

# Blood pressure measurement/Catalog of methods in biophysics

## Indirect method

The **indirect method** is based on the principle of external narrowing of the flow through an arterial inflatable cuff that is connected to a mercury manometer. After inflating the cuff above the systolic pressure of the examined person, the air is slowly released from the cuff. When the pressure in the cuff equals the systolic pressure in the artery, blood begins to flow intermittently in a pulsating rhythm to the lower part of the arm, the blood hits the walls of the previously emptied artery (**Korotkov phenomenon**), which can be heard in the earpiece of the stethoscope above the arteria cubitalis in the elbow socket. The sounds become weaker when the pressure in the cuff drops below diastolic pressure and blood begins to flow again.

The digital tonometer is based on the oscillometric principle, where the probe placed in the cuff evaluates changes in the electric field caused by the movement of the compressed vascular wall, if the compression is higher than the diastolic and lower than the systolic pressure. Since any skeletal muscle can cause changes in the electric field, it is not possible to use this method in people suffering from permanent muscle tremors or in children who are restless.

## Direct method

*Instruments for direct measurement* of blood pressure are based on the evaluation of the change in resistance or capacity of the strain gauge wire in the measuring capsule introduced into the measurement site.

## Links

### Source

- KYMPLOVÁ, Jaroslava. *Katalog metod v biofyzice* [online]. [cit. 2012-09-20]. <<https://portal.lf1.cuni.cz/clanek-793-katalog-metod-v-biofyzice>>.