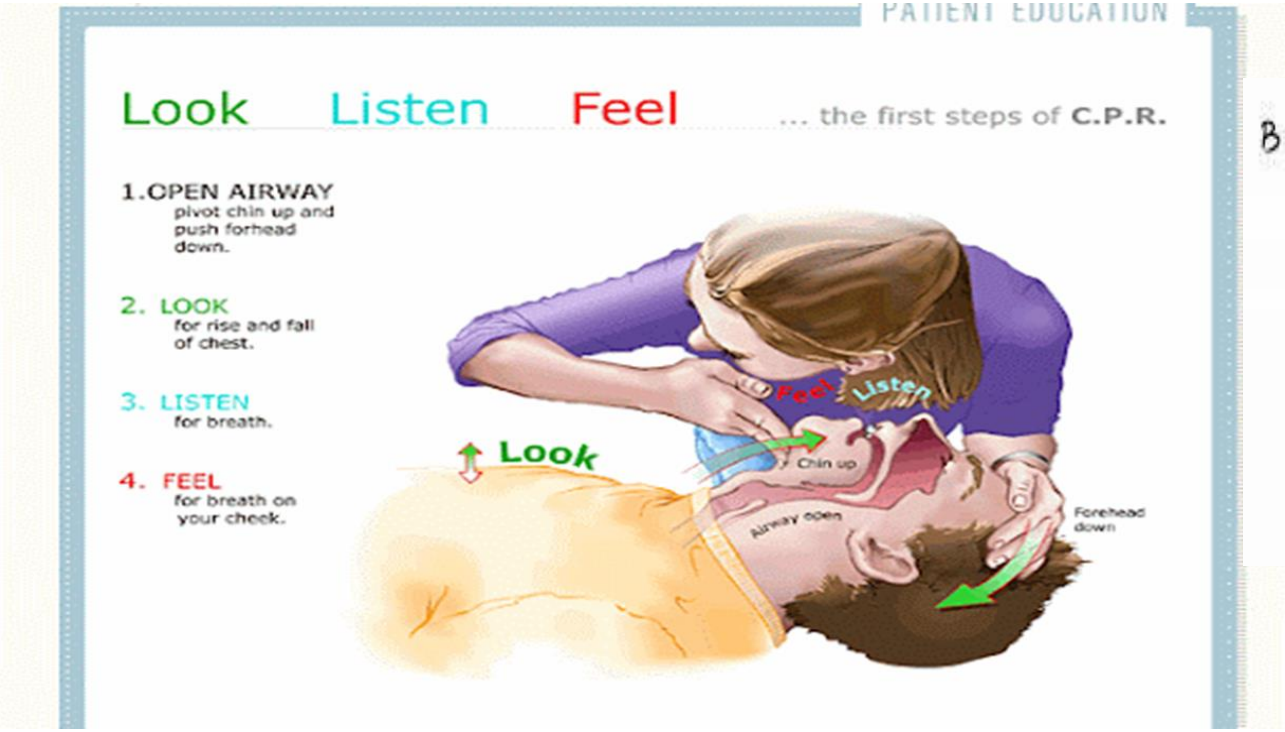
3- Open the airway by tilting the head back.




A
B
C

4- Clamp the nostrils with your left thumb and fingers, take a deep breath, apply your mouth firmly on the victim's mouth and blow a liter of air into the victim's lungs, watching the expansion of the chest at the same time. (Remember, the expired air contains 15% oxygen).

5- Remove your mouth, turn your head to one side and take another deep breath as the elastic recoil of the chest causes expiration. You may feel and hear the expiratory airflow from the victim's mouth and nose.



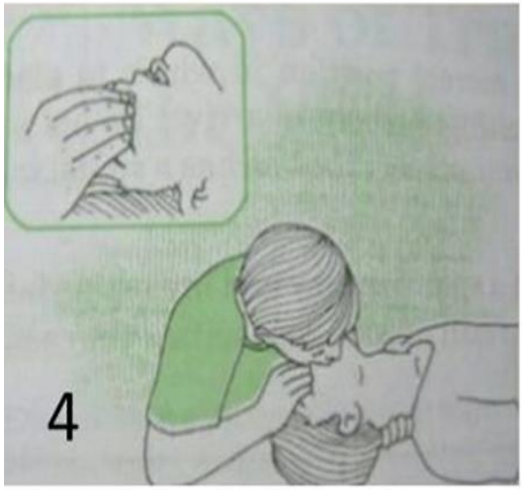
6- Repeat the cycle of blowing out—turning the head—breathing in—about 12 times per minute, till spontaneous breathing returns or the victim is shifted to the hospital

7- **Important**, Feel the carotid pulse. If, after 6–8 lung inflations, there is no improvement in the color of the victim, suspect cardiac arrest, and start external cardiac massage as well.


1


2


3

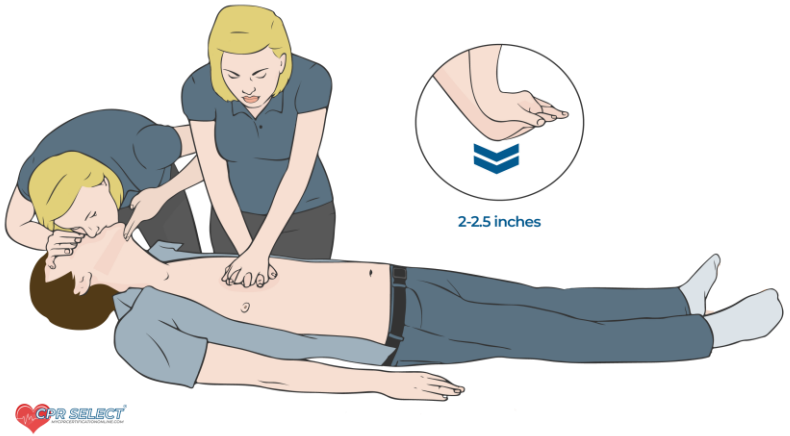

4


5


6

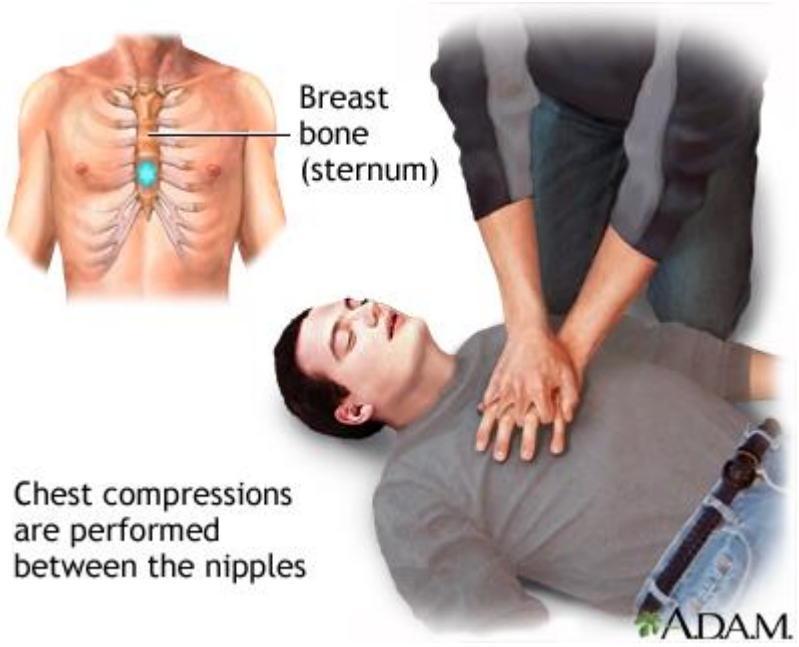
2- External cardiac massage

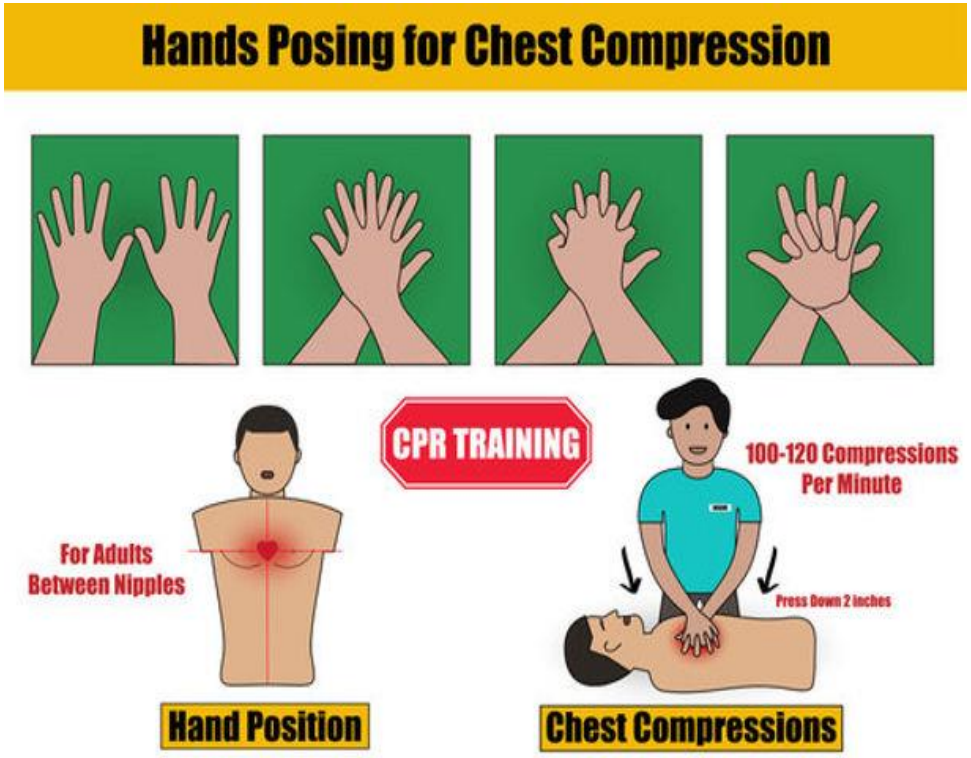
- An emergency procedure carried out on someone who has collapsed with cardiac arrest.
- When the heart stops completely, the patient loses respiration, the pulse ceases in all the major blood vessels, and the pupils become dilated.
- In such a situation, mouth-to-mouth artificial respiration should be given along with external cardiac massage.



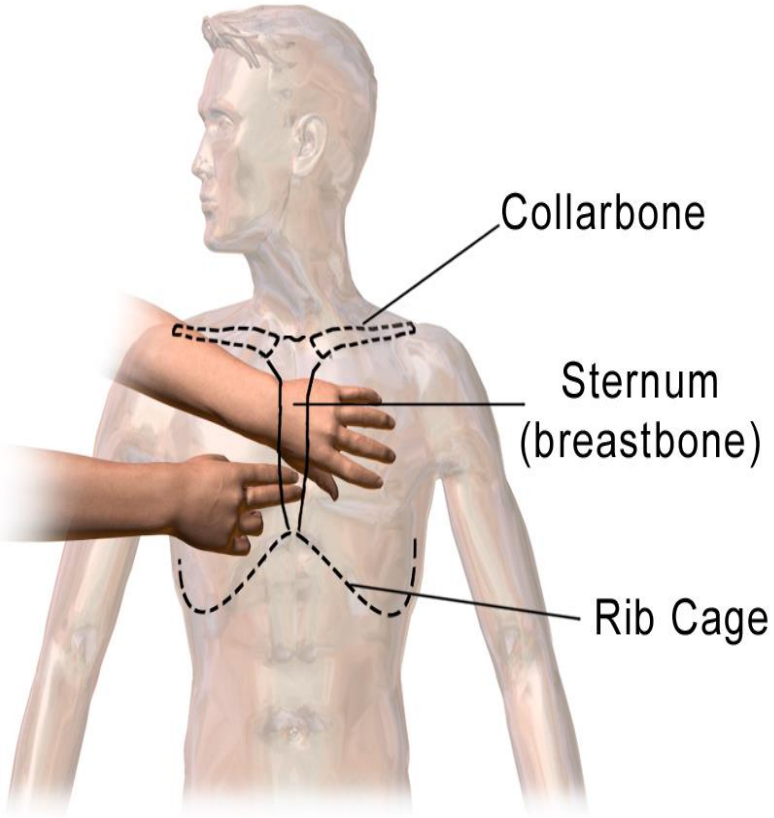
2- External closed cardiac massage

1- Lay the victim on a firm surface. Kneel beside him and place the heel of one hand on the lower sternum above the xiphoid. Place the heel of the other hand over the first, parallel to it.

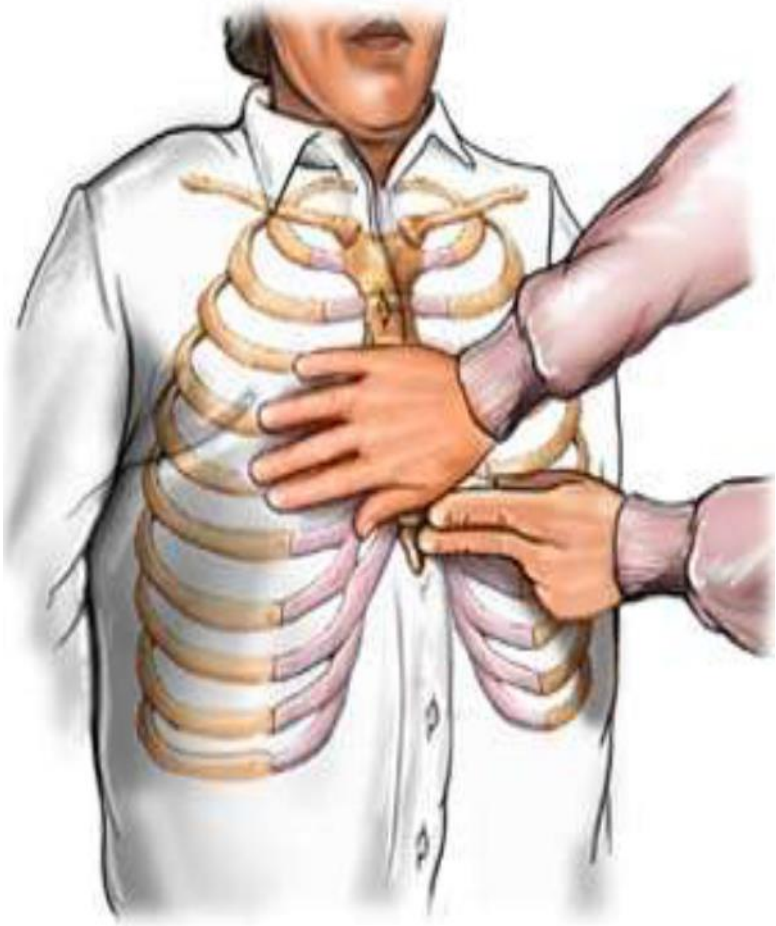





Sternum

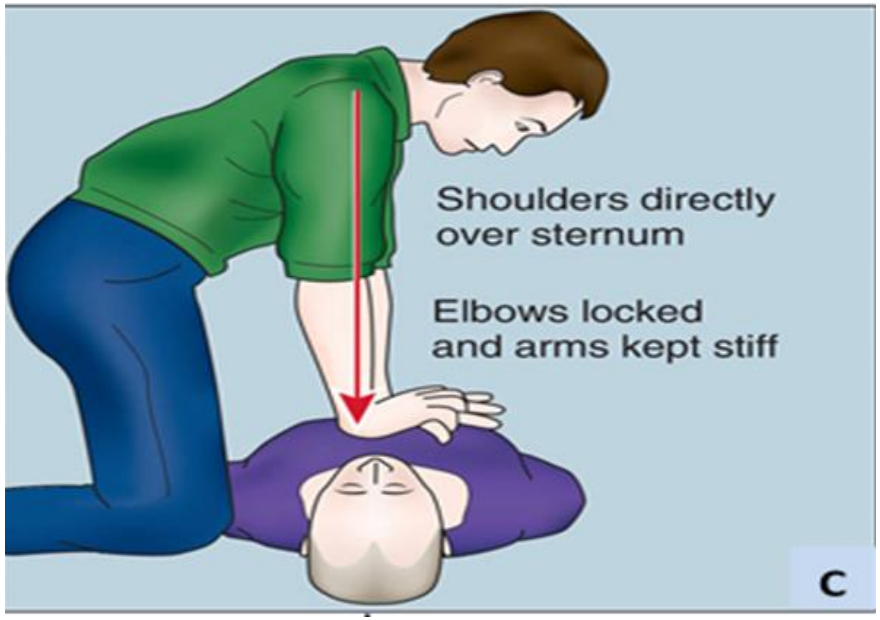


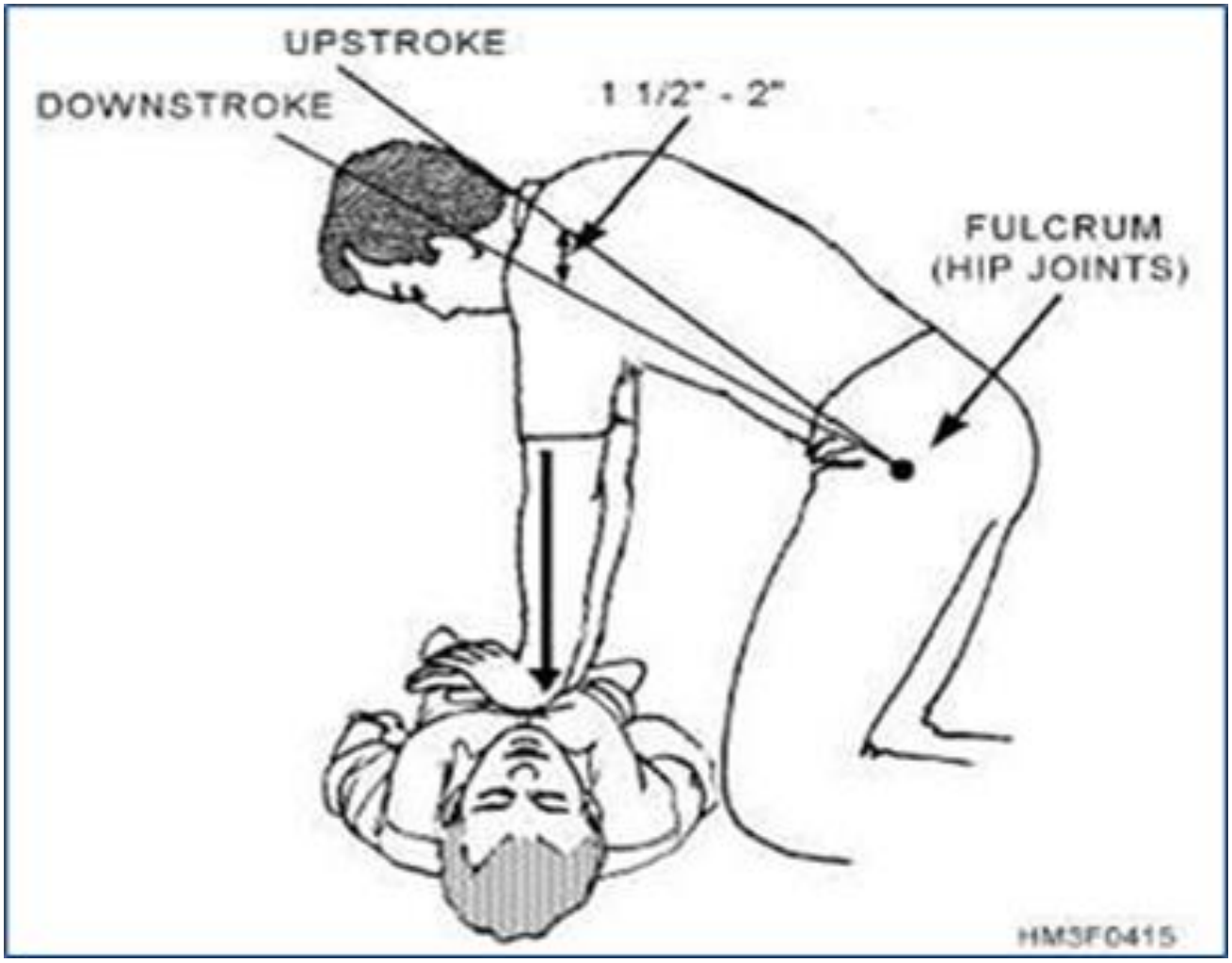
Locate the Sternum



2- External closed cardiac massage

2- The pressure is applied keeping the arms straight.

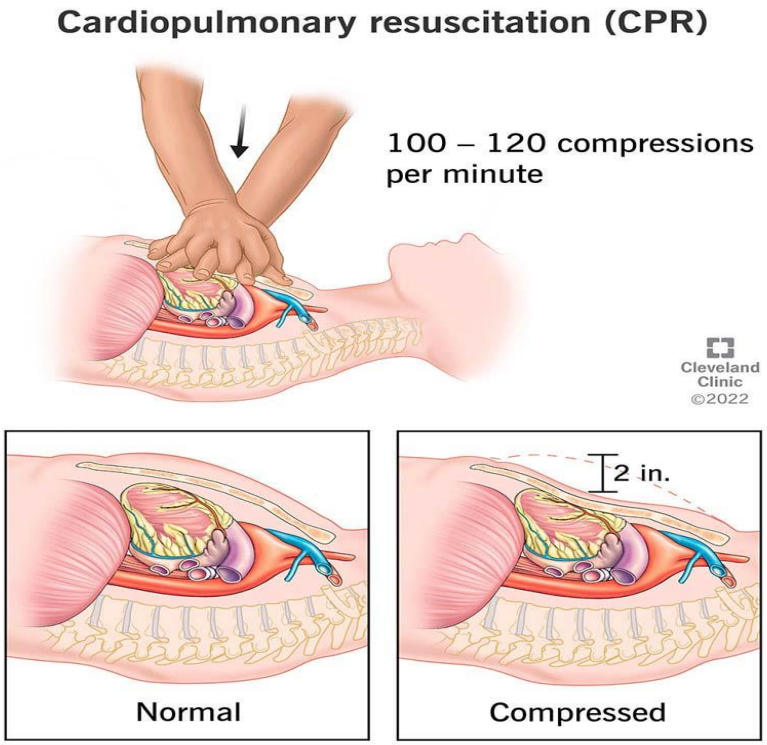



UPSTROKE
DOWNSTROKE
1 1/2" - 2"
FULCRUM
(HIP JOINTS)
HM3F0415

2- External closed cardiac massage

3- Depressing the sternum about 4 -5 cm toward the spine then relieving.

4- The procedure is repeated 80 – 100 times per minute.



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Basic Life Support

Instructions

CHECK THE VICTIM FOR A RESPONSE

Gently shake the shoulders

Ask loudly

IF UNRESPONSIVE

Open the airway by lifting the chin

Check breathing:
Look, listen & feel

Observe chest movement,

Listen to breathing sound

Feel breath on your cheek

IF RESPONSIVE

Observe and call for help

NOT BREATHING NORMALLY

Alert emergency services

Deliver 30 chest compressions

Place the heel of one hand in the center of the victim's chest & place the heel of your other hand on the top of th first hand

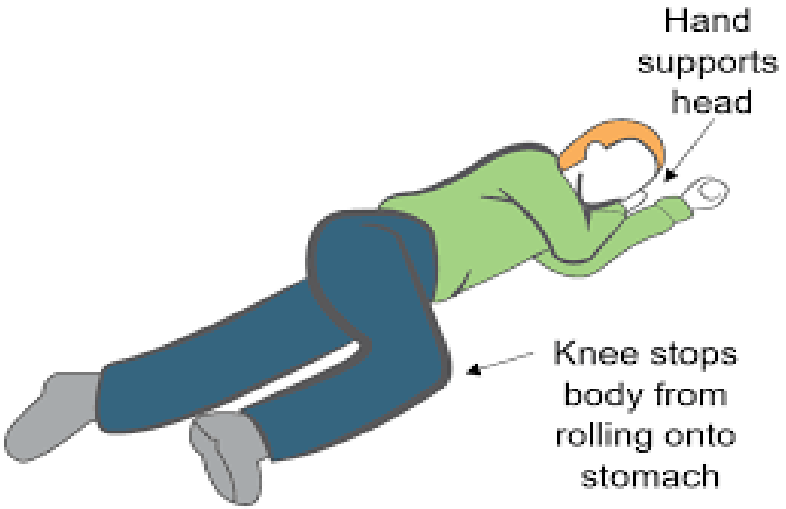
Place the lips around victim's mount, blow 2 times

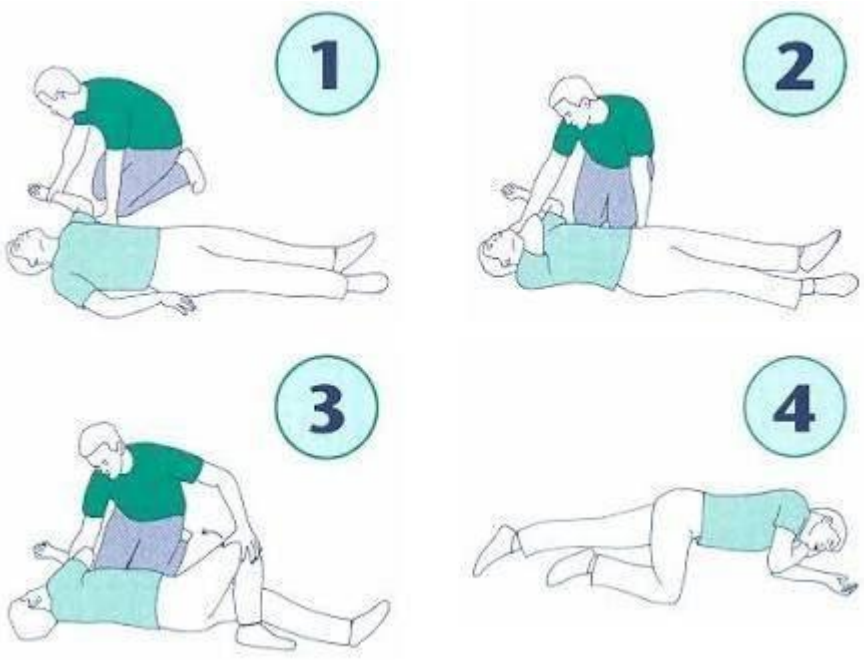
Continue with 30 chest compressions and 2 blows untill emergency service arrive

BREATHING NORMALLY

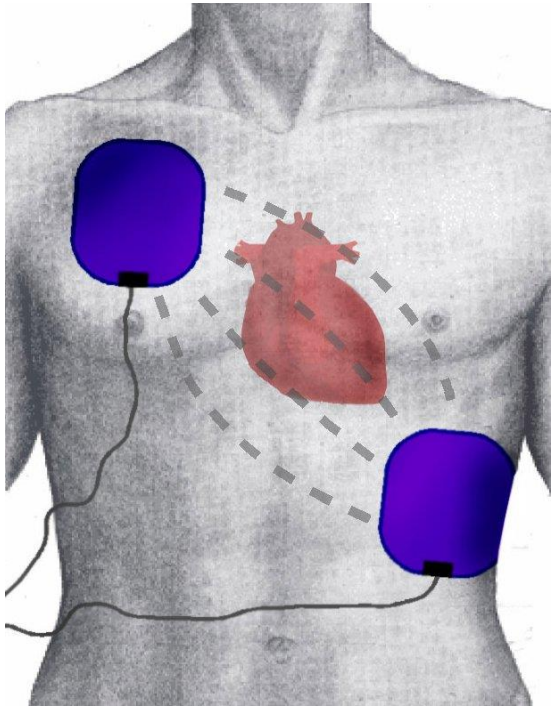
Place the victim in the recovery position
Call for help
Check breathing again

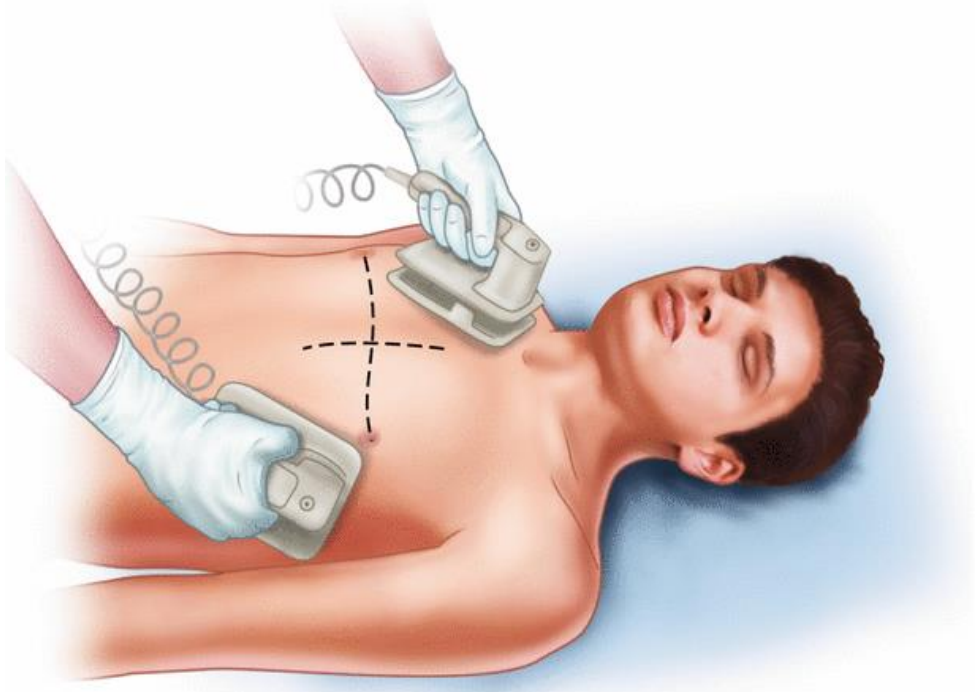
Recovery Position





DC shock
جهاز الصدمة الكهربائية





THANKS FOR LISTENING