

Blood Pressure

Overview

What is Blood Pressure?

The heart is essentially a pump using high pressure to move blood throughout our circulatory system of veins and arteries. The Blood Pressure Sensor measures the intensity of this pressure on our arteries. While the heart needs this pressure to circulate blood, too much can damage the arteries.




Blood pressure readings consist of two parts - the systolic reading which measures pressure as the heart contracts and forces blood through the system and the diastolic, taken when the heart is relaxed. The systolic is always the higher of the two readings.

Blood pressure varies from person to person and can be affected by factors such as age, height, gender, and diet. In this experiment we will test the effect of exercise on blood pressure.

Equipment

- LabMate and MiLAB™Desktop
- Blood Pressure sensor
- A volunteer subject

Experiment procedure

1. Launch MiLAB program 
2. Wrap the cuff the upper arm of your subject
3. Make sure only the Blood Pressure Sensor is selected in MiLAB
4. The Rate should be 10 /sec
5. The duration should be 120 sec
6. Select Run  to begin recording data
7. Squeeze the Air Pressure Pump until the cuff inflates to around 170 mmHg around the subject's arm
8. Let the cuff deflate
9. The graph displays your normal blood pressure
10. Have the subject jump or run in place for 60 seconds
11. Squeeze the Air Pressure Pump until the cuff inflates snugly around the subject's arm
12. Select Run  to begin recording data
13. The graph displayed shows your blood pressure after exercise

The Science

Blood Pressure is the force carrying blood throughout your body. When you exercise your muscles need extra nutrients and oxygen, both of which are brought to them by blood. This causes an increase in systolic blood pressure as the heart pumps harder to circulate blood faster. However, diastolic pressure drops due to vasodilation, a process whereby blood vessels widen to allow blood to flow more easily through the body.