

جامعة الانبار

كلية : الصيدلة

قسم : فرع الادوية والسموم

اسم المادة باللغة العربية: فسلجة عملي

اسم المدة باللغة الإنكليزية:

المرحلة: الثانية

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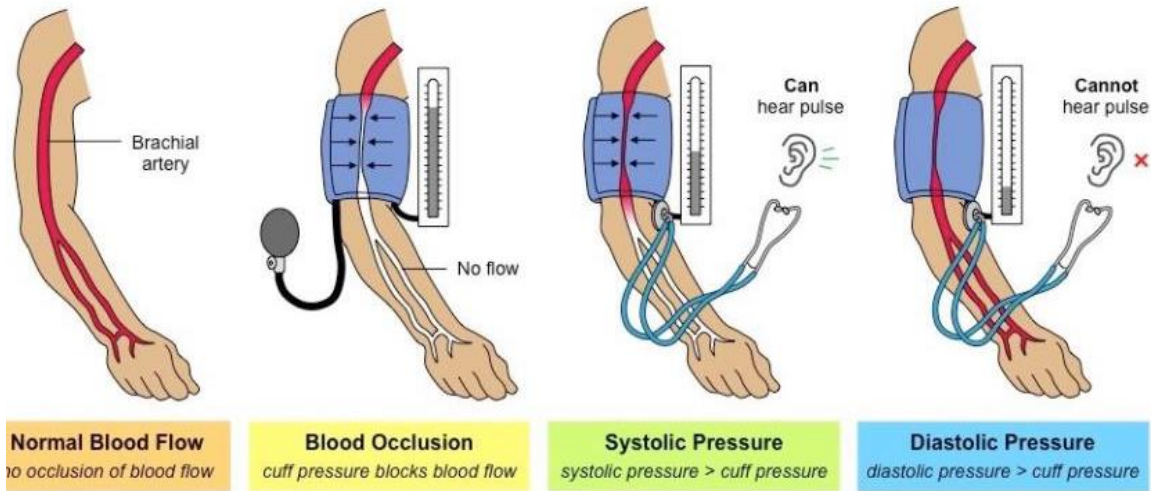
عنوان المحاضرة باللغة العربية: قياس ضغط الدم

عنوان المحاضرة باللغة الإنكليزية: Measurement of blood pressure

محتوى المحاضرة Measurement of blood pressure

blood pressure

Measurement of blood pressure



The pressure of blood in the artery (brachial artery) is balanced against the p

ressure 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.

method

1. Palpatory method
2. Auscultatory method
3. Oscillatory method.

1. Palpatory method

• The subject is asked to sit on a stool. The cuff is tied around the upper arm with the lower border of the cuff not less than 2.5 cm above the cubital fossa.

• The outlet valve of the bulb is closed.

• The radial pulse is palpated while the cuff is being inflated to a pressure slightly above the level at which the radial pulsation is no longer felt

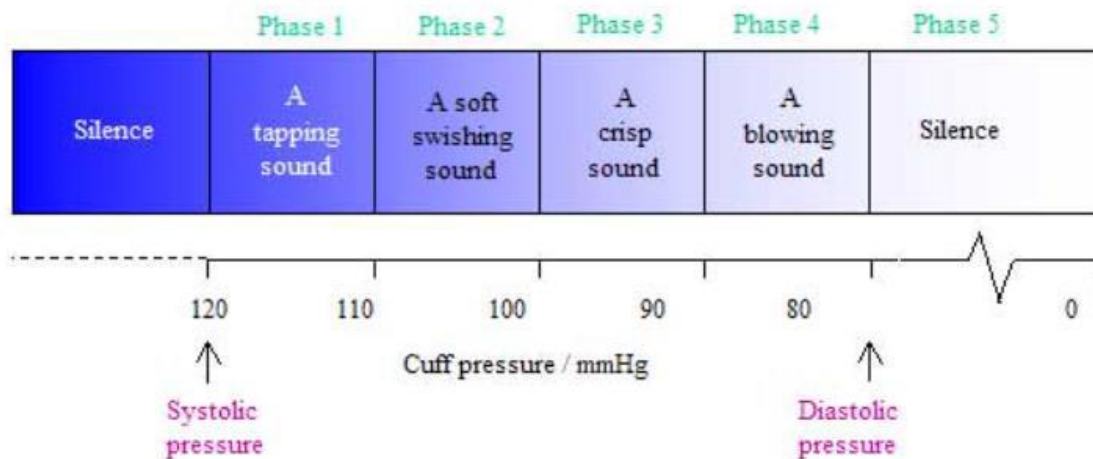
2. Auscultatory method:

• both the systolic and diastolic blood pressure can be measured. The chest piece of the stethoscope is placed over the brachial artery.

• The pressure in the cuff is raised above the systolic pressure (by about 30 mmHg) previously determined by the palpatory method

• The pressure is then lowered gradually (2–3 mm per second). The sounds that are heard are the Korotkoff's sounds.

2. Auscultatory method:

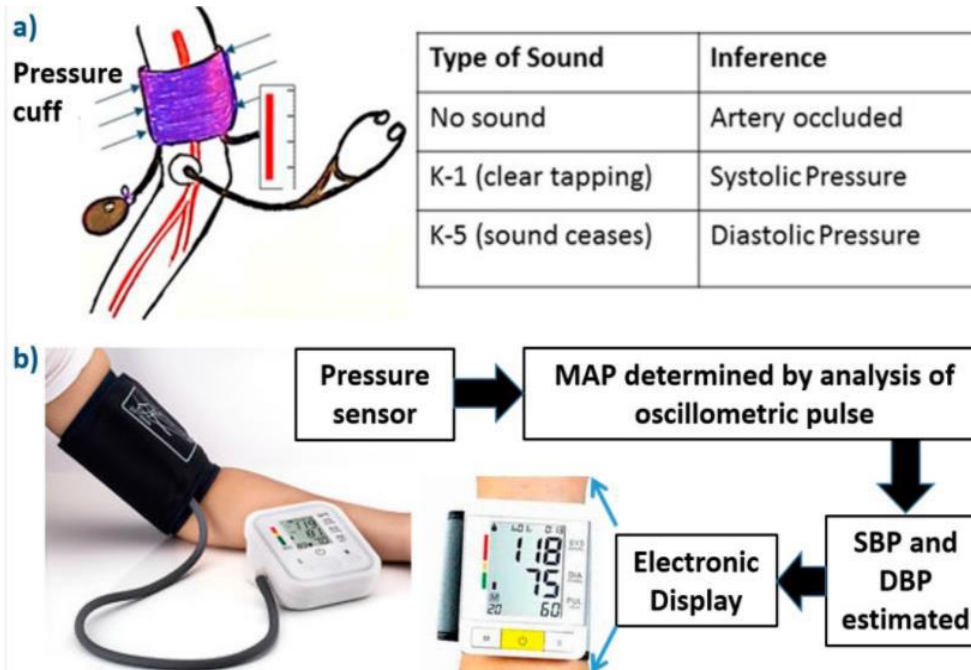


1. The first sound (phase one) that occurs is a **sharp tapping sound**, indicates **the peak systolic pressure**,
2. **The second and third phases**, initially murmurish in quality and then louder and more banging, are due to turbulent flow of blood through a partially occluded vessel.
3. **The fourth phase**, the sound becomes **muffled and dull**.

4. The fifth phase accurately gives **true diastolic pressure**, which is disappearance of the sound.

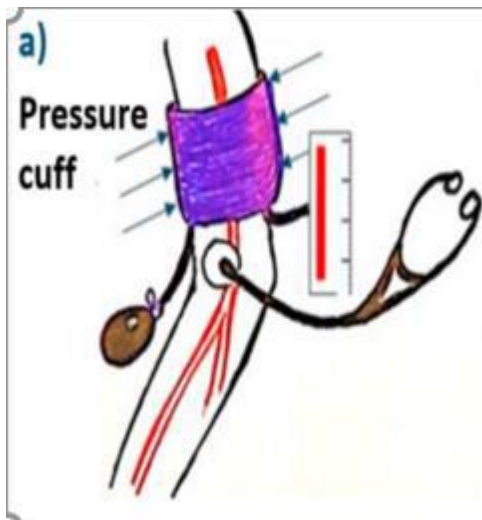
3. Oscillatory method:

- both the **systolic and diastolic** blood pressure are determined.
- The pressure at which oscillations appear in the mercury manometer gives the systolic pressure and the pressure at which it disappears give diastolic blood pressure.
- **However, this method is not accurate**



Important precautions in the use of sphygmomanometer:

1. The manometers 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.



NORMAL VALUES

The average systolic pressure in healthy adults is 100–139 mm Hg.

•The average diastolic pressure is 60–89 mm Hg.

•In children it is closer to the lower end of the scale and in the elderly, it reaches or even exceeds the higher figure.

•The difference between the systolic and diastolic pressure is **the pulse pressure 30–60 mm Hg.**

Physiological Variations

Blood pressure is slightly **lower in women than men.**

•Persons with **slender build** have got **lower** blood pressure than those of heavy build.

•**During sleep, systolic pressure is less.**

•**Emotional excitement and muscular exercise** cause an increase in the blood pressure. It is also increased **after meals.**

•**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

1. Essential hypertension
2. Adrenal tumor
3. Hyperthyroidism
4. Pheochromocytoma.

Pathological Decrease in Blood Pressure

1. Shock
2. Hypothyroidism
3. Adrenal insufficiency.

DISCUSSION

Blood pressure is the lateral pressure exerted by the column of blood on the wall of the vessels while flowing through it.

• **Systolic pressure** is the maximum pressure in the arteries during systole. It indicates:

- a. The extent of work done by the heart
- b. The force with which the heart is working
- c. The degree of pressure which the arterial walls have to withstand.

• **Normal systolic pressure approximately is**
Normal systolic pressure approximately is $100 + \text{age}$.

Diastolic pressure is the minimum pressure at the end of ventricular diastole.

- It is the measure of constant stretch to which walls of the arteries are subjected.
- It is more important than systolic pressure because:
 - a. It is less fluctuating
 - b. It is the constant load against which the heart has to work
 - c. It is the pressure of peripheral resistance and depends mainly on the tone of the arteries.

Pulse pressure is the difference between the systolic and diastolic pressures.

❖ **Mean arterial pressure** is the average pressure represented throughout the cardiac cycle. It is responsible for pushing the blood through the systemic circulatory system.

❖ It is equal to diastolic pressure + $\frac{1}{3}$ pulse pressure.

blood pressure

Damage from high blood pressure

