



By: A.L. Riham Badr Nasser
A. L. Mustafa Abd Al Hussein

Determination of the Blood Pressure

DEFINITION

Blood pressure (BP) is the lateral pressure exerted by the column of blood on the wall of the artery.

AIM

To determine the blood pressure of the given subject at rest and after moderate exercise.

APPARATUS

Sphygmomanometer and stethoscope.

PRINCIPLE

The pressure of blood in the artery (brachial artery) is balanced against the pressure of air in a rubber cuff surrounding the artery. The pressure of air in the cuff is then measured by means of a mercury manometer.

PROCEDURE:

Typical indirect blood-pressure measurement system. The sphygmomanometer cuff is inflated by a hand bulb to pressure above the systolic level. Pressure is then slowly released, and blood flow under the cuff is monitored by a microphone or stethoscope placed over a downstream artery. The first **Korotkoff sound** detected indicated **systolic pressure**, whereas the transition from muffling to silence brackets **diastolic pressure**.

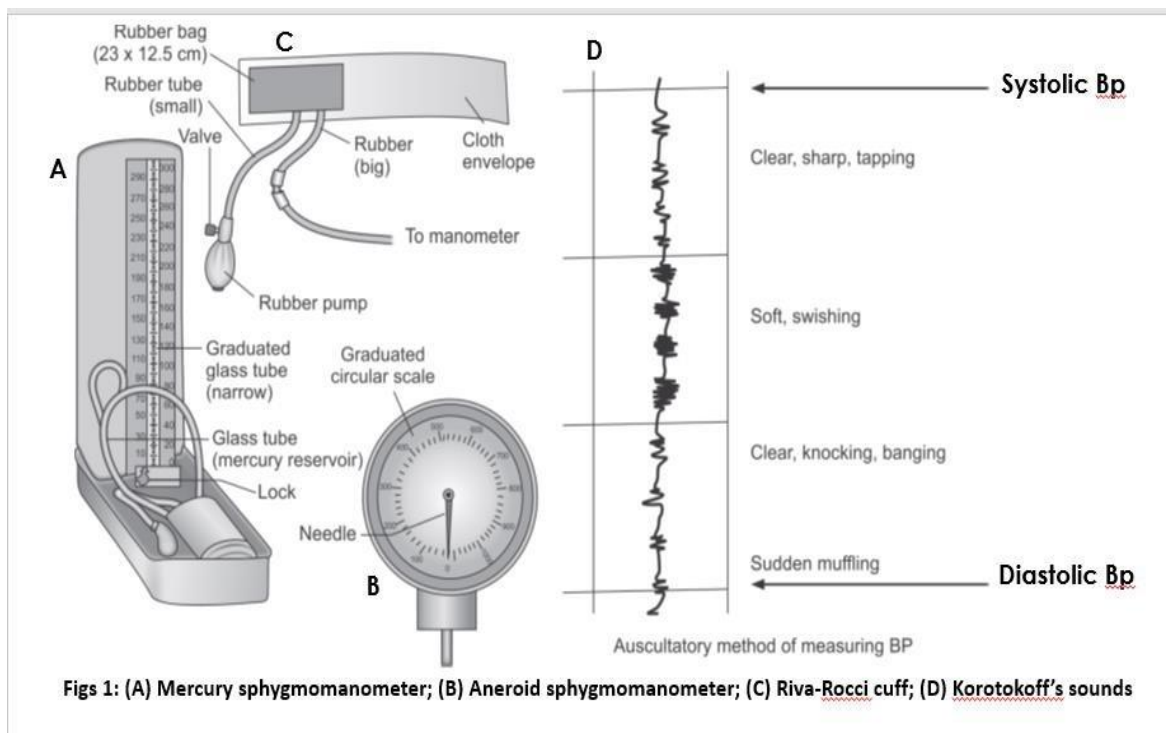


Image 1:Measuring blood pressure method

Important precautions in the use of sphygmomanometer:

1. The manometer should be placed at the level of the heart.
2. The lower border of the cuff should be 2.5 cm above the cubital fossa. For children, a narrow cuff should be used.
3. Blood pressure should be preferably taken in the left arm.

Table 1: classification of blood pressure for adults

Classification of blood pressure for adults

Blood pressure classification	Systolic BP	Diastolic BP
Normal	less than 120	and less than 80
Prehypertension/Elevated	120-129	and less than 80
Stage 1 Hypertension	130-139	or 80-89
Stage 2 Hypertension	140 or higher	or 90 or higher
Hypertensive Crisis	Higher than 180	and/or higher than 120

Physiological Variations

1. Blood pressure is slightly lower in women than men.
2. Persons with slender build have got a lower blood pressure than those of heavy build.
3. During sleep, systolic pressure is less.
4. Emotional excitement and muscular exercise cause an increase in the blood pressure. It is also increased after meals.
5. The blood pressure especially the diastolic is highest in the standing position, lower in the sitting and lowest while the subject is lying down.

Pathological Increase in Blood Pressure

- Essential hypertension
- Adrenal tumor
- Hyperthyroidism and Hypothyroidism
- Pheochromocytoma.

Pathological Decrease in Blood Pressure

- Shock
- Adrenal insufficiency