

Circulation in man

Blood pressure in man :

Blood pressure

- Blood pressure is the pressure blood exerts against the vessel walls. Blood pressure depends on following points:
 - 1. Cardiac output.
 - 2. Peripheral resistance.
 - 3. Total blood volume.
 - 4. Viscosity of blood.
 - 5. Elasticity of the arterial wall.

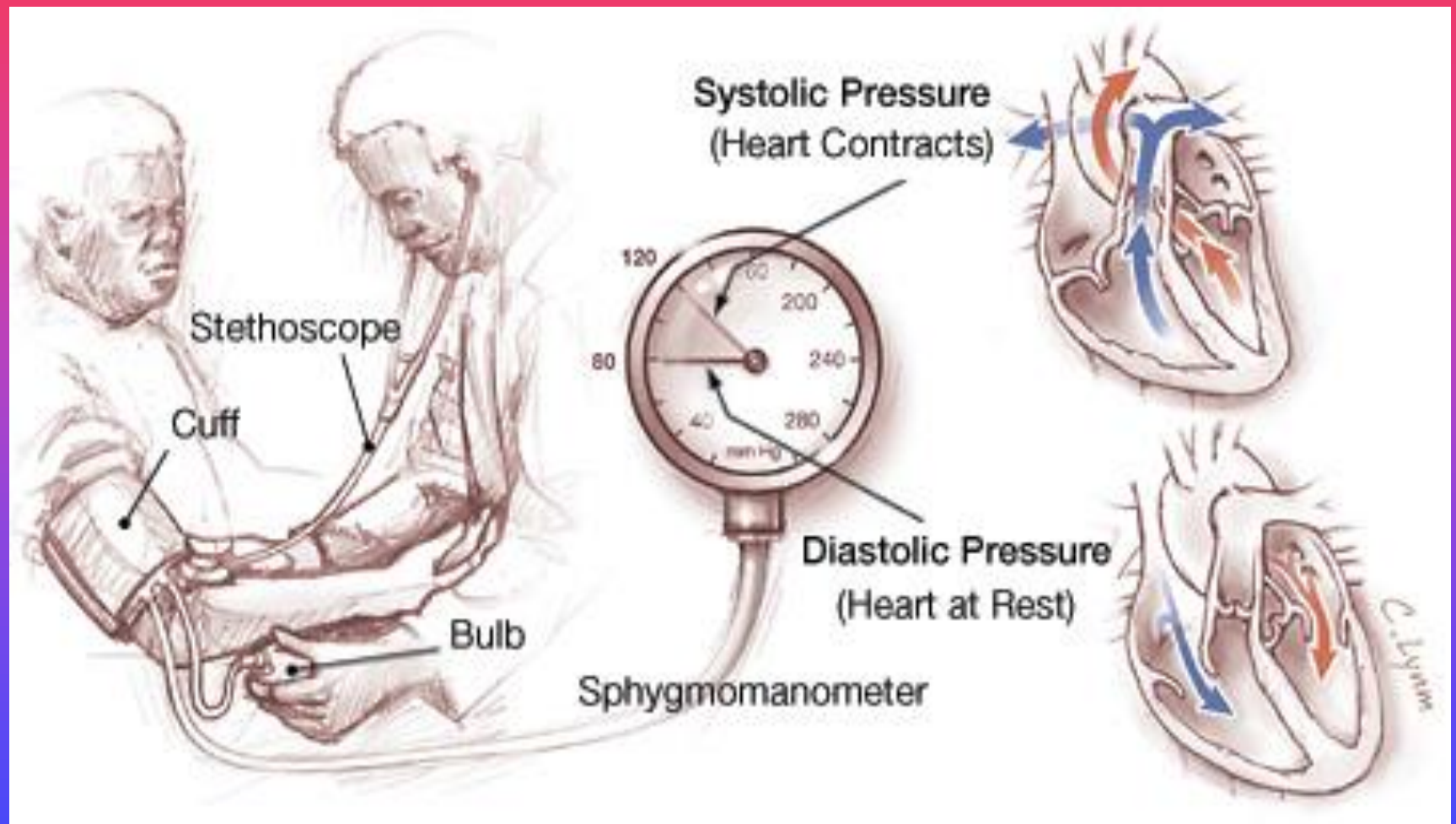
**Blood pressure can be divided
into 2 pressure :**

- **1. Systolic pressure :**
- **which is produced by contraction of the ventricles of the heart. i.e.: maximum pressure during ventricular systole.**

2. Diastolic pressure:

- **Diastolic pressure:** it is pressure exerted by the elastic walls of the
- arteries maintains pressure within the arteries and keeps blood flowing smoothly into the capillaries while the ventricles are relaxed. i.e. : diastolic pressure is a minimum pressure during diastole .

Systolic & Diastolic pressure:



- The pressure in the aorta and in the brachial and other large arteries in young adult human rises to peak value (systolic pressure) of about 120 mmHg. during each heart cycle and falls to a minimal value (diastolic pressure) of about 70 mmHg. so it written as systolic over diastolic pressure 120/70 mmHg

The arterial pressure is the product of :

- 1. Cardiac output .
- 2. Peripheral resistance .
- So it is affected by the conditions that affect either or both of these factors .Also affected by other factors e.g. age , sex , exercise , emotion , digestion and posture . i.e. increase in cardiac output → increase in systolic pressure . increase in peripheral resistance → increase in diastolic pressure .

Description of sphygmomanometer :

- **The sphygmomanometer is consist of**
 - 1. Hand pump . The hand pump is used to increase the air pressure in an inflatable rubber The rubber bag (cuff) attached bag. by rubber tubing to the mercury manometer .**
 - 2. Mercury manometer .**

Description of sphygmomanometer :



Procedure we have 2 methods for measuring blood pressure :

- 1. palpation method. → measure only systolic pressure .
- 2. auscultation method. → measure systolic and diastolic pressure .

Auscultator method:

- 1. Place the arm cuff of sphygmomanometer around the left arm just above the elbow
- 2. Place the stethoscope over the artery (brachial artery) .
- 3. Inflate the cuff rapidly above the pressure expected , the artery is occluded by the cuff and no sound is heard.

Auscultator method:

- 4. Let the pressure down slowly the first sound heard by stethoscope is the systolic pressure (strong sound).
- 5. As the cuff pressure is lowered further the sound become louder, dull and muffled and finally disappear . (the lower sound is diastolic pressure) .

Auscultator method:

