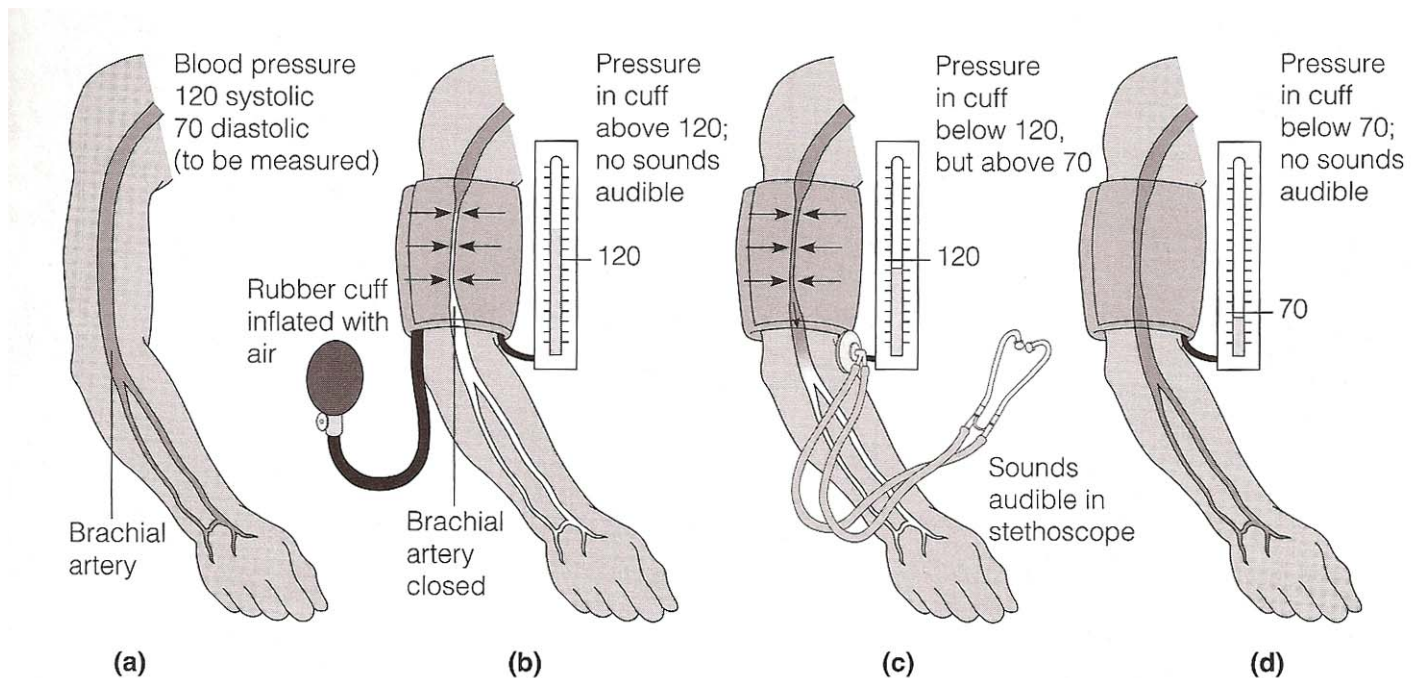


Using a Sphygmomanometer to Measure Arterial Blood Pressure Indirectly

The sphygmomanometer, commonly called a blood pressure cuff, is an instrument used to measure blood pressure by the auscultatory method. It consists of an inflatable cuff with an attached pressure gauge.

The cuff is wrapped snugly around the arm and the inflated to stop blood flow to the forearm. The pressure causes the artery to collapse and no blood will flow beyond the cuff. As the cuff pressure is gradually released, the examiner listens with a stethoscope over the brachial artery distal to the cuff for characteristic sounds called the sounds of Korotkoff. These sounds indicate the resumption of “some” blood flow into the forearm.

The pressure at which the first soft tapping sounds are heard is recorded as the systolic pressure. As the pressure is reduced further, blood flow becomes more turbulent, and the sounds become louder. Below the diastolic pressure, when the artery is no longer compressed, blood flows freely and the sounds of Korotkoff can no longer be heard. The pressure at which the sounds disappear is recorded as the diastolic pressure.



Procedure for measurement of blood pressure. (Assume a blood pressure of 120/70.)

1. Work in pairs to obtain radial artery blood pressure readings. Clean the ear pieces of the stethoscope with alcohol swabs.
2. The subject should sit in a comfortable position with one arm resting on the laboratory table (approximately at heart level).
3. Palpate the brachial pulse, and lightly mark its position with a felt pen.
4. The cuff should not be kept inflated for more than one minute. If you have any trouble obtaining a reading within this time, deflate the cuff, wait 1 or 2 minutes, and try again.
5. Inflate the cuff to approximately 160 mmHg pressure, and slowly release the pressure valve. Watch the pressure gauge as you listen for the first soft thudding sounds of the blood spurting through the partially blocked artery. You will record this first sound as the systolic pressure. Continue to release the cuff pressure and you will notice first an increase, then a muffling, of the sound. This will be recorded as the diastolic pressure.